CH2M
400 E Business Way
Suite 400
Cincinnati, Ohio 45241
O 1.513.530.5520
F 1.513.530.5541
www.ch2m.com

Mr. Gregory Rudloff
United States Environmental Protection Agency
Region 5
77 W. Jackson Blvd. LU-9J
Chicago, IL 60604

July 19, 2017

Subject: Submittal of Final RCRA Facility Investigation Phase 2 Report for The Dow Chemical Company, Hanging Rock Plant, Ironton, OH, EPA ID# OHR 000 157 727 and OHD 039 128 913

Dear Mr. Rudloff,

On behalf of Mr. Timothy King of The Dow Chemical Company (Dow), CH2M is pleased to submit the above referenced final document for the Dow Hanging Rock Plant located in Ironton, Ohio. This document incorporates EPA approved changes based on EPA comments received April 21 and June 13, 2017.

Please contact me at (513) 673-2201 or Mr. King at (304) 747-3763 should need anything further.

Sincerely,
CH2M

Marie W. Chiller
Site Manager

Attachment

cc: Timothy King/The Dow Chemical Company

F I N A L

RCRA Facility Investigation Phase 2 Report Dow Hanging Rock Plant, Ironton, Ohio

Prepared for

The Dow Chemical Company

July 2016

Prepared by

ch2m

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Acronyms and Abbreviations

µg/L	micrograms per liter
AOC	area of concern
bgs	below ground surface
CEM	conceptual exposure model
CH2M	CH2M HILL, Inc.
COPC	chemical of potential concern
Dow	The Dow Chemical Company
DPT	direct-push technology
DQO	data quality objective
ELCR	excess lifetime cancer risk
ERA	ecological risk assessment
ESL	ecological screening level
facility	Hanging Rock Facility
HHRA	human health risk assessment
HQ	hazard quotient
IDW	investigation-derived waste
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MIP	membrane interface probe
PAH	polynuclear aromatic hydrocarbon
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCE	tetrachloroethene
PID	photoionization detector
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act facility investigation
RSL	regional screening level
SHHRA	screening-level human health risk assessment
SIM	selective ion monitoring
SSL	soil screening level
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCE	trichloroethene
UCL	upper confidence limit

USEPA	U.S. Environmental Protection Agency
VI	vapor intrusion
VISL	vapor intrusion screening level
VOC	volatile organic compound

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 OHR 000 157 727 and describes the results of the Phase 2 RFI performed at The Dow Chemical Company (Dow) Hanging Rock Facility (facility) in Ironton, Ohio in October and November 2014, October 2015, and February 2016. 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 solid waste management units (SWMUs) and areas of concern (AOCs) identified in Section II.C…" as required under Section II.F.2 RFI of the permit.

The Phase 2 RFI was developed based on the findings of the Phase 1 investigation, detailed in the Phase 1 RFI Report (CH2M HILL [CH2M] 2014a). The Phase 1 RFI was conducted to develop a basic physical conceptual site model for the site, including the general hydrogeology, and to investigate potential releases to soil and sediment at one AOC and 10 SWMUs identified in the RCRA permit as requiring further investigation to identify whether a release had occurred. Seven monitoring wells were installed but not sampled in Phase 1 to obtain information on subsurface geology and groundwater flow direction. The Phase 1 investigation found soil or sediment containing constituents at concentrations exceeding the conservative protection of groundwater soil screening level (SSL) values at SWMU 1, SWMU 15, SWMU 17, SWMU 18, SWMU 24, SWMU 25-28, and AOC D, and soil exceeding the U.S. Environmental Protection Agency (USEPA) regional screening levels (RSLs) for industrial direct contact at SWMU 24. The investigation concluded that no further investigation was warranted for SWMU 11, SWMU 12, SWMU 19, and SWMU 29.

The Phase 2 RFI was designed to complete delineation of the nature and extent of contamination identified during Phase 1, to evaluate site-wide groundwater for the presence of chemicals of potential concern (COPCs) identified in Phase 1 and provide the data for the human health risk assessment (HHRA). The investigation was conducted in several steps in accordance with the USEPA-approved RFI work plan (CH2M 2014b) and the work plan technical memorandum addendum (CH2M 2015).

To meet the RFI objective, the following three Phase 2 data quality objectives (DQOs) were identified:

1. Determine if site-related COPCs are present in groundwater at concentrations exceeding groundwater screening levels
2. Determine the nature and extent of any site-related COPCs in groundwater that exceed conservative groundwater screening levels
3. Determine the horizontal and vertical extent of soil contamination of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) exceeding SSLs around the Process Sewer Line Voluntary Closure Area (SWMU 24).

The Phase 2 investigation was conducted in several steps:

- Step 1, conducted in October and November 2014: Investigation at SWMU 24 and sitewide monitoring well groundwater sampling
- Step 2, conducted in October 2015: Further investigation of soil at SWMU 1 and groundwater grab sampling

- Step 3, conducted in February 2016: Installation and sampling of additional groundwater monitoring wells

The soil and groundwater 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 (SHHRA) was completed using the data.

1.2 Regulatory Framework and Background

Corrective action investigations conducted at the facility comply with the RCRA Part B permit OHR 000 157 727 for the facility. Several applications and versions of the permit have been approved by USEPA since 1999. A RCRA Part B application was submitted in March 1999 and subsequently revised in a submission on December 7, 2000. A submittal to add the boiler was made in January 2006. This unit was later removed from the permit via a Class 1A permit modification request and approved by USEPA on August 31, 2010, along with removing Dow as the operator and clarifying Dow's corrective action duties at the property owner. The facility has no operating hazardous waste units and the 2010 permit's remaining directive was to govern corrective actions at the site. On April 1, 2011, Dow submitted a Class 2 permit modification request to remove two SWMUs and four AOCs from the permit. This permit modification was approved by USEPA in June 2011.

The following 12 SWMUs and 1 AOC have been identified in the corrective action Section II.C.2 of the current permit as requiring further investigation:

SWMU 1 – Former Flaring Pad
SWMU 11 – Satellite Accumulation Area - Ethafoam Plant
SWMU 12 – Former Methylene Chloride Cleaning Tank
SWMU 15 - Two Section Septic Tank System
SWMU 17 - Stormwater Drainage System
SWMU 18 – Drainage Ditch to Big Thief Creek
SWMU 19 – Drainage Ditch to North
SWMU 24 – Process Sewer Line
SWMU 25-28 – Former Wastewater Treatment System
SWMU 29 – Former Used Filter Sand Pile
SWMU 36 – Former 250-gallon Pressurized Storage Tanks
SWMU 37 – Fire Protection Collection Basin
AOC D – Underground Catalyst Storage Tank

Dow has been performing environmental investigations at the facility since 2011 to thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from all applicable SWMUs and AOCs. The RCRA permit expires in June 2016. Dow and USEPA are currently working to develop the appropriate framework to guide future investigations and corrective action at the site. The investigation discussed in this report is in accordance with the requirements of the RCRA permit.

SECTION 2

Site Background

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 State Route 52 and US Highway 52. Active facility operations are located in the northern portion of the site. The facility area, including the AOC and SWMUs discussed in this report, is shown on Figure 2-2.

2.1 Facility Operational and Waste Management History

Dow began operating at the facility in 1957, and approximately 100 people are currently employed at the facility. Facility buildings are used for manufacturing operations, as well as warehouse and office space. Five water production wells are located onsite; two are used for fire protection and supplemental process water, and the remaining wells are currently not 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. Two plants operate at the facility: the Styron plant and the Styrofoam plant. The Styron plant, which began operation in 1968 by Dow, is currently owned and operated by American Styrenics.

Details of the facilities waste management and water usage can be found in the Phase I RFI Report (CH2M 2014a).

2.2 Physical Site Setting

The Site is bordered on the north by US Highway 52 and 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 (Figure 2-2). Portions of the facility are leased or owned by other entities, including Lawrence County Port Authority who owns the furthest northeastern parcel and Duke Energy who leases the northeastern parcel between Dow and Lawrence County Port Authority property (Figure 2-2). Duke Energy also leases a pipeline right of way along Old US 52 and Seventh Street and a portion of the southernmost parcel along the Ohio River. American Styrenics leases the northwestern portion of the facility, the southern the above ground storage tank parcel area, and a portion of the parcel along the Ohio River. Details of the surrounding land use and area water supply for facility are in the Phase I RFI Report (CH2M 2014a).

2.3 Summary of Phase 1 RFI Findings

The first phase of investigation was completed in January 2012 and focused on SWMU 1, SWMU 11, SWMU 12, SWMU 15, SWM 17, SWMU 18, SWMU 19, SWMU 24, SWMU 25-28, SWMU 29, and AOC D which were identified in the RCRA permit as requiring additional investigation. The investigation included soil and sediment data collection as well as an SHHRA and ecological risk assessment (ERA) evaluation. The details of the samples collected at each area during the Phase 1 investigation are presented in the Phase 1 RFI Report (CH2M 2014a). Table 2-1 summarizes the Phase 1 investigation findings at the SWMUs and AOCs, and provides the rationale for investigation next steps being conducted during the Phase 2 investigation.

The Phase 1 RFI soil data were screened against USEPA industrial RSLs for chemical constituents in soil for human health screening levels and USEPA ecological SSLs, and/or USEPA Region 5 RCRA ecological screening levels (ESLs) for soil and sediment for ESLs. Data also were compared to USEPA protection of

groundwater SSLs. Samples were analyzed for VOCs, SVOCs, and RCRA metals. Further details are presented in the Phase 1 RFI Report (CH2M 2014a).

The Phase 1 RFI Report (CH2M 2014a) had four main conclusions:

- Arsenic was detected in soil 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.
  - Average arsenic concentrations observed at the site were 11.8 milligrams per kilogram (mg/kg), which is consistent with a documented regional background concentration of 13 mg/kg.
- The SHHRA determined that detected soil and sediment constituent concentrations would not pose risks above the target levels for potential exposures by human receptor populations at the facility. The screening-level ERA evaluation determined that none of the site-related constituents would be considered COPCs based on risk to ecological receptors.
- The nature and extent of soil contamination at the site was delineated except for SWMU 24 and additional sampling is necessary.
- Soil or sediment containing constituents exceeded the USEPA SSLs protective of groundwater at SWMU 1, SWMU 15, SWMU 17, SWMU 18, SWMU 24, SWMU 25-28, and AOC D. Because of the exceedances of the protection of migration to groundwater SSLs in soil, it was concluded that site conditions will be further evaluated for these areas and additional groundwater investigation is necessary.

SECTION 3

Phase 2 Field Investigation Summary

The Phase 2 RFI field activities took place in October and November 2014, March and October 2015, and February 2016. The investigation consisted of the following:

- Locating utilities prior to all intrusive activities
- Membrane interface probe (MIP) investigation, subsurface soil sampling, and groundwater grab sampling at SWMU 24
- Sampling groundwater monitoring wells, groundwater grab sampling, collecting groundwater levels at monitoring wells, and installing and surveying groundwater monitoring wells for the sitewide groundwater investigation
- Surface and subsurface soil sampling at SWMU 1
- Characterization and disposal of investigation-derived waste (IDW)

These activities are discussed in the following sections.

Deviations from the work plan included re-surveying all monitoring wells installed in 2012 and collection of two additional rounds of water level measurement from the monitoring wells. The work was completed in accordance with the USEPA-approved RFI work plan (CH2M 2014b) and work plan technical memorandum addendum (CH2M 2015).

3.1 Utility Location

Utility locating activities were conducted before starting intrusive 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. Utilities were located to clear areas for the MIP investigation, soil borings installed for soil or groundwater grab sampling, and monitoring well installation.

3.2 SWMU 24 Investigation

The Phase 2 investigation at SWMU 24, the facility Process Sewer Line, focused on an approximately 230-foot segment of sewer line that is centered on the Process Sewer Line Voluntary Closure Excavation Area near Phase 1 soil boring S24-SS02 (Figure 3-1). The investigation was designed to do the following:

1. Complete delineation of the horizontal and vertical extent of VOCs and SVOCs soil impacts found in the 13- to 15-foot below ground surface (bgs) interval at Phase 1 soil boring S24-SS02, which was at a depth below what is typically included in the construction worker risk scenario SHHRA.
2. Evaluate soil impacts to groundwater.

Based on historical data and the Phase 1 RFI results, this is the only area of SWMU 24 that requires additional delineation. A MIP investigation advancing six soil borings, soil sampling, and grab groundwater sampling were completed during Phase 2 and are described in the following sections.

3.2.1 SWMU 24 MIP Borings

MIP is a downhole screening tool that is used to identify VOCs in soil and groundwater. The tool works by heating the soil or groundwater to increase VOC volatilization and then continuously measuring total chemical detector response to VOCs versus depth bgs. MIP provides a qualitative VOC relative

concentration data; however, it does not identify specific VOC compounds and it does not quantify concentrations. It was used to identify VOC-bearing intervals for targeted soil or groundwater sampling.

The MIP tool was advanced using a direct-push technology (DPT) rig. As the tool is advanced, it heats the soil and groundwater immediately adjacent to the probe to approximately 120 degrees Celsius, which increases volatilization of VOCs present in the media. Vapors produced during the heating process diffuse across a semipermeable membrane in the tip of the probe tool and into a closed, inert gas loop tubing system that carries the vapors to a series of detectors housed at the surface. The detectors provide continuous profiles of qualitative VOC relative concentration data for the entire depth of the borehole. The detectors used were a photoionization detector (PID),a halogen specific detector, and a flame ionization detector. The PID is useful for identifying aromatic VOCs and some chlorinated VOCs; the flame ionization detector will identify most VOCs with a hydrogen-carbon bond (including most aromatic VOCs and other petroleum compounds). The halogen specific detector is useful for detecting halogenated VOCs.

The MIP also measures soil conductivity, which indicates general changes in lithology. In general, higher conductivities indicate finer-grained material such as clay or silt, while lower conductivities indicate coarser-grained materials such as sand and gravel.

In October 2014, the MIP tool was advanced at 16 locations at SWMU 24. These locations are shown on Figure 3-1. The MIP logs indicated a stratigraphy of finer-grained silt and clay approximately 12 to 15 feet thick underlain by sand and gravel. The water table occurs at a depth of approximately 25 feet bgs. Elevated PID readings were generally found in the upper 15 feet of silt and clay. The MIP results were used to identify locations and depths for the collection of soil and groundwater grab samples intended to complete the delineation of VOC and SVOC impacts at SWMU 24. Soil and groundwater grab locations were chosen to confirm both areas of high and low PID readings, interpreted to be impacted and non-impacted areas. The MIP results and proposed confirmation soil and groundwater grab sample locations were presented to USEPA via conference call in November 2014. Following USEPA approval of the confirmation sample locations, soil borings were advanced to collect soil and groundwater grab samples in November 2014.

3.2.2 SWMU 24 Soil Sampling

Six soil borings were advanced using a DPT rig around SWMU 24. Subsurface soil samples A24-SB01 through A24-SB06 were collected from these locations. The soil cores were logged in the field and screened for organic vapors using a PID. Boring logs are presented in Appendix A. Two samples were collected from each boring, one from the area of highest PID reading from the MIP investigation within the silt/clay interval up to 13 to 15 feet bgs and one deeper sample between the bottom of the silt/clay unit and the water table. Soil sample locations are shown on Figure 3-1.

The highest PID readings in nearby MIP locations were summarized for the field sampling team and used to establish potential sample depths. The sample depths were confirmed with PID screening of each boring. Soil samples were collected from the following intervals based on PID screening of the borings and depth above the water table:

Soil Boring Location	Depth of Soil Samples Collected for Laboratory Analysis (ft bgs)	Nearby MIP Location	Depth of Highest PID in MIP (ft bgs)
A24-SB01	5-6, 23-24	MIP-12	3-4 and 5-6
A24-SB02	11-12, 26-27	MIP-13	10-11
		MIP-11	4-5 and 10-12

Soil Boring Location	Depth of Soil Samples Collected for Laboratory Analysis (ft bgs)	Nearby MIP Location	Depth of Highest PID in MIP (ft bgs)
A24-SB03	13-14, 25-26	MIP-07	11-12
		MIP-09	11-12
A24-SB04	10-11, 26-27	MIP-15	10-11
A24-SB05	12-13, 21-22	MIP-06	11-13
		MIP-14	11.5-12.5
A24-SB06	12-13, 26-27	MIP-01	11.5-13.5
		MIP-02	2.5-4.5
		MIP-03	4-5

The soil samples were submitted for the following laboratory analyses:

- Target list of VOCs by SW8260B
- Target list of SVOCs by SW8270C/SW8270C selective ion monitoring (SIM)

3.2.3 SWMU 24 Groundwater Grab Sampling

Groundwater grab samples were collected from four locations, A24-GW01 through A24-GW04, east of the Process Sewer Line. Groundwater grab samples were collected from the top of the aquifer at 25 to 29 feet bgs within borings advanced by a DPT drill rig. The samples were collected by driving a slotted steel lead rod to the desired sampling depth using a DPT and then inserting a stainless steel foot valve into the end of polyethylene sampling tubing and insert tubing through the rods. Groundwater was purged until the sediment visually cleared up to the extent practical or purging lasted 15 minutes.

The groundwater grab samples were submitted for the following laboratory analyses:

- Target list of VOCs by USEPA Method SW8260B
- Target list of SVOCs by USEPA Methods SW8270C/SW8270C SIM
- Target list of RCRA metals by USEPA Method SW846 6010

Groundwater was analyzed for metals for data completeness and was not driven by the MIP investigation. Total and dissolved (field filtered) metals samples were collected.

3.3 Sitewide Groundwater Investigation

Seven monitoring wells were installed for the Phase 1 investigation (MW-01 through MW-07). The wells were installed to provide sitewide evaluation of groundwater flow direction, but were not sampled. During Phase 2, the wells were sampled to characterize site groundwater. As presented in the Phase 1 RFI Report (CH2M 2014), soil concentrations at the following SWMUs and AOC were above the protection of groundwater SSLs, indicating the potential for impacts to groundwater in the following areas:

- SWMU 01 (Former Flaring Pad)
- SWMU 15 (Two-Section Septic Tank System)
- SWMU 17 (Stormwater Drainage System)
- SWMU 24 (Process Sewer Line)
- SWMU 25-28 (Former Wastewater Treatment System)
- AOC D (Underground Catalyst Storage Tank)

In addition, the potential impacts to groundwater from SWMU 36 and SWMU 37, if any, were not investigated during Phase 1, and therefore groundwater downgradient of these sites required investigation as part of Phase 2.

Therefore, to investigate sitewide groundwater, groundwater samples were collected from site monitoring wells and groundwater grab locations during multiple steps of the Phase 2 investigation. As shown on Figure 3-2, monitoring wells and groundwater grab locations are positioned upgradient (MW-01), adjacent to, or downgradient of these seven SWMUs and one AOC.

3.3.1 Monitoring Well and Groundwater Grab Sampling Procedures

Purging and sample collection followed the procedures defined in the Phase 2 RFI Work Plan (CH2M 2014b). The monitoring wells were sampled using low-flow techniques, with the exception of MW-02. The pump inlet was set at the middle of the saturated interval in the screens and at least two system volumes were purged and parameter stabilization achieved before collecting groundwater samples.

A lower explosive limit of 35 percent was recorded by the field team when the MW-02 was uncapped, so MW-02 was sampled using a disposable bailer. Three well volumes were purged prior to sampling.

The groundwater grab samples were collected by driving a slotted steel lead rod to the desired sampling depth using a DPT rig and then inserting a stainless steel foot valve into the end of polyethylene sampling tubing and inserting tubing through the rods. Groundwater was purged until the sediment visually cleared up to the extent practical or purging lasted 15 minutes. The sampling logs are provided in Appendix A.

3.3.2 November 2014 Monitoring Well and Groundwater Grab Sampling

During the first step of the sitewide groundwater investigation, the existing site monitoring wells MW-01 through MW-07 were sampled and groundwater grab samples were collected from locations VP-08 through VP-10 (Figure 3-2).

Groundwater grab samples were collected at different intervals within each boring to help fill in data gaps for SWMUs not covered by the existing wells. Twelve grab samples were collected from the top of the water table to boring refusal from the following intervals:

- Top of water table, from 25 to 29 feet bgs
- Middle of the saturated zone, from 45 to 49 feet bgs
- Boring refusal, interpreted to be the bottom of the shallow aquifer and top of bedrock: 65 to 80 feet bgs

The groundwater samples were submitted for the following laboratory analyses:

- Target list of VOCs by USEPA Method SW8260B
- Target list of SVOCs by USEPA Methods SW8270C/SW8270C SIM
- Target list of RCRA metals by USEPA Method SW846 6010

3.3.3 October 2015 Additional Groundwater Grab Sampling

Data collected during the first step was evaluated and showed that tetrachloroethene (PCE) and trichloroethene (TCE) were detected above the maximum contaminant level (MCL) screening levels at VP-10 at the top of the aquifer from 25 to 29 foot bgs interval (Table 4-4). Groundwater grab location VP-10 is located immediately downgradient of SWMU 1 (Figure 3-2). The Phase 1 investigation findings showed that PCE and TCE were detected in SWMU 1 soil at concentrations exceeding the protection of groundwater SSLs.

Based on these data, CH2M prepared the Additional Phase 2 Investigation Activities technical memorandum (CH2M 2015) recommending additional soil characterization at SWMU 1 and additional groundwater grab sampling downgradient of SWMU 1 to address the Phase 2 DQOs. USEPA approved this additional investigation and work proceeded in October 2015. The summary of the additional soil sampling at SMWU 1 is presented in Section 3.4.

Groundwater grab samples were collected from four locations, VP-11 through VP-14. Locations are shown on Figure 3-2. Groundwater grab samples were collected at different intervals to characterize the downgradient vertical extent of TCE and PCE. Ten total grab samples were collected from the following intervals:

- Top of the aquifer, from 28 to 32 feet bgs. All locations have a sample from this interval.
- Middle of the aquifer, from 48 to 52 feet bgs. All locations were sampled at this interval.
- Bottom of the aquifer, from 75 to 79 feet bgs (VP-13) or 78 to 82 feet bgs (VP-14).

Only the furthest downgradient locations, VP-13 and VP-14, were sampled at the bottom of the aquifer because PCE and TCE vertical migration would likely not be seen at bedrock close to SWMU 1.

The groundwater samples were submitted for the following laboratory analysis:

- Target list of VOCs by USEPA Method SW8260B

3.3.4 February 2016 Supplemental Monitoring Well Installation and Sampling

As proposed in the Additional Phase 2 Investigation Activities technical memorandum (CH2M 2015), new monitoring wells were installed based on the results of the sitewide groundwater, specifically the groundwater grab samples installed downgradient of SWMU 1. Dow presented the groundwater results and proposed locations for three new monitoring wells to USEPA during a conference call in December 2015 and USEPA approved the locations for permanent monitoring well installation.

The locations of the three new monitoring wells, MW-08 through MW-10, are shown on Figure 3-2. MW-08 was installed immediately downgradient of SWMU1, near groundwater grab location VP-10, to monitor the PCE and TCE concentrations detected at VP-10. Monitoring wells MW-09 and MW-10 were installed at the edge of the active facility to act as sentinel monitoring wells and confirm concentrations are below MCLs at these furthest downgradient locations.

3.3.4.1 Monitoring Well Installation

Prior to well installation, borings were advanced using DPT drilling methods and were continuously logged and screened with a PID. The monitoring wells were installed following the well installation procedures outlined in the Phase 1 Work Plan (CH2M 2011) using hollow stem auger drilling. One of the monitoring wells (MW-08) was completed flush to ground surface with a watertight steel vault. The remaining two monitoring wells were above ground completions with locking, protective casings and surrounded by protective bollards. The soil boring logs and monitoring well completion diagrams for the monitoring wells are provided in Appendix A. Monitoring well construction details are summarized in Table 3-1.

3.3.4.2 Monitoring Well Development and Sampling

After installation, the monitoring wells were developed following the procedures outlined in the Phase 1 Work Plan (CH2M 2011). Once development was complete, groundwater samples were collected from the three new monitoring wells.

The groundwater samples were submitted for the following laboratory analysis:

- Target list of VOCs by USEPA Method SW8260B

3.3.5 Water Level Measurements

Water level measurements were collected on November 4 and November 20, 2014; March 9, 2015; and February 16, 2016. Multiple measurements were taken to evaluate groundwater flow across the facility.

3.3.6 Monitoring Well Surveying

Two survey events were conducted by an Ohio-licensed surveyor. The first was in March 2015 when the seven existing site monitoring wells were resurveyed. The monitoring wells were resurveyed to confirm correct top of casings on wells installed and last surveyed in 2012 after a review of the groundwater flow map using the 2012 survey data and November 2014 measurements revealed inconsistent groundwater contours from the previous depiction. In March 2016, the three new monitoring wells were surveyed. Survey data from the March 2015 and March 2016 events are used to create the potentiometric surface maps.

The locations were tied to the same elevation datum, National Geodetic Vertical Datum 1988, as the topographic maps of the area. 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.

3.4 SWMU 1 Supplemental Soil Sampling

Seven soil borings were advanced at SWMU 1 to further delineate the area where protection of groundwater SSLs were exceeded for VOCs and SVOCs during Phase 1. Phase 1 and Phase 2 soil boring locations at SWMU 1 are shown on Figure 3-3. Soil borings were advanced using a DPT rig to the top of the water table and soil samples were collected from soil above the water table. The soil cores were logged in the field and screened for organic vapors using a PID. Boring logs are presented in Appendix A.

The planned sample intervals for the soil samples were as follows:

- 0 to 2 feet bgs
- 3 to 5 feet bgs
- Interval with the most evidence of contamination if a contaminated interval encountered based on PID and field observations
- 8 to 10 feet bgs
- 2 feet above the water table (samples were collected from 26 to 29 feet bgs)

Samples were collected in either 1-foot intervals or 2-foot intervals based on the amount of soil recovered in the boring. Additional samples were collected as follows based on elevated PID measurements:

- Boring SS12 from 5 to 6 feet and 23 to 24 feet bgs
- Boring SS13 from 5 to 6 feet bgs

The soil samples were submitted for the following laboratory analyses:

- Target list of VOCs by USEPA Method SW8260B
- Target list of SVOCs by USEPA Method SW8270C/SW8270C SIM

3.5 Investigation-Derived Waste Management

IDW, including solids (personal protective equipment and tubing), soil cuttings, and purge or decontamination water, were contained in 55-gallon drums and stored onsite until analyses and Dow

confirmed disposal requirements. Composite samples were collected from soil and water IDW generated after each investigation step and were analyzed for the following:

- VOCs by USEPA Method SW8260B
- SVOCs by USEPA Methods SW8270C/SW8270C SIM
- RCRA metals by USEPA Method SW846 6010

The IDW analytical results showed that the constituents were below the RCRA toxicity characteristic regulatory levels. Appendix B contains the analytical laboratory reports for the IDW results.

SECTION 4

Nature and Extent of Contamination

This section presents the results of the soil, groundwater grab, and groundwater monitoring well sampling. The analytical laboratory reports for data collected during the Phase 2 investigation are provided in Appendix B.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as presented in the Quality Assurance Project Plan for Dow Hanging Rock (CH2M 2011). The PARCC evaluation determined that the data can be used for project decisions taking into consideration the validation flags applied to some samples. Further details on the PARCC review can be found in the data quality evaluation reports provided in Appendix C.

The Phase 2 investigation analytical results were compared to human health direct contact and migration to groundwater to evaluate nature and extent. The human health screening levels are based on USEPA RSLs and MCLs for chemical constituents in soil (USEPA 2015a). The screening levels used are published USEPA screening levels (USEPA 2015a), and are detailed by media as follows:

- Groundwater: The USEPA MCLs were primarily used. For constituents that do not have MCLs, USEPA tap water RSLs were used.
- Soil: The USEPA RSLs for industrial soil direct contact were used to evaluate nature and extent of soil impacts. To evaluate potential impacts to groundwater, the protection of groundwater SSLs were used. Where available, MCL-based SSLs were used. If not available, the risk-based SSL was used.

4.1 SWMU 24 Investigation

4.1.1 MIP Results

The MIP investigation at SWMU 24 identified an area of elevated VOCs close to Phase 1 boring AS24-SS02 (Figure 4-1). The MIP logs indicated a stratigraphy of finer-grained silt and clay approximately 12 to 15 feet thick underlain by sand and gravel. The water table occurs at a depth of approximately 25 feet bgs. Elevated PID readings were generally in the upper 15 feet of silt and clay. The contamination appears to be in the upper clay/silt layers and does not appear to have migrated downward at significant concentrations. The MIP logs are located in Appendix D.

4.1.2 Soil Results

To confirm the results of the MIP investigation, 12 soil samples were collected from six borings at SWMU 24. The greatest impacts were found in the 13 to 14 feet bgs interval from location A24-SB03. Several VOCs and SVOCs were detected above the migration to groundwater screening levels and ethylbenzene was detected above the direct contact RSL at this interval (Table 4-1). Location A24-SB03 was the only location where VOCs were detected above the migration to groundwater screening levels. Ethylbenzene was not detected at any other Phase 2 sampling location. Figure 4-2 shows the Phase 1 and Phase 2 results exceeding the direct contact RSL. The analytical data are provided in Table 4-1 and the results summarized as follows:

USEPA RSL Exceedances

- VOCs: Ethylbenzene at A24-SB03 from 13 to 14 feet bgs
- SVOCs: No exceedances

Protection of Groundwater SSL Exceedances

- VOCs: 1, 3,5 trimethylbenzene, ethylbenzene, isopropylbenzene, n-proplybenzene, naphthalene, o-xylene and styrene at A24-SB03 from 13 to 14 feet bgs. Styrene at A24-SB03 from 25 to 26 feet bgs
- SVOCs:
  - Benzo(a)anthracene and benzo(b)fluoranthene from 23 to 24 feet bgs at A24-SB01
  - Benzo(a)anthracene from 26 to 27 feet bgs at A24-SB02
  - Benzo(a)anthracene, 1,1 biphenyl, dibenzofuran, and 2-methylnaphthalene from 13 to 14 feet bgs at A24-SB03
  - Benzo(a)anthracene, 1,1 biphenyl, benzo(a)pyrene from 25 to 26 feet bgs at A24-SB03 from 13 to 14 ft bgs. Benzo(a)anthracene, 1,1 biphenyl at A24-SB03 from 25 to 26 feet bgs
  - Benzo(a)anthracene from 12 to 13 feet bgs and 26 to 27 feet bgs at A24-SB05
  - The benzo(a)anthracene and benzo(a)pyrene data were J flagged for all samples, indicating an estimated result

4.1.3 Groundwater Grab Results

Four groundwater grab samples were collected at SWMU 24. The only exceedances were of several SVOCs at locations GW-01 and GW-02 and two total metals (unfiltered) at all locations. The exceedances are shown on Figure 4-3, the analytical data are provided in Table 4-2, and the results are summarized as follows:

- VOCs: No exceedances.
- SVOCs: There were no exceedances of MCLs, the following exceedances are of the tap water RSL:
  - Benzo(a)anthracene at A24-GW01 and A24-GW02
  - Benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene at A24-GW01
- Metals:
  - Total arsenic and chromium were detected above the MCL at all four locations; however, the dissolved sample results were below MCLs or non-detect, indicating that the exceedances in the unfiltered samples were caused by sample turbidity.

4.1.4 SWMU 24 Investigation Summary

The MIP investigation indicated elevated PID readings near the former sewer line, with the highest responses at MIP locations HRMP-07 and HRMP-05 (Figure 4-1). As shown on Figure 4-4, the Phase 1 and Phase 2 soil data indicate that one VOC (ethylbenzene) was detected at two locations (S24-SS02 and A24-SS03) above direct contact RSLs at depths between 13 to 15 feet bgs near the sewer line. These two soil sampling locations correspond with the elevated MIP PID response locations HRMP-07 and HRMP-05. The soil impacts appear to be bound in the upper clay/silt layers, which correlate with where the highest PID responses from both the MIP and the soil boring screening were found. In addition, VOCs were not detected above screening levels in downgradient groundwater grab sample locations.

The SVOC and total metal exceedances in the groundwater grab samples are due to the high turbidity that comes from sampling an open boring with no screen or filter pack. The shallow groundwater in the sand and gravel aquifer at the site will have abundant suspended fines in the water. The filtered samples are more representative of groundwater that would be sampled from a monitoring well and is a more appropriate characterization of water quality.

4.2 Sitewide Groundwater Investigation

4.2.1 Water Level Measurements

Water level measurements were collected on November 4 and November 20, 2014; March 9, 2015; and February 16, 2016 and are presented in Table 4-3. The water levels are consistent with the measurements taken during the Phase 1 investigation. The highest water levels were measured in March 2015 and the lowest water levels were measured in February 2016. Overall, water levels varied between 3.25 feet (MW-07) and 1.2 feet (MW-06) in the seven wells that were gauged more than once during the Phase 2 investigation (Table 4-3).

In 2016, the three newly installed downgradient wells were gauged. The additional groundwater data indicated a slight change to the flow direction compared with the Phase 1 potentiometric surface map, now showing a southwestern inflection (Figure 4-5). The three new wells provide better refinement of water level in the facility area.

The potentiometric map (Figure 4-5) shows that groundwater generally flows to the south-southeast toward the Ohio River. Inflections in the potentiometric contours show a slight rise in the water table in the facility area parallel to groundwater flow, which deflects groundwater flow in the western portion of the site to the southwest. The hydraulic gradient across the site is approximately 0.00014.

4.2.2 Groundwater Grab Results

Twenty-two groundwater grab samples were collected from seven locations (VP-08 through VP-14) across the facility as part of the sitewide groundwater investigation. The first three locations (VP-08 through VP-10) were placed across the site to evaluate potential impacts to groundwater from several upgradient SWMUs. Locations VP-11 through VP-14 were placed to evaluate the extent of VOC impacts in groundwater downgradient of SWMU 1.

Exceedances of analytes are shown on Figure 4-6 and the analytical data are provided in Table 4-4, with the results summarized as follows:

- VOCS (all locations were sampled for VOCs):
  - PCE at the top of the water table (25 to 29 feet bgs or 28 to 32 feet bgs) at VP-10, VP-12, and VP-13
  - TCE at the top of the water table (25 to 32 feet bgs) at VP-10
- SVOCs (locations VP-08 through VP-10):
  - Benzo(a)anthracene, benzo(b)fluoranthene, and dibenz(a,h)anthracene at the bottom of the shallow aquifer, from 65 to 69 feet bgs at VP-08 and 71 to 75 feet bgs at VP-09.
  - Indeno(1,2,3-cd)pyrene at the bottom of the aquifer from 65 to 69 feet bgs at VP-08.
  - Several SVOC exceedances were J flagged, indicating an estimated result
- Metals (locations VP-08 through VP-10):
  - Total arsenic and chromium were detected above the MCL in all intervals at all three locations. The dissolved sample results were below MCLs or non-detect for all intervals and locations, except the lower aquifer interval (65 to 69 feet bgs) at VP-09. Detections of these dissolved (filtered) metals were between one and four orders of magnitude lower than the total (unfiltered) metals results.

4.2.3 Groundwater Monitoring Well Results

The seven original monitoring wells were sampled in 2014 to evaluate potential impacts to groundwater from several upgradient SWMUs. The three new monitoring wells were installed and sampled in 2016 to evaluate the extent of VOC impacts in groundwater downgradient of SWMU 1.

The exceedances are shown on Figure 4-6. The analytical data are provided in Table 4-5, with the results summarized as follows:

- VOCs (all wells sampled for VOCs):
  - PCE and TCE were detected above MCLs at MW-08, which is located immediately downgradient of SWMU 1.
- No SVOCs exceedances (MW-01 through MW-07)
- Metals (MW-01 through MW-07):
  - Total arsenic was detected above the MCL at MW-02, the filtered sample was below the arsenic MCL.

4.2.4 Sitewide Groundwater Investigation Summary

The sitewide groundwater investigation indicated that only PCE and TCE are present in groundwater at concentrations exceeding applicable screening levels. The exceedances and downgradient detections of PCE and TCE are shown on Figure 4-7 and Figure 4-8, respectively. The groundwater impacts appears to be emanating from SWMU 1. The vertical aquifer profiling completed by the groundwater grab locations show that impacts above MCLs occur in the upper portion of the aquifer. PCE has the greatest distribution; however, all MCL exceedances in the center of the site are bound by downgradient monitoring wells.

Although SVOC and total metals exceedances of groundwater screening levels were reported, they are not considered indicative of site-related impacts because the SVOC and total metal exceedances are due to the elevated turbidity when sampling open borings from a shallow sand and gravel aquifer. The SVOC and total metal (unfiltered) detections reflects the sediment load of the sample rather than the dissolved phase. Samples from the established monitoring wells were non-detect or had levels of SVOCs and metals below screening levels, except for MW-02. However, samples from MW-02 were also noted as turbid by the field team (sample collected from the bailer was brown). Although turbidity was not measured in the well, the field observations indicated that the collected sample had elevated turbidity, which likely contributed to the arsenic exceedance in the unfiltered sample collected.

The PCE and TCE distribution follows the direction of groundwater flow, to the south/southeast, from the source area (SWMU 1). The furthest downgradient monitoring wells, MW-09 and MW-10, are either non-detect or have PCE and TCE detected below the MCL. TCE concentrations above the MCL are only found at SWMU 1. Downgradient PCE concentrations decrease from the source concentration of 90 milligrams per liter to an average of 6 milligrams per liter over approximately 600 feet, and continue to decrease to below MCL over approximately 1,320 total feet from SWMU 1. The greatest impacts are seen at the source area and groundwater concentrations are attenuating with downgradient flow. The former flaring pad, SWMU 1, ceased operation in 1968 and the area has since been converted to an asphalt-covered parking lot for Building 505. The following lines of evidence indicate that the plume is generally stabilized within the active facility boundary:

- The source area has been inactive for almost 50 years and is covered by asphalt.
- Impacts are limited to the shallow aquifer.
- Concentrations above the MCL are localized to within approximately 600 feet from the source.
- Concentrations attenuate to below the MCL and non-detect with downgradient flow.

4.3 SWMU 1 Investigation

Twenty-eight soil samples were collected at SWMU 1. There were no exceedances of the industrial soil direct contact RSLs, but several samples exceeded the migration to groundwater screening level. The exceedances are shown on Figure 4-9. The analytical data are provided in Table 4-5, with the results summarized as follows:

USEPA RSL Exceedances

- VOCs: No exceedances
- SVOCs: No exceedances

Protection of Groundwater SSL Exceedances

The following VOCs were detected above screening levels in the soil borings at SWMU 1:

- PCE was detected above screening levels at all boring locations from the following depths:
  - SS-10: 3 to 5, 8 to 9 and 27 to 28 feet bgs
  - SS-11: 8 to 10 and 28 to 29 feet bgs
  - SS-12: 8 to 10 and 27 to 29 feet bgs
  - SS-13: 5 to 6, 8 to 10, and 26 to 28 feet bgs
  - SS-14: 1 to 2, 3 to 4, 8 to 9, and 27 to 28 feet bgs
  - SS-15 and SS-16: all depths
- TCE was detected above the screening level at:
  - SS-12: 8 to 10 feet bgs
  - SS-15: 8 to 9 feet bgs
  - SS-16: 3 to 4 and 8 to 9 feet bgs
- Other VOCs:
  - Ethylbenzene from 0 to 2, 3 to 5, and 5 to 6 feet bgs at SS-12
  - Naphthalene from 5-6 feet bgs at SS-13
- The following SVOCs were detected above screening levels in the soil borings at SWMU 1:
  - 1,1-biphenyl at all depths at SS-10.
  - Dibenzofuran from 0-2 and 3-5 feet bgs at SS-10.
  - Benzo(a)anthracene, benzo(b)fluoranthene from 0 to 2, 5 to 6, and 26 to 28 feet bgs at SS-13
  - Dibenz(a,h)anthracene from 5 to 6 and 26 to 28 feet bgs at SS-13
  - Benzo(a)anthracene, benzo(b)fluoranthene, and dibenz(a,h)anthracene from 27 to 28 feet bgs from SS-14
  - Benzo(a)anthracene from 27 to 28 feet bgs at SS-15
  - Benzo(a)anthracene from 27 to 28 feet bgs at SS-16

Several of the SVOC exceedances were J flagged, indicating an estimated result.

4.3.1 SWMU 1 Soil Investigation Summary

The only exceedances found at SWMU 1 during the Phase 2 investigation are for the protection of groundwater SSLs. Although multiple VOCs and SVOCs exceeded the SSLs, only TCE and PCE were found in groundwater at concentrations exceeding SSLs downgradient of SWMU 1. The Phase 1 and Phase 2 PCE soil data that have exceedances of the protection of groundwater SSLs are shown on Figure 4-10. Figure 4-10 shows the sample interval with the highest concentrations for each location. The majority of the detections are found in the 8 to 10 feet bgs and 26 to 28 feet bgs interval, just above the water table.

SECTION 5

Screening-Level Human Health Risk Assessment

An SHHRA for the Phase 2 RFI was conducted to assess the potential risk associated with exposure to COPCs in soil at SWMU 1 and in sitewide groundwater (CH2M 2014b). The results of the Phase 1 HHRA conducted for soil at SWMU 24 did not change based on the Phase 2 sampling event therefore a HHRA was not conducted of SWMU 24. For SWMU 1, potential risks were estimated for exposure to soil under current and future land use scenarios and for groundwater; therefore, there were no COPCs that needed to be carried forward for subsequent phases of investigation based on the results of the SHHRA and a baseline HHRA for SWMU 24 was not conducted as part of the Phase 2 RFI.

5.1 Risk Assessment Approach for SWMU 1

For SWMU 1, the SHHRA conducted during Phase I RFI identified no site-related COPCs present at levels that could pose risks above the target levels and that no COPCs needed to be carried forward for subsequent phases of investigation. However, as discussed in Section 3.4, a number of supplemental soil borings were collected for SWMU 1 during the Phase 2 RFI investigation activities to further evaluate the extent of soil contamination. Because additional samples were collected for the 0 to 10-foot interval, an update of the SHHRA was conducted.

5.2 Risk Assessment Approach for Sitewide Groundwater

The Phase 2 RFI Work Plan (CH2M 2014b) indicated that a baseline HHRA was to be conducted for the Phase 2 RFI groundwater data. However, because there are currently no complete direct contact exposure pathways (e.g., potable use) and no likely complete direct contact exposure pathways in the future, an SHHRA was conducted instead, as was done for soil in the Phase I RFI, using the current screening criteria. Because the vapor intrusion (VI) pathway is potentially complete, groundwater was also screened against the VI screening criteria.

5.3 SHHRA

This section presents the SHHRA for SWMU 1 and sitewide groundwater.

5.3.1 Data Evaluation

Soil samples collected from discrete depths between 0 and 10 feet bgs during the Phase I RFI and Phase II RFI and groundwater samples collected during the Phase II RFI were evaluated in the SHHRA. A discussion of how the sampling data are grouped for the SWMU 1 and groundwater exposure areas is provided in the following subsections. Soil samples collected at SWMU 1 are depicted on Figure 3-3 and sitewide groundwater samples are depicted on Figure 3-2.

The data included in the SHHRA 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 data evaluation methodology used in this SHHRA is consistent with that described in the USEPA-approved work plan (CH2M 2001; CH2M 2014b). Surface soil samples collected from 0 to 2 feet bgs were used to evaluate the current/future site worker and current/future trespasser exposure scenarios. 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 (i.e., construction worker and maintenance worker). Groundwater samples were used to evaluate potential current/future scenarios (i.e., VI) and future scenarios (i.e., offsite potable use).

SWMU 1

Soil samples collected during the Phase 1 RFI in December 2011 and the Phase 2 RFI in October 2015 were used in the SHHRA. The soil was evaluated in two data groupings: (1) surface soil samples collected from 0 to 2 feet bgs, and (2) surface and subsurface soil, referred to hereafter as "total soil," collected from 0 to 10 feet bgs. The surface soil dataset consists of 16 samples — 9 samples from December 2011 (Phase 1 RFI) and 7 samples from October 2015 (Phase 2 RFI). The total soil dataset consists of 49 samples — 27 samples from December 2011 (Phase I RFI) and 22 samples from October 2015 (Phase II RFI).

Soil samples collected in December 2011 were analyzed for VOCs, SVOCs, and select metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Soil samples collected in October 2015 were analyzed for the focused target list of VOCs and SVOCs presented in Table 2-2 of the Phase II RFI Work Plan (CH2M 2014b).

The analytical dataset for the SWMU 1 samples used in the SHHRA is included in Appendix E, Table E-2. Of the 57 detected constituents, the maximum concentrations are found in the Phase 1 RFI data, with the exception of four — m,p-xylene, ethylbenzene, naphthalene, and dibenzofuran, indicating the risk estimates based on maximum detected concentrations are not likely to differ from the Phase I results.

Sitewide Groundwater

Groundwater samples collected from monitoring wells during the Phase 2 RFI in November 2014 and February 2016 were used in the SHHRA. The groundwater dataset consists of 10 samples; samples were analyzed for the focused target list of VOCs, SVOCs, and total metals presented in Table 2-2 of the Phase 2 RFI Work Plan (CH2M 2014).

The analytical dataset for the groundwater samples used in the SHHRA is included in Appendix E, Table E-3.

5.3.2 Human Health Conceptual Exposure 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 5-1 and 5-2 show the conceptual model of potential exposure pathways for SWMU 1 and sitewide groundwater, respectively. These pathways are described in further detail in the following paragraphs.

The facility manufactures and distributes polymeric beads and foam. Facility buildings are used for manufacturing, warehouse, and office space. During the October 2010 site visit and the Phase 1 RFI fieldwork, it was observed that the area where the SWMU 1 former flaring pad was located had been converted to an asphalt-covered parking lot for Building 505. Currently, construction or excavation activities are not taking place at the site. Future residential development of the site is unlikely; future land use is expected to remain similar to current land use and, therefore, would be industrial.

Potentially complete exposure pathways and scenarios related to the facility include:

- Current exposure pathways:
  - Site (industrial) workers: Exposure to soil vapor or groundwater through inhalation of volatile emissions in indoor air (via VI)
- Future exposure pathways include the following pathways:
  - Trespassers: Exposure to surface soil (0 to 2 feet bgs) through incidental ingestion, dermal contact, and inhalation of particulate and volatile emissions
  - Site (Industrial) workers: Exposure to surface soil (0 to 2 feet bgs) through incidental ingestion, dermal contact, and inhalation of particulate and volatile emissions; exposure to groundwater through inhalation of volatile emissions in indoor air (via VI)
  - Construction workers: Exposure to combined surface soil (0 to 2 feet bgs) and total soil (0 to 10 feet bgs) during construction activities through incidental ingestion, dermal contact, and inhalation of particulate and volatile emissions
  - Maintenance workers: Exposure to combined surface soil (0 to 2 feet bgs) and total soil (0 to 10 feet bgs) during subsurface utilities repair and maintenance through incidental ingestion, dermal contact, and inhalation of particulate and volatile emissions
  - Onsite and Offsite Residents: Exposure to groundwater through potable use (ingestion, dermal contact, and inhalation of volatile emissions)

Potential current receptors include site workers (or industrial workers). The current receptors may come in contact with groundwater through inhalation of volatiles migrating to indoor air.

Potential future receptors include trespassers, site workers, maintenance workers and construction workers, in addition to the current receptors (site workers). Future receptors may 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 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 reworked, bringing subsurface soil to the surface. Exposure routes for 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).

Potential exposure to groundwater does not occur under current land use. Depth to groundwater is greater than 10 feet (i.e., approximately 25 feet to the top of the water table) across the site; therefore, dermal contact is not a potential exposure route. There is no current drinking water use of groundwater at the site. Scioto Water Incorporated 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. Five nonpotable 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. Potential exposure to groundwater is considered complete, as COPCs groundwater have not migrated offsite and are not likely to migrate offsite in the future (Section 4.2). According to Ohio Department of Natural Resources data, 10 privately owned wells are within 1 mile of the facility. The use of these wells is unknown. Therefore, for future use, potential exposure to contaminated groundwater may occur via potable use by hypothetical onsite receptors (residents).

5.3.3 SHHRA Approach

The SHHRA was conducted in three steps. Step 1 identified COPCs in soil by comparison to risk-based screening levels. Industrial soil RSLs are used to address the current exposure scenarios for site industrial workers and trespassers and the future scenarios for construction works, maintenance workers (CH2M HILL 2014b). The identified COPCs at each SWMU were evaluated in Step 2 using maximum detected soil and groundwater concentrations and a risk ratio approach (USEPA 1991a and 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 noncancer hazard index of 1). In Step 3, the identified COPCs at each SWMU were evaluated using the 95 percent upper confidence limit (UCL) concentration and a risk ratio approach (USEPA 1991a and 2011) to determine whether concentrations pose risks to potential receptor populations above the USEPA risk management levels. A detailed description of the SHHRA process is provided below.

Step 1

The COPC screening process was conducted for soil and groundwater on a site-specific basis for each data grouping and exposure area (i.e., SWMU 1 and sitewide groundwater). Surface soil and subsurface soil analytical results were screened against the industrial soil RSLs (USEPA 2015a). The industrial soil RSLs are used to identified COPCs for the receptors potentially exposed to soil (trespassers, construction workers, and maintenance workers [CH2M 2011]). Groundwater results were screened against the tap water RSLs, which are used to identify COPCs for receptors potentially exposed to groundwater through potable use (offsite residents). Sitewide groundwater was also screened against groundwater-to-indoor air vapor intrusion screening levels (VISLs) (USEPA 2015b), which are used to identify COPCs for receptors potentially exposed to groundwater through VI to indoor air (site workers).

The RSLs for noncarcinogenic health endpoints were based on a target hazard quotient [HQ] of 0.1. The target HQ of 0.1 was used to account for the potential presence of multiple constituents affecting the same target organ (i.e., the cumulative HQ, called the hazard index [HI] will be less than 1). The RSLs based on carcinogenic health endpoints were based on a target excess lifetime cancer risk (ELCR) of $1x10^{-6}$. The use of a target ELCR of $1x10^{-6}$ also accounts for the potential presence of multiple constituents (i.e., cumulative ELCR less than $1x10^{-4}$). For those constituents with more than one RSL (e.g., carcinogenic-based RSL, noncarcinogenic-based RSL), the lowest value was selected as the final RSL for that constituent. Detected constituents that had no RSL were compared to RSLs for surrogate chemicals, if available. Soil and groundwater results were screened against the USEPA RSL for trivalent chromium as a surrogate for total chromium because available documentation indicates chromium has not been used in the manufacturing process at the facility. Trivalent chromium can occur naturally in soil and groundwater, and it is unlikely that hexavalent chromium would be present in soil or groundwater at the facility.

The detection limits for the nondetected constituents in soil and groundwater (i.e., those constituents never detected in the SWMU soil or sitewide groundwater samples) were compared to the screening levels discussed above and are provided in Appendix E, Tables E-4 and E-5. For SWMU 1, the detection limits for 1,2-dibromo-3-chloropropane, acrylonitrile, and hexachlorocyclopentadiene exceeded their respective screening levels. Because these constituents were not detected in the soil samples, they were not identified as COPCs for further evaluation. For sitewide groundwater, the detection limits for 11 analytes exceeded their respective screening levels. Because these constituents were not detected in the groundwater samples, they were not identified as COPCs for further evaluation.

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

Step 2

For COPCs retained for further evaluation following Step 1, corresponding noncancer hazards and ELCRs were calculated on a site-specific 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. The industrial soil RSLs are used to estimate noncancer hazards and ELCRs for the receptors potentially exposed to soil (trespassers, construction workers, and maintenance workers [CH2M 2011]). The tap water RSLs are used to estimate noncancer hazards and ELCRs for the receptors potentially exposed to groundwater through potable use (offsite residents).

Noncancer Hazard Estimation Methods

For noncancer 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:

$$HQ = \frac{\text{Maximum detected soil or groundwater concentration (mg/kg or µg/L) x target hazard (1)}}{\text{Industrial Soil or Tap Water RSL}} \quad (1)$$

Where :

mg/kg = milligrams per kilogram
µg/L = micrograms per liter

The maximum detected concentration (the same concentration that was used in Step 1) was used in Step 2. RSLs for noncarcinogenic effects were based on a target HQ of 1.

The individual constituent HQs at SWMU 1 and groundwater were then summed to an area-specific HI to assess the potential for noncarcinogenic health effects posed by exposure to multiple constituents (USEPA 1986). The summation of individual constituent HQs to determine the HI assumes noncarcinogenic 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 there is some potential for adverse noncarcinogenic 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 there is no unacceptable noncarcinogenic hazard to the receptor. If the cumulative corresponding HI by target organ/effect is greater than 1, then further action (e.g., data collection, additional data evaluation, and action) may be necessary.

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 noncarcinogenic hazard estimates for each sample location, constituent-specific ELCRs were calculated using a using a risk ratio approach (USEPA 1991a).

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

$$\text{ELCR} = \frac{\text{Maximum detected soil or groundwater concentration (mg/kg or µg/L) x target risk level } (1\text{x}10^{-6})}{\text{Industrial Soil or Tap Water RSL}} \quad (2)$$

RSLs for carcinogenic effects were based on a target ELCR of 1 x 10^{-6}. The individual constituent ELCRs at each SWMU 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 2011; CH2M 2014b), if it is determined that cumulative risks are within USEPA's risk management range of 1x10^{-6} to 1x10^{-4} for carcinogenic compounds, and the cumulative HI is less than 1, then no further risk evaluation will be recommended (USEPA 1991b).

Step 3

In Step 3, a corresponding risk level was calculated as discussed above for Step 2; however, the 95 percent UCL was used as the concentration instead of the maximum detected concentration.

ProUCL software Version 5.0 (USEPA 2013) was used to calculate the 95 percent UCL. In cases where the recommended UCL exceeded the maximum detected concentration, the maximum detected concentration was used to calculate the risk.

5.3.4 SHHRA Results

Results of the SHHRA for each potential soil exposure interval and sitewide groundwater are presented in Tables 5-1 through 5-6 and are summarized below.

SWMU 1: Former Flaring Pad

Four polynuclear aromatic hydrocarbons (PAHs) (benzo[a]anthracene, benzo[a]pyrene, benzo[b] fluoranthene, dibenz[a,h]anthracene,) and arsenic were identified as COPCs in both surface soil and total soil (Table 5-1). The compound 1,1'-biphenyl was also identified as a COPC in surface soil (Table 5-1). Based on constituents in the same class, carcinogenic polynuclear aromatic hydrocarbons benzo(k)fluoranthene, chrysene, indeno[1,2,3-cd]pyrene were included in the risk ratio calculations (using maximum detected concentrations) with the four PAHs identified as COPCs. The ELCRs associated with surface soil (3 x 10^{-5}) and total soil (3 x 10^{-5}) at SWMU 1 were within USEPA's risk management range of 1 x 10^{-6} to 1 x 10^{-4} (Table 5-2). The estimated cumulative noncancer HIs for surface soil (0.4) and total soil (0.6) were below USEPA's threshold of 1 (Table 5-2).

The risk ratio calculations using the UCL concentration are provided in Table 5-3. The ELCRs associated with surface soil (2 x 10^{-5}) and total soil (7 x 10^{-6}) at SWMU 1 were within USEPA's risk management range of 1 x 10^{-6} to 1 x 10^{-4}. The estimated cumulative noncancer HIs for surface soil (0.3) and total soil (0.1) were below USEPA's threshold of 1. Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 1.

Presence of VOCs detected in soil (Section 4.3.1) and in monitoring well MW-08 (see below) indicates a potential for VI in nearby buildings. An assessment of the potential exposure to VOCs in the subsurface at SWMU 1 via the VI pathway is being addressed in a separate, planned investigation.

Sitewide Groundwater

Two VOCs (PCE and TCE) and arsenic were identified as COPCs in groundwater for the potable use scenario (Table 5-4). Of the four PCE detections in 10 samples collected, one detection from MW-08

exceeded the screening level, while two of the three TCE detects (MW-08 and MW-10) exceeded the screening level; and the both arsenic detects (MW-02 and MW-03) exceeded the screening level.

The ELCR (3×10^{-4}) associated with maximum detected concentrations in groundwater exceeded USEPA's risk management range of 1×10^{-6} to 1×10^{-4} (Table 5-5). Exceedances are primarily associated with arsenic concentrations (ELCR = 2×10^{-4}) detected in MW02, and PCE and TCE concentrations (ELCR = 8×10^{-6} and ELCR = 3×10^{-5}, respectively) detected in MW-08. The estimated cumulative noncancer HI for groundwater (9) exceeds USEPA's threshold of 1 (Table 5-5). Exceedances are associated with PCE and TCE concentrations (HI = 2 and HI = 5, respectively) detected in MW-08, and arsenic concentrations (HI = 2) detected in MW02.

Two VOCs (PCE and TCE) were identified as COPCs in groundwater for the VI scenario (Table 5-6). Of the four PCE detections in ten samples collected, one detection from MW-08 exceeded the screening level; one of the three TCE detects (MW-08 and MW-10) exceeded the screening level. Risks were not calculated for the VI scenario; exceedances of the screening criteria indicate a potential VI concern that may need further investigation.

Currently, the groundwater is not used onsite for potable purposes and contact with groundwater does not occur (i.e., depth to groundwater is approximately 25 feet bgs). In addition, water is not migrating offsite; therefore, current offsite residential exposure does not occur.

Additional investigation is necessary to assess the potential VI impact from TCE and PCE in groundwater for current and future onsite receptors at SWMU 1 based on the sampling results from one monitoring well. TCE and PCE concentrations in the sample from MW-08 at SMWU 1 exceed the USEPA groundwater-to-indoor air VISL (USEPA 2015b). The remaining groundwater concentrations are below the VISL. The current monitoring well network demonstrates that COPC impacted groundwater is not migrating offsite; therefore, the assessment of VI for offsite receptors is not required.

Although arsenic, which was evaluated in the Phase I RFI, was detected across the facility at levels exceeding RSLs in soil, it was not identified in the Phase I SHHRA as a COPC because it is not a site-related constituent, and the concentrations were close to established background values. The concentration of arsenic in groundwater at MW-02 is not site-related and no additional investigation is warranted.

5.4 SHHRA Summary and Conclusions

For SWMU 24, data collected as part of the Phase 2 RFI did not change the conclusions of the Phase I SHHRA. Based on impacted soil depth of 13 to 15 feet bgs, there is no exposure pathway; therefore, site-related COPCs are not present at levels that could pose risks above the target levels. The Phase 1 risk assessment concluded the estimated ELCRs and noncancer hazards are within USEPA's risk management range for cancer risks and below the USEPA noncancer threshold. Therefore, the Phase 1 concluded that no further evaluation of soil is necessary at SWMU 24 based on current and future industrial land use at the facility.

A summary of the risk estimates associated with maximum concentrations detected in soil at SWMU 1, and sitewide groundwater is provided in Table 5-7; risk estimates associated with UCL concentrations are provided in Table 5-8. The estimated ELCRs and noncancer hazards associated with all COPCs for soil at SWMU 1 were within USEPA's risk management range for cancer risks and below the USEPA noncancer threshold. Based on the results of this SHHRA for soil exposure scenarios associated with current and anticipated future industrial land use at the facility, no further evaluation is necessary for soil at SWMU 1.

The estimated ELCR and noncancer hazard associated with COPCs for groundwater exceed USEPA's risk management range for cancer risks and USEPA's noncancer threshold. Further evaluation of potable use is not warranted because the exposure pathway is incomplete for current onsite use and

contaminated groundwater is not migrating offsite. Future land use is likely to stay industrial. VOCs in groundwater near SWMU 1 exceeded VISLs; additional investigations are warranted for potential VI associated with groundwater at SWMU 1.

SECTION 6

Conclusions

The following DQOs were developed for the Phase 2 RFI:

1. Determine if site-related COPCs are present in groundwater at concentrations exceeding groundwater screening levels
2. Determine the nature and extent of any site-related COPCs in groundwater that exceed conservative groundwater screening levels
3. Determine the horizontal and vertical extent of soil contamination of volatile VOCs and SVOCs exceeding SSLs around the Process Sewer Line Voluntary Closure Area (SWMU 24)

The overall conclusions of the Phase 2 investigation are that the DQOs have been met and no further investigation is warranted for SWMU 15, SWMU 17, SWMU 18, SWMU 24, SWMU 25-28, and AOC D. However, additional investigation is warranted at SWMU 1 to assess the potential VI impact from soil and groundwater COPCs for current and future onsite receptors.

6.1 Sitewide Groundwater

To address the first and second DQOs, 10 monitoring wells were sampled and groundwater grab samples were collected from seven locations across the facility area at depths from the top of the aquifer to bedrock. TCE and PCE were detected above screening levels at monitoring well MW-08 (just downgradient of SWMU 1). The vertical aquifer profiling completed by the groundwater grab locations show that impacts above MCLs occur in the upper portion of the aquifer, where the monitoring wells are screened.

Total arsenic, total chromium, and a few SVOCs were detected above screening levels in the groundwater grab samples collected from various depths in the shallow saturated zone, but, with the exception of arsenic at MW-02, these were not detected above screening levels in the permanent monitoring wells. The dissolved phase (filtered) samples collected across the site are either non-detect or have detections below the screening levels for these constituents. The unfiltered metals and several SVOC detections are likely related to the high turbidity and high presence of fines in the groundwater grab samples due to sampling from an open borehole, and bailing MW-02.

An SHHRA was conducted for sitewide groundwater. PCE and TCE exceeded the risk screening levels. However, further evaluation of potable use is not warranted because the exposure pathway is incomplete for current onsite use and contaminated groundwater is not migrating offsite. In addition, direct contact with groundwater does not occur (i.e., depth to groundwater is approximately 25 feet bgs). The TCE and PCE detected at monitoring well MW-08 exceed the USEPA groundwater-to-indoor air VISL. The remaining groundwater concentrations are below the VISL.

The results of the Phase 2 investigation show that there are COPCs detected in sitewide groundwater above screening levels. However, the extent of these COPCs have been defined by the Phase 2 investigation. Screening level exceedances occur in the center of the active facility and are bound by downgradient monitoring wells.

No further investigation is warranted for sitewide groundwater.

6.2 SWMU 1 Soil

Additional soil sampling was performed at SWMU 1 to further evaluate it as a source of VOCs in groundwater because TCE and PCE were detected in the groundwater downgradient of SWMU 1 and

PCE and TCE concentrations in soil exceeded the protection of groundwater SSLs. There were no exceedances of the industrial soil direct contact RSLs; however, there were several VOC and SVOC exceedances of the protection of groundwater SSLs. Only TCE and PCE were detected above screening levels in groundwater downgradient at SWMU 1. The majority of the PCE and TCE detections in soil exceeding the protection of groundwater SSLs are found in the 8- to 10-feet bgs interval, in the upper silty/sandy clay, and the 26- to 28-feet bgs interval, just above the water table.

The Phase 1 SHHRA was updated to evaluate the soil data collected at SWMU 1. The additional soil sampling at SWMU 1 did not change the conclusions of the Phase 1 risk assessment, there are no COPCs present at levels that could pose risks of direct soil contact above the target levels or that need to be carried forward for subsequent phases of investigation. However, an assessment of the potential exposure to VOCs in the subsurface at SWMU 1 via the VI pathway warrants an additional investigation to assess the potential VI impact for current and future onsite receptors.

6.3 SWMU 24 Investigation

To address the third DQO, a MIP investigation and confirmation soil and groundwater grab sampling were conducted in the area of SWMU 24 located near the Process Sewer Line Voluntary Closure Area (near the location of Phase 1 RFI soil sample S24-SS02). The MIP investigation indicated elevated PID readings near the former sewer line, with the highest responses at two locations that correspond with where two soil samples had detections of ethylbenzene above the industrial soil direct contact RSL. The ethylbenzene soil impacts are found at depths from 13 to 15 feet bgs and appear to be bound in the upper clay and silt layers.

There were several VOC and SVOC soil exceedances of the protection of groundwater SSLs. Total arsenic, total chromium, and a few SVOCs exceeded screening levels in the groundwater grab samples. The dissolved phase (filtered) samples are either non-detect or have detections below the screening levels for these constituents. The unfiltered metals and several SVOC detections are likely related to the high turbidity that comes from sampling an open boring with no screen or filter pack.

The COPCs in soil are not impacting groundwater and the COPCs in soil are below the depths of exposure for current or future onsite receptors. The Phase 1 SHHRA concluded that site-related COPCs are not present at levels that could pose risks above the target levels. The Phase 2 soil data do not change this conclusion.

Therefore, there is no direct contact risk at SWMU 24 and horizontal and vertical extent has been adequately delineated. Further investigation at SWMU 24 is not warranted.

SECTION 7

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Tables

Table 2-1. SWMU and AOC Summaries

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

Area	Summary and Conclusions
SWMU 1: Former Flaring Pad	VOCs were not detected above USEPA RSLs, but PCE exceeded protection of groundwater SSLs at three borings and TCE exceeded SSLs at one boring. In addition, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzene, 1,1-biphenyl, and selenium exceeded protection of groundwater SSLs. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. No ERA was completed because of the absence of habitat. Because of the exceedances of the protection of groundwater SSLs, it was concluded that potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
SWMU 15: Two Section Septic Tank System	No VOCs exceeded human health or ESLs. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and mercury exceeded USEPA RSLs and protection of groundwater SSLs. Additional exceedances of the protection of groundwater SSLs included selenium and benzene. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. No ERA was completed because of the absence of habitat. Because of the exceedances of the protection of groundwater SSLs, it was concluded that potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
SWMU 17: Stormwater Drainage System	No soil VOCs or SVOCs exceeded the USEPA RSL screening levels. Chromium and selenium exceeded ESLs and nitrobenzene exceeded migration to groundwater SSLs. No sediment VOCs exceeded human health or ESLs. Pentachlorophenol exceeded ESLs and protection of groundwater SSLs. Acenaphthylene and selenium exceeded protection of groundwater SSLs. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. The ERA determined there was no unacceptable risk. Because of the exceedances of the protection of groundwater SSLs, it was concluded that potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
SWMU 24: Process Sewer Line	Ethylbenzene, 1,1-biphenyl, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected at concentrations exceeding USEPA RSLs, but below depths that would be included in a direct contact industrial risk evaluation. These analytes also exceeded the protection of groundwater SSLs except for benzo(a)pyrene. Additional exceedances of the protection of groundwater SSLs included 1,3,5-trimethylbenzene, benzene, isopropylbenzene, n-propylbenzene, m,p- and o-xylene, and styrene. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. No ERA was completed because of the absence of habitat. Because of the exceedances of the protection of groundwater SSLs and exceedances of ethylbenzene, 1,1-biphenyl at depths below what was included in the SHHRA, it was concluded that site conditions will be further evaluated and additional soil and groundwater investigation will be performed in the Phase 2 RFI.
SWMU 25-28: Former Wastewater Treatment System	No VOCs exceeded the screening levels. The chemicals 1,1-Biphenyl, benzo(a)pyrene, benzo(a)anthracene, and benzo(b)fluoranthene exceeded one or more screening levels in the southern borings. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. No ERA was completed because of the absence of habitat.

Table 2-1. SWMU and AOC Summaries

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

Area	Summary and Conclusions
	Because of the exceedances of the USEPA SSLs protective of groundwater, it was concluded that potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
SWMU 36: Former 250-gallon Pressurized Storage Tanks	Twenty 250-gallon pressurized storage tanks were located throughout the facility that were used to store liquid wastes such as solvents, oils, or liquid process wastes. The tanks were discontinued in 1995. The tanks had cradles built into them in order to move them with forklifts. No other information is available for these units. Because the tanks were moved around the Styron plant, and cannot be represented by specific locations, this SWMU was not investigated during the Phase 1 RFI. Potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
SWMU 37: Fire Protection Collection Basin	This unit consists of a 250,000-gallon-capacity concrete basin located north of the wastewater treatment system. The unit, which began operation in 1992, primarily receives stormwater. It is constructed of concrete with HDPE lining the outer wall of the concrete. Joints are provided with an HDPE water-stop, and all inlet and exit piping was extrusion welded to the HDPE liner. The concrete basin is intact and functional (CH2M 2011). Given the nature of the basin's use and design, no soil investigation was performed during the Phase 1 RFI. Potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.
AOC D: Underground Catalyst Storage Tank	No VOCs or SVOCs were detected in excess of USEPA RSLs from the samples collected during the Phase 1 RFI. Benzene exceeded the protection of groundwater SSLs. The SHHRA determined the risks at the site were within USEPA's risk management range and no further evaluation is necessary for potential exposures to soil associated with industrial land use. No ERA was completed because of the absence of habitat. Because of the exceedances of the protection of groundwater SSLs, it was concluded that potential impacts from this site will be evaluated by sampling sitewide groundwater during the Phase 2 RFI.

ERA = ecological risk assessment
ESL = ecological screening level
HDPE = high-density polyethylene
PCE = tetrachloroethene
RFI = Resource Conservation and Recovery Act facility investigation
RSL = regional screening level
SHRRA = screening-level human health risk assessment
SSL = soil screening level
TCE = trichloroethene
USEPA = U.S. Environmental Protection Agency
VOC = volatile organic compound

Table 3-1. Monitoring Well Construction Details

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

		Survey #1					Survey #2			Construction Details					
Well ID	**Date Installed**	**Date of Survey**	**Top of Casing (TOC) Elevation**	**Top of Ground (TOG) Elevation**	**Latitude**	**Longitude**	**Date of Survey**	**Top of Casing (TOC) Elevation**	**Top of Ground (TOG) Elevation**	**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**
MW-01	5-Jan-12	9-Mar-12	553.97	551.36	38.58006279	-82.79379579	9-Mar-15	553.86	551.25	18.11	28.11	10	84	2	**FL**
MW-02	6-Jan-12	9-Mar-12	554.46	551.86	38.57882295	-82.79203719	9-Mar-15	554.31	551.69	20	30	10	30	2	**FL**
MW-03	6-Jan-12	9-Mar-12	556.10	553.66	38.57762460	-82.78843575	9-Mar-15	555.94	553.51	24.6	34.6	10	35	2	**FL**
MW-04	10-Jan-12	9-Mar-12	552.77	549.93	38.57594082	-82.79319582	9-Mar-15	552.60	549.75	22	32	10	35	2	**FL**
MW-05	7-Jan-12	9-Mar-12	548.66	548.96	38.57431267	-82.79063874	9-Mar-15	548.44	548.77	24	34	10	79	2	**S**
MW-06	10-Jan-12	9-Mar-12	552.03	549.43	38.57262410	-82.79085576	9-Mar-15	551.83	549.25	19	29	10	35	2	**FL**
MW-07	9-Jan-12	9-Mar-12	556.59	553.73	38.57057112	-82.78870905	9-Mar-15	556.39	553.53	24	34	10	82	2	**FL**
MW-08	10-Feb-15		-	-	38.57755995	-82.79064768	1-Mar-16	555.02	555.32	26	36	10	38	2	**FL**
MW-09	9-Feb-16		-	-	38.57560232	-82.78769231	1-Mar-16	555.79	552.85	25	35	10	38	2	**S**
MW-10	8-Feb-16		-	-	38.57431659	-82.78858004	1-Mar-16	550.72	547.96	24	34	10	33	2	**S**

Notes:
bgs = below ground surface
FL = flush mount cover
ft = feet
S = stick up cover
TOC = top of casing
TOG = top of ground

Table 4-1. Soil Results – SWMU 24

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Nov-15 Industrial Soil RSL, Direct Contact	Nov-15 Soil SSL, Protection of Groundwater	Units	A24-SB01			A24-SB02		A24-SB03		A24-SB04		A24-SB05		A24-SB06	
			Location>>													
			Sample ID>>	A24-SB01-0506-111214	A24-SB01-2324-111214	HGR-111214-FD01	A24-SB02-1112-111114	A24-SB02-2627-111114	A24-SB03-1314-111314	A24-SB03-2526-111314	A24-SB04-1011-111114	A24-SB04-2627-111114	A24-SB05-1213-111214	A24-SB05-2122-111214	A24-SB06-1213-111114	A24-SB06-2627-111114
			Sample Depth (ft)>>	5 - 6	23 - 24	23 - 24	11 - 12	26 - 27	13 - 14	25 - 26	10 - 11	26 - 27	12 - 13	21 - 22	12 - 13	26 - 27
			Sample Date>>	11/12/2014	11/12/2014	11/12/2014	11/11/2014	11/11/2014	11/13/2014	11/13/2014	11/11/2014	11/11/2014	11/12/2014	11/12/2014	11/11/2014	11/11/2014
VOC																
1,2,4-TRICHLOROBENZENE	110000	200	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
1,3,5-TRIMETHYLBENZENE	12000000	170	µg/kg	5 U	6 U	5 U	6 U	5 U	**1,700 J**	5 U	6 U	5 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	1100	0.011	µg/kg	20 U	22 U	20 U	23 U	20 U	20,000 U	19 U	23 U	19 U	21 U	22 U	21 U	21 U
BENZENE	5100	2.6	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
BROMOFORM	86000	21	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
ETHYLBENZENE	25000	780	µg/kg	5 U	6 U	5 U	6 U	5 U	**1,500,000**	**260**	6 U	5 U	5 U	5 U	5 U	5 U
ISOPROPYLBENZENE	9900000	740	µg/kg	5 U	6 U	5 U	6 U	5 U	**130,000**	**27**	6 U	5 U	5 U	5 U	5 U	5 U
M+P-XYLENE	NA	NA	µg/kg	5 U	6 U	5 U	6 U	5 U	**27,000**	**5**	6 U	5 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	1000000	1.3	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
N-PROPYLBENZENE	24000000	1200	µg/kg	5 U	6 U	5 U	6 U	5 U	**89,000**	**21**	6 U	5 U	5 U	5 U	5 U	5 U
NAPHTHALENE	17000	0.54	µg/kg	5 U	6 U	5 U	6 U	5 U	**1,700 J**	5 U	6 U	5 U	5 U	5 U	5 U	5 U
O-XYLENE	2800000	190	µg/kg	5 U	6 U	5 U	6 U	5 U	**23,000**	**6**	6 U	5 U	5 U	5 U	5 U	5 U
STYRENE	35000000	110	µg/kg	5 U	6 U	5 U	6 U	5 U	**310,000**	**140**	6 U	5 U	5 U	5 U	5 U	5 U
TETRACHLOROETHENE	100000	2.3	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
TRICHLOROETHENE	6000	1.8	µg/kg	5 U	6 U	5 U	6 U	5 U	4,900 U	5 U	6 U	5 U	5 U	5 U	5 U	5 U
SVOC																
1,1'-BIPHENYL	200000	8.7	µg/kg	40 U	35 U	35 U	41 U	35 U	**71,000**	**1,200**	40 U	35 U	41 U	34 U	41 U	35 U
2-METHYLNAPHTHALENE	3000000	190	µg/kg	20 U	18 U	**4 J**	21 U	18 U	**650**	**12 J**	21 U	18 U	21 U	17 U	21 U	18 U
BENZO(A)ANTHRACENE	2900	4.2	µg/kg	20 U	**16 J**	**6 J**	21 U	**5 J**	**17 J**	**6 J**	21 U	18 U	**8 J**	**5 J**	21 U	18 U
BENZO(A)PYRENE	290	240	µg/kg	20 U	**9 J**	**5 J**	21 U	**5 J**	21 U	**5 J**	21 U	18 U	**20 J**	**10 J**	21 U	18 U
BENZO(B)FLUORANTHENE	2900	41	µg/kg	20 U	**51**	**22**	21 U	**10 J**	21 U	**13 J**	21 U	18 U	**23**	**15 J**	21 U	**5 J**
DIBENZ(A,H)ANTHRACENE	290	13	µg/kg	20 U	**11 J**	18 U	21 U	18 U	21 U	18 U	21 U	18 U	**6 J**	17 U	21 U	18 U
DIBENZOFURAN	1000000	150	µg/kg	40 U	35 U	**22 J**	41 U	35 U	**220**	36 U	40 U	35 U	41 U	34 U	41 U	35 U
INDENO(1,2,3-CD)PYRENE	2900	130	µg/kg	20 U	**19**	**6 J**	21 U	**7 J**	21 U	**4 J**	21 U	18 U	**17 J**	**11 J**	21 U	18 U
NITROBENZENE	22000	0.092	µg/kg	40 U	35 U	35 U	41 U	35 U	41 U	36 U	40 U	35 U	41 U	34 U	41 U	35 U
PENTACHLOROPHENOL	4000	10	µg/kg	200 U	180 U	180 U	210 U	180 U	210 U	180 U	210 U	180 U	210 U	170 U	210 U	180 U
GENERAL CHEMISTRY																
MOISTURE	NA	NA	percent	**17.2**	**5.6**	**4.7**	**18.4**	**4.4**	**19.5**	**7**	**18**	**4.4**	**18.4**	**2.9**	**19.6**	**4.6**

Notes:
NA = not applicable
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.
µg/kg = micrograms per kilogram
RSL = risk-based screening level
SSL = soil screening level
SVOC = semivolatile organic compound
VOC = volatile organic compound
Maximum contaminant limit (MCL)-based protection of groundwater SSLs used if available. If not available, the risk-based SSL is used
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial RSL screening criteria.
Blue indicates the results exceeded protection of groundwater SSLs.

Table 4-2. Groundwater Grab Results – SWMU 24

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

	Location	A24-GW01	A24-GW02	A24-GW03	A24-GW04
	Sample ID	A24-GW01-2529-111714	A24-GW02-2529-111314	A24-GW03-2529-111414	A24-GW04-2529-111414
	Sample Depth (ft)	25 - 29	25 - 29	25 - 29	25 - 29
	Sample Date	11/17/2014	11/13/2014	11/14/2014	11/14/2014
Analyte	**Screening Level**				
VOC (µg/L)					
1,2,4-TRICHLOROBENZENE	70	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-TRIMETHYLBENZENE	120	0.5 U	0.5 U	0.5 U	0.5 U
ACRYLONITRILE	0.052	5 U	5 U	5 U	5 U
BENZENE	5	**0.1 J**	0.5 U	0.5 U	0.5 U
BROMOFORM	80	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	700	0.5 U	**0.5 J**	0.5 U	0.5 U
ISOPROPYLBENZENE	450	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENE	--	0.5 U	0.5 U	0.5 U	0.5 U
METHYLENE CHLORIDE	5	0.5 U	0.5 U	0.5 U	0.5 U
N-PROPYLBENZENE	660	0.5 U	0.5 U	0.5 U	0.5 U
NAPHTHALENE	0.17	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	190	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	100	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	5	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	5	0.5 U	0.5 U	0.5 U	0.5 U
SVOC (µg/L)					
1,1'-BIPHENYL	0.83	1 U	1 U	1 U	1 U
2-METHYLNAPHTHALENE	36	**0.034 J**	**0.022 J**	**0.015 J**	0.053 UJ
BENZO(A)ANTHRACENE	0.012	**0.013 J**	**0.066**	0.051 U	**0.012 J**
BENZO(A)PYRENE	0.2	**R**	**0.057**	0.051 U	0.053 UJ
BENZO(B)FLUORANTHENE	0.034	**0.019 J**	**0.12**	**0.014 J**	**0.017 J**
DIBENZ(A,H)ANTHRACENE	0.0034	**R**	**0.017 J**	0.051 U	0.053 UJ
DIBENZOFURAN	7.9	**0.032 J**	**0.024 J**	**0.022 J**	0.053 UJ
INDENO(1,2,3-CD)PYRENE	0.034	**R**	**0.072**	0.051 U	0.053 UJ
NITROBENZENE	0.14	1 U	1 U	1 U	1 U
PENTACHLOROPHENOL	1	**R**	**R**	**R**	5 U
METAL (mg/L)					
ARSENIC	0.01	**0.0469**	**0.0205**	**0.0223**	**0.102**
ARSENIC, dissolved	0.01	**0.0089**	0.002 U	0.002 U	**0.00093 J**
CHROMIUM	0.1	**0.385**	**0.124**	**0.188**	**3.28**
CHROMIUM, dissolved	0.1	**0.00056 J**	0.002 U	0.002 U	**0.00087 J**
MERCURY	0.002	**0.00019 J**	**0.00015 J**	**0.00012 J**	**0.00028**
MERCURY, dissolved	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
SELENIUM	0.05	**0.0023**	**0.001 J**	**0.0011 J**	**0.0034**
SELENIUM, dissolved	0.05	0.002 U	0.002 U	0.002 U	0.002 U

Notes:

µg/L = micrograms per liter

J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.

mg/L = milligrams per liter

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.

SVOC = semivolatile organic compound

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.

VOC = volatile organic compound

Bold indicates the analyte was detected.

Shading indicates the result exceeded screening criteria.

Table 4-3. Groundwater Level Measurements

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

	Survey Data*		Water Level Data 11/4/2014		Water Level Data 11/20/2014		Water Level Data 3/9/2015		Water Level Data 2/16/2016	
Well ID	**Top of Casing (TOC) Elevation**	**Top of Ground (TOG) Elevation**	**Water Level (ft btoc)**	**Elevation**	**Water Level (ft btoc)**	**Elevation**	**Water Level (ft btoc)**	**Elevation**	**Water Level (ft btoc)**	**Elevation**
MW-01	553.86	551.25	29.03	524.83	29.16	524.70	29.33	524.53	28.08	525.78
MW-02	554.31	551.69	29.47	524.84	29.64	524.67	29.9	524.41	28.59	525.72
MW-03	555.94	553.51	31.26	524.68	31.39	524.55	31.7	524.24	30.44	525.50
MW-04	552.60	549.75	27.9	524.70	28.04	524.56	28.32	524.28	27.08	525.52
MW-05	548.44	548.77	23.78	524.66	23.94	524.50	24.26	524.18	22.98	525.46
MW-06	551.83	549.25	27.26	524.57	27.38	524.45	27.66	524.17	26.46	525.37
MW-07	556.39	553.53	31.94	524.45	29.06	527.33	32.31	524.08	31.15	525.24
MW-08	553.02	553.32	-	-	-	-	-	-	27.44	525.58
MW-09	555.79	552.85	-	-	-	-	-	-	30.41	525.38
MW-10	550.72	547.96	-	-	-	-	-	-	25.35	525.37

Notes:

btoc = below top of casing

ft = feet

TOC = top of casing

TOG = top of ground

*Survey data used are from March 2015 for original site wells MW-01 through MW-07 and March 2016 for newly installed wells MW-08 through MW-10.

Table 4-4. Groundwater Grab Results – Sitewide Groundwater

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

	Location	VP08				VP09					VP10			
	Sample ID	VP08-GW-2529-111714	VP08-GW-4549-111714	VP08-GW-6569-111814	VP08-GW-7175-111814	VP09-GW-2529-111814	HGR-111914-FD01	VP09-GW-4549-111914	VP09-GW-6569-111914	VP09-GW-7175-111914	VP10-GW-4549-111914	VP10-GW-6569-111914	VP10-GW-7680-111914	VD10-GW-2529-112014
	Sample Depth (ft)	25 - 29	45 - 49	65 - 69	71 - 75	25 - 29	45 - 49	45 - 49	65 - 69	71 - 75	45 - 49	65 - 69	76 - 80	25 - 29
	Sample Date	11/17/2014	11/17/2014	11/18/2014	11/18/2014	11/18/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014	11/20/2014
Analyte	**Screening Level**													
VOC (µg/L)														
1,2,4-TRICHLOROBENZENE	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-TRIMETHYLBENZENE	120	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ACRYLONITRILE	0.052	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.2 J**
BROMOFORM	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ISOPROPYLBENZENE	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENE	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYLENE CHLORIDE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-PROPYLBENZENE	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NAPHTHALENE	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	5	**1.3**	0.5 U	0.5 U	0.5 U	**0.7**	0.5 U	0.5 U	0.5 U	0.5 U	**0.5 J**	**0.3 J**	**0.2 J**	**35**
TRICHLOROETHENE	5	**0.1 J**	**0.3 J**	0.5 U	0.5 U	**0.1 J**	0.5 U	0.5 U	0.5 U	0.5 U	**0.2 J**	0.5 U	0.5 U	**5.9**
SVOC (µg/L)														
1,1'-BIPHENYL	0.83	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-METHYLNAPHTHALENE	36	**0.015 J**	0.053 UJ	**0.34**	**0.035 J**	**0.011 J**	0.036 U	0.036 U	0.05 U	**3.9**	0.022 U	0.015 U	0.087 U	**0.04 J**
BENZO(A)ANTHRACENE	0.012	**0.012 J**	0.053 UJ	**0.046 J**	0.055 U	**R**	0.056 U	0.055 U	0.058 U	**0.21**	0.014 U	0.058 U	0.056 U	0.05 UJ
BENZO(A)PYRENE	0.2	0.054 UJ	0.053 UJ	**0.055 J**	0.055 U	**R**	0.056 U	0.055 U	0.058 U	**0.15**	0.056 U	0.058 U	0.056 U	0.05 UJ
BENZO(B)FLUORANTHENE	0.034	**0.02 J**	0.053 UJ	**0.085**	**0.015 J**	**R**	0.056 U	0.055 U	0.058 U	**0.19**	0.018 U	0.058 U	0.014 U	0.05 UJ
DIBENZ(A,H)ANTHRACENE	0.0034	0.054 UJ	0.053 UJ	**0.012 J**	0.055 U	**R**	0.056 U	0.055 U	0.058 U	**0.021 J**	0.056 U	0.058 U	0.056 U	0.05 UJ
DIBENZOFURAN	7.9	**0.015 J**	0.053 UJ	**0.11**	0.055 U	**0.013 J**	**0.014 J**	**0.013 J**	**0.018 J**	**0.86**	**0.038 J**	0.058 U	**0.031 J**	**0.013 J**
INDENO(1,2,3-CD)PYRENE	0.034	0.054 UJ	0.053 UJ	**0.044 J**	0.055 U	**R**	0.056 U	0.055 U	0.058 U	0.049 U	0.056 U	0.058 U	0.056 U	0.05 UJ
NITROBENZENE	0.14	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PENTACHLOROPHENOL	1	6 U	**R**	5 U	6 U	**R**	6 U	6 U	6 U	6 U	6 U	6 U	**R**	5 U
METAL (mg/L)														
ARSENIC	0.01	**0.0897**	**0.124**	**0.202**	**0.359**	**0.17**	**0.165 J**	**0.0998 J**	**0.213**	**0.41**	**0.129**	**0.0307**	**0.253**	**0.124**
ARSENIC, dissolved	0.01	0.002 U	**0.0086**	**0.0023**	**0.0029**	0.002 U	0.002 U	0.002 U	**0.0227**	**0.0028**	0.002 U	**0.0011 J**	**0.0098**	0.002 U
CHROMIUM	0.1	**0.301**	**0.568**	**0.807**	**1.21**	**0.628**	**0.56 J**	**0.378 J**	**0.352**	**4.93**	**0.228**	**0.269**	**1.25**	**0.563**
CHROMIUM, dissolved	0.1	**0.004 J**	**0.02**	0.002 U	0.002 U	0.002 U	**0.00066 J**	0.002 U	**0.0311**	**0.00066 J**	0.002 U	**0.005**	**0.0441**	0.002 U
MERCURY	0.002	**0.0002**	**0.00029**	**0.00016 J**	**0.00025**	**0.0003**	**0.0006**	**0.00059**	**0.00041**	**0.00061**	**0.00037**	**0.00031**	**0.00055**	**0.00057**
MERCURY, dissolved	0.002	**0.0002 U**	**0.0002 U**	**0.0002 U**	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
SELENIUM	0.05	**0.0099**	**0.0063**	**0.0088**	**0.0137**	**0.0055**	**0.0214 J**	**0.0137 J**	**0.0095**	**0.0108**	**0.0028 J**	**0.001 J**	**0.0093**	**0.0018 J**
SELENIUM, dissolved	0.05	**0.008**	**0.002 U**	**0.002 U**	0.002 U	0.002 U	**0.002 U**	**0.002 U**	**0.00056 J**	**0.002 U**	0.002 U	0.002 U	0.002 U	**0.00068 J**

Notes:
-- = Not analyzed. VP-11 through VP-14 were only sampled for VOCs
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.

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/L = milligrams per liter
µg/L = micrograms per liter
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

Table 4-4. Groundwater Grab Results – Sitewide Groundwater

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

	Location	S01-VP11			S01-VP12		S01-VP13			S01-VP14		
	Sample ID	S01-VP11-2832-100815	HGR-100815-FD01	S01-VP11-4852-100815	S01-VP12-2832-100815	S01-VP12-4852-100815	S01-VP13-2832-100815	S01-VP13-4852-100815	S01-VP13-7579-100915	S01-VP14-2832-100915	S01-VP14-4852-100915	S01-VP14-7882-100915
	Sample Depth (ft)	28 - 32	48 - 52	48 - 52	28 - 32	48 - 52	28 - 32	48 - 52	75 - 79	28 - 32	48 - 52	78 - 82
	Sample Date	10/8/2015	10/8/2015	10/8/2015	10/8/2015	10/8/2015	10/8/2015	10/8/2015	10/9/2015	10/9/2015	10/9/2015	10/9/2015
Analyte	**Screening Level**											
VOC (µg/L)												
1,2,4-TRICHLOROBENZENE	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
1,3,5-TRIMETHYLBENZENE	120	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
ACRYLONITRILE	0.052	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	100 UJ
BENZENE	5	0.5 U	**0.5**	**0.6**	**0.6**	**0.2 J**	**0.1 J**	0.5 U	**0.2 J**	0.5 U	0.5 U	10 UJ
BROMOFORM	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
ETHYLBENZENE	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
ISOPROPYLBENZENE	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
M+P-XYLENE	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
METHYLENE CHLORIDE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
N-PROPYLBENZENE	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
NAPHTHALENE	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
O-XYLENE	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
STYRENE	100	0.5 U	0.5 U	0.5 U	**0.1 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10 UJ
TETRACHLOROETHENE	5	**2.6**	**0.8**	**0.9**	**5.6**	**1.2 J**	**6.6**	**0.2 J**	**0.4 J**	**1.7**	0.5 U	10 UJ
TRICHLOROETHENE	5	**0.4 J**	0.5 U	0.5 U	**0.4 J**	**0.2 J**	**0.7**	0.5 U	0.5 U	**1.4**	0.5 U	10 UJ
SVOC (µg/L)												
1,1'-BIPHENYL	0.83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	36	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)ANTHRACENE	0.012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(A)PYRENE	0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(B)FLUORANTHENE	0.034	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZ(A,H)ANTHRACENE	0.0034	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZOFURAN	7.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INDENO(1,2,3-CD)PYRENE	0.034	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
METAL (mg/L)												
ARSENIC	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC, dissolved	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM, dissolved	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY, dissolved	0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM, dissolved	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
-- = Not analyzed. VP-11 through VP-14 were only sampled for VOCs
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.

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/L = milligrams per liter
µg/L = micrograms per liter
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria

Table 4-5. Soil Results – SWMU 1

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohic

	Nov-15	Nov-15	Location>>	S01-SS10				S01-SS11			
			Sample ID>>	S01-SS10-0002-100615	S01-SS10-0305-100615	S01-SS10-0809-100615	S01-SS10-2728-100615	S01-SS11-0002-100615	S01-SS11-0304-100615	S01-SS11-0810-100615	S01-SS11-2829-100615
	Industrial Soil RSL, Direct Contact	Soil SSL, Protective of GW	Sample Depth (ft)>>	0 - 2	3 - 5	8 - 9	27 - 28	0 - 2	3 - 4	8 - 10	28 - 29
			Sample Date>>	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte			**Units**								
VOC											
1,2,4-TRICHLOROBENZENE	110000	200	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
1,3,5-TRIMETHYLBENZENE	12000000	170	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
ACRYLONITRILE	1100	0.011	µg/kg	920 U	1,300 U	1,100 U	22 U	19 U	21 U	20 U	22 U
BENZENE	5100	2.6	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
BROMOFORM	86000	21	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
ETHYLBENZENE	25000	780	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
ISOPROPYLBENZENE	9900000	740	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
M+P-XYLENE	NA	NA	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
METHYLENE CHLORIDE	1000000	1.3	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
N-PROPYLBENZENE	24000000	1200	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
NAPHTHALENE	17000	0.54	µg/kg	230 U	340 U	270 UJ	6 U	5 U	5 U	5 U	6 U
O-XYLENE	2800000	190	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
STYRENE	35000000	110	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	5 U	6 U
TETRACHLOROETHENE	100000	2.3	µg/kg	230 U	**73 J**	**170 J**	**3 J**	5 U	5 U	**38**	**5 J**
TRICHLOROETHENE	6000	1.8	µg/kg	230 U	340 U	270 U	6 U	5 U	5 U	**1 J**	6 U
SVOC											
1,1'-BIPHENYL	200000	8.7	µg/kg	**73,000**	**110,000**	**1,500**	**120**	39 U	40 U	39 U	35 U
2-METHYLNAPHTHALENE	3000000	190	µg/kg	**11 J**	**6 J**	21 U	18 U	20 U	21 U	20 U	18 U
BENZO(A)ANTHRACENE	2900	4.2	µg/kg	20 U	21 U	21 U	18 U	20 U	21 U	20 U	18 U
BENZO(A)PYRENE	290	240	µg/kg	20 U	21 U	21 U	18 U	20 U	21 U	20 U	18 U
BENZO(B)FLUORANTHENE	2900	41	µg/kg	20 U	21 U	21 U	**4 J**	20 U	21 U	20 U	**4 J**
DIBENZ(A,H)ANTHRACENE	290	13	µg/kg	20 U	21 U	21 U	18 U	20 U	21 U	20 U	18 U
DIBENZOFURAN	1000000	150	µg/kg	**170**	**170**	40 U	34 U	39 U	40 U	39 U	35 U
INDENO(1,2,3-CD)PYRENE	2900	130	µg/kg	20 U	21 U	21 U	18 U	20 U	21 U	20 U	18 U
NITROBENZENE	22000	0.092	µg/kg	39 U	40 U	40 U	34 U	39 U	40 U	39 U	35 U
PENTACHLOROPHENOL	4000	10	µg/kg	200 U	210 U	210 U	180 U	200 U	210 U	200 U	180 U
GENERAL CHEM											
MOISTURE	NA	NA	percent	**15.9**	**18.4**	**18.6**	**4.2**	**14.4**	**18.3**	**15.6**	**5.1**

Notes:
NA = Not applicable
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.
µg/kg = micrograms per kilogram
SVOC = semivolatile organic compound
VOC = volatile organic compound
MCL-based soil screening level for Protection of Groundwater used where available. Othewise the Risk-based screening level is used.
Bold indicates the analyte was detected.
Shading indicates the result exceeded industrial RSL screening criteria.
Blue indicates the results exceeded migration to groundwater screening levels.

Table 4-5. Soil Results – SWMU 1

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohic

	Nov-15	Nov-15	Location>>	S01-SS12						
			Sample ID>>	S01-SS12-0002-100615	S01-SS12-0305-100615	S01-SS12-0506-100615	S01-SS12-0810-100615	S01-SS12-2324-100615	HGR-100615-FD01	S01-SS12-2729-100615
	Industrial Soil RSL, Direct Contact	Soil SSL, Protective of GW	Sample Depth (ft)>>	0 - 2	3 - 5	5 - 6	8 - 10	23 - 24	27 - 29	27 - 29
			Sample Date>>	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte			**Units**							
VOC										
1,2,4-TRICHLOROBENZENE	110000	200	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
1,3,5-TRIMETHYLBENZENE	12000000	170	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
ACRYLONITRILE	1100	0.011	µg/kg	970 U	1,100 U	970 U	20 U	20 U	20 U	21 U
BENZENE	5100	2.6	µg/kg	240 U	270 U	240 U	**0.5 J**	5 U	5 U	5 U
BROMOFORM	86000	21	µg/kg	240 U	270 U	240 U	**10**	5 U	5 U	5 U
ETHYLBENZENE	25000	780	µg/kg	**10,000**	**21,000**	**18,000**	5 U	5 U	**110 J**	5 UJ
ISOPROPYLBENZENE	9900000	740	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
M+P-XYLENE	NA	NA	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	1000000	1.3	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
N-PROPYLBENZENE	24000000	1200	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
NAPHTHALENE	17000	0.54	µg/kg	240 UJ	270 UJ	240 UJ	5 U	5 U	5 U	5 U
O-XYLENE	2800000	190	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
STYRENE	35000000	110	µg/kg	240 U	270 U	240 U	5 U	5 U	5 U	5 U
TETRACHLOROETHENE	100000	2.3	µg/kg	240 U	270 U	240 U	**62**	**2 J**	**38 J**	**1 J**
TRICHLOROETHENE	6000	1.8	µg/kg	240 U	270 U	240 U	**6**	5 U	**1 J**	5 U
SVOC										
1,1'-BIPHENYL	200000	8.7	µg/kg	40 U	40 U	39 U	39 U	34 U	34 U	34 U
2-METHYLNAPHTHALENE	3000000	190	µg/kg	20 U	20 U	**23**	20 U	18 U	18 U	17 U
BENZO(A)ANTHRACENE	2900	4.2	µg/kg	20 U	20 U	20 U	20 U	18 U	18 U	17 U
BENZO(A)PYRENE	290	240	µg/kg	20 U	20 U	**4 J**	20 U	18 U	18 U	17 U
BENZO(B)FLUORANTHENE	2900	41	µg/kg	20 U	20 U	**8 J**	20 U	**8 J**	18 U	17 U
DIBENZ(A,H)ANTHRACENE	290	13	µg/kg	**4 J**	20 U	20 U	20 U	18 U	18 U	17 U
DIBENZOFURAN	1000000	150	µg/kg	40 U	40 U	39 U	39 U	34 U	34 U	34 U
INDENO(1,2,3-CD)PYRENE	2900	130	µg/kg	**6 J**	20 U	20 U	20 U	18 U	18 U	17 U
NITROBENZENE	22000	0.092	µg/kg	40 U	40 U	39 U	39 U	34 U	34 U	34 U
PENTACHLOROPHENOL	4000	10	µg/kg	200 U	200 U	200 U	200 U	180 U	180 U	170 U
GENERAL CHEM										
MOISTURE	NA	NA	percent	**17.2**	**16.8**	**14.6**	**14.8**	**3.8**	**4**	**3.5**

Notes:
NA = Not applicable
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.
µg/kg = micrograms per kilogram
SVOC = semivolatile organic compound
VOC = volatile organic compound
MCL-based soil screening level for Protection of Groundwater used where available. Othewise the Risk-based screening level is used.
Bold indicates the analyte was detected.
Shading indicates the result exceeded industrial RSL screening criteria.
Blue indicates the results exceeded migration to groundwater screening levels.

Table 4-5. Soil Results – SWMU 1

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohic

Analyte	Nov-15 Industrial Soil RSL, Direct Contact	Nov-15 Soil SSL, Protective of GW	Units	S01-SS13				S01-SS14				
			Sample ID>>	S01-SS13-0002-100615	S01-SS13-0506-100615	S01-SS13-0810-100615	S01-SS13-2628-100615	S01-SS14-0102-100715	S01-SS14-0304-100715	S01-SS14-0809-100715	HGR-100715-FD01	S01-SS14-2728-100715
			Sample Depth (ft)>>	0 - 2	5 - 6	8 - 10	26 - 28	1 - 2	3 - 4	8 - 9	27 - 28	27 - 28
			Sample Date>>	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015
VOC												
1,2,4-TRICHLOROBENZENE	110000	200	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
1,3,5-TRIMETHYLBENZENE	12000000	170	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
ACRYLONITRILE	1100	0.011	µg/kg	21 U	20 U	22 U	20 U	20 U	21 U	23 U	22 U	21 U
BENZENE	5100	2.6	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
BROMOFORM	86000	21	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
ETHYLBENZENE	25000	780	µg/kg	5 U	**2 J**	5 U	5 U	5 U	5 U	6 U	5 U	5 U
ISOPROPYLBENZENE	9900000	740	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
M+P-XYLENE	NA	NA	µg/kg	5 U	**9**	5 U	5 U	5 U	5 U	6 U	5 U	5 U
METHYLENE CHLORIDE	1000000	1.3	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
N-PROPYLBENZENE	24000000	1200	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
NAPHTHALENE	17000	0.54	µg/kg	5 U	**8**	5 U	5 UJ	5 U	5 U	6 U	5 U	5 U
O-XYLENE	2800000	190	µg/kg	5 U	**3 J**	5 U	5 U	5 U	5 U	6 U	5 U	5 U
STYRENE	35000000	110	µg/kg	5 U	5 U	5 U	5 U	5 U	5 U	6 U	5 U	5 U
TETRACHLOROETHENE	100000	2.3	µg/kg	**1 J**	**5**	**24**	**69 J**	**3 J**	**5**	**12**	**2 J**	**16**
TRICHLOROETHENE	6000	1.8	µg/kg	5 U	5 U	5 U	**1 J**	5 U	5 U	6 U	5 U	5 U
SVOC												
1,1'-BIPHENYL	200000	8.7	µg/kg	40 U	41 U	41 U	35 U	40 U	40 U	42 U	35 U	180 U
2-METHYLNAPHTHALENE	3000000	190	µg/kg	**8 J**	21 U	21 U	**6 J**	20 U	21 U	21 U	18 U	91 U
BENZO(A)ANTHRACENE	2900	4.2	µg/kg	**26**	**130**	21 U	**110**	20 U	21 U	21 U	**33**	**55 J**
BENZO(A)PYRENE	290	240	µg/kg	**20 J**	**110**	21 U	**71**	20 U	21 U	21 U	**31**	**68 J**
BENZO(B)FLUORANTHENE	2900	41	µg/kg	**28**	**170**	21 U	**110**	20 U	21 U	21 U	**44**	**96**
DIBENZ(A,H)ANTHRACENE	290	13	µg/kg	20 U	**23**	21 U	**16 J**	20 U	21 U	21 U	**8 J**	**19 J**
DIBENZOFURAN	1000000	150	µg/kg	40 U	41 U	41 U	**28 J**	40 U	40 U	42 U	35 U	180 U
INDENO(1,2,3-CD)PYRENE	2900	130	µg/kg	**12 J**	**66**	21 U	**46**	20 U	21 U	21 U	**19**	**48 J**
NITROBENZENE	22000	0.092	µg/kg	40 U	41 U	41 U	35 U	40 U	40 U	42 U	35 U	180 U
PENTACHLOROPHENOL	4000	10	µg/kg	200 U	210 U	210 U	180 U	200 U	210 U	210 U	180 U	910 U
GENERAL CHEM												
MOISTURE	NA	NA	percent	**17.8**	**18.8**	**20.7**	**4.9**	**16.5**	**18.7**	**20.2**	**5.4**	**7.5**

Notes:
NA = Not applicable
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.
µg/kg = micrograms per kilogram
SVOC = semivolatile organic compound
VOC = volatile organic compound
MCL-based soil screening level for Protection of Groundwater used where available. Othewise the Risk-based screening level is used.
Bold indicates the analyte was detected.
Shading indicates the result exceeded industrial RSL screening criteria.
Blue indicates the results exceeded migration to groundwater screening levels.

Table 4-5. Soil Results – SWMU 1

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohic

	Nov-15	Nov-15	Location>>	S01-SS15				S01-SS16			
	Industrial Soil RSL, Direct Contact	Soil SSL, Protective of GW	Sample ID>>	S01-SS15-0102-100715	S01-SS15-0405-100715	S01-SS15-0809-100715	S01-SS15-2728-100715	S01-SS16-0102-100715	S01-SS16-0304-100715	S01-SS16-0809-100715	S01-SS16-2728-100715
			Sample Depth (ft)>>	1 - 2	4 - 5	8 - 9	27 - 28	1 - 2	3 - 4	8 - 9	27 - 28
			Sample Date>>	10/7/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015	10/7/2015
Analyte			**Units**								
VOC											
1,2,4-TRICHLOROBENZENE	110000	200	µg/kg	5 U	5 U	5 U	300 UJ	5 U	5 U	5 U	6 U
1,3,5-TRIMETHYLBENZENE	12000000	170	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
ACRYLONITRILE	1100	0.011	µg/kg	19 U	21 U	22 U	1,200 U	19 U	20 U	21 U	23 U
BENZENE	5100	2.6	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
BROMOFORM	86000	21	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
ETHYLBENZENE	25000	780	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
ISOPROPYLBENZENE	9900000	740	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
M+P-XYLENE	NA	NA	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
METHYLENE CHLORIDE	1000000	1.3	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
N-PROPYLBENZENE	24000000	1200	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
NAPHTHALENE	17000	0.54	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
O-XYLENE	2800000	190	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
STYRENE	35000000	110	µg/kg	5 U	5 U	5 U	300 U	5 U	5 U	5 U	6 U
TETRACHLOROETHENE	100000	2.3	µg/kg	**9**	**22**	**46**	**880 J**	**18**	**79**	**60**	**94**
TRICHLOROETHENE	6000	1.8	µg/kg	5 U	5 U	**3 J**	300 U	5 U	**3 J**	**4 J**	**4 J**
SVOC											
1,1'-BIPHENYL	200000	8.7	µg/kg	41 U	42 U	42 U	35 U	40 U	40 U	40 U	38 U
2-METHYLNAPHTHALENE	3000000	190	µg/kg	21 U	21 U	21 U	18 U	20 U	20 U	20 U	19 U
BENZO(A)ANTHRACENE	2900	4.2	µg/kg	21 U	21 U	21 U	**10 J**	20 U	20 U	20 U	**5 J**
BENZO(A)PYRENE	290	240	µg/kg	21 U	21 U	21 U	**15 J**	20 U	20 U	20 U	**4 J**
BENZO(B)FLUORANTHENE	2900	41	µg/kg	21 U	21 U	21 U	**24**	20 U	20 U	20 U	**12 J**
DIBENZ(A,H)ANTHRACENE	290	13	µg/kg	21 U	21 U	21 U	**4 J**	20 U	20 U	20 U	19 U
DIBENZOFURAN	1000000	150	µg/kg	41 U	42 U	42 U	35 U	40 U	40 U	40 U	**22 J**
INDENO(1,2,3-CD)PYRENE	2900	130	µg/kg	21 U	21 U	21 U	**12 J**	20 U	20 U	20 U	**5 J**
NITROBENZENE	22000	0.092	µg/kg	41 U	42 U	42 U	35 U	40 U	40 U	40 U	38 U
PENTACHLOROPHENOL	4000	10	µg/kg	210 U	210 U	210 U	180 U	200 U	200 U	200 U	190 U
GENERAL CHEM											
MOISTURE	NA	NA	percent	**19.1**	**21**	**19.9**	**4.4**	**16.2**	**16.7**	**17.6**	**12.5**

Notes:
NA = Not applicable
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.
µg/kg = micrograms per kilogram
SVOC = semivolatile organic compound
VOC = volatile organic compound
MCL-based soil screening level for Protection of Groundwater used where available. Othewise the Risk-based screening level is used.
Bold indicates the analyte was detected.
Shading indicates the result exceeded industrial RSL screening criteria.
Blue indicates the results exceeded migration to groundwater screening levels.

Table 4-6. Groundwater Monitoring Well Results - Sitewide Groundwater

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

	Location	MW01	MW02	MW03	MW04	MW05	MW06	MW07	MW08	MW09	MW10
	Sample ID	MW01-GW-0018-110414	MW02-GW-0020-110514	MW03-GW-0024-110514	MW04-GW-0022-110614	MW05-GW-0024-110514	MW06-GW-0019-110514	MW07-GW-0024-110614	MW08-GW-2636-021616	MW09-GW-2535-021616	MW10-GW-2434-021616
	Sample Depth (ft)	18 - 18	20 - 20	24 - 24	22 - 22	24 - 24	19 - 19	24 - 24	26 - 36	25 - 35	24 - 34
	Sample Date	11/4/2014	11/5/2014	11/5/2014	11/6/2014	11/5/2014	11/5/2014	11/6/2014	2/16/2016	2/16/2016	2/16/2016
Analyte	**Screening Level**										
VOC (µg/L)											
1,2,4-TRICHLOROBENZENE	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-TRIMETHYLBENZENE	120	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ACRYLONITRILE	0.052	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
BENZENE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.2 J**	0.5 U	0.5 U
BROMOFORM	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.7**	0.5 U	0.5 U
ETHYLBENZENE	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ISOPROPYLBENZENE	450	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENE	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
METHYLENE CHLORIDE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-PROPYLBENZENE	660	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NAPHTHALENE	0.17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	190	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
STYRENE	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	5	0.5 U	0.5 U	**1.7**	**0.4 J**	0.5 U	0.5 U	0.5 U	**90**	0.5 U	**1.3**
TRICHLOROETHENE	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**14**	**0.1 J**	**0.6**
SVOC (µg/L)											
1,1'-BIPHENYL	0.83	1 U	1 U	1 U	1 U	1 U	1 U	1 U	- -	- -	- -
2-METHYLNAPHTHALENE	36	0.051 U	**0.018 J**	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
BENZO(A)ANTHRACENE	0.012	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
BENZO(A)PYRENE	0.2	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
BENZO(B)FLUORANTHENE	0.034	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
DIBENZ(A,H)ANTHRACENE	0.0034	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
DIBENZOFURAN	7.9	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
INDENO(1,2,3-CD)PYRENE	0.034	0.051 U	0.056 UJ	0.055 U	0.058 U	0.053 U	0.056 U	0.061 U	- -	- -	- -
NITROBENZENE	0.14	1 U	1 U	1 U	1 U	1 U	1 U	1 U	- -	- -	- -
PENTACHLOROPHENOL	1	5 U	**R**	5 U	6 U	5 U	6 U	6 U	- -	- -	- -
METAL (mg/L)											
ARSENIC	0.01	0.002 U	**0.0117**	**0.0011 J**	0.002 U	0.002 U	0.002 U	0.002 U	- -	- -	- -
ARSENIC, dissolved	0.01	0.002 U	**0.0011 J**	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	- -	- -	- -
CHROMIUM	0.1	**0.0032**	**0.0293**	0.002 U	0.002 U	0.002 U	0.002 U	**0.0031**	- -	- -	- -
CHROMIUM, dissolved	0.1	0.002 U	**0.0023**	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	- -	- -	- -
MERCURY	0.002	0.0002 U	**0.000064 J**	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	- -	- -	- -
MERCURY, dissolved	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	- -	- -	- -
SELENIUM	0.05	**0.00092 J**	**0.00085 J**	**0.0017 J**	0.002 U	0.002 U	0.002 U	0.002 U	- -	- -	- -
SELENIUM, dissolved	0.05	**0.00087 J**	0.002 U	**0.0014 J**	0.002 U	0.002 U	0.002 U	0.002 U	- -	- -	- -

Notes:

-- = Not analyzed. MW-08 through MW-10 were only sampled for VOCs

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.

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/L = milligrams per liter

SVOC = semivolatile organic compound

VOC = volatile organic compound

µg/L= micrograms per liter

Bold indicates the analyte was detected.

Shading indicates the result exceeded screening criteria.

Table 5-1. SWMU 1 Step 1: Selection of Chemicals of Potential Concern (Industrial Exposure Scenario)

RFI Phase 2 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	2.4E+01	N	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	1.9E+04	N	0 / 9	No
591-78-6	2-HEXANONE	1.7E-02		1.7E-02		mg/kg	S01-SS07	1 / 9	0.003 - 0.13	1.3E+02	N	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	Sat	0 / 9	No
67-64-1	ACETONE	8.0E-03	J	9.8E-02	J	mg/kg	S01-SS03	8 / 9	0.31 - 0.31	6.7E+04	N	0 / 9	No
71-43-2	BENZENE	6.0E-04	J	3.0E-03	J	mg/kg	S01-SS07	4 / 16	0.0005 - 0.24	5.1E+00	N	0 / 9	No
108-86-1	BROMOBENZENE	4.0E-03	J	9.6E-02	J	mg/kg	S01-SS02	2 / 8	0.0009 - 0.001	1.8E+02	N	0 / 8	No
75-15-0	CARBON DISULFIDE	1.0E-03	J	1.4E-02		mg/kg	S01-SS07	5 / 9	0.001 - 0.044	3.5E+02	N	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	1.3E+02	N	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	2.3E+02	N	0 / 9	No
110-82-7	CYCLOHEXANE	5.3E-02	J	5.3E-02	J	mg/kg	S01-SS02	1 / 9	0.0009 - 0.001	1.2E+02	Sat	0 / 9	No
100-41-4	ETHYLBENZENE	1.0E-03	J	1.0E+01		mg/kg	S01-SS12	4 / 16	0.0009 - 0.23	2.5E+01	C	0 / 9	No
98-82-8	ISOPROPYLBENZENE	2.0E-03	J	2.5E-01	J	mg/kg	S01-SS02	2 / 16	0.0009 - 0.24	2.7E+02	Sat	0 / 9	No
179601-23-1	M+P-XYLENE	2.0E-03	J	2.0E-03	J	mg/kg	S01-SS07	1 / 16	0.0009 - 0.24	2.4E+02	N	0 / 9	No
79-20-9	METHYL ACETATE	1.5E-01	J	1.5E-01	J	mg/kg	S01-SS02	1 / 9	0.002 - 0.003	2.9E+04	Sat	0 / 9	No
91-20-3	NAPHTHALENE	2.0E-03	J	2.0E-03	J	mg/kg	S01-SS07	1 / 15	0.0009 - 0.24	1.7E+01	N	0 / 8	No
103-65-1	N-PROPYLBENZENE	1.0E-01	J	1.0E-01	J	mg/kg	S01-SS02	1 / 15	0.0009 - 0.24	2.6E+02	Sat	0 / 8	No
95-47-6	O-XYLENE	4.5E-02	J	4.5E-02	J	mg/kg	S01-SS02	1 / 16	0.0009 - 0.24	2.8E+02	N	0 / 9	No
135-98-8	SEC-BUTYLBENZENE	2.0E-03	J	6.7E-02	J	mg/kg	S01-SS02	2 / 8	0.0009 - 0.001	1.5E+02	Sat	0 / 8	No
127-18-4	TETRACHLOROETHENE	1.0E-03	J	1.6E+00	J	mg/kg	S01-SS02	12 / 16	0.001 - 0.24	3.9E+01	N	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	Sat	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	1.9E+03	Sat	0 / 9	No
79-01-6	TRICHLOROETHENE	3.0E-03	J	6.8E-02	J	mg/kg	S01-SS02	3 / 16	0.0009 - 0.24	1.9E+00	N	0 / 9	No
92-52-4	1,1'-BIPHENYL	2.5E-02	J	7.3E+01		mg/kg	S01-SS06	6 / 16	0.018 - 0.18	2.0E+01	N	1 / 16	Yes
105-67-9	2,4-DIMETHYLPHENOL	2.5E-02	J	2.5E-02	J	mg/kg	S01-SS09	1 / 9	0.018 - 0.18	1.6E+03	N	0 / 9	No
91-57-6	2-METHYLNAPHTHALENE	4.0E-03	J	2.6E-02		mg/kg	S01-SS09	6 / 16	0.004 - 0.037	3.0E+02	N	0 / 9	No
106-44-5	4-METHYLPHENOL	6.3E-02		6.3E-02		mg/kg	S01-SS09	1 / 9	0.018 - 0.18	8.2E+03	N	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	4.5E+03	N	0 / 9	No
208-96-8	ACENAPHTHYLENE	2.9E-02		1.1E+00		mg/kg	S01-SS09	4 / 9	0.004 - 0.02	4.5E+03	N	0 / 9	No
120-12-7	ANTHRACENE	1.9E-02	J	1.2E+00		mg/kg	S01-SS09	5 / 9	0.004 - 0.02	2.3E+04	N	0 / 9	No
56-55-3	BENZO(A)ANTHRACENE	1.0E-02	J	3.7E+00		mg/kg	S01-SS09	9 / 16	0.004 - 0.021	2.9E+00	C	1 / 16	Yes
50-32-8	BENZO(A)PYRENE	1.0E-02	J	3.8E+00		mg/kg	S01-SS09	9 / 16	0.004 - 0.021	2.9E-01	C	3 / 16	Yes
205-99-2	BENZO(B)FLUORANTHENE	5.0E-03	J	5.8E+00		mg/kg	S01-SS09	10 / 16	0.02 - 0.021	2.9E+00	C	1 / 16	Yes
191-24-2	BENZO(G,H,I)PERYLENE	6.0E-03	J	3.0E+00		mg/kg	S01-SS09	9 / 9	-	2.3E+03	N	0 / 9	No
207-08-9	BENZO(K)FLUORANTHENE	7.0E-03	J	1.8E+00		mg/kg	S01-SS09	8 / 9	0.004 - 0.004	2.9E+01	C	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	-	2.9E+02	C	0 / 9	No
53-70-3	DIBENZ(A,H)ANTHRACENE	4.0E-03	J	8.9E-01		mg/kg	S01-SS09	5 / 16	0.004 - 0.021	2.9E-01	C	1 / 16	Yes
132-64-9	DIBENZOFURAN	5.1E-02		1.7E-01		mg/kg	S01-SS10	2 / 16	0.018 - 0.18	1.0E+02	N	0 / 9	No
206-44-0	FLUORANTHENE	8.0E-03	J	5.6E+00		mg/kg	S01-SS09	9 / 9	-	3.0E+03	N	0 / 9	No
86-73-7	FLUORENE	7.0E-03	J	1.0E-01		mg/kg	S01-SS09	4 / 9	0.004 - 0.037	3.0E+03	N	0 / 9	No
193-39-5	INDENO(1,2,3-CD)PYRENE	6.0E-03	J	2.7E+00		mg/kg	S01-SS09	10 / 16	0.004 - 0.021	2.9E+00	C	1 / 9	No
85-01-8	PHENANTHRENE	8.0E-03	J	1.0E+00		mg/kg	S01-SS09	9 / 9	-	2.3E+04	N	0 / 9	No
108-95-2	PHENOL	2.3E-02	J	4.3E-02		mg/kg	S01-SS09	3 / 9	0.018 - 0.18	2.5E+04	N	0 / 9	No
129-00-0	PYRENE	9.0E-03	J	4.4E+00		mg/kg	S01-SS09	9 / 9	-	2.3E+03	N	0 / 9	No
7440-38-2	ARSENIC	6.6E+00		1.6E+01		mg/kg	S01-SS02	9 / 9	-	3.0E+00	C	9 / 9	Yes
7440-39-3	BARIUM	8.6E+01		8.6E+02		mg/kg	S01-SS09	9 / 9	-	2.2E+04	N	0 / 9	No

Table 5-1. SWMU 1 Step 1: Selection of Chemicals of Potential Concern (Industrial Exposure Scenario)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Flaring Pad

7440-43-9	CADMIUM	4.2E-02 J	1.1E+00	mg/kg	S01-SS01	9 / 9	-	9.8E+01	N	0 / 9	No
7440-47-3	CHROMIUM	1.1E+01	4.4E+01	mg/kg	S01-SS09	9 / 9	-	1.8E+05	Max	0 / 9	No
7439-92-1	LEAD	5.6E+00	7.4E+01	mg/kg	S01-SS06	9 / 9	-	8.0E+02	L	0 / 9	No
7439-97-6	MERCURY	9.8E-03 J	3.3E-02 J	mg/kg	S01-SS01	8 / 9	0.0073 - 0.0073	3.5E+01	N	0 / 9	No
7782-49-2	SELENIUM	1.3E+00 J	1.5E+01	mg/kg	S01-SS09	4 / 9	0.759 - 0.831	5.8E+02	N	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	5.8E+02	N	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	2.4E+01	N	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	1.9E+04	N	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	1.3E+02	N	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	Sat	0 / 27	No
67-64-1	Acetone	8.0E-03 J	9.8E-02 J	mg/kg	S01-SS03	24 / 27	0.31 - 0.38	6.7E+04	N	0 / 27	No
71-43-2	Benzene	5.0E-04 J	1.6E-01 J	mg/kg	S01-SS02	8 / 49	0.0005 - 0.34	5.1E+00	N	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	N	0 / 26	No
75-25-2	Bromoform	1.0E-03 J	1.3E-01 J	mg/kg	S01-SS02	7 / 48	0.0009 - 0.34	8.6E+01	C	0 / 26	No
75-15-0	Carbon disulfide	1.0E-03 J	1.4E-02	mg/kg	S01-SS07	5 / 27	0.001 - 0.054	3.5E+02	N	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	1.3E+02	N	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	2.3E+02	N	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	Sat	0 / 27	No
100-41-4	Ethylbenzene	1.0E-03 J	2.1E+01 J	mg/kg	S01-SS12	9 / 49	0.0009 - 0.34	2.5E+01	C	0 / 27	No
98-82-8	Isopropylbenzene	2.0E-03 J	2.5E-01 J	mg/kg	S01-SS02	3 / 49	0.0009 - 0.34	2.7E+02	Sat	0 / 27	No
179601-23-1	m,p-Xylene	2.0E-03 J	9.0E-03 J	mg/kg	S01-SS13	2 / 49	0.0009 - 0.34	2.4E+02	N	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	Sat	0 / 27	No
91-20-3	Naphthalene	2.0E-03 J	8.0E-03 J	mg/kg	S01-SS13	2 / 48	0.0009 - 0.34	1.7E+01	N	0 / 26	No
103-65-1	n-Propylbenzene	1.0E-01 J	1.0E-01 J	mg/kg	S01-SS02	1 / 48	0.0009 - 0.34	2.6E+02	Sat	0 / 26	No
95-47-6	o-Xylene	3.0E-03 J	4.5E-02 J	mg/kg	S01-SS02	2 / 49	0.0009 - 0.34	2.8E+02	N	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	1.5E+02	Sat	0 / 26	No
127-18-4	Tetrachloroethene	1.0E-03 J	1.6E+00 J	mg/kg	S01-SS02	42 / 49	0.001 - 0.27	3.9E+01	N	0 / 27	No
108-88-3	Toluene	2.0E-03 J	6.1E-02 J	mg/kg	S01-SS02	4 / 27	0.0009 - 0.051	8.2E+02	Sat	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	1.9E+03	Sat	0 / 27	No
79-01-6	Trichloroethene	1.0E-03 J	6.8E-02 J	mg/kg	S01-SS02	14 / 49	0.0009 - 0.34	1.9E+00	N	0 / 27	No
92-52-4	1,1'-Biphenyl	2.5E-02 J	1.1E+02	mg/kg	S01-SS10	10 / 49	0.018 - 0.18	2.0E+01	N	2 / 49	Yes
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	Sat	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	1.1E+01	C	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	1.6E+03	N	0 / 27	No
91-57-6	2-Methylnaphthalene	4.0E-03 J	2.6E-02	mg/kg	S01-SS09	9 / 49	0.004 - 0.037	3.0E+02	N	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	8.0E+02	N	0 / 27	No
106-44-5	4-Methylphenol	6.3E-02	6.3E-02	mg/kg	S01-SS09	1 / 27	0.018 - 0.18	8.2E+03	N	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	4.5E+03	N	0 / 27	No
208-96-8	Acenaphthylene	4.0E-03 J	1.1E+00	mg/kg	S01-SS09	5 / 27	0.004 - 0.02	4.5E+03	N	0 / 27	No
120-12-7	Anthracene	1.9E-02 J	1.2E+00	mg/kg	S01-SS09	5 / 27	0.004 - 0.02	2.3E+04	N	0 / 27	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	3.7E+00	mg/kg	S01-SS09	10 / 49	0.004 - 0.021	2.9E+00	C	1 / 49	Yes
50-32-8	Benzo(a)pyrene	4.0E-03 J	3.8E+00	mg/kg	S01-SS09	11 / 49	0.004 - 0.021	2.9E-01	C	3 / 49	Yes
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	5.8E+00	mg/kg	S01-SS09	12 / 49	0.004 - 0.021	2.9E+00	C	1 / 49	Yes
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	3.0E+00	mg/kg	S01-SS09	9 / 27	0.004 - 0.004	2.3E+03	N	0 / 27	No
207-08-9	Benzo(k)fluoranthene	7.0E-03 J	1.8E+00	mg/kg	S01-SS09	8 / 27	0.004 - 0.004	2.9E+01	C	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 - 0.004	2.9E+02	C	0 / 27	No
53-70-3	Dibenz(a,h)anthracene	4.0E-03 J	8.9E-01	mg/kg	S01-SS09	6 / 49	0.004 - 0.021	2.9E-01	C	1 / 49	Yes

Table 5-1. SWMU 1 Step 1: Selection of Chemicals of Potential Concern (Industrial Exposure Scenario)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Flaring Pad

132-64-9	Dibenzofuran	5.1E-02		1.7E-01		mg/kg	S01-SS10	3 / 49	0.018 - 0.18	1.0E+02	N	0 / 27	No
206-44-0	Fluoranthene	8.0E-03	J	5.6E+00		mg/kg	S01-SS09	9 / 27	0.004 - 0.004	3.0E+03	N	0 / 27	No
86-73-7	Fluorene	7.0E-03	J	1.0E-01		mg/kg	S01-SS09	4 / 27	0.004 - 0.037	3.0E+03	N	0 / 27	No
193-39-5	Indeno(1,2,3-cd)pyrene	6.0E-03	J	2.7E+00		mg/kg	S01-SS09	11 / 49	0.004 - 0.021	2.9E+00	C	1 / 27	No
85-01-8	Phenanthrene	8.0E-03	J	1.0E+00		mg/kg	S01-SS09	11 / 27	0.004 - 0.004	2.3E+04	N	0 / 27	No
108-95-2	Phenol	2.3E-02	J	4.3E-02		mg/kg	S01-SS09	3 / 27	0.018 - 0.18	2.5E+04	N	0 / 27	No
129-00-0	Pyrene	9.0E-03	J	4.4E+00		mg/kg	S01-SS09	10 / 27	0.004 - 0.004	2.3E+03	N	0 / 27	No
7440-38-2	Arsenic	6.6E+00		1.7E+01		mg/kg	S01-SS09	27 / 27	-	3.0E+00	C	27 / 27	Yes
7440-39-3	Barium	3.9E+01		8.6E+02		mg/kg	S01-SS09	27 / 27	-	2.2E+04	N	0 / 27	No
7440-43-9	Cadmium	4.2E-02	J	1.4E+00		mg/kg	S01-SS01	27 / 27	-	9.8E+01	N	0 / 27	No
7440-47-3	Chromium	1.1E+01		4.4E+01		mg/kg	S01-SS09	27 / 27	-	1.8E+05	Max	0 / 27	No
7439-92-1	Lead	5.6E+00		7.4E+01		mg/kg	S01-SS06	27 / 27	-	8.0E+02	L	0 / 27	No
7439-97-6	Mercury	9.8E-03	J	4.8E-02	J	mg/kg	S01-SS06	26 / 27	0.0073 - 0.0073	3.5E+01	N	0 / 27	No
7782-49-2	Selenium	1.3E+00	J	1.5E+01		mg/kg	S01-SS09	4 / 27	0.759 - 0.849	5.8E+02	N	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	5.8E+02	N	0 / 27	No

Note:

Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2015).
RSL value for m-xylene used as surrogate for m,p-xylene.
Soil saturation value for n-hexane used as surrogate for methylcylcohexane.
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.

J = estimated value
NA = not applicable/not available
C = carcinogenic
N = noncarcinogenic
L = Screening level for lead is from the Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities, USEPA, July 14, 1994.
SAT = Calculated RSL exceeds the saturation limit, therefore the saturation limit is used as screening level
mg/kg = milligrams per kilogram

Table 5-2. SWMU 1 Step 2: Industrial Exposure Scenario Risk Ratio Screening for Soil, Maximum Detected Concentration

RFI Phase 2 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)								
1,1'-Biphenyl	7.3E+01	S01-SS06	6 / 16	4.1E+02	1E-06	NA	2E-07	NA
1,1'-Biphenyl	7.3E+01	S01-SS06	6 / 16	2.0E+02	1E+00	0.4	NA	Kidney
Benzo(a)anthracene	3.7E+00	S01-SS09	9 / 16	2.9E+00	1E-06	NA	1E-06	NA
Benzo(a)pyrene	3.8E+00	S01-SS09	9 / 16	2.9E-01	1E-06	NA	1E-05	NA
Benzo(b)fluoranthene	5.8E+00	S01-SS09	10 / 16	2.9E+00	1E-06	NA	2E-06	NA
Benzo(k)fluoranthene	1.8E+00	S01-SS09	8 / 9	2.9E+01	1E-06	NA	6E-08	NA
Chrysene	3.5E+00	S01-SS09	9 / 9	2.9E+02	1E-06	NA	1E-08	NA
Dibenz(a,h)anthracene	8.9E-01	S01-SS09	5 / 16	2.9E-01	1E-06	NA	3E-06	NA
Indeno(1,2,3-cd)pyrene	2.7E+00	S01-SS09	10 / 16	2.9E+00	1E-06	NA	9E-07	NA
Metals (mg/kg)								
Arsenic	1.6E+01	S01-SS02	9 / 9	3.0E+00	1E-06	NA	5E-06	NA
Arsenic	1.6E+01	S01-SS02	9 / 9	4.8E+02	1E+00	0.03	NA	Skin, Vascular
Cumulative Corresponding Hazard Index[c]						**0.4**		
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	1.1E+02	S01-SS10	10 / 49	4.1E+02	1E-06	NA	3E-07	NA
1,1'-Biphenyl	1.1E+02	S01-SS10	10 / 49	2.0E+02	1E+00	0.6	NA	Kidney
Benzo(a)anthracene	3.7E+00	S01-SS09	10 / 49	2.9E+00	1E-06	NA	1E-06	NA
Benzo(a)pyrene	3.8E+00	S01-SS09	11 / 49	2.9E-01	1E-06	NA	1E-05	NA
Benzo(b)fluoranthene	5.8E+00	S01-SS09	12 / 49	2.9E+00	1E-06	NA	2E-06	NA
Benzo(k)fluoranthene	1.8E+00	S01-SS09	8 / 27	2.9E+01	1E-06	NA	6E-08	NA
Chrysene	3.5E+00	S01-SS09	9 / 27	2.9E+02	1E-06	NA	1E-08	NA
Dibenz(a,h)anthracene	8.9E-01	S01-SS09	6 / 49	2.9E-01	1E-06	NA	3E-06	NA
Indeno(1,2,3-cd)pyrene	2.7E+00	S01-SS09	11 / 49	2.9E+00	1E-06	NA	9E-07	NA
Metals (mg/kg)								
Arsenic	1.7E+01	S01-SS09	27 / 27	3.0E+00	1E-06	NA	6E-06	NA
Arsenic	1.7E+01	S01-SS09	27 / 27	4.8E+02	1E+00	0.04	NA	Skin, Vascular
Cumulative Corresponding Hazard Index[c]						**0.6**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

Notes:

[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 2015). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = not available/not applicable

Table 5-3. SWMU 1 Step 3: Industrial Exposure Scenario Risk Ratio Screening for Soil, Upper Confidence Limit (UCL) Concentration

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Upper Confidence Limit 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	5.3E+01 (1)	S01-SS06	6 / 16	4.1E+02	1E-06	NA	1E-07	NA
1,1'-Biphenyl	5.3E+01 (1)	S01-SS06	6 / 16	2.0E+02	1E+00	0.3	NA	Kidney
Benzo(a)anthracene	2.6E+00 (1)	S01-SS09	9 / 16	2.9E+00	1E-06	NA	9E-07	NA
Benzo(a)pyrene	2.8E+00 (1)	S01-SS09	9 / 16	2.9E-01	1E-06	NA	1E-05	NA
Benzo(b)fluoranthene	4.2E+00 (1)	S01-SS09	10 / 16	2.9E+00	1E-06	NA	1E-06	NA
Benzo(k)fluoranthene	1.7E+00 (2)	S01-SS09	8 / 9	2.9E+01	1E-06	NA	6E-08	NA
Chrysene	2.4E+00 (3)	S01-SS09	9 / 9	2.9E+02	1E-06	NA	8E-09	NA
Dibenz(a,h)anthracene	1.8E-01 (4)	S01-SS09	5 / 16	2.9E-01	1E-06	NA	6E-07	NA
Indeno(1,2,3-cd)pyrene	1.9E+00 (1)	S01-SS09	10 / 16	2.9E+00	1E-06	NA	7E-07	NA
Metals (mg/kg)								
Arsenic	1.2E+01 (5)	S01-SS02	9 / 9	3.0E+00	1E-06	NA	4E-06	NA
Arsenic	1.2E+01 (5)	S01-SS02	9 / 9	4.8E+02	1E+00	0.03	NA	Skin, Vascular
					Cumulative Corresponding Hazard Index[c]	**0.3**		
					Cumulative Corresponding Cancer Risk[d]		**2E-05**	

Total Soil

Analyte	Upper Confidence Limit 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	2.0E+01 (2)	S01-SS10	10 / 49	4.1E+02	1E-06	NA	5E-08	NA
1,1'-Biphenyl	2.0E+01 (2)	S01-SS10	10 / 49	2.0E+02	1E+00	0.1	NA	Kidney
Benzo(a)anthracene	6.6E-01 (2)	S01-SS09	10 / 49	2.9E+00	1E-06	NA	2E-07	NA
Benzo(a)pyrene	4.7E-01 (6)	S01-SS09	11 / 49	2.9E-01	1E-06	NA	2E-06	NA
Benzo(b)fluoranthene	1.4E+00 (1)	S01-SS09	12 / 49	2.9E+00	1E-06	NA	5E-07	NA
Benzo(k)fluoranthene	5.3E-01 (2)	S01-SS09	8 / 27	2.9E+01	1E-06	NA	2E-08	NA
Chrysene	1.2E+00 (2)	S01-SS09	9 / 27	2.9E+02	1E-06	NA	4E-09	NA
Dibenz(a,h)anthracene	6.5E-02 (7)	S01-SS09	6 / 49	2.9E-01	1E-06	NA	2E-07	NA
Indeno(1,2,3-cd)pyrene	3.4E-01 (6)	S01-SS09	11 / 49	2.9E+00	1E-06	NA	1E-07	NA
Metals (mg/kg)								
Arsenic	1.3E+01 (5)	S01-SS09	27 / 27	3.0E+00	1E-06	NA	4E-06	NA
Arsenic	1.3E+01 (5)	S01-SS09	27 / 27	4.8E+02	1E+00	0.03	NA	Skin, Vascular
					Cumulative Corresponding Hazard Index[c]	**0.1**		
					Cumulative Corresponding Cancer Risk[d]		**7E-06**	

Notes:

[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 2015). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = not available/not applicable

ProUCL, Version 5.0.00 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate UCL, following recommendations based on distribution and standard deviation in users guide (EPA. September 2013. ProUCL, Version 5.0.00 Prepared by Lockheed Martin Environmental Services).

Statistics Definitions: KM - Kaplan-Meier

(1) 99% KM (Chebyshev) UCL
(2) 95% Adjusted Gamma KM-UCL
(3) 95% Adjusted Gamma UCL
(4) 95% KM (t) UCL
(5) 95% Student's-t UCL
(6) 95% KM (Chebyshev) UCL
(7) 95% KM (Percentile Bootstrap) UCL

Table 5-4. Groundwater Step 1: Selection of Chemicals of Potential Concern (Potable Use)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

History:	Sitewide Groundwater

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
71-43-2	Benzene	2.0E-01	J	2.0E-01	J	µg/L	MW08	1 / 10	0.5 - 0.5	4.6E-01	C	0 / 8	No
75-25-2	Bromoform	7.0E-01		7.0E-01		µg/L	MW08	1 / 10	0.5 - 0.5	3.3E+00	C	0 / 9	No
127-18-4	Tetrachloroethene	4.0E-01	J	9.0E+01		µg/L	MW08	4 / 10	0.5 - 0.5	4.1E+00	N	1 / 7	Yes
79-01-6	Trichloroethene	1.0E-01	J	1.4E+01		µg/L	MW08	3 / 10	0.5 - 0.5	2.8E-01	N	2 / 7	Yes
91-57-6	2-Methylnaphthalene	1.8E-02		1.8E-02		µg/L	MW02	1 / 7	0.051 - 0.061	3.6E+00	N	0 / 9	No
7440-38-2	Arsenic	1.1E+00	J	1.2E+01		µg/L	MW02	2 / 7	2 - 2	5.2E-02	C	2 / 7	Yes
7440-38-2	Arsenic, dissolved	1.1E+00	J	1.1E+00	J	µg/L	MW02	1 / 7	2 - 2	5.2E-02	C	1 / 7	Yes
7440-47-3	Chromium	3.1E+00		2.9E+01		µg/L	MW02	3 / 7	2 - 2	2.2E+03	N	0 / 9	No
7440-47-3	Chromium, dissolved	2.3E+00		2.3E+00		µg/L	MW02	1 / 7	2 - 2	2.2E+03	N	0 / 9	No
7439-97-6	Mercury	6.4E-02	J	6.4E-02	J	µg/L	MW02	1 / 7	0.2 - 0.2	5.7E-01	N	0 / 9	No
7782-49-2	Selenium	8.5E-01	J	1.7E+00	J	µg/L	MW03	3 / 7	2 - 2	1.0E+01	N	0 / 9	No
7782-49-2	Selenium, dissolved	8.7E-01	J	1.4E+00	J	µg/L	MW03	2 / 7	2 - 2	1.0E+01	N	0 / 9	No

Note:

Screening Level = USEPA Tap Water Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2015).

The residential exposure scenario is assessed in the this table.

J = Estimated Value

NA = not applicable/not available

C = carcinogenic

N = noncarcinogenic

µg/L = micrograms per liter

Table 5-5. Sitewide Groundwater Step 2: Potable Use Risk Ratio Screening for Groundwater, Maximum Detected Concentration

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Tap Water RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Volatile Organic Compounds (µg/L)								
Tetrachloroethene	9.0E+01	MW08	4 / 10	1.1E+01	1E-06	NA	8E-06	NA
Tetrachloroethene	9.0E+01	MW08	4 / 10	4.1E+01	1E+00	2	NA	Neurotoxicity
Trichloroethene	1.4E+01	MW08	3 / 10	4.9E-01	1E-06	NA	3E-05	NA
Trichloroethene	1.4E+01	MW08	3 / 10	2.8E+00	1E+00	5	NA	Immune System, Developmental, Heart
Metals (µg/L)								
Arsenic	1.2E+01	MW02	2 / 7	5.2E-02	1E-06	NA	2E-04	NA
Arsenic	1.2E+01	MW02	2 / 7	6.0E+00	1E+00	2	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**9**		
Cumulative Corresponding Cancer Risk[d]							**3E-04**	

[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.

The residential exposure scenario is assessed in the this table.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2015). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

µg/L = micrograms per liter

NA = not available/not applicable

Table 5-6. Groundwater Step 1: Selection of Chemicals of Potential Concern (Vapor Intrusion)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

History:	Sitewide Groundwater

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
71-43-2	Benzene	2.0E-01 J	2.0E-01 J	µg/L	MW08	1 / 10	0.5 - 0.5	6.9E+00 C	0 / 8	No
75-25-2	Bromoform	7.0E-01	7.0E-01	µg/L	MW08	1 / 10	0.5 - 0.5	5.1E+02 C	0 / 9	No
127-18-4	Tetrachloroethene	4.0E-01 J	9.0E+01	µg/L	MW08	4 / 10	0.5 - 0.5	6.5E+01 C	1 / 7	Yes
79-01-6	Trichloroethene	1.0E-01 J	1.4E+01	µg/L	MW08	3 / 10	0.5 - 0.5	7.4E+00 C	1 / 7	Yes

Note:

Screening Level = OSWER Vapor Intrusion Screening Level (VISL) Calculator Version 3.4 based on $1x10^{-6}$ or HQ = 1 (November 2015).

The commercial exposure scenario is assessed in the this table.

J = Estimated Value

NA = not applicable/not available

C = carcinogenic

N = noncarcinogenic

µg/L = micrograms per liter

Table 5-7. Summary of Cumulative Cancer Risks and Noncancer HIs for Soil and Groundwater (Maximum Detected Concentration)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

SWMU/AOC	Groundwater - Residential (Potable Use)				Surface Soil - Industrial[a]				Subsurface Soil - Industrial[a]			
	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[b]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI[b]	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[b]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI2	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[b]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI2
1	--	--	--	--	3E-05	Benzo(a)anthracene (5%), Benzo(a)pyrene (51%), Benzo(b)fluoranthene (8%), Dibenz(a,h)anthracene (12%), Arsenic (20%)	0.4		3E-05	Benzo(a)anthracene (5%), Benzo(a)pyrene (49%), Benzo(b)fluoranthene (8%), Dibenz(a,h)anthracene (12%), Arsenic (48%)	0.6	
Sitewide Groundwater	3E-04	Tetrachloroethene (3%), Trichloroethene (11%), Arsenic (86%)	9	Tetrachloroethene (24%), Trichloroethene (55%), Arsenic (21%)	--	--	--	--	--	--	--	--

[a] Surface soil and subsurface soil represent the 0-2 feet and 0-10 feet below ground surface sample depth intervals, respectively.

[b] Significant contributors to cumulative cancer risk and cumulative noncancer hazard index (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.

-- = Medium not sampled

Table 5-8. Summary of Cumulative Cancer Risks and Noncancer HIs for Soil (Upper Confidence Limit Concentration)

RFI Phase 2 Report, Dow Hanging Rock, Ironton, Ohio

SWMU/AOC	Surface Soil - Industrial[a]				Subsurface Soil - Industrial[a]			
	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[b]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer Hi[b]	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[b]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer Hi[b]
1	2E-05	Benzo(a)pyrene (54%), Benzo(b)fluoranthene (8.2%), Arsenic (24%)	0.3		7E-06	Benzo(a)pyrene (23%), Arsenic (61%)	0.1	

[a] Surface soil and subsurface soil represent the 0-2 feet and 0-10 feet below ground surface sample depth intervals, respectively.

[b] Significant contributors to cumulative cancer risk and cumulative noncancer hazard index (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.

Figures

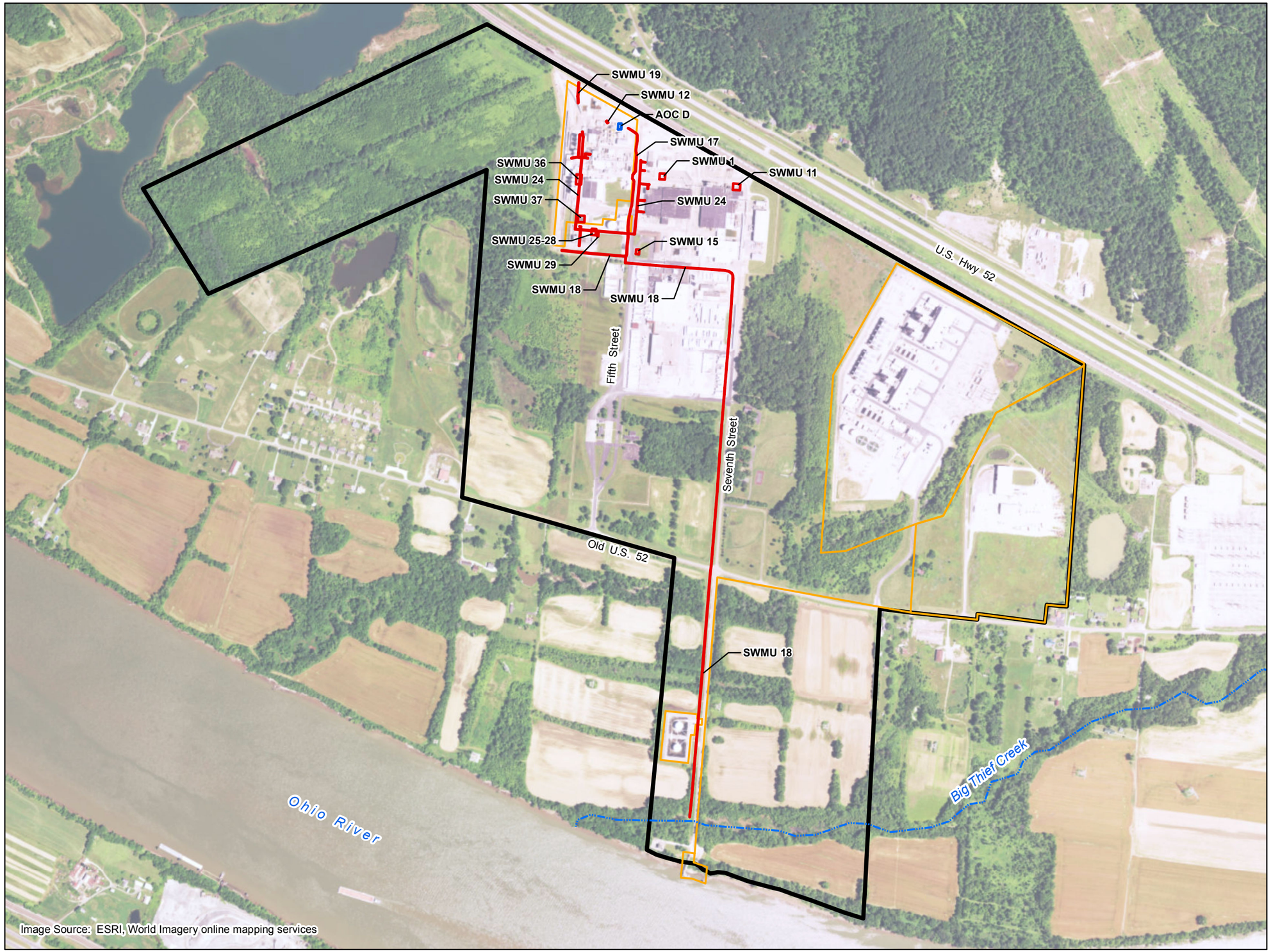
N

0 20 40
Miles

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

ch2m

\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG2-1_SITE LOCATION_RFI.MXD SASELAGE 3/16/2016 9:42:50 AM



LEGEND

- Big Thief Creek
- AOC
- SWMU
- Property Owned or Leased by Others
- Approximate Site Boundary

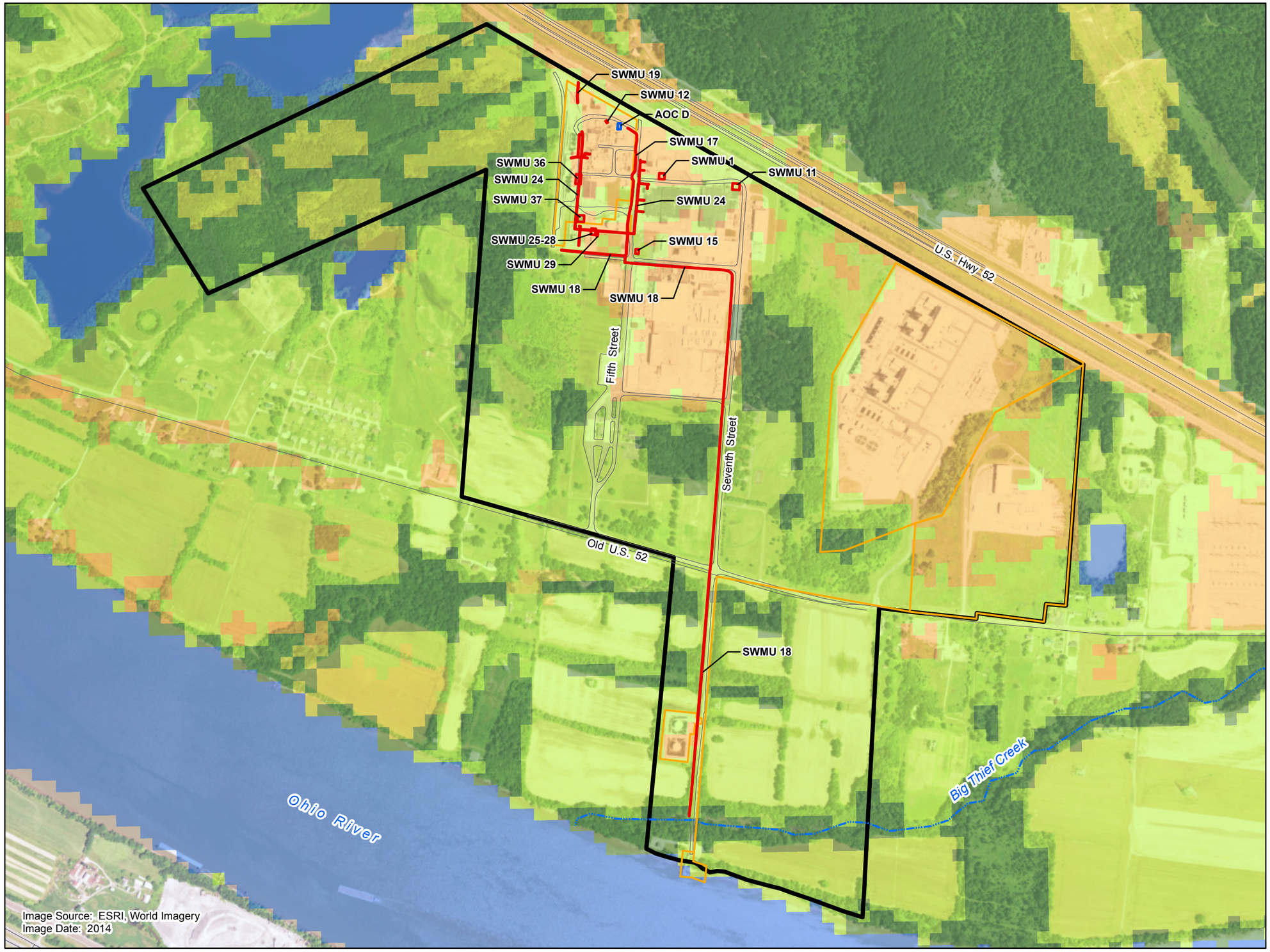
N

0 400 800
Feet

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

ch2m

\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG2-2_SITE_FEATURES_RFI_2017.MXD SASELAGE 7/18/2017 10:53:51 AM



LEGEND

- Big Thief Creek
- AOC
- SWMU
- Property Owned or Leased by Others
- Edge of Road
- 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

0 400 800
Feet

FIGURE 2-3
Land Use and Land Cover
Dow Hanging Rock Phase 2 RFI Report
Ironton, Ohio

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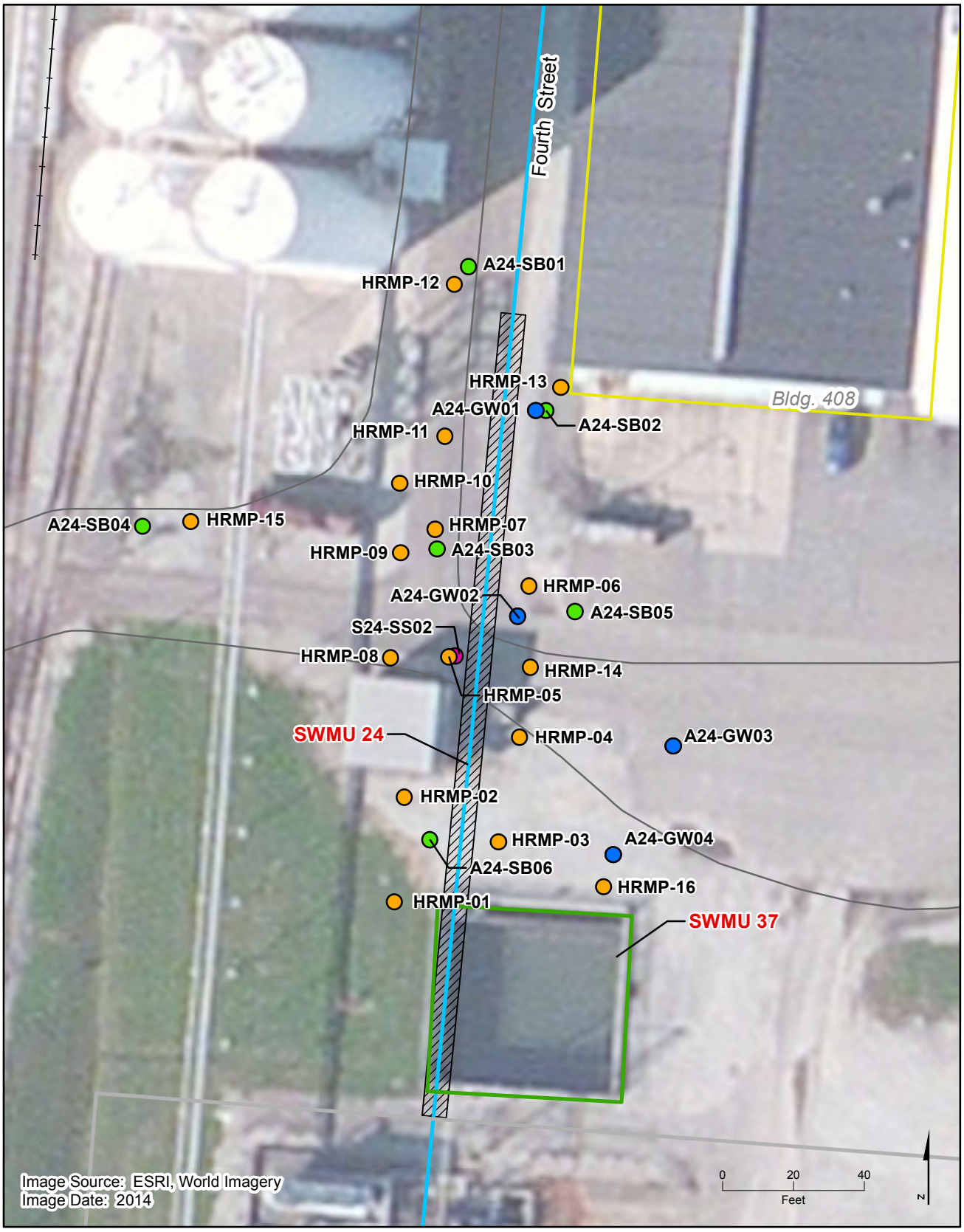
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG2-3_LAND_USE_COVER_RFI2_2017.MXD SASELAGE 7/18/2017 12:48:18 PM



LEGEND

- MIP Location
- Groundwater Grab Sample Location
- Phase 1 Soil Boring Location
- Phase 2 Soil Boring Location
- Building
- Property Owned or Leased by Others
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU 24 - Process Sewer Location
- SWMU 37
- Railroad
- Edge of Road

FIGURE 3-1
SWMU 24 MIP, Soil, and Groundwater Grab Sampling Locations
Dow Hanging Rock Phase 2 RFI Report
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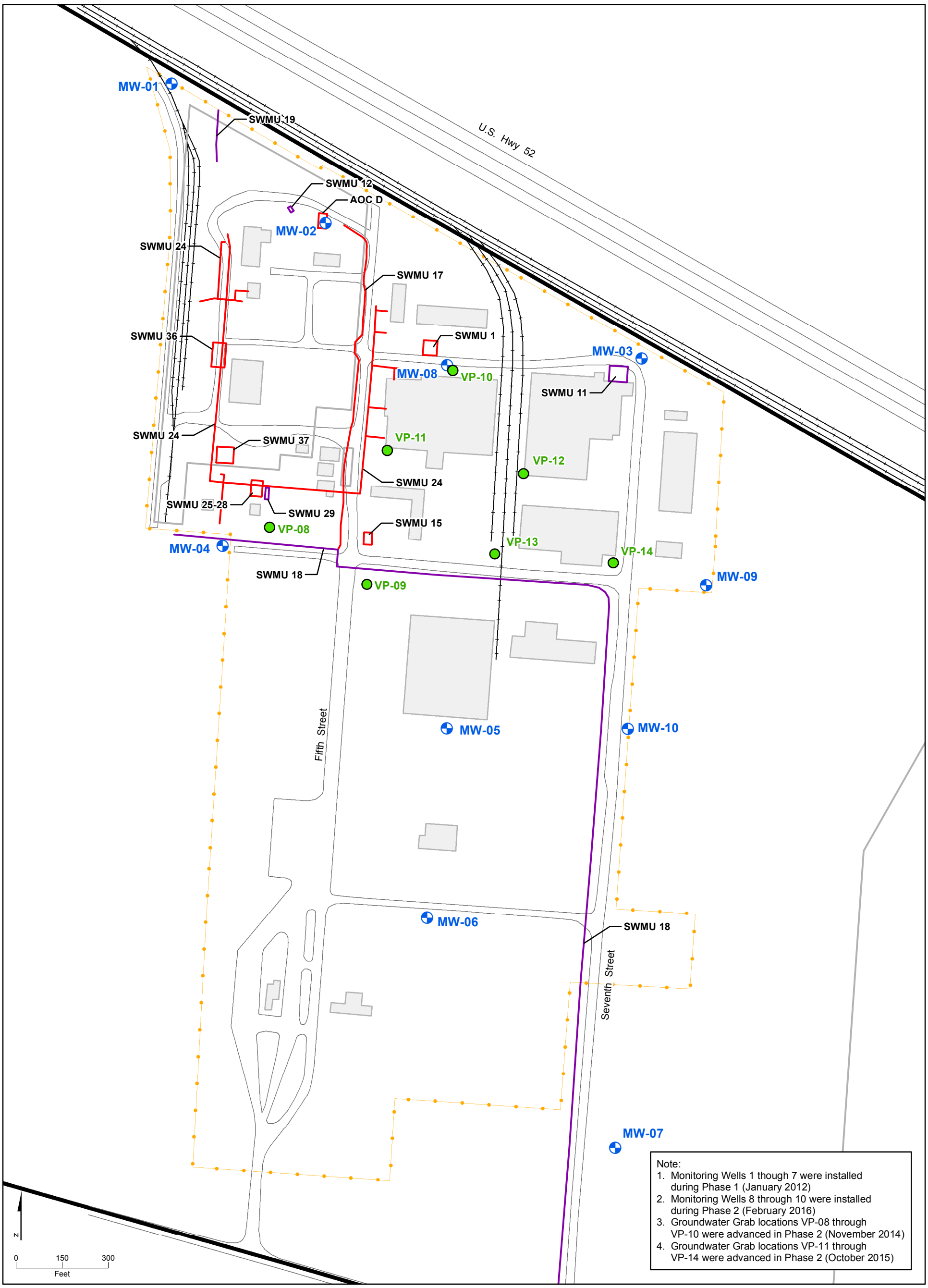
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG3-1_SWMU_24_MIP_LOCATIONS_RFI2.MXD SASELAGE 5/16/2016 2:42:06 PM



LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others
- Building
- Groundwater Grab Sample Location
- Monitoring Well
- SWMUs and AOC Investigated in Phase 2 for Potential Impacts to Groundwater
- SWMUs Not Requiring Further Investigation after Phase 1
- Railroad
- Fence
- Edge of Road

FIGURE 3-2
Monitoring Well and Groundwater Grab Locations
Dow Hanging Rock Phase 2 RFI Report
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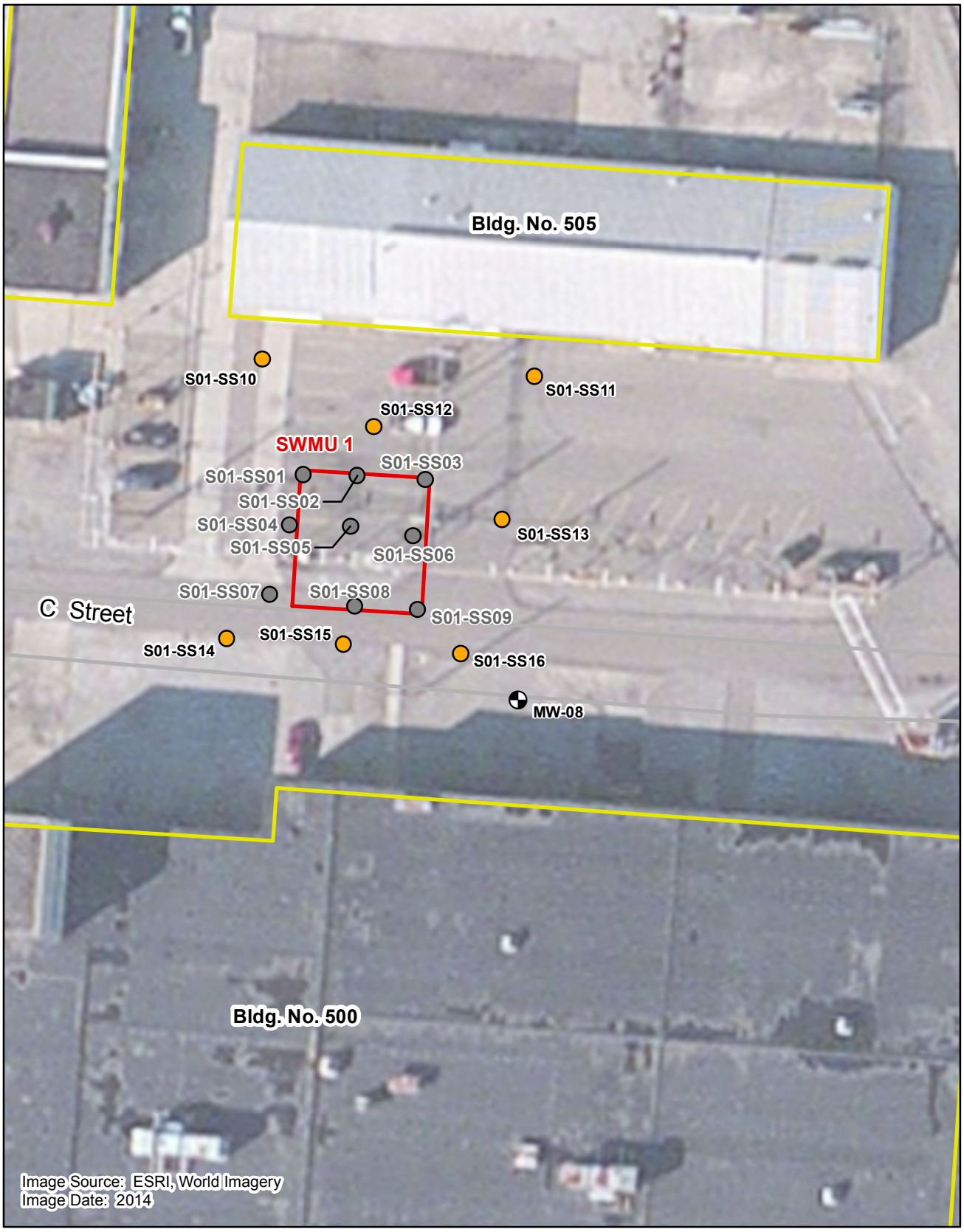
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG3-2_MW_AND_VP_LOCATIONS_RFI2_2017.MXD SASELAGE 7/18/2017 1:07:53 PM



LEGEND

- SWMU
- Building
- Edge of Road
- Monitoring Well
- Phase 2 Sample Locations
- Phase 1 Sample Locations

N

0 25 50
Feet

FIGURE 3-3
SWMU 1 Soil Sample Locations
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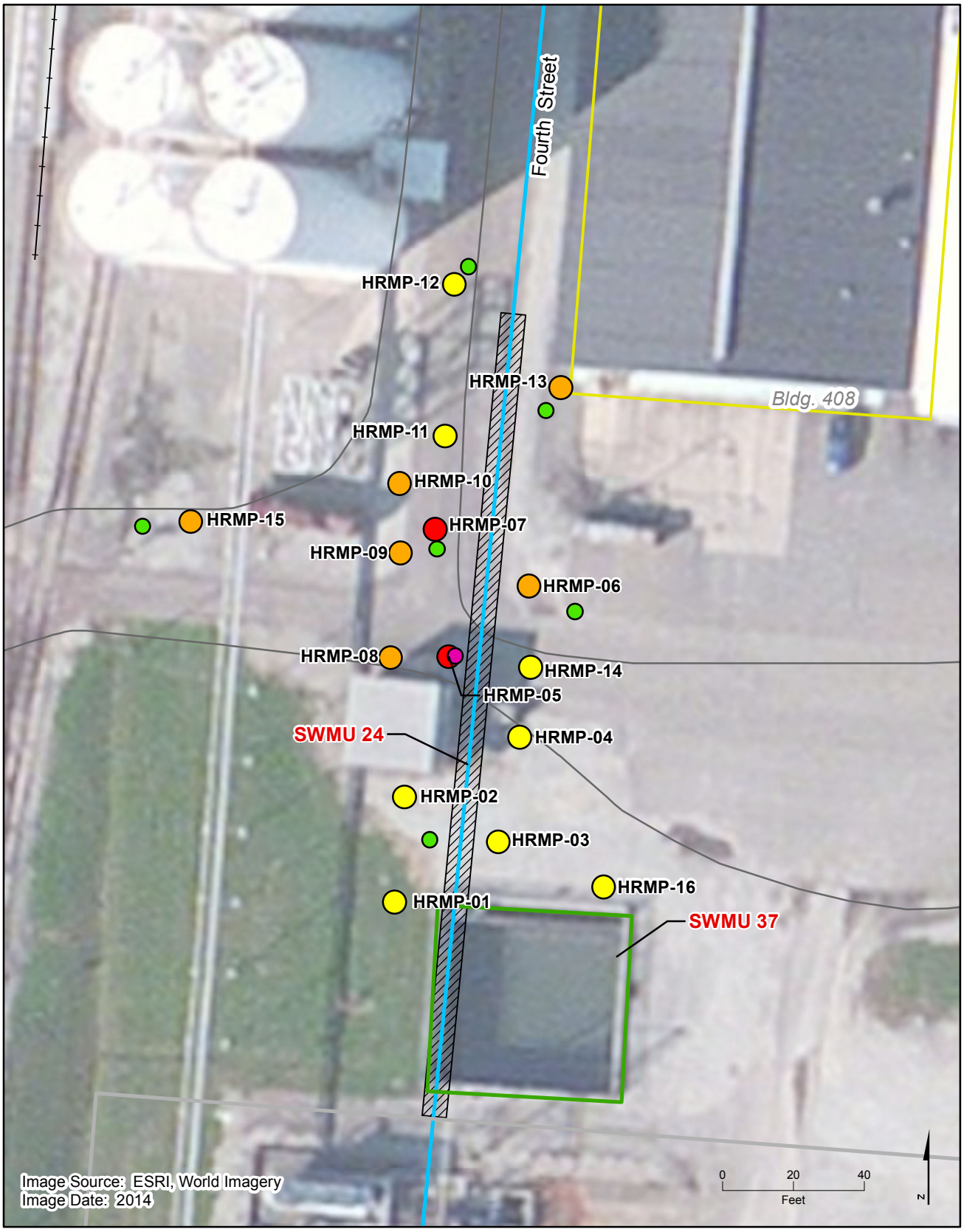
RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-1_SWMU_1_SOIL_EXCEED_RFI.MXD SASELAGE 5/12/2016 12:19:40 PM



LEGEND

- PID Readings < 50,000 µV
- PID Readings 50,000-1,000,000 µV
- PID Readings > 1,000,000 µV
- Phase 1 Soil Boring Location
- Phase 2 Soil Boring Location
- Building
- Property Owned or Leased by Others
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU 24 - Process Sewer Location
- SWMU 37
- Railroad
- Edge of Road

FIGURE 4-1
SWMU 24 MIP PID Results
Dow Hanging Rock Phase 2 RFI Report
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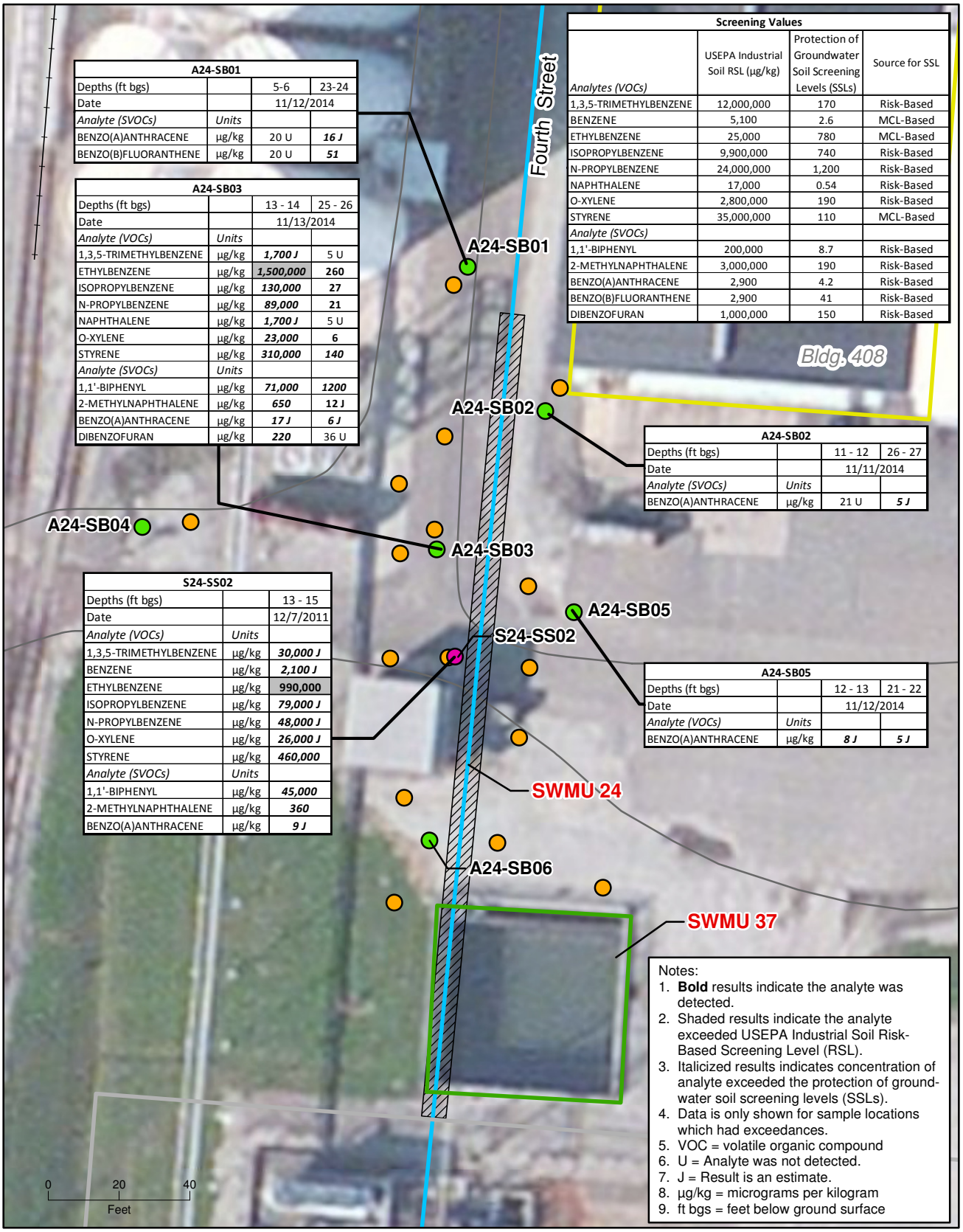

A24-SB01			
Depths (ft bgs)		5-6	23-24
Date		11/12/2014	
Analyte (SVOCs)	*Units*		
BENZO(A)ANTHRACENE	µg/kg	20 U	***16 J***
BENZO(B)FLUORANTHENE	µg/kg	20 U	***51***

A24-SB03			
Depths (ft bgs)		13 - 14	25 - 26
Date		11/13/2014	
Analyte (VOCs)	*Units*		
1,3,5-TRIMETHYLBENZENE	µg/kg	***1,700 J***	5 U
ETHYLBENZENE	µg/kg	***1,500,000***	**260**
ISOPROPYLBENZENE	µg/kg	***130,000***	**27**
N-PROPYLBENZENE	µg/kg	***89,000***	**21**
NAPHTHALENE	µg/kg	***1,700 J***	5 U
O-XYLENE	µg/kg	***23,000***	**6**
STYRENE	µg/kg	***310,000***	***140***
Analyte (SVOCs)	*Units*		
1,1'-BIPHENYL	µg/kg	***71,000***	***1200***
2-METHYLNAPHTHALENE	µg/kg	***650***	**12 J**
BENZO(A)ANTHRACENE	µg/kg	***17 J***	***6 J***
DIBENZOFURAN	µg/kg	***220***	36 U

Screening Values			
Analytes (VOCs)	USEPA Industrial Soil RSL (µg/kg)	Protection of Groundwater Soil Screening Levels (SSLs)	Source for SSL
1,3,5-TRIMETHYLBENZENE	12,000,000	170	Risk-Based
BENZENE	5,100	2.6	MCL-Based
ETHYLBENZENE	25,000	780	MCL-Based
ISOPROPYLBENZENE	9,900,000	740	Risk-Based
N-PROPYLBENZENE	24,000,000	1,200	Risk-Based
NAPHTHALENE	17,000	0.54	Risk-Based
O-XYLENE	2,800,000	190	Risk-Based
STYRENE	35,000,000	110	MCL-Based
Analyte (SVOCs)			
1,1'-BIPHENYL	200,000	8.7	Risk-Based
2-METHYLNAPHTHALENE	3,000,000	190	Risk-Based
BENZO(A)ANTHRACENE	2,900	4.2	Risk-Based
BENZO(B)FLUORANTHENE	2,900	41	Risk-Based
DIBENZOFURAN	1,000,000	150	Risk-Based

A24-SB02			
Depths (ft bgs)		11 - 12	26 - 27
Date		11/11/2014	
Analyte (SVOCs)	*Units*		
BENZO(A)ANTHRACENE	µg/kg	21 U	***5 J***

S24-SS02		
Depths (ft bgs)		13 - 15
Date		12/7/2011
Analyte (VOCs)	*Units*	
1,3,5-TRIMETHYLBENZENE	µg/kg	***30,000 J***
BENZENE	µg/kg	***2,100 J***
ETHYLBENZENE	µg/kg	**990,000**
ISOPROPYLBENZENE	µg/kg	***79,000 J***
N-PROPYLBENZENE	µg/kg	***48,000 J***
O-XYLENE	µg/kg	***26,000 J***
STYRENE	µg/kg	***460,000***
Analyte (SVOCs)	*Units*	
1,1'-BIPHENYL	µg/kg	***45,000***
2-METHYLNAPHTHALENE	µg/kg	***360***
BENZO(A)ANTHRACENE	µg/kg	***9 J***

A24-SB05			
Depths (ft bgs)		12 - 13	21 - 22
Date		11/12/2014	
Analyte (VOCs)	*Units*		
BENZO(A)ANTHRACENE	µg/kg	***8 J***	***5 J***

Notes:
1. **Bold** results indicate the analyte was detected.
2. Shaded results indicate the analyte exceeded USEPA Industrial Soil Risk-Based Screening Level (RSL).
3. Italicized results indicates concentration of analyte exceeded the protection of ground-water soil screening levels (SSLs).
4. Data is only shown for sample locations which had exceedances.
5. VOC = volatile organic compound
6. U = Analyte was not detected.
7. J = Result is an estimate.
8. µg/kg = micrograms per kilogram
9. ft bgs = feet below ground surface

LEGEND

- Building
- Property Owned or Leased by Others
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU 24 - Process Sewer Location
- SWMU 37
- Railroad
- Edge of Road
- MIP Location
- Phase 1 Soil Sample Location
- Phase 2 Soil Sample Location

N

FIGURE 4-2
SWMU 24 Soil Exceedances
Dow Hanging Rock Phase 2 RFI Report
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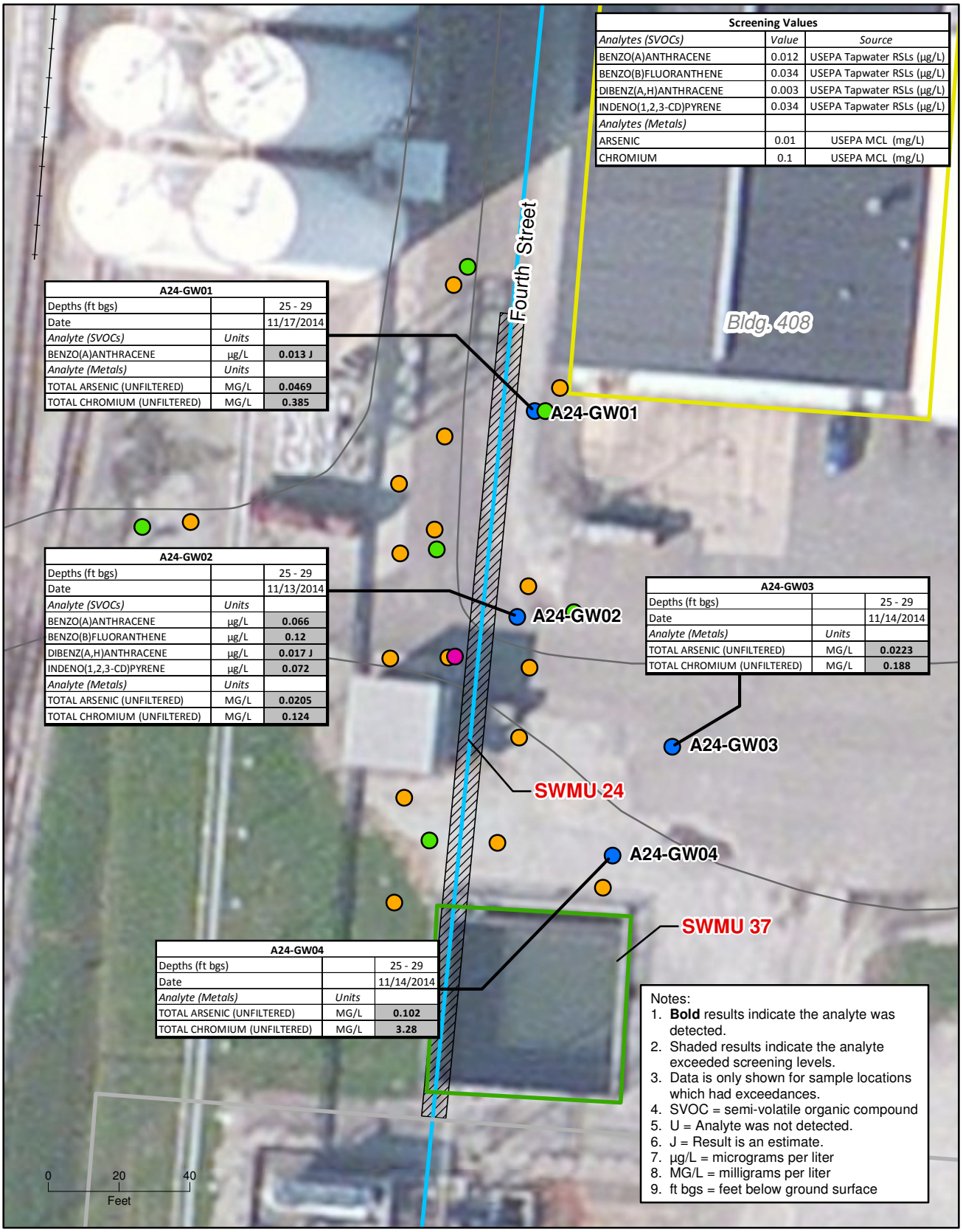

Screening Values		
Analytes (SVOCs)	*Value*	*Source*
BENZO(A)ANTHRACENE	0.012	USEPA Tapwater RSLs (µg/L)
BENZO(B)FLUORANTHENE	0.034	USEPA Tapwater RSLs (µg/L)
DIBENZ(A,H)ANTHRACENE	0.003	USEPA Tapwater RSLs (µg/L)
INDENO(1,2,3-CD)PYRENE	0.034	USEPA Tapwater RSLs (µg/L)
Analytes (Metals)		
ARSENIC	0.01	USEPA MCL (mg/L)
CHROMIUM	0.1	USEPA MCL (mg/L)

A24-GW01		
Depths (ft bgs)		25 - 29
Date		11/17/2014
Analyte (SVOCs)	*Units*	
BENZO(A)ANTHRACENE	µg/L	**0.013 J**
Analyte (Metals)	*Units*	
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.0469**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.385**

A24-GW02		
Depths (ft bgs)		25 - 29
Date		11/13/2014
Analyte (SVOCs)	*Units*	
BENZO(A)ANTHRACENE	µg/L	**0.066**
BENZO(B)FLUORANTHENE	µg/L	**0.12**
DIBENZ(A,H)ANTHRACENE	µg/L	**0.017 J**
INDENO(1,2,3-CD)PYRENE	µg/L	**0.072**
Analyte (Metals)	*Units*	
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.0205**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.124**

A24-GW03		
Depths (ft bgs)		25 - 29
Date		11/14/2014
Analyte (Metals)	*Units*	
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.0223**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.188**

A24-GW04		
Depths (ft bgs)		25 - 29
Date		11/14/2014
Analyte (Metals)	*Units*	
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.102**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**3.28**

Notes:
1. **Bold** results indicate the analyte was detected.
2. Shaded results indicate the analyte exceeded screening levels.
3. Data is only shown for sample locations which had exceedances.
4. SVOC = semi-volatile organic compound
5. U = Analyte was not detected.
6. J = Result is an estimate.
7. µg/L = micrograms per liter
8. MG/L = milligrams per liter
9. ft bgs = feet below ground surface

LEGEND

- Building
- Property Owned or Leased by Others
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU 24 - Process Sewer Location
- SWMU 37
- Railroad
- Edge of Road
- Groundwater Grab Sample Location
- MIP Location
- Phase 1 Soil Sample Location
- Phase 2 Soil Sample Location

N

FIGURE 4-3
SWMU 24 Groundwater Grab Exceedances

Dow Hanging Rock Phase 2 RFI Report
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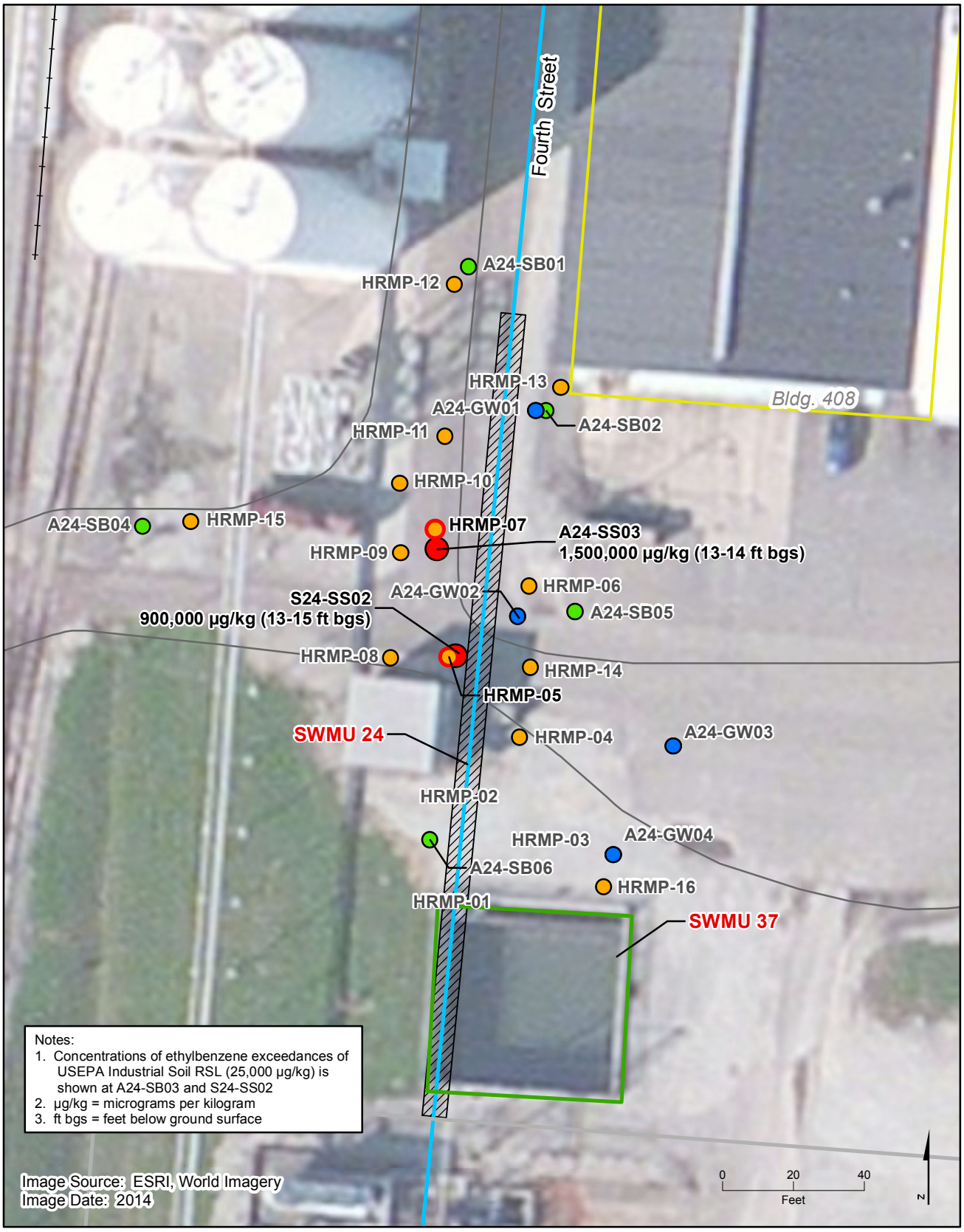

LEGEND

- Ethlybenzene Exceedance Location
- MIP L ocation
- High PID Reading MIP Location
- Phase 2 Soil Boring Location
- Groundwater Grab Sample Location
- Building
- Property Owned or Leased by Others
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU 24 - Process Sewer Location
- SWMU 37
- Railroad
- Edge of Road

FIGURE 4-4
SWMU 24
Summary of Results
Dow Hanging Rock Phase 2 RFI Report
Ironton, Ohio

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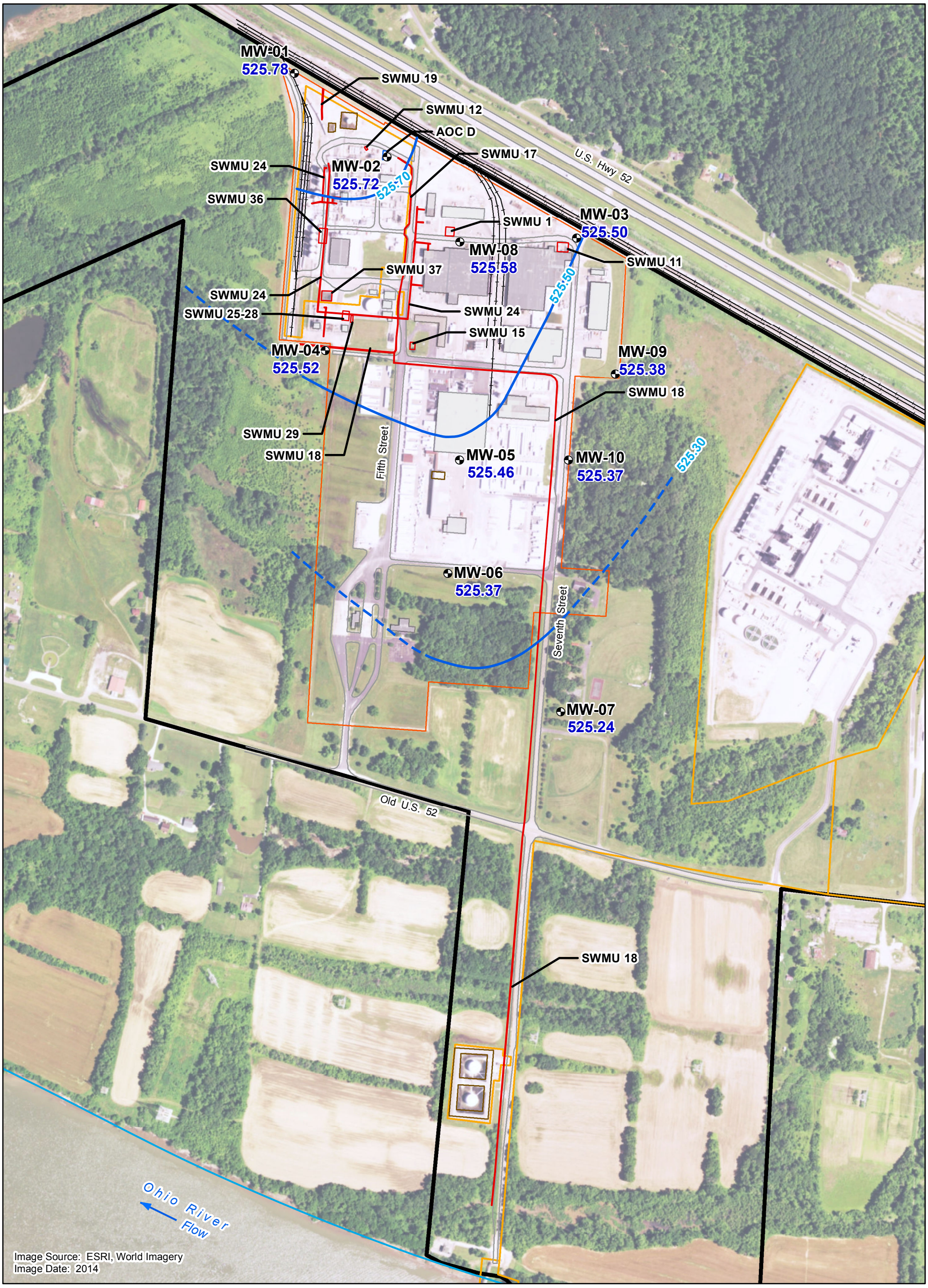
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG4-4_SWMU_24_SUMMARY_RFI2.MXD SASELAGE 5/16/2016 2:47:01 PM



LEGEND

- Approximate Site Boundary
- AOC
- SWMU
- Railroad
- Fence
- Edge of Road
- Miscellaneous Structure
- Building
- Property Owned or Leased by Others
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Elevation Contour Inferred

Note:
1. Potentiometric surface depicted is based on water levels collected February 2016.

N

0 250 500
Feet

FIGURE 4-5
Potentiometric Surface Map
Dow Hanging Rock Phase 2 RFI Report
Ironton, Ohio

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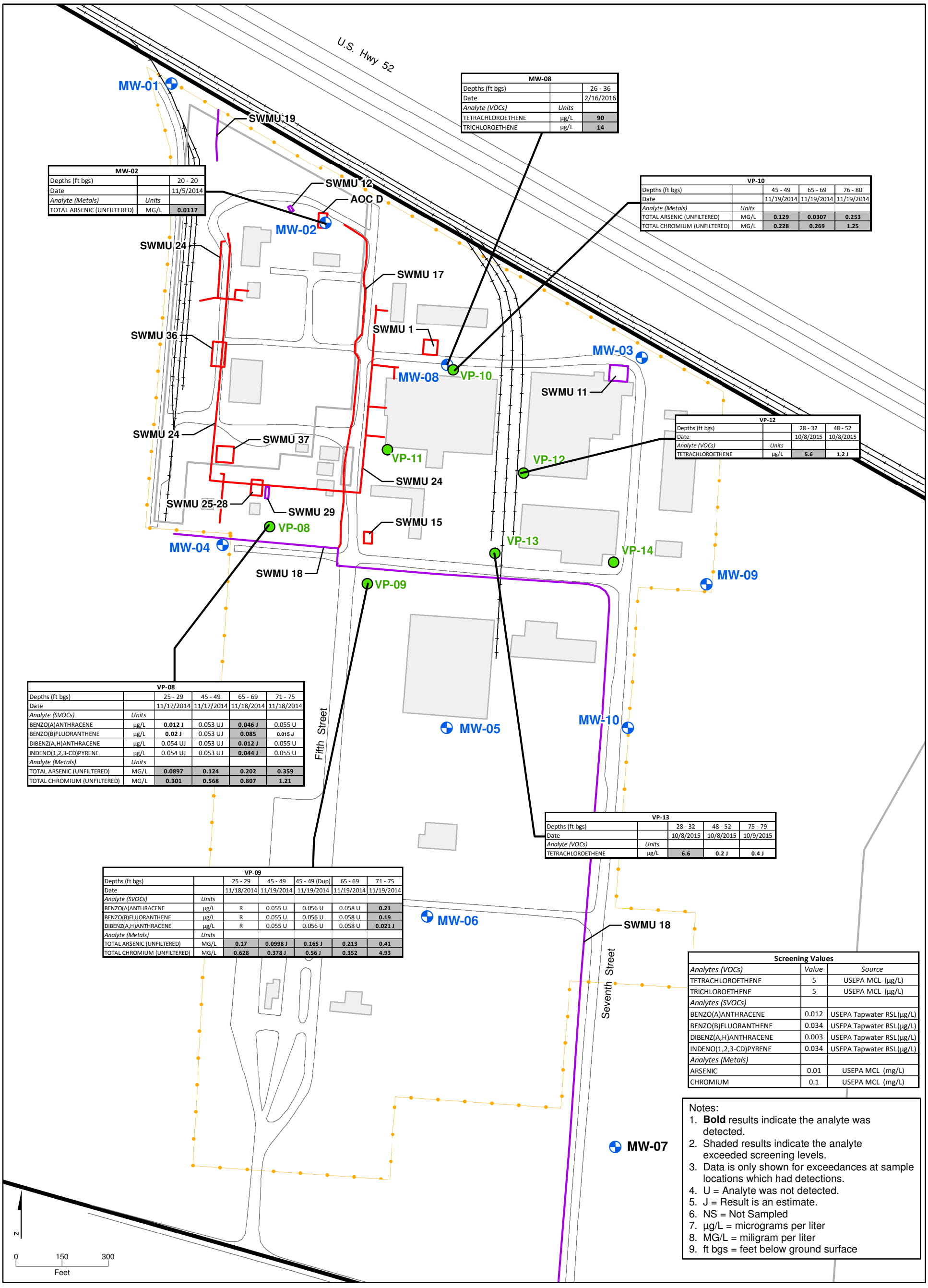
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG4-5_POT_SURF_FEB2016_RFI2_2017.MXD SASELAGE 7/18/2017 12:52:24 PM



MW-08		
Depths (ft bgs)		26 - 36
Date		2/16/2016
Analyte (VOCs)	*Units*	
TETRACHLOROETHENE	µg/L	**90**
TRICHLOROETHENE	µg/L	**14**

MW-02		
Depths (ft bgs)		20 - 20
Date		11/5/2014
Analyte (Metals)	*Units*	
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.0117**

VP-10				
Depths (ft bgs)		45 - 49	65 - 69	76 - 80
Date		11/19/2014	11/19/2014	11/19/2014
Analyte (Metals)	*Units*			
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.129**	**0.0307**	**0.253**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.228**	**0.269**	**1.25**

VP-12			
Depths (ft bgs)		28 - 32	48 - 52
Date		10/8/2015	10/8/2015
Analyte (VOCs)	*Units*		
TETRACHLOROETHENE	µg/L	**5.6**	**1.2 J**

VP-08					
Depths (ft bgs)		25 - 29	45 - 49	65 - 69	71 - 75
Date		11/17/2014	11/17/2014	11/18/2014	11/18/2014
Analyte (SVOCs)	*Units*				
BENZO(A)ANTHRACENE	µg/L	**0.012 J**	0.053 UJ	**0.046 J**	0.055 U
BENZO(B)FLUORANTHENE	µg/L	**0.02 J**	0.053 UJ	**0.085**	**0.015 J**
DIBENZ(A,H)ANTHRACENE	µg/L	0.054 UJ	0.053 UJ	**0.012 J**	0.055 U
INDENO(1,2,3-CD)PYRENE	µg/L	0.054 UJ	0.053 UJ	**0.044 J**	0.055 U
Analyte (Metals)	*Units*				
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.0897**	**0.124**	**0.202**	**0.359**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.301**	**0.568**	**0.807**	**1.21**

VP-13				
Depths (ft bgs)		28 - 32	48 - 52	75 - 79
Date		10/8/2015	10/8/2015	10/9/2015
Analyte (VOCs)	*Units*			
TETRACHLOROETHENE	µg/L	**6.6**	**0.2 J**	**0.4 J**

VP-09						
Depths (ft bgs)		25 - 29	45 - 49	45 - 49 (Dup)	65 - 69	71 - 75
Date		11/18/2014	11/19/2014	11/19/2014	11/19/2014	11/19/2014
Analyte (SVOCs)	*Units*					
BENZO(A)ANTHRACENE	µg/L	R	0.055 U	0.056 U	0.058 U	**0.21**
BENZO(B)FLUORANTHENE	µg/L	R	0.055 U	0.056 U	0.058 U	**0.19**
DIBENZ(A,H)ANTHRACENE	µg/L	R	0.055 U	0.056 U	0.058 U	**0.021 J**
Analyte (Metals)	*Units*					
TOTAL ARSENIC (UNFILTERED)	MG/L	**0.17**	**0.0998 J**	**0.165 J**	**0.213**	**0.41**
TOTAL CHROMIUM (UNFILTERED)	MG/L	**0.628**	**0.378 J**	**0.56 J**	**0.352**	**4.93**

Screening Values		
Analytes (VOCs)	*Value*	*Source*
TETRACHLOROETHENE	5	USEPA MCL (µg/L)
TRICHLOROETHENE	5	USEPA MCL (µg/L)
Analytes (SVOCs)		
BENZO(A)ANTHRACENE	0.012	USEPA Tapwater RSL(µg/L)
BENZO(B)FLUORANTHENE	0.034	USEPA Tapwater RSL(µg/L)
DIBENZ(A,H)ANTHRACENE	0.003	USEPA Tapwater RSL(µg/L)
INDENO(1,2,3-CD)PYRENE	0.034	USEPA Tapwater RSL(µg/L)
Analytes (Metals)		
ARSENIC	0.01	USEPA MCL (mg/L)
CHROMIUM	0.1	USEPA MCL (mg/L)

Notes:
1. **Bold** results indicate the analyte was detected.
2. Shaded results indicate the analyte exceeded screening levels.
3. Data is only shown for exceedances at sample locations which had detections.
4. U = Analyte was not detected.
5. J = Result is an estimate.
6. NS = Not Sampled
7. µg/L = micrograms per liter
8. MG/L = miligram per liter
9. ft bgs = feet below ground surface

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others
- Building
- Groundwater Grab Sample Location
- Monitoring Well
- SWMUs and AOC Investigated in Phase 2 for Potential Impacts to Groundwater
- SWMUs Not Requiring Further Investigation after Phase 1
- Railroad
- Fence
- Edge of Road

FIGURE 4-6
Groundwater Grab and Monitoring Well Results
Dow Hanging Rock Phase 2 RFI Report
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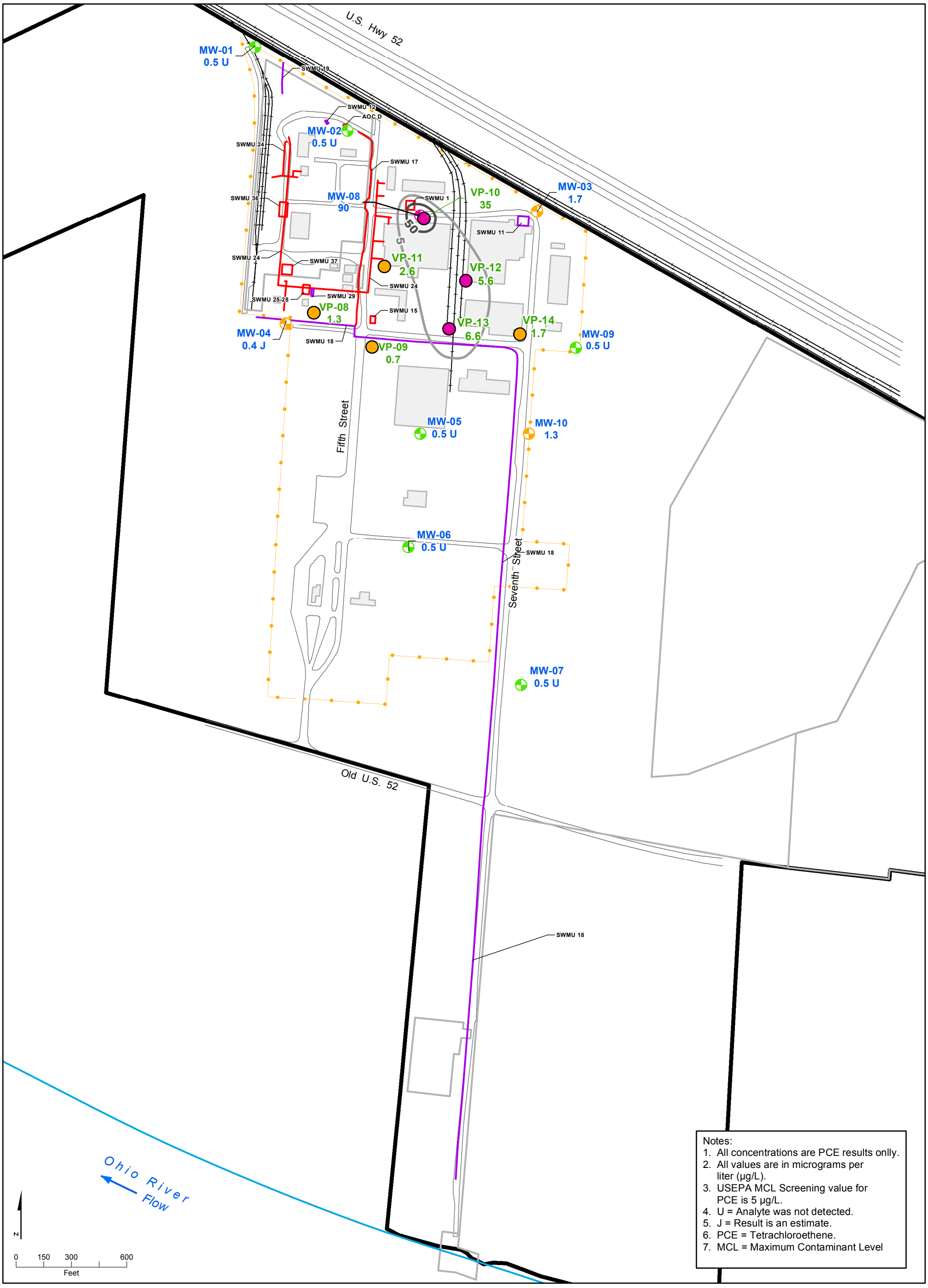

Notes:
1. All concentrations are PCE results onlly.
2. All values are in micrograms per liter (µg/L).
3. USEPA MCL Screening value for PCE is 5 µg/L.
4. U = Analyte was not detected.
5. J = Result is an estimate.
6. PCE = Tetrachloroethene.
7. MCL = Maximum Contaminant Level

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others
- Building
- SWMUs and AOC Investigated in Phase 2 for Potential Impacts to Groundwater
- SWMUs Not Requiring Further Investigation after Phase 1
- Railroad
- Fence
- Edge of Road
- Groundwater Grab Location with Detections Below MCLs
- Groundwater Grab Location with Detections Above MCLs
- Monitoring Well with No Detections
- Monitoring Well with Detections Below MCLs
- Monitoring Well with Detections Above MCLs

Tetrachloroethene Values

- 5 µg/L
- 50 µg/L

FIGURE 4-7
PCE in Groundwater
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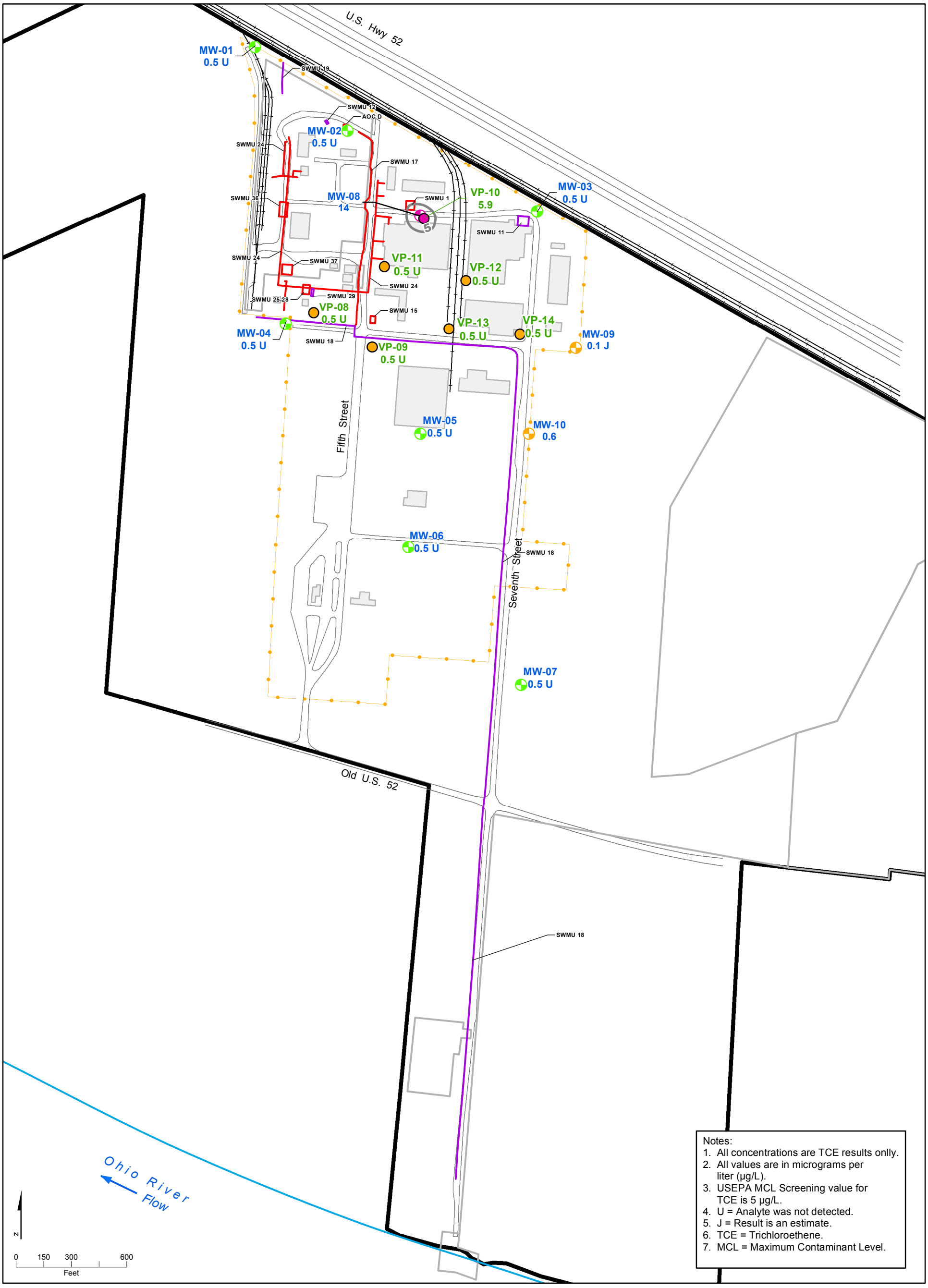
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG4-7_PCE_RESULTS_RFI2_2017.MXD SASELAGE 7/18/2017 1:10:59 PM



Notes:
1. All concentrations are TCE results onlly.
2. All values are in micrograms per liter (µg/L).
3. USEPA MCL Screening value for TCE is 5 µg/L.
4. U = Analyte was not detected.
5. J = Result is an estimate.
6. TCE = Trichloroethene.
7. MCL = Maximum Contaminant Level.

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others
- Building
- Railroad
- Fence
- Edge of Road
- Groundwater Grab Location with Detections Below MCLs
- Groundwater Grab Location with Detections Above MCLs
- Monitoring Well with No Detections
- Monitoring Well with Detections Below MCLs
- Monitoring Well with Detections Above MCLs
- Trichloroethene (5 ug/L)

FIGURE 4-8
TCE in Groundwater
Dow Hanging Rock Phase 2 RFI Report
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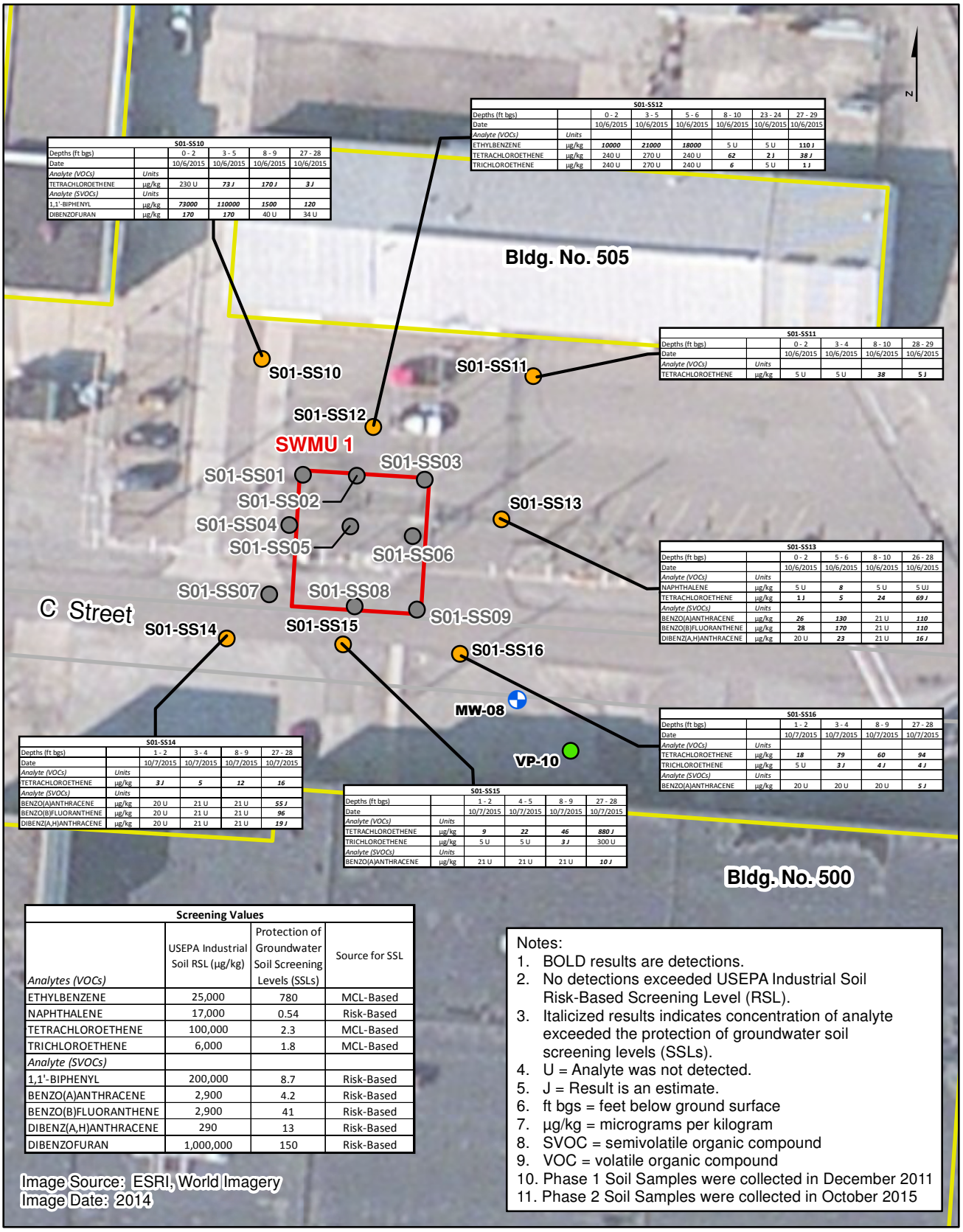
\\CANOPUS\GROUPS\GIS\00_PROJ\D\DOW\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\2015\PHASEII\REPORT\FIG4-8_TCE_RESULTS_RFI2_2017.MXD SASELAGE 7/18/2017 1:04:32 PM



S01-SS10					
Depths (ft bgs)		0 - 2	3 - 5	8 - 9	27 - 28
Date		10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte (VOCs)	*Units*				
TETRACHLOROETHENE	µg/kg	230 U	***73 J***	***170 J***	***3 J***
Analyte (SVOCs)	*Units*				
1,1'-BIPHENYL	µg/kg	***73000***	***110000***	***1500***	***120***
DIBENZOFURAN	µg/kg	***170***	***170***	40 U	34 U

S01-SS12							
Depths (ft bgs)		0 - 2	3 - 5	5 - 6	8 - 10	23 - 24	27 - 29
Date		10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte (VOCs)	*Units*						
ETHYLBENZENE	µg/kg	***10000***	***21000***	***18000***	5 U	5 U	**110 J**
TETRACHLOROETHENE	µg/kg	240 U	270 U	240 U	***62***	***2 J***	***38 J***
TRICHLOROETHENE	µg/kg	240 U	270 U	240 U	***6***	5 U	**1 J**

S01-SS11					
Depths (ft bgs)		0 - 2	3 - 4	8 - 10	28 - 29
Date		10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte (VOCs)	*Units*				
TETRACHLOROETHENE	µg/kg	5 U	5 U	***38***	**5 J**

S01-SS13					
Depths (ft bgs)		0 - 2	5 - 6	8 - 10	26 - 28
Date		10/6/2015	10/6/2015	10/6/2015	10/6/2015
Analyte (VOCs)	*Units*				
NAPHTHALENE	µg/kg	5 U	***8***	5 U	5 UJ
TETRACHLOROETHENE	µg/kg	**1 J**	***5***	***24***	***69 J***
Analyte (SVOCs)	*Units*				
BENZO(A)ANTHRACENE	µg/kg	***26***	***130***	21 U	***110***
BENZO(B)FLUORANTHENE	µg/kg	***28***	***170***	21 U	***110***
DIBENZ(A,H)ANTHRACENE	µg/kg	20 U	***23***	21 U	***16 J***

S01-SS14					
Depths (ft bgs)		1 - 2	3 - 4	8 - 9	27 - 28
Date		10/7/2015	10/7/2015	10/7/2015	10/7/2015
Analyte (VOCs)	*Units*				
TETRACHLOROETHENE	µg/kg	***3 J***	***5***	***12***	***16***
Analyte (SVOCs)	*Units*				
BENZO(A)ANTHRACENE	µg/kg	20 U	21 U	21 U	***55 J***
BENZO(B)FLUORANTHENE	µg/kg	20 U	21 U	21 U	***96***
DIBENZ(A,H)ANTHRACENE	µg/kg	20 U	21 U	21 U	***19 J***

S01-SS15					
Depths (ft bgs)		1 - 2	4 - 5	8 - 9	27 - 28
Date		10/7/2015	10/7/2015	10/7/2015	10/7/2015
Analyte (VOCs)	*Units*				
TETRACHLOROETHENE	µg/kg	***9***	***22***	***46***	***880 J***
TRICHLOROETHENE	µg/kg	5 U	5 U	***3 J***	300 U
Analyte (SVOCs)	*Units*				
BENZO(A)ANTHRACENE	µg/kg	21 U	21 U	21 U	***10 J***

S01-SS16					
Depths (ft bgs)		1 - 2	3 - 4	8 - 9	27 - 28
Date		10/7/2015	10/7/2015	10/7/2015	10/7/2015
Analyte (VOCs)	*Units*				
TETRACHLOROETHENE	µg/kg	***18***	***79***	***60***	***94***
TRICHLOROETHENE	µg/kg	5 U	***3 J***	***4 J***	***4 J***
Analyte (SVOCs)	*Units*				
BENZO(A)ANTHRACENE	µg/kg	20 U	20 U	20 U	***5 J***

Screening Values			
Analytes (VOCs)	USEPA Industrial Soil RSL (µg/kg)	Protection of Groundwater Soil Screening Levels (SSLs)	Source for SSL
ETHYLBENZENE	25,000	780	MCL-Based
NAPHTHALENE	17,000	0.54	Risk-Based
TETRACHLOROETHENE	100,000	2.3	MCL-Based
TRICHLOROETHENE	6,000	1.8	MCL-Based
Analyte (SVOCs)			
1,1'-BIPHENYL	200,000	8.7	Risk-Based
BENZO(A)ANTHRACENE	2,900	4.2	Risk-Based
BENZO(B)FLUORANTHENE	2,900	41	Risk-Based
DIBENZ(A,H)ANTHRACENE	290	13	Risk-Based
DIBENZOFURAN	1,000,000	150	Risk-Based

Image Source: ESRI, World Imagery
Image Date: 2014

Notes:
1. BOLD results are detections.
2. No detections exceeded USEPA Industrial Soil Risk-Based Screening Level (RSL).
3. Italicized results indicates concentration of analyte exceeded the protection of groundwater soil screening levels (SSLs).
4. U = Analyte was not detected.
5. J = Result is an estimate.
6. ft bgs = feet below ground surface
7. µg/kg = micrograms per kilogram
8. SVOC = semivolatile organic compound
9. VOC = volatile organic compound
10. Phase 1 Soil Samples were collected in December 2011
11. Phase 2 Soil Samples were collected in October 2015

LEGEND

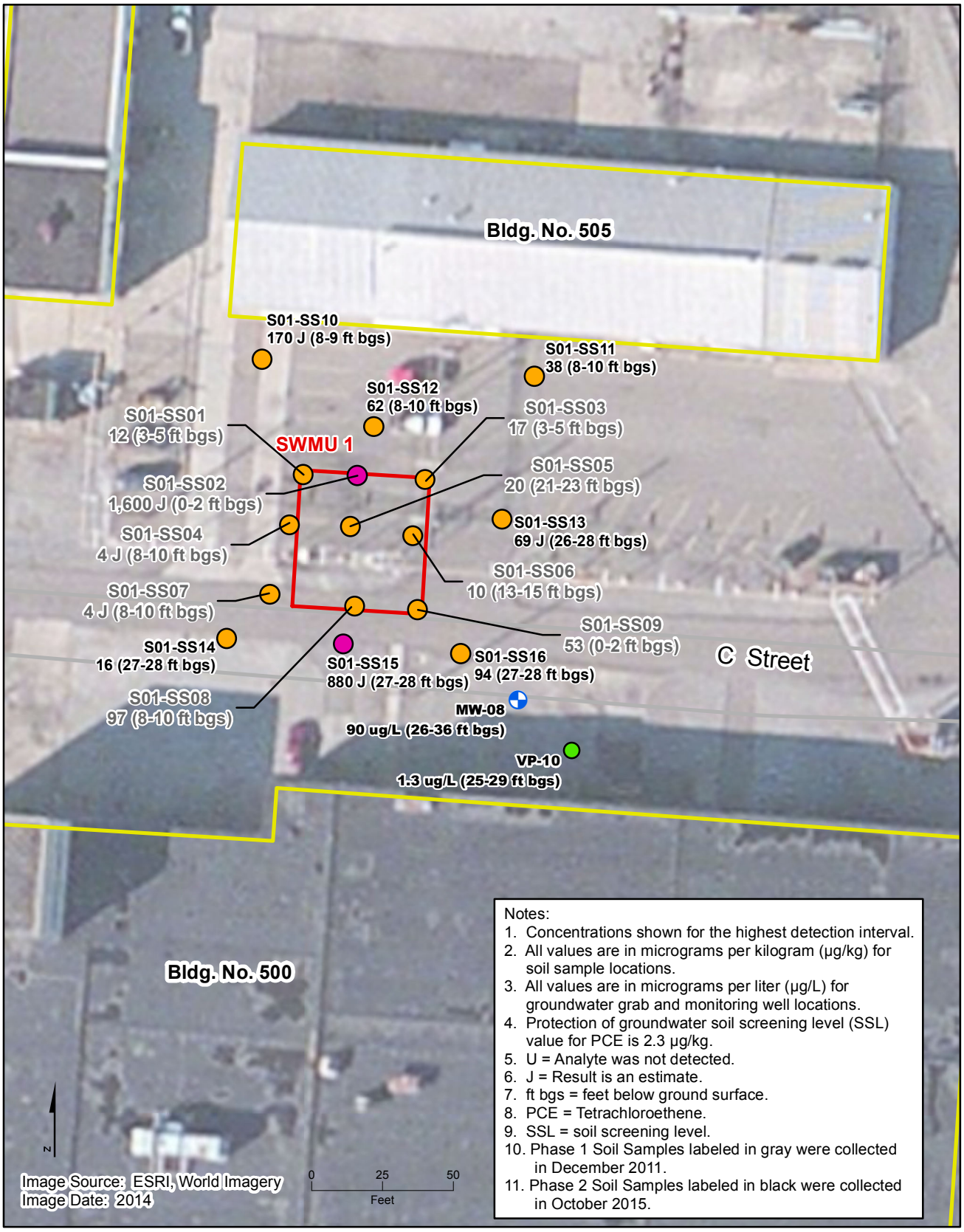
- SWMU
- Building
- Edge of Road
- Phase 1 Sample Locations
- Phase 2 Sample Locations
- Monitoring Well
- Groundwater Grab Sample Location

0 25 50
Feet

FIGURE 4-9
SWMU 1 Soil Exceedances
Dow Hanging Rock Phase 2 RFI Report
Ironton, Ohio

ch2m

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-1_SWMU_1_SOIL_EXCEED_RFI.MXD SASELAGE 5/12/2016 12:29:57 PM



Notes:
1. Concentrations shown for the highest detection interval.
2. All values are in micrograms per kilogram (µg/kg) for soil sample locations.
3. All values are in micrograms per liter (µg/L) for groundwater grab and monitoring well locations.
4. Protection of groundwater soil screening level (SSL) value for PCE is 2.3 µg/kg.
5. U = Analyte was not detected.
6. J = Result is an estimate.
7. ft bgs = feet below ground surface.
8. PCE = Tetrachloroethene.
9. SSL = soil screening level.
10. Phase 1 Soil Samples labeled in gray were collected in December 2011.
11. Phase 2 Soil Samples labeled in black were collected in October 2015.

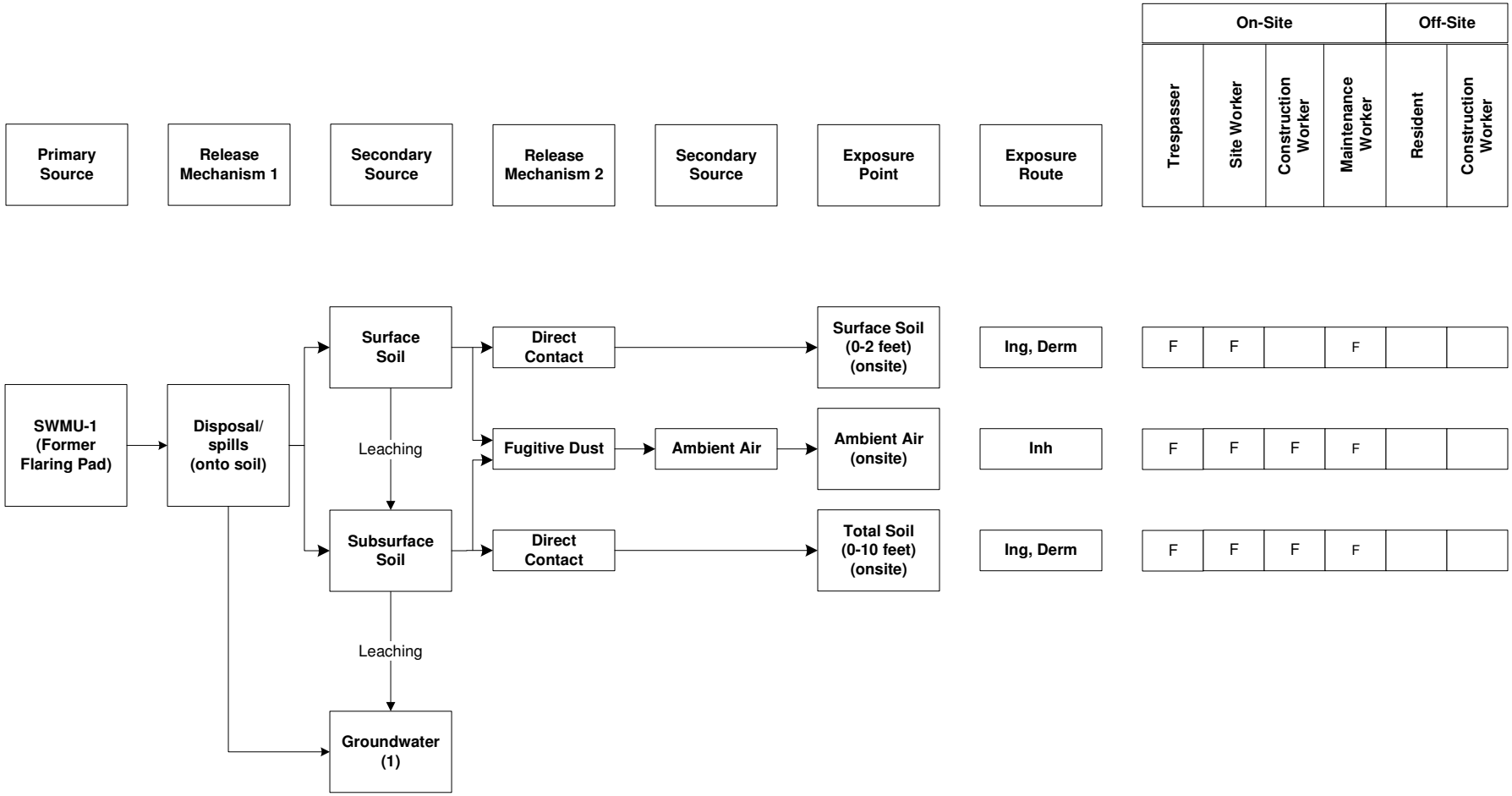
LEGEND

- SWMU
- Building
- Edge of Road
- Groundwater Grab Sample Location
- Monitoring Well
- PCE Detection Between 2.3 and 500 µg/kg
- PCE Detection Above 500 µg/kg

FIGURE 4-10
SWMU 1 PCE Exceedances in Soil
Dow Hanging Rock Phase 2 RFI Report
Ironton, Ohio

ch2m

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-1_SWMU_1_SOIL_EXCEED_RFI.MXD SASELAGE 5/16/2016 2:55:19 PM



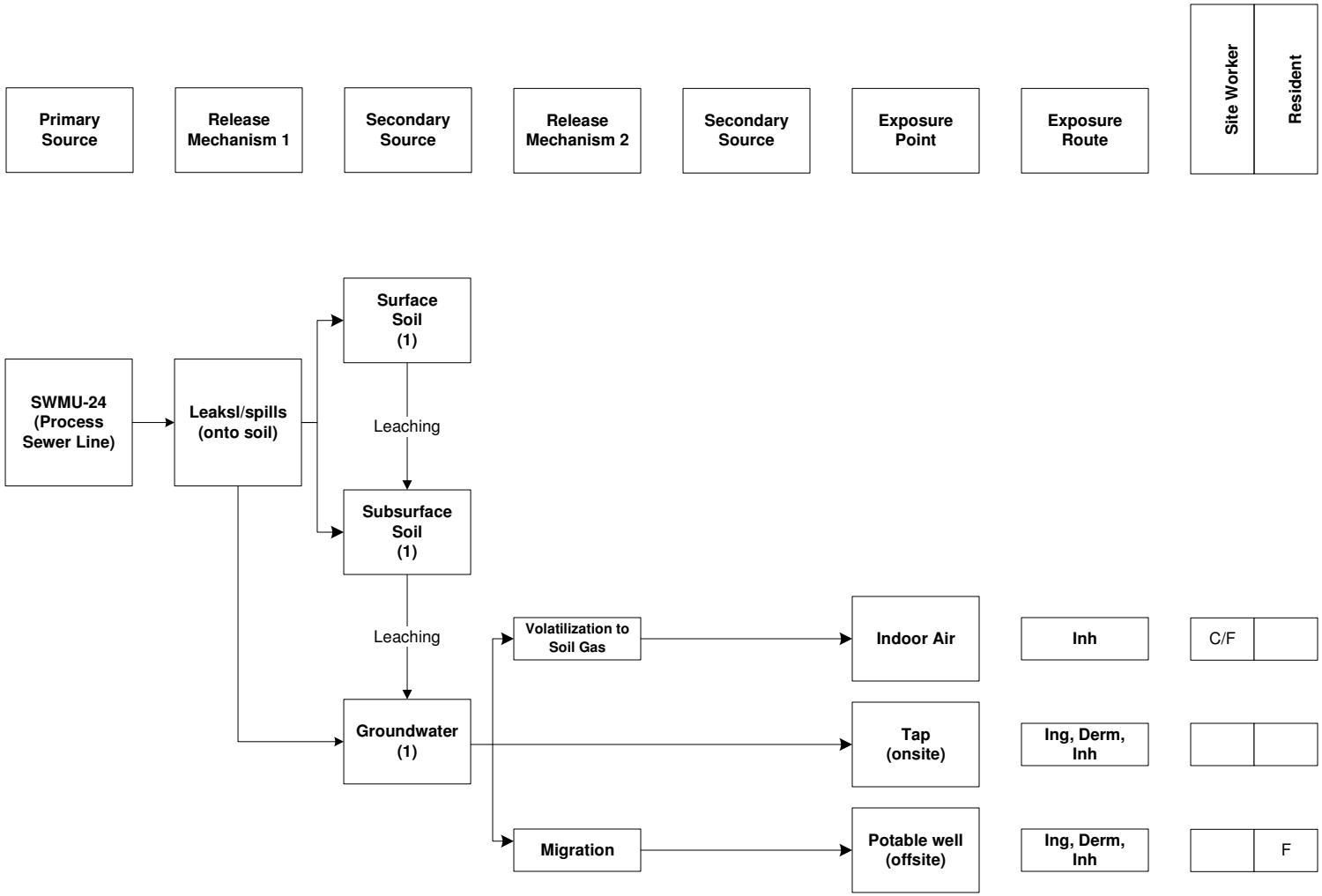
Legend

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

Ing – Ingestion, Derm – Dermal, Inh – Inhalation

(1) Groundwater was evaluated on a site-wide basis. See Figure 5-2.

Figure 5-1
SWMU 1 Conceptual Exposure Model
Dow Hanging Rock Phase II RFI
Ironton, Ohio



Legend

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

Ing – Ingestion, Derm – Dermal, Inh – Inhalation

(1) Soil was evaluated on a SWMU basis. See Figure 5-1.

Figure 5-2
Sitewide Groundwater Conceptual Exposure Model
Dow Hanging Rock Phase II RFI
Ironton, Ohio

Appendix A
Field Documentation

Boring Logs

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	MW08 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/10/16 10:30
END : 2/10/16 11:20
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		3.0/3.0	MC1	**Silty Clay (CL)** 0.0-4.2' - brown and gray mottled, moist, stiff, clay with some silt		0 0.4 0.3 0	basket catches placed on ends of liners
	3.0						
5		4.2/5.0	MC2	**Silty Sandy Clay (CL)** 4.2-7.2' - brown, moist, soft, clay with some silt and some very fine grained sand		0 0 0.3	
				7.2-8.0' - no recovery			
	8.0						
10		3.5/5.0	MC3	**Silty Clayey Sand (SM-SC)** 8.0-9.0' - brown, moist to wet, very fine grained sand with some silt and litle clay		0	
				Sandy Gravel (GW) 9.0-11.5' - brown, multi-colored, moist, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		0.5 0.6 0	
				11.5-13.0' - no recovery			
	13.0						
15		3.5/5.0	MC4	**Sandy Gravel (GW)** 13.0-16.5' - brown, multi-colored, moist, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		0.3 1.3 0.6 0.3	
				16.5-18.0' - no recovery			
	18.0						
20				**Sandy Gravel (GW)** 18.0-21.0' - brown, multi-colored, moist, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		0.5 0.9	

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: MW08	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/10/16 10:30
END : 2/10/16 11:20
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		3.0/5.0	MC5			0.3	
				21.0-23.0' - no recovery			
	23.0						
				Sandy Gravel (GW) 23.0-26.0' - brown, multi-colored, moist, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		1	
25						1	
		3.0/5.0	MC6			1.4	
				26.0-28.0' - no recovery			
	28.0						
				Sandy Gravel (GW) 28.0-30.0' - multi-colored, wet, loose, well rounded (<0.05' diam) gravel with little coarse grained sand		0.6	
30						0.9	
		2.0/5.0	MC7	30.0-33.0' - no recovery			
	33.0						
				Sandy Gravel (GW) 33.0-38.0' - multi-colored, wet, loose, well rounded (<0.05' diam) gravel with little coarse grained sand			PID plugged, no readings taken from 33-38 ft bgs
35		5.0/5.0	MC8				
	38.0						
				Bottom of Boring at 38.0 ft below ground surface			
40							

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	MW09 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/9/16 09:30
END : 2/9/16 10:30
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.5/3.0	MC1	**Silty Clay (CL)** 0.0-2.5' - brown, moist to dry, stiff, clay with little silt		0 0	basket catches placed on ends of liners
	3.0			2.5-3.0' - no recovery			
5		4.0/5.0	MC2	**Silty Clay (CL)** 3.0-6.0' - brown, moist, stiff to medium stiff, clay with some silt		0 0 0	
				Silty Sandy Clay (CL) 6.0-7.0' - brown, moist, medium stiff, clay with some silt and little very fine grained sand		0	
	8.0			7.0-8.0' - no recovery			
10		4.0/5.0	MC3	**Silty Sandy Clay (CL)** 8.0-11.0' - brown, moist, medium stiff, clay with some silt and little very fine grained sand		0 0 0	
				Gravelly Sand (SW) 11.0-12.0' - brown, moist, dense, medium to coarse grained, sand with some well rounded (<0.05' diam) gravel		0	
	13.0			12.0-13.0' - no recovery			
15		3.5/5.0	MC4	**Sandy Gravel (GW)** 13.0-16.5' - brown, multi-colored, moist, loose, gravel well rounded (<0.05' diam) with some coarse grained sand		0 0 0	
				16.5-18.0' - no recovery			
	18.0						
20				**Sandy Gravel (GW)** 18.0-26.5' - brown, multi-colored, moist, loose, gravel well rounded (<0.05' diam) with some coarse grained sand		0 0	

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	MW09 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/9/16 09:30
END : 2/9/16 10:30
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		5.0 / 5.0	MC5			0 0 0	
	23.0						
25		3.5 / 5.0	MC6			0 0 0	
				26.5-28.0' - no recovery			
	28.0						
30		2.5 / 5.0	MC7	**Sandy Gravel (GW)** 28.0-30.5' - brown, multi-colored, wet, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		0 0	
				30.5-33.0' - no recovery			
	33.0						
35		5.0 / 5.0	MC8	**Sandy Gravel (GW)** 33.0-38.0' - brown, multi-colored, wet, loose, well rounded (<0.05' diam) gravel with some coarse grained sand		0 0 0 0 0	
	38.0						
				Bottom of Boring at 38.0 ft below ground surface			
40							

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	MW10 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/8/16 10:30
END : 2/8/16 11:15
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		2.0/3.0	MC1	**Silty Clay (CL)** 0.0-2.0' - brown and gray mottled, moist, stiff, clay with some silt		0 0	basket catches placed on ends of liners
				2.0-3.0' - no recovery		0	
	3.0	5.0/5.0	MC2	**Silty Clay (CL)** 3.0-7.0' - brown and gray mottled, moist, stiff, clay with some silt		0 0	
5							
	8.0			**Sandy Clay (CL)** 7.0-12.0' - brown and gray mottled, moist, soft, clay with little very fine grained sand		0 0 0	
10		4.0/5.0	MC3			0 0	
	13.0			12.0-13.0' - no recovery		0	
		5.0/5.0	MC4	**Sandy Clay (CL)** 13.0-17.5' - brown, wet, soft, clay with some fine grained sand		0 0	
15							
	18.0			**Sandy Clay (CL)** 17.5-18.5' - gray, wet, soft, clay with some very fine grained sand		0	
				Sandy Gravel (GW) 18.5-22.0' - tan, wet, loose, well rounded (< 0.05' diam) gravel with coarse to medium grained sand		0 0	
20							

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	MW10 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Enviroprobe
DRILLING METHOD AND EQUIPMENT : DPT/Geoprobe 3210 DT
WATER LEVELS : ---
START : 2/8/16 10:30
END : 2/8/16 11:15
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID (ppm)	COMMENTS
		4.0/5.0	MC5			0 0	
				22.0-23.0' - no recovery		0	
	23.0			**Sandy Gravel (GW)** 23.0-25.0' - tan, mixed colors, wet, loose, well rounded (< 0.05' diam) gravel with little coarse grained sand		0	
25				25.0-28.0' - no recovery			
		2.0/5.0	MC6			0 0	
	28.0			Bottom of Boring at 28.0 ft below ground surface			
30							
35							
40							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS10	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 15:05
END : 10/6/15 15:50
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-0.8' - dry, loose		0	0	Collect S01-SS10-0002-100615 from 0.0-2.0' bgs at 1510
				Silty Clay (CL) 0.8-6.0' - brown and gray mottled, moist to dry, stiff to very stiff, clay with some silt		0	0	
		5.0 / 5.0	MC1			0.1	0	Breathing Zone = 0ppm
						0.1	0	Collect S01-SS10-0305-100615 from 3.0-5.0' bgs at 1515
5	5.0					0	0	
						0	0	
				Silty Clay (CL) 6.0-8.0' - brown, moist, soft, clay with little silt		0	0	
		4.0 / 5.0	MC2			0	0	Breathing Zone = 0ppm
				Silty Sand (SM) 8.0-9.0' - brown, moist to wet, dense, very fine grained sand with silt		0	0	Collect S01-SS10-0809-100615 from 8.0-9.0' bgs at 1520
				9.0-10.0' - no recovery				
10	10.0							
				Gravelly Sand (SW) 10.0-14.0' - tan, moist, dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
		4.0 / 5.0	MC3			0	0	Breathing Zone = 0ppm
						0	0	
				14.0-15.0' - no recovery				
15	15.0							
				Gravelly Sand (SW) 15.0-19.0' - tan, moist, dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
		4.0 / 5.0	MC4			0	0	Breathing Zone = 0ppm
						0	0	
				19.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS10	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 15:05
END : 10/6/15 15:50
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.0' - tan, moist, dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
		4.0 / 5.0	MC5			0	0	Breathing Zone = 0ppm
						0	0	
				24.0-25.0' - no recovery				
25	25.0							
				Gravelly Sand (SW) 25.0-28.0' - tan, moist, dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
		4.0 / 5.0	MC6			0	0	Collect S01-SS10-2728-100615 from 27.0-28.0' bgs at 1545 Breathing Zone = 0ppm
				Gravelly Sand (SW) 28.0-29.0' - tan, wet, dense, coarse grained sand with well rounded gravel		0	0	
				29.0-30.0' - no recovery				
30	30.0							
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	SS11 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 14:00
END : 10/6/15 14:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-2.0' - dry, dense		0 0	0 0	Collect S01-SS11-0002-100615 from 0.0-2.0' bgs at 1405
		5.0	MC1	**Silty Clay (CL)** 2.0-4.5' - brown and gray mottled, moist, stiff, clay with little silt		0 0	0 0	Breathing Zone = 0ppm Collect S01-SS11-0304-100615 from 3.0-4.0' bgs at 1410
5	5.0			4.5-5.0' - no recovery		0.1	0	
		5.0	MC2	**Silty Clay (CL)** 5.0-9.5' - brown, moist (wet from 6.5-8.5'), soft, clay with some silt		0 0 0 0	0 0 0 0	Breathing Zone = 0ppm Collect S01-SS11-0810-100615 from 8.0-10.0' bgs at 1415
10	10.0			9.5-10.0' - no recovery		0	0	
		5.0	MC3	**Silty Clay (CL)** 10.0-11.7' - brown, moist, soft, clay with some silt		0 0	0 0	
				Gravelly Sand (SW) 11.7-13.5' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0 0	0 0	Breathing Zone = 0ppm
				13.5-15.0' - no recovery				
15	15.0							
		5.0	MC4	**Gravelly Sand (SW)** 15.0-18.0' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0 0 0	0 0 0	Breathing Zone = 0ppm
				18.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS11	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 14:00
END : 10/6/15 14:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-29.0' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0	0	
						0.1	0	
		5.0	MC5			0	0	Breathing Zone = 0ppm
						0	0	
25	25.0					0	0	
						0	0	
						0	0	
		5.0	MC6			0	0	Breathing Zone = 0ppm
						0	0	Collect S01-SS11-2829-100615 from 28.0-29.0' bgs at 1435
				Gravelly Sand (SW) 29.0-29.5' - tan, wet, medium dense, coarse grained sand with well rounded gravel				
30	30.0			29.5-30.0' - no recovery				
				Bottom of Boring at 30.0 ft below ground surface				
35								
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS12	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 09:40
END : 10/6/15 10:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-0.8' - black, dry		1.6	0.4	Collect S01-SS12-0002-100615 from 0.0-2.0' bgs at 0945
				Silty Clay (CL) 0.8-4.0' - brown, moist, medium stiff to stiff, clay with little silt		5.3	4	
		4.0 / 5.0	MC1			16.1	18	Breathing Zone = 0ppm
						22.1	62.2	Collect S01-SS12-0305-100615 from 3.0-5.0' bgs at 0950
				4.0-5.0' - no recovery				
5	5.0							
				Silty Clay (CL) 5.0-6.2' - brown, moist, soft, clay with some silt		48.4	23.9	Collect S01-SS12-0506-100615 from 5.0-8.0' bgs at 0955
				Sandy Silt (SM-ML) 6.2-8.3' - brown, moist, loose, silt with very fine grained sand		17.1	11.3	
		3.5 / 5.0	MC2			12.2	5.6	Breathing Zone = 0ppm
				Sandy Gravel (GW) 8.3-8.5' - tan, moist, loose, gravel with some coarse grained sand		9	4	Collect S01-SS12-0810-100615 from 8.0-10.0' bgs at 1005
				8.5-10.0' - no recovery				
10	10.0							
				Sandy Gravel (GW) 10.0-13.0' - tan, moist, loose, gravel with some coarse grained sand		2.9	2.7	
						3.4	2.7	
		3.0 / 5.0	MC3			3.5	2	Breathing Zone = 0ppm
				13.0-15.0' - no recovery				
15	15.0							
				Gravelly Sand (SW) 15.0-19.0' - tan, moist, loose, coarse grained sand with well rounded gravel		9.1	8.9	
						3.8	5.1	
		4.0 / 5.0	MC4			6.7	11.9	Breathing Zone = 0ppm
						13.1	9.3	
				19.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS12	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 09:40
END : 10/6/15 10:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-29.0' - tan, moist, loose, coarse grained sand with well rounded gravel		104.5	61.6	
						139.7	53.6	
		5.0 / 5.0	MC5			168.8	22.2	Breathing Zone = 0ppm Collect S01-SS12-2324-100615 from 23.0-24.0' bgs at 1020
						200.5	39.6	
25	25.0					165.5	35.4	
						282.3	15.3	
						253.6	7.4	
		5.0 / 5.0	MC6			222	16.1	Collect S01-SS12-2729-100615 from 27.0-28.0' bgs at 1035 Collect HGR-100615-FD01 from 27.0-29.0' bgs at 1030 Breathing Zone = 0ppm
						169.3	32.5	
30	30.0			**Gravelly Sand (SW)** 29.0-30.0' - tan, wet, loose, coarse grained sand with well rounded gravel		155.4	53.4	
				Bottom of Boring at 30.0 ft below ground surface				
35								
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS13	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 11:10
END : 10/6/15 12:07
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-1.4' - dry, loose		36.1	9.9	Collect S01-SS13-0002-100615 from 0.0-2.0' bgs at 1115
		3.0 / 5.0	MC1	**Silty Clay (CL)** 1.4-3.0' - brown, moist, medium stiff, clay with some silt		55	1	
						71.3	33.4	Breathing Zone = 0ppm
				3.0-5.0' - no recovery				
5	5.0							
		4.0 / 5.0	MC2	**Silty Clay (CL)** 5.0-7.0' - brown, moist, medium stiff, clay with some silt		82	1.5	Collect S01-SS13-0506-100615 from 5.0-6.0' bgs at 1110
						81.4	1.2	
				Silty Sand (SM) 7.0-8.3' - brown, wet, medium dense, very fine grained sand with some silt		67.4	0.7	Breathing Zone = 0ppm
				Gravelly Sand (SW) 8.3-9.0' - brown, wet, medium dense, coarse grained sand with some well rounded gravel		99	0	Collect S01-SS13-0810-100615 from 8.0-10.0' bgs at 1130
				9.0-10.0' - no recovery				
10	10.0							
		3.5 / 5.0	MC3	**Gravelly Sand (SW)** 10.0-13.5' - tan, moist, medium dense, coarse grained sand with well rounded gravel		1.8	0.6	
						1.3	0.8	
						1	0	Breathing Zone = 0ppm
						0.2	0	
				13.5-15.0' - no recovery				
15	15.0							
		4.0 / 5.0	MC4	**Gravelly Sand (SW)** 15.0-19.0' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
						0	0	Breathing Zone = 0ppm
						0	0	
				19.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS13	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/6/15 11:10
END : 10/6/15 12:07
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.5' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0	0	
						0	0	
		4.5 5.0	MC5			0	0	Breathing Zone = 0ppm
						0	0	
						0	0	
25	25.0			24.5-25.0'				
				Gravelly Sand (SW) 25.0-28.5' - tan, moist, medium dense, coarse grained sand with well rounded gravel		0	0	
						0	0	Collect S01-SS13-2628-100615 from 26.0-28.0' bgs at 1155 Collect S01-SS13-2628-100615 from 26.0-28.0' bgs at 1155 MS
		5.0 5.0	MC6			0	0	Collect S01-SS13-2628-100615 from 26.0-28.0' bgs at 1155 MSD Breathing Zone = 0ppm
				Gravelly Sand (SW) 28.5-30.0' - tan, wet, medium dense, coarse grained sand with well rounded gravel		0	0	
30	30.0					0	0	
				Bottom of Boring at 30.0 ft below ground surface				
35								
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS14	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 10:45
END : 10/7/15 11:25
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-1.0' - dry, loose		0.1	0	Collect S01-SS14-0002-100715 from 0.0-2.0' bgs at 1050
				Silty Clay (CL) 1.0-4.0' - tan and gray mottled, moist, medium stiff, clay with some silt		0.1	0	
		4.0 / 5.0	MC1			0.2	0	Breathing Zone = 0ppm
						0.2	0	Collect S01-SS14-0304-100715 from 3.0-4.0' bgs at 1055
				4.0-5.0' - no recovery				
5	5.0							
				Silty Clay (CL) 5.0-6.5' - tan and gray mottled, moist, medium stiff, clay with some silt		0.1	0	
				Sandy Clay (CL) 6.5-9.0' - brown, moist, soft to medium stiff, clay with very fine grained sand		0	0	
		4.0 / 5.0	MC2			0.2	0	Breathing Zone = 0ppm
						0.2	0	Collect S01-SS14-0809-100715 from 8.0-9.0' bgs at 1100
				9.0-10.0' - no recovery				
10	10.0							
				Sandy Clay (CL) 10.0-11.0' - brown, moist, soft to medium stiff, clay with very fine grained sand		0	0	
				Gravelly Sand (SW) 11.0-13.0' - tan, moist, loose, coarse grained sand with well rounded gravel		1.5	0.3	
		3.0 / 5.0	MC3			1.7	0.4	Breathing Zone = 0ppm
				13.0-15.0' - no recovery				
15	15.0							
				Gravelly Sand (SW) 15.0-18.5' - tan, moist, loose, coarse grained sand with well rounded gravel		1	0.2	
						1.8	0.7	
		3.5 / 5.0	MC4			2.9	0.6	Breathing Zone = 0ppm
				18.5-20.0' - no recovery		3.1	0.7	
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS14	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 10:45
END : 10/7/15 11:25
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.5' - tan, moist, loose, coarse grained sand with well rounded gravel		1.2	0.6	
						4.3	0.6	
		4.5 5.0	MC5			4	0.6	Breathing Zone = 0ppm
						4.1	0.6	
						4.2	1.5	
25	25.0			24.5-25.0' - no recovery				
				Gravelly Sand (SW) 25.0-28.5' - tan, moist, loose, coarse grained sand with well rounded gravel		0.6	1	
						1.7	0.6	
		4.5 5.0	MC6			2.6	1.4	Collect S01-SS14-2728-100715 from 27.0-28.0' bgs at 1120 Collect HGR-100715-FD01 from 27.0-28.0' bgs at 1130
				Gravelly Sand (SW) 28.5-29.5' - tan, wet, loose, coarse grained sand with well rounded gravel		3.2	0.6	Breathing Zone = 0ppm
30	30.0			29.5-30.0' - no recovery		3	1.6	
				Bottom of Boring at 30.0 ft below ground surface				
35								
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS15	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 13:20
END : 10/7/15 14:10
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt 0.0-1.0' - black, dry, loose		0	0	
				Silty Clay (CL) 1.0-6.0' - brown, moist, stiff, clay with some silt		0	0	Collect S01-SS15-0102-100715 from 1.0-2.0' bgs at 1330
		5.0 / 5.0	MC1			0	0	Breathing Zone = 0ppm
						0	0	
5	5.0					0	0	Collect S01-SS15-0405-100715 from 4.0-5.0' bgs at 1335
						0	0	
				Sandy Clay (CL) 6.0-9.5' - brown, moist, soft to medium stiff, clay with some very fine grained sand		0	0	
		4.5 / 5.0	MC2			0	0	Breathing Zone = 0ppm
						0	0	Collect S01-SS15-0809-100715 from 8.0-9.0' bgs at 1340
10	10.0			9.5-10.0'		0	0	
				Sandy Clay (CL) 10.0-11.5' - brown, wet, soft to medium stiff, clay with some very fine grained sand		0	0	
				Gravelly Sand (SW) 11.5-13.5' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0	
		3.5 / 5.0	MC3			0	0	Breathing Zone = 0ppm
				13.5-15.0' - no recovery		0	0	
15	15.0							
				Gravelly Sand (SW) 15.0-19.0' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0.3	
						0.8	0.1	
		4.0 / 5.0	MC4			1	1.1	Breathing Zone = 0ppm
						0	0.4	
				19.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS15	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 13:20
END : 10/7/15 14:10
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.5' - tan, moist, loose, coarse grained sand with well rounded gravel		4.3	1.1	
						2.6	0.8	
		4.5 5.0	MC5			0.8	0.6	Breathing Zone = 0ppm
						2.4	2.6	
25	25.0			24.5-25.0' - no recovery				
				Gravelly Sand (SW) 25.0-28.5' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0	
						0.6	0.1	
		5.0 5.0	MC6			1.7	0	Collect S01-SS15-2728-100715 from 27.0-28.0' bgs at 1405 Collect S01-SS15-2728-100715 from 27.0-28.0' bgs at 1405 MS Collect S01-SS15-2728-100715 from 27.0-28.0' bgs at 1405 MSD Breathing Zone = 0ppm
				Gravelly Sand (SW) 28.5-30.0' - tan, wet, loose, coarse grained sand with well rounded gravel		0	0	
30	30.0					0	0	
				Bottom of Boring at 30.0 ft below ground surface				
35								
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS16	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 15:05
END : 10/7/15 16:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt 0.0-0.5' - black, dry, loose		0	0	
				Silty Clay (CL) 0.5-4.5' - brown and gray mottled, moist, stiff, clay with some silt		0	0	Collect S01-SS16-0102-100715 from 1.0-2.0' bgs at 1510
		4.5 / 5.0	MC1			0	0	Breathing Zone = 0ppm
						0	0	Collect S01-SS16-0304-100715 from 3.0-4.0' bgs at 1515
5	5.0			4.5-5.0' - no recovery				
				Silty Clay (CL) 5.0-6.0' - brown and gray mottled, moist, stiff, clay with some silt		0	0	
				Sandy Clay (CL) 6.0-9.0' - brown, moist to wet, soft, clay with very fine grained sand		0	0	
		4.0 / 5.0	MC2			0	0	Breathing Zone = 0ppm
						0	0	Collect S01-SS16-0809-100715 from 8.0-9.0' bgs at 1520
				9.0-10.0' - no recovery				
10	10.0							
				Sandy Clay (CL) 10.0-11.0' - brown, moist to wet, soft, clay with very fine grained sand		0	0	
				Gravelly Sand (SW) 11.0-13.6' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0	
		3.6 / 5.0	MC3			0	0	Breathing Zone = 0ppm
						0	0	
				13.6-15.0' - no recovery				
15	15.0							
				Gravelly Sand (SW) 15.0-18.5' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0	
						0	0	
		3.5 / 5.0	MC4			0	0	Breathing Zone = 0ppm
						0	0	
				18.5-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: SS16	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 10/7/15 15:05
END : 10/7/15 16:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-23.6' - tan, moist, loose, coarse grained sand with well rounded gravel		0	0	
						0	0	
		3.6 5.0	MC5			0	0	Breathing Zone = 0ppm
						0	0	
				23.6-25.0' - no recovery				
25	25.0							
				Gravelly Sand (SW) 25.0-30.0' - tan, moist to wet - starting at 28.5', loose, coarse grained sand with well rounded gravel		0	0	
						0	0	
		5.0 5.0	MC6			0	0	Collect S01-SS16-2728-100715 from 27.0-28.0' bgs at 1535 Breathing Zone = 0ppm
						0	0	
30	30.0					0	0	
				Bottom of Boring at 30.0 ft below ground surface				
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PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS01	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/12/14 10:00
END : 11/12/14 11:50
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt 0-0.5'				Airknifed from 0-5'
				Silty Clay (CL) 0.5-5.0' - wet to moist, stiff				
		0.0 / 5.0	MC1					Breathing Zone = 0
5	5.0							
				Silty Clay (CL) 5.0-8.5' - brown and gray mottled, moist, stiff, clay with some silt		0	0	Collect A24-SB01-0506-111214 at 5.5-6.0' bgs
						0	0	
		5.0 / 5.0	MC2			0	0	Breathing Zone = 0
				Silty Sandy Clay (CL) 8.5-12.0' - brown, moist, medium stiff, clay with little silt and little very fine grained sand		0	0	
10	10.0					0	0	
						0	0	
						0	0	
				Gravelly Sand (SW) 12.0-14.5' - tan, brown, gray, white, moist, loose, medium to coarse grained, well graded, sand with some well rounded gravel		0	0	Breathing Zone = 0
		4.5 / 5.0	MC3			0	0	
15	15.0			14.5-15.0' - no recovery				
				Gravelly Sand (SW) 15.0-18.5' - tan, brown, gray, white, moist, loose, medium to coarse grained, well graded, sand and well rounded gravel		0	0	
						0.1	0	
		3.5 / 5.0	MC4			0.2	0	Breathing Zone = 0
				18.5-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS01	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/12/14 10:00
END : 11/12/14 11:50
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.0' - tan, brown, gray, white, moist, loose, medium to coarse grained, well graded, sand and well rounded gravel		0.1	0	
						0.1	0	
		4.0 / 5.0	MC5			0	0	Breathing Zone = 0
				black staining on sand and smeared in liner		0.6	0	Collect A24-SB01-2324-111214 at 23-24' bgs Collect HGR-111214-FD01 at 23-24' bgs
				24.0-25.0' - no recovery				
25	25.0							
				Gravelly Sand grading into Sandy Gravel (SW-GW) 25.0-30.0' - tan, brown, gray, white, moist to wet starting at 28.5', medium to coarse grained, sand with well rounded gravel		0.1	0.1	
						0.1	0	
		5.0 / 5.0	MC6			0.1	0	Breathing Zone = 0
						0.1	0	▼ water at ~28.5'
30	30.0					0.1	0.1	
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	A24-SS02 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 15:15
END : 11/11/14 16:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
		0.0 / 5.0	MC1	**Gravelly Silt** 0.0-5.0' - wet				Airknifed from 0-5' Breathing Zone = 0
5	5.0	4.0 / 5.0	MC2	**Silty Clay (CL)** 5.0-8.5' - brown, moist, stiff, clay with little silt		0 0 0	0 0 0	Breathing Zone = 0
				Silty Sandy Clay (CL) 8.5-9.0' - brown, moist, medium stiff, clay with little silt and little very fine grained sand lenses 9.0-10.0' - no recovery		0	0	
10	10.0	5.0 / 5.0	MC3	**Silty Gravelly Clay (CL)** 10.0-11.5' - brown, wet, soft, (possible perched area), clay with little silt and little gravel		0	0	Collect A24-SB02-1112-111114 at 11-12' bgs
				Silty Gravelly Clay (CL) 11.5-12.5' - brown, moist, medium stiff, clay with little silt and little gravel		0	0	
				Gravelly Sand (SW) 12.5-19.0' - tan, brown, gray, white, moist, loose to medium dense, medium to coarse grained, sand with some well rounded gravel, well graded		0 0 0	0 0 0	Breathing Zone = 0
15	15.0	4.0 / 5.0	MC4			0 0 0	0 0 0	Breathing Zone = 0
				19.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS02	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 15:15
END : 11/11/14 16:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.5' - tan, brown, gray, white, moist, loose, medium to coarse grained, sand with some well rounded gravel, well graded		0	0	
						0	0	
		4.5 / 5.0	MC5			0	0	Breathing Zone = 0
						0	0	
25	25.0			24.5-25.0' - no recovery				
				Gravelly Sand (SW) 25.0-28.0' - tan, brown, gray, white, moist, loose, medium to coarse grained, sand with some well rounded gravel, well graded		0		
						0		Collect A24-SB02-2627-111114 at 26-27' bgs
		5.0 / 5.0	MC6			0		Breathing Zone = 0
				Gravelly Sand (SW) 28.0-30.0' - tan, brown, gray, white, wet, loose, medium to coarse grained, sand with some well rounded gravel, well graded		0		▼ water at ~28'
30	30.0					0		
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS03	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/13/14 13:40
END : 11/13/14 14:55
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Asphalt and Gravel 0.0-0.5'				Airknifed from 0-5'
				Silty Clay (CL) 0.5-5.0' - brown and gray mottled, moist, stiff				
		0.0 / 5.0	MC1					Breathing Zone = 0
5	5.0							
				Silty Clay (CL) 5.0-8.5' - brown, moist, stiff, clay with little silt		0	0	
						0	0	
		5.0 / 5.0	MC2			0	0	Breathing Zone = 0
				Sandy Clay (CL) 8.5-13.0' - brown, moist, medium stiff to soft, clay with some very fine grained sand, odor 10-13'		0	0	
10	10.0					1.2	2.4	
						73.7	3.3	
						11.3	4.8	
		5.0 / 5.0	MC3			15.9	42.4	Breathing Zone = 0
				Sandy Clay (CL) 13.0-13.5' - dark gray, moist, soft, strong chemical odor, clay with little sand		1511	490	Collect A24-SB03-1314-111314 at 13-13.5' bgs
				Gravelly Sand (SW) 13.5-19.5' - brown, tan, gray, white, moist, loose, medium to coarse grained, sand with well rounded gravel		40.3	98.4	
15	15.0							
						132.4	77	
						12.5	3.9	
		4.5 / 5.0	MC4			7.2	4	Breathing Zone = 0
						2.3	1.7	
20	20.0			19.5-20.0' - no recovery				

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS03	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/13/14 13:40
END : 11/13/14 14:55
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-24.5' - brown, tan, gray, white, moist, loose, medium to coarse grained, sand with well rounded gravel		53	8.4	
						83.2	26.6	
		4.5 / 5.0	MC5			5.3	5	Breathing Zone = 0
						8.3	2.1	
25	25.0			24.5-25.0' - no recovery				
				Sandy Clay (CL) 25.0-28.5' - brown, tan, gray, white, moist, loose, medium to coarse grained, sand with well rounded gravel		30.5	4.9	Collect A24-SB03-2526-111314 at 25-26' bgs
						19.6	0.4	
		5.0 / 5.0	MC6			9.4	0.7	Breathing Zone = 0
				Sandy Gravel (GW) 28.5-29.5' - brown, gray, tan, wet, loose, well rounded gravel with some coarse sand		0	0.2	▼ water at ~28.5'
30	30.0			29.5-30.0' - no recovery				
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS04	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 13:20
END : 11/11/14 14:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
		0.0 / 5.0	MC1	**Silty Clay (CL)** 0.0-5.0' - brown, dry, stiff				Airknifed from 0-5'
								Breathing Zone = 0
5	5.0							
		5.0 / 5.0	MC2	**Silty Clay (CL)** 5.0-7.5' - brown, moist, stiff, clay with little silt, mottled		0	0	
						0	0	
				Silty Sandy Clay (CL) 7.5-9.0' - brown, moist, medium stiff, clay with some silt and little sand and little sand, very fine grained		0	0	Breathing Zone = 0
						0	0	
				Clayey Sand (SC) 9.0-12.5' - brown, moist, medium dense, very fine grained, sand and clay		0	0	
10	10.0							
						0	0	Collect A24-SB04-1011-111114 at 10-11' bgs A24-SB04-1011-111114MS at 10-11' bgs
						0	0	A24-SB04-1011-111114MSD at 10-11' bgs
		5.0 / 5.0	MC3	**Gravelly Sand (SW)** 12.5-27.5' - brown, tan, gray, medium dense, medium to coarse grained, sand with well rounded gravel		0	0	Breathing Zone = 0
						0	0	
15	15.0					0	0	
						0	0	
						0	0	
		5.0 / 5.0	MC4			0	0	Breathing Zone = 0
						0	0	
20	20.0					0	0	

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS04	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 13:20
END : 11/11/14 14:40
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0					0	0	
						0	0	
		5.0 / 5.0	MC5			0	0	Breathing Zone = 0
						0	0	
25	25.0					0	0	
						0	0	
						0	0	Collect A24-SB04-2627-111114 at 26-27' bgs
		5.0 / 5.0	MC6	**Gravelly Sand (SW)** 27.5-30.0' - brown, tan, gray, wet, loose, medium to coarse grained, sand and well rounded gravel		0	0	Breathing Zone = 0 ▼ water at ~27.5'
						0	0	
30	30.0					0	0	
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER:	BORING NUMBER:
652109.01.FI	A24-SS05 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/12/14 13:45
END : 11/12/14 15:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
				Gravel 0.0-0.5' - black and gray				Airknifed from 0-5'
				Silt Clay (CL) 0.5-5' - brown, stiff				
		0.0 / 5.0	MC1					Breathing Zone = 0
5	5.0							
				Silty Clay (CL) 5.0-9.0' - brown, moist, stiff to medium stiff with depth, clay with little silt		0	0	
						0	0	
		5.0 / 5.0	MC2			0	0	Breathing Zone = 0
						0	0	
				Silty Sandy Clay (CL) 9.0-12.0' - brown, moist, soft, clay with little silt and little very fine grained sand		0	0	
10	10.0							
						0	0	
						0	0	
				Clayey Sand (SC) 12.0-13.0' - brown, wet, loose, very fine grained, sand with little clay		0	0	Collect A24-SB05-1213-111214 at 12-13' bgs Breathing Zone = 0
		5.0 / 5.0	MC3	**Gravelly Sand (SW)** 13.0-18.0' - tan, brown, white gray, loose, medium to coarse grained, well graded, sand with some well rounded gravel		0	0	
15	15.0					0	0	
						0	0	
						0	0	
		3.0 / 5.0	MC4			0	0	Breathing Zone = 0
				18.0-20.0' - no recovery				
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS05	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/12/14 13:45
END : 11/12/14 15:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-23.7' - tan, brown, white gray, loose, medium to coarse grained, well graded, sand with some well rounded gravel		0	0.1	
						0.4	0.2	Collect A24-SB05-2122-111214 at 21-22' bgs
		3.7 / 5.0	MC5			0.1	0	Breathing Zone = 0
				23.7-25.0' - no recovery		0	0	
25	25.0							
				Gravelly Sand (SW) 25.0-27.5' - tan, brown, white gray, loose, medium to coarse grained, well graded, sand with some well rounded gravel		0.1	0	
						0.2	0	
		4.5 / 5.0	MC6	**Sandy Gravel (GW)** 27.5-29.5' - gray, black, dark, wet, loose, dark gray brown water, well rounded gravel with some coarse grained sand		0	0	Breathing Zone = 0 ▼ water at ~27.5'
						0	0.1	
30	30.0			29.5-30.0' - no recovery				
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS06	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 09:30
END : 11/11/14 11:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
		0.0 / 5.0	MC1	**Silty Clay (CL)** 0.0-5.0' - brown, moist to dry, stiff				Airknifed from 0-5'
								Breathing Zone = 0
5	5.0							
		5.0 / 5.0	Mc2	**Silty Clay (CL)** 5.0-9.0' - brown, moist, soft, clay with little silt		0	0	
						0	0	
						0	0	Breathing Zone = 0
						0	0	
				Silty Clay (CL) 9.0-12.0' - brown, moist to wet (perched), soft, clay with little silt		0	0	
10	10.0							
						0	0	
						0	0	Collect A24-SB06-1213-111114 at 11.5-12.5' bgs
		5.0 / 5.0	MC3	**Sandy Clay (CL)** 12.0-14.5' - brown, moist to wet, soft, clay with very fine grained sand lenses		0	0	Breathing Zone = 0
						0	0	
15	15.0			**Gravelly Sand (SW)** 14.5-18.5' - brown, gray, white, wet to moist, loose, medium to coarse grained, well graded, sand with some well rounded gravel		0	0	
						0	0	
						0	0	
		3.5 / 5.0	MC4			0	0	Breathing Zone = 0
				18.5-20.0' - no recovery		0	0	
20	20.0							

PROJECT NUMBER: 652109.01.FI	BORING NUMBER: A24-SS06	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Phase II RCRA Investigation
LOCATION : Hanging Rock Facility, Ironton OH
ELEVATION :
DRILLING CONTRACTOR : Subsurface
DRILLING METHOD AND EQUIPMENT : DPT/Powerprobe 9500 VTR
WATER LEVELS : ---
START : 11/11/14 09:30
END : 11/11/14 11:00
LOGGER : D. Roberts

DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)	RECOVERY (ft)	SAMPLER (TYPE)	SOIL DESCRIPTION: DEPTH INTERVAL, SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	GRAPHIC LOG	PID Initial (ppm)	PID Headspace (ppm)	COMMENTS
	20.0			**Gravelly Sand (SW)** 20.0-23.2' - brown, tan, gray, white, wet to moist, medium to coarse grained, well graded, sand and well rounded gravel		0 0 0	0 0 0	Breathing Zone = 0
		3.2 5.0	MC5					
				23.2-25.0' - no recovery				
25	25.0							
				Gravelly Sand (SW) 25.0-27.5' - brown, tan, gray, white, wet to moist, medium to coarse grained, well graded, sand and well rounded gravel		0 0	0 0	Collect A24-SB06-2627-111114 at 26-27' bgs
		4.0 5.0	MC6	**Gravelly Sand (SW)** 27.5-29.0' - brown, tan, gray, white, wet, medium to coarse grained, well graded, sand and well rounded gravel		0 0	0 0	Breathing Zone = 0 ▼ water at ~27.5'
				29.0-30.0' - no recovery				
30	30.0							
				Bottom of Boring at 30.0 ft below ground surface				
35								
40								

Well Completion Diagrams

PROJECT NUMBER:	Date: 2/10/2016	
652109.01.FI	Well Number: MW08	SHEET 1 of 1

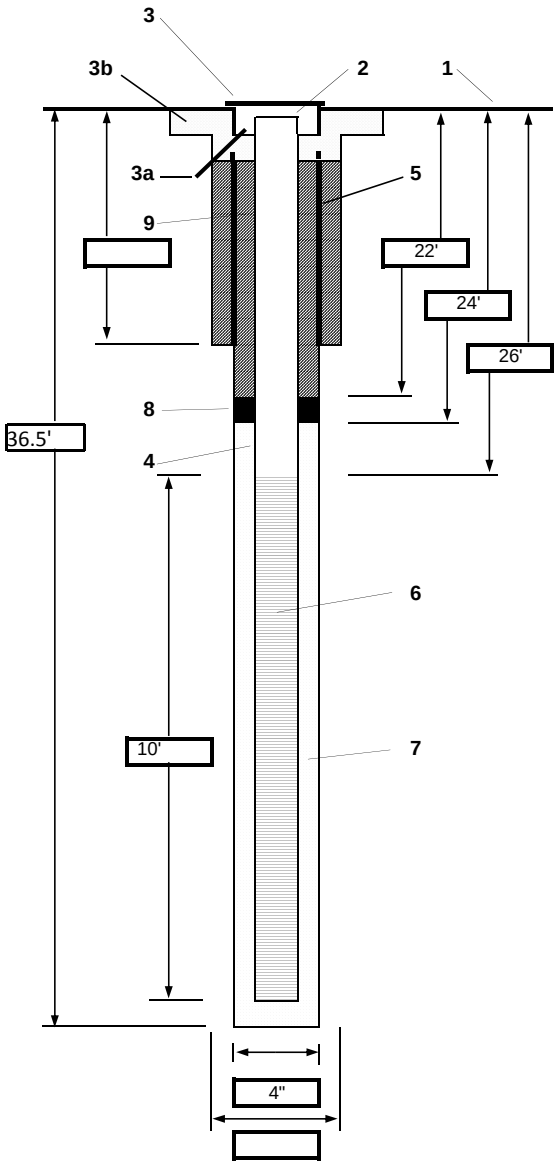
WELL COMPLETION DIAGRAM

PROJECT : Phase II RCRA Investigation — LOCATION : **Dow - Hanging Rock, OH**

DRILLING CONTRACTOR : Enviroprobe

DRILLING METHOD AND EQUIPMENT USED : **DPT - Geoprobe 3210DT**

WATER LEVELS : START : 2/10/2016 1145 — END : 2/10/2016 1315 — LOGGER : D. Roberts



1- Ground elevation at well

2- Top of casing elevation

3- Wellhead protection cover type: J-Plug
a) drain tube?
b) concrete pad dimensions: 2'x2'

4- Dia./type of well casing: 2" SCH 40 PVC

5- Dia./type surface casing

6- Type/slot/size of screen: 2" SCH 40 PVC/ 0.010 slot

7- Type screen filter: Global #5 Sand
a) Quantity used: 1.5 bags

8- Type of seal: Bentonite Medium Chips
a) Quantity used: 2.0 bags

9- Grout
a) Grout mix used: Bentonite Grout
b) Method of placement
c) Vol.of surface casing grout
d) Vol. of well casing grout

Development method: Surge block and submersible pump

Development time

Estimated purge volume

Comments: Added 20 gallons of water to prevent sand heave.
Threaded PVC cap on bottom of well.

ch2m:	**PROJECT NUMBER:** 652109.01.FI	**Date:** 2/09/2016 **Well Number:** MW09 SHEET 1 of 1

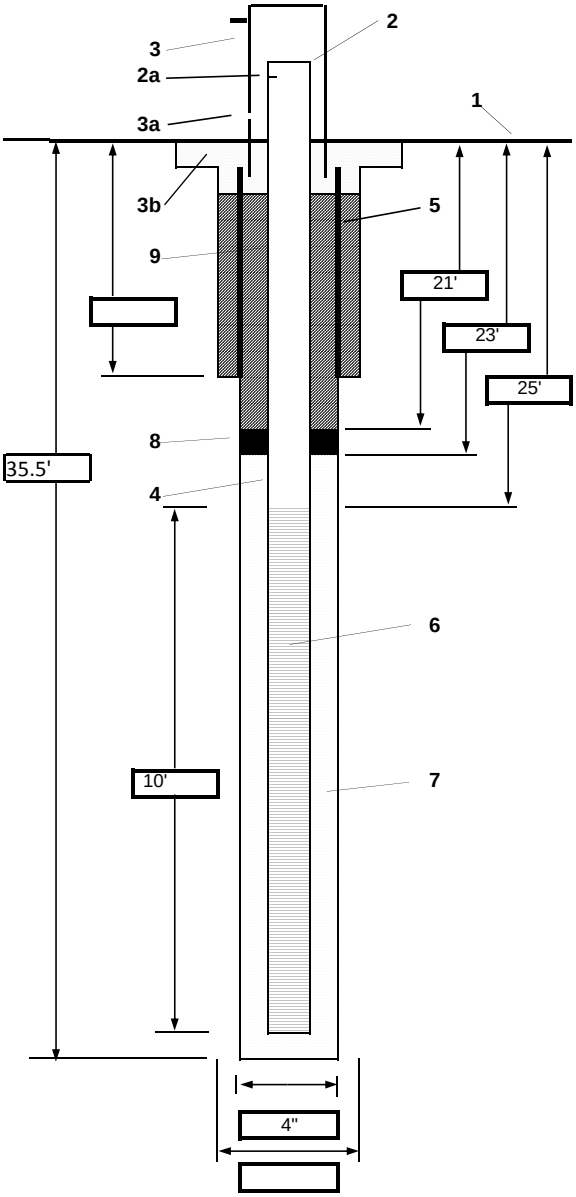
WELL COMPLETION DIAGRAM

PROJECT : Phase II RCRA Investigation — LOCATION : Dow- Hanging Rock, OH

DRILLING CONTRACTOR : Enviroprobe

DRILLING METHOD AND EQUIPMENT USED : DPT- Geoprobe 3210DT

WATER LEVELS : START : 2/09/2016 1120 — END : 2/09/2016 1240 — LOGGER : D. Roberts



1- Ground elevation at well

2- Top of casing elevation
   a) vent hole?

3- Wellhead protection cover type: J-Plug
   a) weep hole?
   b) concrete pad dimensions: 2'x2'

4- Dia./type of well casing: 2" SCH 40 PVC

5- Dia./type of surface casing

6- Type/slot size of screen: 2" SCH 40 PVC/ 0.010 slot

7- Type screen filter: #5 Global Sand
   a) Quantity used: 1.5 bags

8- Type of seal: Bentonite Medium Chips
   a) Quantity used: 2.0 bags

9- Grout
   a) Grout mix used: Bentonite Grout
   b) Method of placement
   c) Vol. of surface casing grout
   d) Vol. of well casing grout

Development method: Surge block and submersible pump

Development time

Estimated purge volume

Comments: Threaded PVC Cap on bottom of well

ch2m	**PROJECT NUMBER:** 652109.01.FI	**Date:** 2/08/2016 **Well Number:** MW10 SHEET 1 of 1

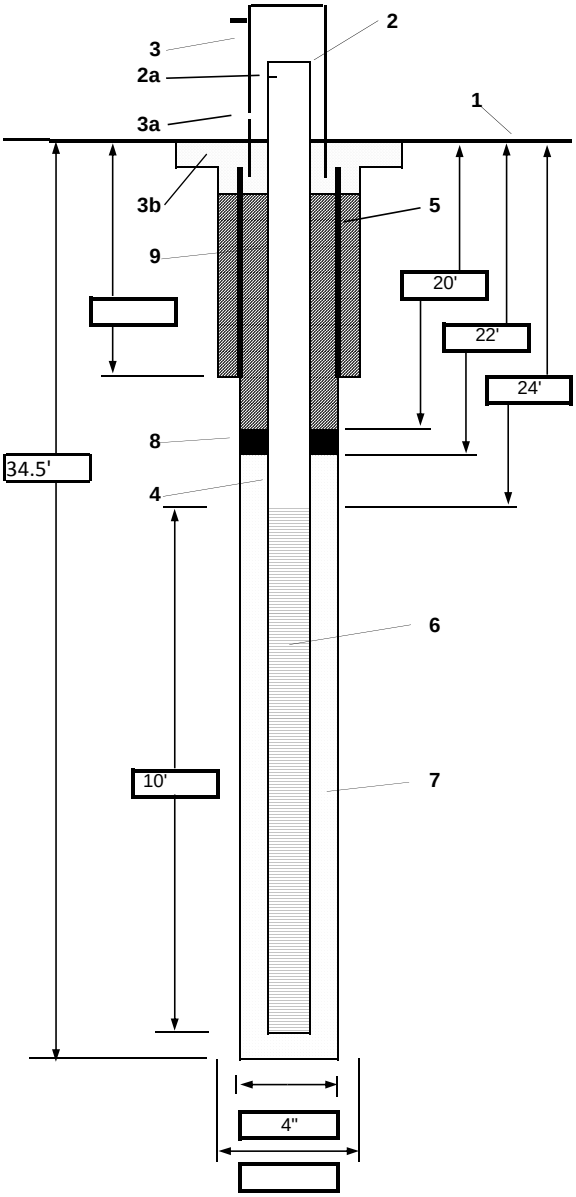
WELL COMPLETION DIAGRAM

PROJECT : Phase II RCRA Investigation — LOCATION : Dow- Hanging Rock, OH

DRILLING CONTRACTOR : Enviroprobe

DRILLING METHOD AND EQUIPMENT USED : DPT- Geoprobe 3210DT

WATER LEVELS : START : 2/08/2016 1215 — END : 2/08/2016 1500 — LOGGER : D. Roberts



1- Ground elevation at well

2- Top of casing elevation
   a) vent hole?

3- Wellhead protection cover type: J-Plug
   a) weep hole?
   b) concrete pad dimensions: 2'x2'

4- Dia./type of well casing: 2" SCH 40 PVC

5- Dia./type of surface casing

6- Type/slot size of screen: 2" SCH 40 PVC/ 0.010 slot

7- Type screen filter: #5 Global Sand
   a) Quantity used: 1.75 bags

8- Type of seal: Bentonite Medium Chips
   a) Quantity used: 3.0 bags

9- Grout
   a) Grout mix used: Bentonite Grout
   b) Method of placement
   c) Vol. of surface casing grout
   d) Vol. of well casing grout

Development method: Surge block and submersible pump

Development time

Estimated purge volume

Comments: Threaded PVC Cap on bottom of well

Well Development Forms

PROJECT NUMBER	WELL NUMBER	
652109.01.FI	MW08	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Phase II RCRA Investigation LOCATION : Dow - Hanging Rock, OH

DEVELOPMENT CONTRACTOR : Enviroprobe

DEVELOPMENT METHOD AND EQUIPMENT USED : Surge block and submersible pump

START WATER LEVELS : 27.61' START : 2/12/2016 1425 END : 2/12/2016 1500 LOGGER : D. Roberts

MAXIMUM DRAWDOWN DURING PUMPING: 0.02'

RANGE AND AVERAGE DISCHARGE RATE:

TOTAL QUANTITY OF WATER DISCHARGED: Approximately 26.0 gallons

DISPOSITION OF DISCHARGE WATER:

1425 - Begin surging with surge block for 15 minutes 35.90'bgs - 27.61=8.29 x 0.163 = 1.35 gallons = 1 well volume

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Conductivity (µmhos/cm)	D.O. (mg/L)	ORP (mV)	Remarks (color, odor, sheen, sediment, etc.)
1440	5	27.6	1000	14.4	5.86	0.647	7.89	150	Brown, Silty
1443	7	27.6	1000	15.38	5.93	0.657	3.6	88.2	Brown, Silty
1446	10	27.6	347	15.59	5.97	0.648	3.7	76.6	Clearing up
1449	13	27.6	94.1	15.14	5.96	0.632	4.85	71.3	Clear
1452	18	27.6	41.4	15.42	5.94	0.634	3.41	61.3	Clear
1455	23	27.6	26.7	15.49	5.94	0.63	2.24	52.9	Clear

PROJECT NUMBER	WELL NUMBER	
652109.01.FI	MW09	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Phase II RCRA Investigation LOCATION : Dow - Hanging Rock, OH

DEVELOPMENT CONTRACTOR : Enviroprobe

DEVELOPMENT METHOD AND EQUIPMENT USED : Surge block and submersible pump

START WATER LEVELS : 27.44' START : 2/11/2016 1445 END : 2/11/2016 1520 LOGGER : D. Roberts

MAXIMUM DRAWDOWN DURING PUMPING: 0.09'

RANGE AND AVERAGE DISCHARGE RATE:

TOTAL QUANTITY OF WATER DISCHARGED: Approximately 25.0 gallons

DISPOSITION OF DISCHARGE WATER:

1445 - Begin surging with surge block for 15 minutes 35.35'bgs - 27.44=7.91 x 0.163 = 1.29 gallons = 1 well volume

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Conductivity (µmhos/cm)	D.O. (mg/L)	ORP (mV)	Remarks (color, odor, sheen, sediment, etc.)
1506	3	27.5	1000	13.52	6.09	0.22	9.62	135.4	Brown, Silty
1510	6	27.5	1000	14.66	5.39	0.24	7.02	68.5	Brown, Silty
1513	10	27.5	598	14.87	5.46	0.25	5.73	50.1	Clearing up
1515	13	27.5	181	13.4	5.46	0.25	6.41	51.4	Clearing up
1517	16	27.5	72.7	14.25	5.48	0.25	7.29	50.7	Clear
1520	20	27.5	44.1	13.89	5.55	0.25	5.78	49.3	Clear

PROJECT NUMBER	WELL NUMBER	
652109.01.FI	MW10	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT : Phase II RCRA Investigation LOCATION : Dow - Hanging Rock, OH

DEVELOPMENT CONTRACTOR : Enviroprobe

DEVELOPMENT METHOD AND EQUIPMENT USED : Surge block and submersible pump

START WATER LEVELS : 22.81' START : 2/11/2016 1310 END : 2/11/2016 1350 LOGGER : D. Roberts

MAXIMUM DRAWDOWN DURING PUMPING: 10.19'

RANGE AND AVERAGE DISCHARGE RATE:

TOTAL QUANTITY OF WATER DISCHARGED: Approximately 20.0 gallons

DISPOSITION OF DISCHARGE WATER:

1310 - Begin surging with surge block for 15 minutes 34.41'bgs - 22.81=11.60 x 0.163 = 1.89 gallons = 1 well volume

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Conductivity (µmhos/cm)	D.O. (mg/L)	ORP (mV)	Remarks (color, odor, sheen, sediment, etc.)
1332	3	33	1000	12.09	6.04	0.533	8.89	226.5	Brown, Silty
1337	6	33	1000	14.09	5.87	0.343	6.67	231.2	Brown
1340	9	33	1000	13.81	5.86	0.343	7.86	221.6	Brown
1343	10	33	343	14.65	5.85	0.343	7.08	217.1	Clearing up
1345	12	33	125	14.41	5.87	0.349	7.19	217	Clear
1348	15	33	62	14.66	5.76	0.342	7.26	211	Clear
1350	18	33	43.5	14.52	5.81	0.343	5.98	209	Clear

Monitoring Well Sampling Logs

Final Groundwater Sampling Parameters

RCRA RFI Phase 2 Report, Dow Hanging Rock Plant, Ironton, Ohio

Well ID	Date Sampled	Depth to Water (feet)	Flow Rate (ml/min)	Total Volume (gal)	pH (std. units)	Temp (°C)	Conductivity (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Color/Odor
MW-01	4-Nov-14	29.05	200	2.50	5.34	17.24	0.195	179.7	2.94	3.03	Clear/None
MW-02*	5-Nov-14	NA	NA	1.40	5.99	15.99	0.413	165.5	2.97	NA	Brown
MW-03	5-Nov-14	31.30	400	6.00	5.69	16.50	0.271	125.0**	5.69	12.70	Clear
MW-04	6-Nov-14	27.90	400	5.50	6.10	169.30	0.351	14.4**	3.48	10.80	Clear
MW-05	5-Nov-14	23.84	350	5.50	5.98	19.25	0.493	-91.6	0.28	10.80	Clear/None
MW-06	5-Nov-14	27.31	400	4.00	6.43	16.40	0.513	47.1	6.42	5.20	Clear
MW-07	6-Nov-14	31.90	500	6.75	5.02	15.02	0.179	74.0	5.02	14.80	Clear
MW-08	16-Feb-16	27.40	400	5.00	5.82	16.29	0.637	-62.2	3.64	7.10	Clear
MW-09	16-Feb-16	30.43	400	5.50	5.54	14.78	0.269	22.0	2.19	8.70	Clear
MW-10	16-Feb-16	26.35	400	6.25	5.75	10.31	0.310	-10.4	4.22	9.30	Clear

Notes:

* Sample was poured out prior to recording readings. Readings are 7 minutes prior to taking sample.

** ORP function not working properly on meter.

°C = degrees Celsius

gal = gallons

mg/L = milligrams per liter

ml/min = millimeters per minute

mS/cm = microsiemens per centimeter

mV = millivolts

NA = not available, sample was collected with a 2-inch bailer

NTU = Nephelometric Turbidity Unit

std. units = standard units

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW01** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW01		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/4/2014			
Well Depth (ft): 30.65	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 29.03	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 1.62		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 0.3		Pump Serial Number:	C-102609		
Depth of Screen (ft): 18-28		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1435	29.05	200	0.25	5.61	17.79	0.315	219.3	4.40	84.7	Clear/None
1 VOL.	1440	29.05	200	0.50	5.45	18.28	0.242	200.8	3.84	104	Slightly Cloudy/None
2 VOL.	1445	29.05	200	0.75	5.41	18.75	0.213	205.0	3.82	78.3	Clear/None
3 VOL.	1450	29.05	200	1.00	5.38	19.20	0.208	199.6	3.22	31.5	Clear/None
4 VOL.	1455	29.05	200	1.25	5.37	19.62	0.209	199.5	3.27	23.3	Clear/None
5 VOL.	1500	29.05	200	1.50	5.36	19.07	0.205	195.5	2.94	--	Clear/None
6 VOL.	1505	29.05	200	2.00	5.34	17.48	0.197	185.1	2.85	2.26	Clear/None
7 VOL.	1510	29.05	200	2.25	5.35	17.38	0.197	182.0	2.83	1.49	Clear/None
8 VOL.	1515	29.05	200	2.50	5.34	17.24	0.195	179.7	2.94	3.05	Clear/None
9 VOL.	1520	S	A	M	P	L	E	D			
10 VOL.											
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 29.5' bgs

Sampling

Depth to Water Before Sampling: 29.05' Depth sample was acquired: 29.50'

Sample Methodology: Low Flow

Sample Date/Time: 11/4/2014 1520 Collect MW01-GW-0018-110414

Signed Sampler: Dee Roberts

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: clear entire time - small water column but produces well

Parameters: VOC's, SVOC's, metals

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** MW02 SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW02		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/5/2014			
Well Depth (ft): 33.5	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 29.50	Methodology: Bailer	**2"**	0.163	5"	1.02
Water Column (ft): 4.0'	Due to High LEL	3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Use 2" Bailer			
Well volume (gal): 0.652		Pump Serial Number:			
Depth of Screen (ft): 23.5'-33.5'		Water Level Serial Number:			

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	930	--	--	0.00	5.44	15.34	0.777	267.9	3.19	--	Clear
1 VOL.	940	--	--	0.75	6.02	15.47	0.458	207.9	1.95	--	Water is brown
2 VOL.	943	--	--	1.40	5.99	15.99	0.413	165.5	2.97	--	Water is brown
3 VOL.	950	--	--	--	--	--	--	--	--	--	*Water accidently
4 VOL.											poured out from bailer
5 VOL.											prior to taking readings
6 VOL.											
7 VOL.											
8 VOL.											
9 VOL.											
10 VOL.											
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks:

Sampling

Depth to Water Before Sampling: Depth sample was acquired:

Sample Methodology: Volumetric

Sample Date/Time: 11/5/2014 0950 Collect MW02-GW-0020-110514

Signed Sampler: Patrick Kish

Filtered Metals Collected: **Y** / N Filtered using gravity feed through bailer Filter Size: 0.45 µm

Sample Observations: Brown

Parameters: VOC's, SVOCs, metals

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** MW03 SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW03		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/5/2014			
Well Depth (ft): 36.91	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 31.26	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 5.65		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 0.92		Pump Serial Number:	C-102609		
Depth of Screen (ft): 27'-37'		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1040	31.3	~400	--	5.67	15.00	0.304	193.6	8.03	147	Clear
1 VOL.	1045	31.3	~400	0.5	5.66	15.43	0.301	186.4	7.81	174	Clear
2 VOL.	1050	31.3	~400	1.0	5.73	16.23	0.287	174.1	7.26	153	Clear
3 VOL.	1055	31.3	~400	1.5	5.71	16.34	0.275	170.1	6.61	84	Clear
4 VOL.	1100	31.3	~400	2.0	5.69	16.32	0.270	165.4	6.19	54	Clear
5 VOL.	1105	31.3	~400	2.5	5.68	16.32	0.271	166.4	6.01	43.1	Clear
6 VOL.	1110	31.3	~400	3.0	5.68	16.44	0.271	161.1	5.63	37.4	Clear
7 VOL.	1115	31.3	~400	3.5	5.68	16.44	0.272	163.5	5.69	34.3	Clear
8 VOL.	1120	31.3	~400	4.0	5.68	16.39	0.271	165.1	5.69	27.8	Clear
9 VOL.	1125	31.3	~400	4.5	5.69	16.43	0.271	166.4	5.69	23.6	Clear
10 VOL.	1130	31.3	~400	5.0	5.69	1646.00	0.271	165.5	5.60	19.5	Clear
11 VOL.	1135	31.3	~400	5.5	5.69	16.54	0.271	143.5	5.68	15.8	Clear
12 VOL.	1140	31.3	~400	6.0	5.69	16.50	0.271	125.0	5.69	12.7	Clear
13 VOL.	1145	Parameters stable (except ORP) will collect sample									
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks:

Sampling

Depth to Water Before Sampling: 31.3' Depth sample was acquired: 35.0'

Sample Methodology: Low Flow

Sample Date/Time: 11/5/2014 1145 Collect MW03-GW-0024-110514 MS & MSD

Signed Sampler: Patrick Kish

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: clear

Parameters: VOC's, SVOC's, total metals, dissolved metals *MS/MSD collected

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW04** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW04		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/6/2014			
Well Depth (ft): 34.88	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 27.9	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 6.98		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 1.14		Pump Serial Number:	C-102609		
Depth of Screen (ft): 22'-32' (bgs, NOT TOC)		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1100	27.9	400	--	5.90	15.78	0.297	97.8	5.35	615	
1 VOL.	1105	27.9	400	0.5	6.00	16.10	0.299	93.6	5.24	716	
2 VOL.	1110	27.9	400	1.0	6.09	16.42	0.321	69.7	5.06	745	
3 VOL.	1115	27.9	400	1.5	6.10	16.57	0.337	52.7	4.70	512	
4 VOL.	1125	27.9	400	3.0	6.10	16.56	0.346	52.3	4.22	82.7	
5 VOL.	1130	27.9	400	3.5	6.09	16.59	0.347	32.1	4.14	60.4	
6 VOL.	1135	27.9	400	4.0	6.09	16.55	0.348	52.3	3.71	21.9	
7 VOL.	1140	27.9	400	4.5	6.09	16.89	0.349	24.6	3.62	19.2	
8 VOL.	1145	27.9	400	5.0	6.09	16.99	0.35	17.1	3.52	12.1	
9 VOL.	1150	27.9	400	5.5	6.10	16.93	0.351	14.4	3.48	10.8	
10 VOL.		Parameters Stable Collect Sample *#7 Volume To Disregard *ORP sensor not function properly									
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 31.0'

Sampling

Depth to Water Before Sampling: 27.9' Depth sample was acquired: 31.0'

Sample Methodology: Low Flow

Sample Date/Time: 11/6/2014 1150 Collect MW04-GW-0022-110614

Signed Sampler: Patrick Kish

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: clear

Parameters: VOC's, SVOC's, total metals, dissolved metals

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW05** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW05		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/5/2014			
Well Depth (ft): 33.69	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 23.81	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 9.88		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 1.6		Pump Serial Number:	C-102609		
Depth of Screen (ft): 23'-33'		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1425	23.85	400	0.5	6.07	18.46	0.491	47.1	0.98	437	Cloudy/None
1 VOL.	1430	23.84	350	1.0	6.09	18.93	0.494	45.1	0.59	405	Cloudy/None
2 VOL.	1435	23.84	350	1.625	6.08	19.28	0.496	35.4	0.59	248	Cloudy/None
3 VOL.	1440	23.84	350	2.0	6.07	19.27	0.496	37.9	0.57	140	Cloudy/None
4 VOL.	1445	23.84	350	2.5	6.04	19.21	0.495	21.2	0.70	49.9	Clear/None
5 VOL.	1450	23.84	350	3.0	6.03	19.37	0.497	-7.8	0.42	26.3	Clear/None
6 VOL.	1455	23.84	350	3.5	6.03	19.33	0.497	-41.7	0.34	21.8	Clear/None
7 VOL.	1500	23.84	350	4.0	6.00	19.49	0.498	-46.4	0.35	30.1	Clear/None
8 VOL.	1505	23.84	350	4.5	6.00	19.31	0.495	-88.5	0.29	19.8	Clear/None
9 VOL.	1510	23.84	350	5.0	5.99	19.26	0.493	-82.1	0.29	11.2	Clear/None
10 VOL.	1515	23.84	350	5.5	5.98	19.25	0.493	-91.6	0.28	10.8	Clear/None
11 VOL.	1520	S	A	M	P	L	E	D			
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 28.0'

Sampling

Depth to Water Before Sampling: 23.04' Depth sample was acquired: 28.00'

Sample Methodology: Low Flow

Sample Date/Time: 11/5/2014 1520 Collect MW05-GW-0024-110514 and MW05-GW-0024-110514D

Signed Sampler: Dee Roberts

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: cloudy to clear

Parameters: VOC's, SVOC's, total metals, dissolved metals (Field Filtered)

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW06** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW06		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/5/2014			
Well Depth (ft): 31.86	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 27.26	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 4.4		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 0.652		Pump Serial Number:	C-102459		
Depth of Screen (ft): 19'-29'		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1550	27.31	400	--	6.53	15.54	0.492	46.8	5.32	129	
1 VOL.	1555	27.31	400	0.5	6.46	16.09	0.501	49.2	6.46	148	
2 VOL.	1600	27.31	400	1.000	6.46	16.37	0.510	47.3	6.46	68.0	
3 VOL.	1605	27.31	400	2.0	65.46	16.39	0.512	45.0	6.44	44.9	
4 VOL.	1610	27.31	400	2.5	6.45	16.43	0.514	47.1	6.45	29.8	
5 VOL.	1615	27.31	400	3.0	6.44	16.41	0.514	48.2	6.44	12.4	
6 VOL.	1620	27.31	400	3.5	6.44	16.39	0.513	48.2	6.44	7.9	
7 VOL.	1625	27.31	400	4.0	6.43	16.40	0.513	47.1	6.42	5.2	
8 VOL.	1630	Parameters Stable Collect Sample									
9 VOL.											
10 VOL.											
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 29.5'

Sampling

Depth to Water Before Sampling: 27.31' Depth sample was acquired: 29.00'

Sample Methodology: Low Flow

Sample Date/Time: 11/5/2014 1630 Collect MW06-GW-0019-110514

Signed Sampler: Patrick Kish

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: clear

Parameters: VOC's, SVOC's, total metals, dissolved metals

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW07** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW07		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts, P. Kish		Date: 11/6/2014			
Well Depth (ft): 37.17	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 31.90	Methodology: Low Flow	**2"**	0.163	5"	1.02
Water Column (ft): 5.27		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 0.85		Pump Serial Number:	C-102459		
Depth of Screen (ft): 24'-34' (bgs NOT TOC)		Water Level Serial Number:	C-102853		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	950	31.9	500	--	5.14	14.71	0.232	205.8	6.48	807	
1 VOL.	955	31.9	500	0.75	5.10	14.75	0.162	202.2	6.22	777	
2 VOL.	1000	31.9	500	1.50	5.05	15.02	0.160	137.5	5.97	478.0	
3 VOL.	1005	31.9	500	2.25	5.05	14.98	0.168	124.6	5.67	173.0	
4 VOL.	1010	31.9	500	3.00	2.03	14.97	0.179	110.1	5.44	74.9	
5 VOL.	1015	31.9	500	3.75	5.02	14.97	0.182	113.0	5.02	32.9	
6 VOL.	1020	31.9	500	4.50	5.01	15.05	0.182	102.1	5.01	23.3	
7 VOL.	1025	31.9	500	2.25	5.02	15.11	0.180	76.5	5.02	18.8	
8 VOL.	1030	31.9	500	6.00	5.02	15.05	0.180	75.7	5.30	16.2	
9 VOL.	1035	31.9	500	6.75	5.02	15.02	0.179	74.0	5.02	14.8	
10 VOL.		Parameters Stable Collect Sample									
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 36'

Sampling

Depth to Water Before Sampling: 31.9' Depth sample was acquired: 36.00' (TOC)

Sample Methodology: Low Flow

Sample Date/Time: 11/6/2014 1032 Collect MW07-GW-0024-110614

Signed Sampler: Patrick Kish

Filtered Metals Collected: **Y** / N Filter Size: 0.45 µm

Sample Observations: clear

Parameters: VOC's, SVOC's, total metals, dissolved metals

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** **MW08** SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW08		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts		Date: 2/16/2016			
Well Depth (ft): 35.79	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 27.44	Methodology: Low Flow	2"	0.163	5"	1.02
Water Column (ft): 8.35		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 1.36		Pump Serial Number:	C-102607		
Depth of Screen (ft): 26-36		Water Level Serial Number:	C-102970		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1410	27.43	300	0.5	6.01	13.72	0.565	-25.7	2.67	581	brown/no odor
1 VOL.	1415	27.43	300	0.75	5.97	14.2	0.575	-26	2.26	732	brown/no odor
2 VOL.	1420	27.43	400	1.25	5.95	16.85	0.629	-51.6	3.02	403	brown/no odor
3 VOL.	1425	27.43	400	1.75	5.88	16.49	0.636	-60.1	3.44	128	brown/no odor
4 VOL.	1430	27.43	400	2.5	5.83	16.13	0.638	-44.1	3.53	56.2	clear
5 VOL.	1435	27.43	400	3.5	5.82	16.41	0.64	-44.3	3.47	40.6	clear
6 VOL.	1440	27.43	400	4	5.84	16.43	0.643	-53.3	3.51	25.2	clear
7 VOL.	1445	27.43	400	4.5	5.8	16.31	0.638	-58.8	3.62	13.6	clear
8 VOL.	1450	27.43	400	5	5.82	16.29	0.637	-62.2	3.64	7.1	clear
9 VOL.	1455	S	A	M	P	L	E	D			
10 VOL.											
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 30.0' bgs

Sampling

Depth to Water Before Sampling: 27.43' Depth sample was acquired: 30.0'

Sample Methodology: Low Flow

Sample Date/Time: 2/16/2016 1455 Collect MW08-GW-2636-021616

Signed Sampler:

Filtered Metals Collected: Y / N Filter Size: N/A

Sample Observations: clear

Parameters: VOC's

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** MW09 SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW09		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts		Date: 2/16/2016			
Well Depth (ft): 38.40	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 30.41	Methodology: Low Flow	2"	0.163	5"	1.02
Water Column (ft): 7.99		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 1.30		Pump Serial Number:	C-102607		
Depth of Screen (ft): 25-35		Water Level Serial Number:	C-102970		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1250	30.43	400	0.25	5.78	14.37	0.208	-10	0.56	1000	Tan/no odor
1 VOL.	1255	30.43	400	1.5	5.69	14.95	0.239	-4	1.75	974	Tan/no odor
2 VOL.	1300	30.43	400	2	5.64	14.73	0.256	11.3	2.26	433	Tan/no odor
3 VOL.	1305	30.43	400	2.5	5.6	14.9	0.262	17.8	2.77	216	Tan/no odor
4 VOL.	1310	30.43	400	3	5.59	14.64	0.265	21.9	2.45	71.8	clear
5 VOL.	1315	30.43	400	3.5	5.57	14.71	0.266	26.7	2.54	29.4	clear
6 VOL.	1320	30.43	400	4	5.57	14.68	0.266	27.5	2.4	20.2	clear
7 VOL.	1325	30.43	400	4.5	5.55	14.78	0.267	28.8	2.27	19.2	clear
8 VOL.	1330	30.43	400	5	5.56	14.73	0.267	24	2.23	14.4	clear
9 VOL.	1335	30.43	400	5.5	5.54	14.78	0.269	22	2.19	8.7	clear
10 VOL.	1340	S	A	M	P	L	E	D			
11 VOL.											
12 VOL.											
13 VOL.											
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 34.0' bgs

Sampling

Depth to Water Before Sampling: 30.43' Depth sample was acquired: 34.0'

Sample Methodology: Low Flow

Sample Date/Time: 2/16/2016 1340 Collect MW09-GW-2535-021616 HGR-021616-FD01

Signed Sampler:

Filtered Metals Collected: Y / N Filter Size: N/A

Sample Observations: clear

Parameters: VOC's

ch2m:	**PROJECT NUMBER** 652109.01.FI	**WELL NUMBER** MW10 SHEET 1 OF 1

LOW FLOW SAMPLING LOG

Well Number: MW10		Site: Dow Hanging Rock Facility, Hanging Rock OH			
Field Crew: D. Roberts		Date: 2/16/2016			
Well Depth (ft): 37.02 TOC	Purge	Diameter	Gal. Per Foot	Diameter	Gal. Per Foot
DTW (ft): 25.35 TOC	Methodology: Low Flow	2"	0.163	5"	1.02
Water Column (ft): 11.67		3"	0.367	6"	1.469
Well Diameter (in): 2		4"	0.653	8"	2.611
Gal. Per ft: 0.163		Pump type: Monsoon			
Well volume (gal): 1.90		Pump Serial Number:	C-102607		
Depth of Screen (ft): 24-34		Water Level Serial Number:	C-102970		

Field Parameters

	Time	DTW (toc)	Flow Rate (ml/min)	Total Volume (gal)	pH (Std. Units)	Temp (C)	Cond. (mS/cm)	ORP (mV)	D.O. [Surface] (mg/L)	Turbidity (NTU)	Color/Odor
	Stabilization	<0.3'	300-500		0.1	1 C	3%	10 mV	10%	10%	
INT.	1050	26.36	400	0.25	5.8	10.12	0.32	182.3	0.53	1000	Tan/no odor
1 VOL.	1055	26.35	400	0.75	5.81	9.71	0.319	153	2.14	497	Tan/no odor
2 VOL.	1100	26.35	400	1.25	5.77	9.08	0.315	118.5	2.76	335	Tan/no odor
3 VOL.	1105	26.35	400	1.75	5.65	8.03	0.305	105.9	2.86	212	Clearing up
4 VOL.	1110	26.35	400	2.25	5.73	8.79	0.309	74.4	3.13	146	Clearing up
5 VOL.	1115	26.35	400	2.75	5.81	9.31	0.314	40.9	3.86	125	Clearing up
6 VOL.	1120	26.35	400	3.25	5.81	9.99	0.317	26.4	3.56	83.4	clear/no odor
7 VOL.	1125	26.35	400	3.75	5.8	10.41	0.321	15.5	3.7	56.1	clear/no odor
8 VOL.	1130	26.35	400	4.25	5.78	10.51	0.321	-3.5	3.84	37.8	clear/no odor
9 VOL.	1135	26.35	400	4.75	5.76	10.63	0.321	-10.7	4.12	27.6	clear/no odor
10 VOL.	1140	26.35	400	5.25	5.78	10.99	0.322	-12.2	4.06	24	clear/no odor
11 VOL.	1145	26.35	400	5.75	5.75	10.61	0.318	-11.6	4.21	15.5	clear/no odor
12 VOL.	1150	26.35	400	6.25	5.75	10.31	0.31	-10.4	4.22	9.3	clear/no odor
13 VOL.	1155	S	A	M	P	L	E	D			
14 VOL.											
15 VOL.											
16 VOL.											
17 VOL.											
18 VOL.											
19 VOL.											
20 VOL.											

Remarks: Pump set at 29.0' bgs

Sampling

Depth to Water Before Sampling: 26.35' Depth sample was acquired: 29.0'

Sample Methodology: Low Flow

Sample Date/Time: 2/16/2016 1155 Collect MW10-GW-2434-021616 MW10-GW-2434-021616MS MW10-GW-2434-021616

Signed Sampler:

Filtered Metals Collected: Y / N Filter Size: N/A

Sample Observations: clear

Parameters: VOC's

Appendix B
Laboratory Reports

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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
Groundwater and Water Samples
Collected on 02/16/16

SDG# DHR34

GROUP	SAMPLE NUMBERS
1632669	8248058-8248065

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:** **02/26/2016**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

2425 New Holland Pike, Lancaster, PA 17601 | 717-656-2300 | Fax: 717-656-2681 | www.LancasterLabs.com

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Sample Reference List for SDG Number DHR34 with a Data Package Type of I-NODATA

11372 - CH2M Hill, Inc.

Project: Dow Hanging Rock, OH

Lab Sample Number	Client Sample ID	Collection Date	Date Received
8248058	MW10-GW-2434-021616	02/16/2016 11:55	02/18/2016 09:45
8248059	MW10-GW-2434-021616MS	02/16/2016 11:55	02/18/2016 09:45
8248060	MW10-GW-2434-021616MSD	02/16/2016 11:55	02/18/2016 09:45
8248061	HGR-021616-EB01	02/16/2016 12:20	02/18/2016 09:45
8248062	MW09-GW-2535-021616	02/16/2016 13:40	02/18/2016 09:45
8248063	HGR-021616-FD01	02/16/2016 13:45	02/18/2016 09:45
8248064	MW08-GW-2636-021616	02/16/2016 14:55	02/18/2016 09:45
8248065	HGR-021616-TB01	02/16/2016 00:00	02/18/2016 09:45

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Sample pH Log

SDG: DHR34

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8248058	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248059	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248060	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248061	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248062	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248063	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248064	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248064	038B	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8248065	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

Method Summary/Reference for SDG# DHR34_I-NODATA

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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.

02898 VOCs- 25ml Water by 8260B

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.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

February 24, 2016

Project: Dow Hanging Rock, OH

Submittal Date: 02/18/2016
Group Number: 1632669
SDG: DHR34
PO Number: 10381-7-101541
Release Number: DHR34
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
MW10-GW-2434-021616 Grab Groundwater	8248058
MW10-GW-2434-021616MS Grab Groundwater	8248059
MW10-GW-2434-021616MSD Grab Groundwater	8248060
HGR-021616-EB01 Grab Groundwater	8248061
MW09-GW-2535-021616 Grab Groundwater	8248062
HGR-021616-FD01 Grab Groundwater	8248063
MW08-GW-2636-021616 Grab Groundwater	8248064
HGR-021616-TB01 Water	8248065

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: MW10-GW-2434-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248058
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01BKG

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.3		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.6		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 16:43	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 16:43	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW10-GW-2434-021616MS Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248059
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01MS

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	
02898	Acrylonitrile	107-13-1	31	5.0	1.0	1
02898	Benzene	71-43-2	5.3	0.5	0.1	1
02898	Bromoform	75-25-2	5.7	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.8	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	6.1	0.5	0.1	1
02898	Methylene Chloride	75-09-2	5.0	0.5	0.2	1
02898	Naphthalene	91-20-3	6.3	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.9	0.5	0.1	1
02898	Styrene	100-42-5	6.5	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.9	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	5.6	0.5	0.1	1
02898	Trichloroethene	79-01-6	6.5	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	6.1	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	12	0.5	0.1	1
02898	o-Xylene	95-47-6	5.8	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:05	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:05	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW10-GW-2434-021616MSD Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248060
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01MSD

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	
02898	Acrylonitrile	107-13-1	32	5.0	1.0	1
02898	Benzene	71-43-2	5.1	0.5	0.1	1
02898	Bromoform	75-25-2	5.5	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.8	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	6.0	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.8	0.5	0.2	1
02898	Naphthalene	91-20-3	6.3	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.9	0.5	0.1	1
02898	Styrene	100-42-5	6.4	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.7	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	5.6	0.5	0.1	1
02898	Trichloroethene	79-01-6	6.3	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	6.1	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	12	0.5	0.1	1
02898	o-Xylene	95-47-6	5.8	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:28	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:28	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-EB01 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248061
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 12:20

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-EB SDG#: DHR34-02EB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 15:58	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 15:58	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW09-GW-2535-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248062
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 13:40 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-09 SDG#: DHR34-03

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:50	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:50	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-FD01 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248063
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 13:45 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-FD SDG#: DHR34-04FD

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 18:12	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 18:12	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW08-GW-2636-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248064
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 14:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-08 SDG#: DHR34-05

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.2	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.7		0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	120	E	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	14		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
Trial ID: DL							
02898	Acrylonitrile	107-13-1	100	U	100	20	20
02898	Benzene	71-43-2	10	U	10	2.0	20
02898	Bromoform	75-25-2	10	U	10	2.0	20
02898	Ethylbenzene	100-41-4	10	U	10	2.0	20
02898	Isopropylbenzene	98-82-8	10	U	10	2.0	20
02898	Methylene Chloride	75-09-2	10	U	10	4.0	20
02898	Naphthalene	91-20-3	10	U	10	2.0	20
02898	n-Propylbenzene	103-65-1	10	U	10	2.0	20
02898	Styrene	100-42-5	10	U	10	2.0	20
02898	Tetrachloroethene	127-18-4	90		10	2.0	20
02898	1,2,4-Trichlorobenzene	120-82-1	10	U	10	2.0	20
02898	Trichloroethene	79-01-6	10		10	2.0	20
02898	1,3,5-Trimethylbenzene	108-67-8	10	U	10	2.0	20
02898	m+p-Xylene	179601-23-1	10	U	10	2.0	20
02898	o-Xylene	95-47-6	10	U	10	2.0	20

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 18:35	Kerri E Legerlotz	1
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	2-DL	C160532AA	02/22/2016 18:57	Kerri E Legerlotz	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 18:35	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	C160532AA	02/22/2016 18:57	Kerri E Legerlotz	20

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-TB01 Water
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248065
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-TB SDG#: DHR34-06TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 16:20	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 16:20	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc.
Reported: 02/24/2016 13:09

Group Number: 1632669

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.

Method Blank

Analysis Name	Result ug/l		LOQ** ug/l	MDL ug/l
Batch number: C160532AA	Sample number(s): 8248058-8248065			
Acrylonitrile	5.0	U	5.0	1.0
Benzene	0.5	U	0.5	0.1
Bromoform	0.5	U	0.5	0.1
Ethylbenzene	0.5	U	0.5	0.1
Isopropylbenzene	0.5	U	0.5	0.1
Methylene Chloride	0.5	U	0.5	0.2
Naphthalene	0.5	U	0.5	0.1
n-Propylbenzene	0.5	U	0.5	0.1
Styrene	0.5	U	0.5	0.1
Tetrachloroethene	0.5	U	0.5	0.1
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1
Trichloroethene	0.5	U	0.5	0.1
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1
m+p-Xylene	0.5	U	0.5	0.1
o-Xylene	0.5	U	0.5	0.1

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C160532AA	Sample number(s): 8248058-8248065								
Acrylonitrile	25	26.36			105		68-135		
Benzene	5.00	4.91			98		80-120		
Bromoform	5.00	4.70			94		62-128		
Ethylbenzene	5.00	5.06			101		80-120		
Isopropylbenzene	5.00	5.20			104		80-120		
Methylene Chloride	5.00	4.92			98		80-120		
Naphthalene	5.00	5.13			103		58-125		
n-Propylbenzene	5.00	5.15			103		79-120		
Styrene	5.00	5.42			108		80-122		
Tetrachloroethene	5.00	4.93			99		80-120		
1,2,4-Trichlorobenzene	5.00	4.75			95		67-120		
Trichloroethene	5.00	5.20			104		80-120		
1,3,5-Trimethylbenzene	5.00	5.26			105		80-120		
m+p-Xylene	10	10.45			104		80-120		
o-Xylene	5.00	5.06			101		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: CH2M Hill, Inc.
Reported: 02/24/2016 13:09

Group Number: 1632669

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: C160532AA	Sample number(s): 8248058-8248065 UNSPK: 8248058										
Acrylonitrile	5.0	U	25	30.76	25	31.55	123	126	68-135	3	30
Benzene	0.5	U	5.00	5.29	5.00	5.08	106	102	80-120	4	30
Bromoform	0.5	U	5.00	5.70	5.00	5.49	114	110	62-128	4	30
Ethylbenzene	0.5	U	5.00	5.78	5.00	5.77	116	115	80-120	0	30
Isopropylbenzene	0.5	U	5.00	6.06	5.00	6.01	121*	120	80-120	1	30
Methylene Chloride	0.5	U	5.00	5.02	5.00	4.84	100	97	80-120	3	30
Naphthalene	0.5	U	5.00	6.33	5.00	6.34	127*	127*	58-125	0	30
n-Propylbenzene	0.5	U	5.00	5.90	5.00	5.93	118	119	79-120	1	30
Styrene	0.5	U	5.00	6.47	5.00	6.38	129*	128*	80-122	2	30
Tetrachloroethene	1.30		5.00	6.87	5.00	6.72	111	108	80-120	2	30
1,2,4-Trichlorobenzene	0.5	U	5.00	5.59	5.00	5.60	112	112	67-120	0	30
Trichloroethene	0.563		5.00	6.51	5.00	6.26	119	114	80-120	4	30
1,3,5-Trimethylbenzene	0.5	U	5.00	6.05	5.00	6.09	121*	122*	80-120	1	30
m+p-Xylene	0.5	U	10	12.03	10	11.96	120	120	80-120	1	30
o-Xylene	0.5	U	5.00	5.85	5.00	5.80	117	116	80-120	1	30

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: VOCs- 25ml Water by 8260B
Batch number: C160532AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8248058	107	106	92	91
8248059	103	103	96	96
8248060	102	104	96	96
8248061	107	107	92	90
8248062	105	105	94	92
8248063	107	107	93	91
8248064	106	108	94	90
8248064DL	106	105	94	90
8248065	106	106	93	91
Blank	105	106	93	92
LCS	103	105	96	96
MS	103	103	96	96
MSD	102	104	96	96
Limits:	77-114	74-113	77-110	78-110

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11372 Group # 1632669 Sample # 8245055-065

COC # 397417

Client Information	
Client: CH2M	Acct. #:
Project Name/#: CH2M PN: 652109.01.FI Hanging Rock Phase II RCRA Investigation	PWSID #:
Project Manager: Rachel Grand 314.599.3414	P.O. #:
Sampler: Dee Roberts	Quote #:
State where samples were collected: Ohio	For Compliance: Yes ☐ No ☐

Matrix: Sediment ☐ Soil ☐ Ground ☑ Surface ☐ Potable ☐ NPDES ☐ Water ✓ Other: ____

For Lab Use Only
FSC: ____
SCR#: 183418

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	VOCs	Remarks
MW10-GW-2434-021616	2/16/16	1155	✓		3	✓	
MW10-GW-2434-021616MS	2/16/16	1155	✓		3	✓	matrix spike
MW10-GW-2434-021616MSD	2/16/16	1155	✓		3	✓	matrix spike duplicate
HGR-021616-EB01	2/16/16	1220	✓		2	✓	Equip Blank
MW09-GW-2535-021616	2/16/16	1340	✓		3	✓	
HGR-021616-FD01	2/16/16	1345	✓		3	✓	field duplicate
MW08-GW-2636-021616	2/16/16	1455	✓		3	✓	
HGR-021616-TB01	2/16/16	—	✓		2	✓	trip blank

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Angela S. Montgomery	1/21/16	12:45			
Dee Roberts	2/17/16	0830			
			Kristin Abel	2/18/16	0945

EDD Required? Yes No
If yes, format: ____

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.5 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0615

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Sample Administration Receipt Documentation Log

Doc Log ID: 136753

Group Number(s):

Client: CH2M

1C32669

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	02/18/2016 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:47 on 02/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.5	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
TB	2	1/26/2016 --	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR34

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8248058	MW10-GW-2434-021616	X		1	Unspiked
8248059	MW10-GW-2434-021616MS	X		1	Matrix Spike
8248060	MW10-GW-2434-021616MSD	X		1	Matrix Spike Duplicate
8248061	HGR-021616-EB01	X		1	Equipment Blank
8248062	MW09-GW-2535-021616	X		1	
8248063	HGR-021616-FD01	X		1	Field Duplicate Sample
8248064	MW08-GW-2636-021616	X		20; 1	
8248065	HGR-021616-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.

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.

Batch#: C160532AA (Sample number(s): 8248058-8248065, UNSPK: 8248058)
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Isopropylbenzene
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: 1,3,5-Trimethylbenzene, Naphthalene, Styrene

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR34

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR34

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
VOCs- 25ml Water by 8260B	C160532AA	VBLKC52	02/22/2016 09:53:00
		LCSC52	02/22/2016 09:31:00
		8248058 UNSPK	02/22/2016 16:43:00
		8248059 MS	02/22/2016 17:05:00
		8248060 MSD	02/22/2016 17:28:00
		8248061	02/22/2016 15:58:00
		8248062	02/22/2016 17:50:00
		8248063	02/22/2016 18:12:00
		8248064	02/22/2016 18:35:00
		8248064DL	02/22/2016 18:57:00
		8248065	02/22/2016 16:20:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR34
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C160532AA / VBLKC52 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Methylene Chloride	02/22/16	N.D.	ug/l	0.2	0.5
Acrylonitrile	02/22/16	N.D.	ug/l	1.0	5.0
Benzene	02/22/16	N.D.	ug/l	0.1	0.5
Trichloroethene	02/22/16	N.D.	ug/l	0.1	0.5
Tetrachloroethene	02/22/16	N.D.	ug/l	0.1	0.5
Ethylbenzene	02/22/16	N.D.	ug/l	0.1	0.5
m+p-Xylene	02/22/16	N.D.	ug/l	0.1	0.5
o-Xylene	02/22/16	N.D.	ug/l	0.1	0.5
Styrene	02/22/16	N.D.	ug/l	0.1	0.5
Bromoform	02/22/16	N.D.	ug/l	0.1	0.5
Isopropylbenzene	02/22/16	N.D.	ug/l	0.1	0.5
n-Propylbenzene	02/22/16	N.D.	ug/l	0.1	0.5
1,3,5-Trimethylbenzene	02/22/16	N.D.	ug/l	0.1	0.5
1,2,4-Trichlorobenzene	02/22/16	N.D.	ug/l	0.1	0.5
Naphthalene	02/22/16	N.D.	ug/l	0.1	0.5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR34
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C160532AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKC52	106	74 - 113	92	78 - 110	105	77 - 114	93	77 - 110
LCSC52	105	74 - 113	96	78 - 110	103	77 - 114	96	77 - 110
8248058 UNSPK	106	74 - 113	91	78 - 110	107	77 - 114	92	77 - 110
8248059 MS	103	74 - 113	96	78 - 110	103	77 - 114	96	77 - 110
8248060 MSD	104	74 - 113	96	78 - 110	102	77 - 114	96	77 - 110
8248061	107	74 - 113	90	78 - 110	107	77 - 114	92	77 - 110
8248062	105	74 - 113	92	78 - 110	105	77 - 114	94	77 - 110
8248063	107	74 - 113	91	78 - 110	107	77 - 114	93	77 - 110
8248064	108	74 - 113	90	78 - 110	106	77 - 114	94	77 - 110
8248064DL	105	74 - 113	90	78 - 110	106	77 - 114	94	77 - 110
8248065	106	74 - 113	91	78 - 110	106	77 - 114	93	77 - 110

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR34
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 8248058 MS: 8248059 MSD: 8248060 **Analyte**	Batch: **C160532AA** (Sample number(s): 8248058-8248065)								
	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**
Methylene Chloride	5.00	N.D.	5.02	4.84	100	97	80-120	3	30
Acrylonitrile	25	N.D.	30.76	31.55	123	126	68-135	3	30
Benzene	5.00	N.D.	5.29	5.08	106	102	80-120	4	30
Trichloroethene	5.00	0.563	6.51	6.26	119	114	80-120	4	30
Tetrachloroethene	5.00	1.30	6.87	6.72	111	108	80-120	2	30
Ethylbenzene	5.00	N.D.	5.78	5.77	116	115	80-120	0	30
m+p-Xylene	10	N.D.	12.03	11.96	120	120	80-120	1	30
o-Xylene	5.00	N.D.	5.85	5.80	117	116	80-120	1	30
Styrene	5.00	N.D.	6.47	6.38	129 *	128 *	80-122	2	30
Bromoform	5.00	N.D.	5.70	5.49	114	110	62-128	4	30
Isopropylbenzene	5.00	N.D.	6.06	6.01	121 *	120	80-120	1	30
n-Propylbenzene	5.00	N.D.	5.90	5.93	118	119	79-120	1	30
1,3,5-Trimethylbenzene	5.00	N.D.	6.05	6.09	121 *	122 *	80-120	1	30
1,2,4-Trichlorobenzene	5.00	N.D.	5.59	5.60	112	112	67-120	0	30
Naphthalene	5.00	N.D.	6.33	6.34	127 *	127 *	58-125	0	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR34
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSC52	Batch: **C160532AA** (Sample number(s): 8248058-8248065)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Methylene Chloride	5.00	4.92	NA	98	NA	80-120	NA	NA
Acrylonitrile	25	26.36	NA	105	NA	68-135	NA	NA
Benzene	5.00	4.91	NA	98	NA	80-120	NA	NA
Trichloroethene	5.00	5.20	NA	104	NA	80-120	NA	NA
Tetrachloroethene	5.00	4.93	NA	99	NA	80-120	NA	NA
Ethylbenzene	5.00	5.06	NA	101	NA	80-120	NA	NA
m+p-Xylene	10	10.45	NA	104	NA	80-120	NA	NA
o-Xylene	5.00	5.06	NA	101	NA	80-120	NA	NA
Styrene	5.00	5.42	NA	108	NA	80-122	NA	NA
Bromoform	5.00	4.70	NA	94	NA	62-128	NA	NA
Isopropylbenzene	5.00	5.20	NA	104	NA	80-120	NA	NA
n-Propylbenzene	5.00	5.15	NA	103	NA	79-120	NA	NA
1,3,5-Trimethylbenzene	5.00	5.26	NA	105	NA	80-120	NA	NA
1,2,4-Trichlorobenzene	5.00	4.75	NA	95	NA	67-120	NA	NA
Naphthalene	5.00	5.13	NA	103	NA	58-125	NA	NA

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR34___

Lab File ID: cn25t01.d BFB Injection Date: 11/25/15

Instrument ID: HP10193 BFB Injection Time: 11:06

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	21.34
75	30.0 - 60.0% of mass 95	52.59
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.02
173	Less than 2.0% of mass 174	0.73 (0.92)1
174	Greater than 50.0% of mass 95	79.21
175	5.0 - 9.0% of mass 174	5.89 (7.44)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.12 (97.36)1
177	5.0 - 9.0% of mass 176	5.51 (7.15)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	VSTD25	cn25i01.d	11/25/15	12:03
02	VSTD10	cn25i02.d	11/25/15	12:25
03	VSTD5	cn25i03.d	11/25/15	12:47
04	VSTD2	cn25i04.d	11/25/15	13:10
05	VSTD1	cn25i05.d	11/25/15	13:36
06	VSTD.5	cn25i06.d	11/25/15	13:58
07	VSTD.2	cn25i07.d	11/25/15	14:21
08	MDL0.1 - MDL0.1	cn25m01.d	11/25/15	14:43
09	MDL0.4 - MDL0.4	cn25m02.d	11/25/15	15:05
10	LCSC01	cn25l01a.d	11/25/15	15:51
11	LCSC07	cn25l01.d	11/25/15	15:51
12	VBLKC07	cn25b01.d	11/25/15	16:13
13	8142897	cn25s01.d	11/25/15	17:22
14	8142898	cn25s02.d	11/25/15	17:44
15	8142887	cn25s03.d	11/25/15	18:06
16	8142888MS	cn25s04.d	11/25/15	18:29
17	8142889MSD	cn25s05.d	11/25/15	18:51
18	8138857RE	cn25s06.d	11/25/15	19:36
19	8138859RE	cn25s07.d	11/25/15	19:58
20	8138860RE	cn25s08.d	11/25/15	20:21
21	8138861RE	cn25s09.d	11/25/15	20:43
22	8142885	cn25s10.d	11/25/15	21:28

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.:_DHR34___

Lab File ID: cn25t01.d BFB Injection Date: 11/25/15

Instrument ID: HP10193 BFB Injection Time: 11:06

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	21.34
75	30.0 - 60.0% of mass 95	52.59
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.02
173	Less than 2.0% of mass 174	0.73 (0.92)1
174	Greater than 50.0% of mass 95	79.21
175	5.0 - 9.0% of mass 174	5.89 (7.44)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.12 (97.36)1
177	5.0 - 9.0% of mass 176	5.51 (7.15)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	8142886	cn25s11.d	11/25/15	21:50
24	8142891	cn25s12.d	11/25/15	22:13
25	8142892	cn25s13.d	11/25/15	22:35
26	SECC010	cn25s18.d	11/25/15	22:57

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.:_DHR34___

Lab File ID: cf22t01.d BFB Injection Date: 02/22/16

Instrument ID: HP10193 BFB Injection Time: 08:27

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	49.17
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.29
173	Less than 2.0% of mass 174	0.49 (0.57)1
174	Greater than 50.0% of mass 95	87.08
175	5.0 - 9.0% of mass 174	6.14 (7.05)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.91 (95.22)1
177	5.0 - 9.0% of mass 176	5.81 (7.01)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	VSTD10	cf22c01.d	02/22/16	09:04
02	LCSC51	cf22l01.d	02/22/16	09:31
03	LCSC52	cf22l01b.d	02/22/16	09:31
04	VBLKC01	cf22b01a.d	02/22/16	09:53
05	VBLKC51	cf22b01.d	02/22/16	09:53
06	VBLKC52	cf22b01b.d	02/22/16	09:53
07	8248657	cf22s01.d	02/22/16	10:44
08	8248658	cf22s02.d	02/22/16	11:06
09	8244814	cf22s03.d	02/22/16	11:33
10	8244815MS	cf22s04.d	02/22/16	11:56
11	8244816MSD	cf22s05.d	02/22/16	12:18
12	8248656	cf22s06.d	02/22/16	13:03
13	SECC010	cf22s07.d	02/22/16	13:43
14	MDL1.0 - MDL1.0	cf22m01.d	02/22/16	14:28
15	MDL0.5 - MDL0.5	cf22m02.d	02/22/16	14:51
16	MDL0.4 - MDL0.4	cf22m03.d	02/22/16	15:13
17	MDL0.2 - MDL0.2	cf22m04.d	02/22/16	15:36
18	8248061	cf22s31.d	02/22/16	15:58
19	8248065	cf22s32.d	02/22/16	16:20
20	8248058	cf22s33.d	02/22/16	16:43
21	8248059MS	cf22s34.d	02/22/16	17:05
22	8248060MSD	cf22s35.d	02/22/16	17:28

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.:_DHR34___

Lab File ID: cf22t01.d BFB Injection Date: 02/22/16

Instrument ID: HP10193 BFB Injection Time: 08:27

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	49.17
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.29
173	Less than 2.0% of mass 174	0.49 (0.57)1
174	Greater than 50.0% of mass 95	87.08
175	5.0 - 9.0% of mass 174	6.14 (7.05)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.91 (95.22)1
177	5.0 - 9.0% of mass 176	5.81 (7.01)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	8248062	cf22s36.d	02/22/16	17:50
24	8248063	cf22s37.d	02/22/16	18:12
25	8248064	cf22s38.d	02/22/16	18:35
26	8248064DL	cf22s39.d	02/22/16	18:57

FORM V VOA

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 11/25/15 11/25/15

Heated Purge: (Y/N) Y Calibration Times: 12:03 14:21

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cn25i07.d RRF0.5= cn25i06.d RRF 1 = cn25i05.d
RRF 2 = cn25i04.d RRF 5 = cn25i03.d RRF 10= cn25i02.d RRF 25= cn25i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.3390	0.3018	0.3626	0.3525	0.3481	0.3474	0.3529	0.3435	6	AVG
Chloromethane	#0.3535	0.2889	0.3287	0.3141	0.2989	0.2917	0.2855	0.3088	8	AVG #
Vinyl Chloride	*0.3045	0.2694	0.3132	0.2925	0.2818	0.2870	0.2783	0.2896	5	AVG *
1,3-Butadiene	0.4083	0.3348	0.3294	0.3336	0.3012	0.3048	0.3095	0.3316	11	AVG
Bromomethane	0.2233	0.1849	0.2135	0.2005	0.1861	0.1805	0.1633	0.1931	11	AVG
Chloroethane		0.1544	0.1848	0.1699	0.1575	0.1511	0.1351	0.1588	11	AVG
Dichlorofluoromethane	0.4556	0.3900	0.4362	0.4243	0.3936	0.3918	0.3690	0.4086	8	AVG
Trichlorofluoromethane	0.4314	0.3739	0.4380	0.4197	0.4215	0.4232	0.4229	0.4187	5	AVG
Ethyl ether	0.1991	0.1534	0.1783	0.1746	0.1625	0.1643	0.1603	0.1704	9	AVG
Freon 123a	0.2879	0.2530	0.2712	0.2634	0.2491	0.2478	0.2364	0.2584	7	AVG
Acrolein	1.9108	1.5734	1.7746	1.7300	1.6504	1.6537	1.5526	1.6922	7	AVG
1,1-Dichloroethene	*0.2416	0.1895	0.2320	0.2092	0.2032	0.2195	0.2196	0.2164	8	AVG *
Freon 113	0.2485	0.2054	0.2465	0.2333	0.2243	0.2435	0.2442	0.2351	7	AVG
Acetone	3.2350	2.7545	3.1549	2.7628	2.4752	2.8933	2.8169	2.8704	9	AVG
Methyl Iodide	0.4354	0.3716	0.4292	0.4097	0.4136	0.4217	0.4167	0.4140	5	AVG
Carbon Disulfide	0.6750	0.5845	0.6857	0.6600	0.7003	0.7404	0.7608	0.6867	8	AVG
Allyl Chloride	0.4552	0.3573	0.4416	0.4372	0.4334	0.4574	0.4697	0.4360	8	AVG
Methyl Acetate	0.1280	0.1281	0.1135	0.1184	0.1158	0.1191	0.1232	0.1209	5	AVG
Methylene Chloride	0.2845	0.2416	0.2622	0.2511	0.2519	0.2587	0.2566	0.2581	5	AVG
t-Butyl Alcohol	1.0084	0.7411	0.9075	0.8591	0.8367	0.9020	0.8561	0.8730	9	AVG
Acrylonitrile	3.4036	3.1134	3.4097	3.5449	3.3595	3.8055	3.8515	3.4983	7	AVG
trans-1,2-Dichloroethene	0.2723	0.2276	0.2652	0.2461	0.2533	0.2586	0.2587	0.2545	6	AVG
Methyl Tertiary Butyl Ether	0.6704	0.5920	0.6646	0.6729	0.6627	0.6911	0.6723	0.6608	5	AVG
n-Hexane	0.4275	0.3609	0.4289	0.4015	0.4247	0.4349	0.4467	0.4179	7	AVG
1,1-Dichloroethane	#0.5426	0.4578	0.5242	0.4910	0.4952	0.5110	0.5107	0.5046	5	AVG #
di-Isopropyl Ether	0.9450	0.8230	0.9358	0.9352	0.9369	0.9837	0.9759	0.9336	6	AVG
2-Chloro-1,3-Butadiene	0.4256	0.3783	0.4268	0.4054	0.4290	0.4490	0.4517	0.4237	6	AVG
Ethyl t-butyl ether	0.7990	0.6863	0.7892	0.7984	0.8161	0.8507	0.8396	0.7970	7	AVG
cis-1,2-Dichloroethene	0.2878	0.2504	0.2840	0.2734	0.2760	0.2823	0.2839	0.2768	5	AVG
2,2-Dichloropropane	0.3603	0.3078	0.3607	0.3463	0.3566	0.3759	0.3712	0.3541	6	AVG
2-Butanone	4.2516	4.5271	5.2693	5.2032	5.1602	5.6953	5.3227	5.0613	10	AVG
Propionitrile	1.2612	1.0524	1.2372	1.2319	1.2856	1.3973	1.3883	1.2648	9	AVG
Methacrylonitrile	4.3616	3.8028	4.4912	4.4453	4.4273	4.8419	4.6192	4.4270	7	AVG
Bromochloromethane	0.1307	0.0997	0.1241	0.1278	0.1217	0.1248	0.1263	0.1222	8	AVG
Tetrahydrofuran	1.5192	1.2254	1.4257	1.3905	1.3563	1.4707	1.4596	1.4068	7	AVG
Chloroform	*0.5088	0.4314	0.4957	0.4666	0.4629	0.4815	0.4841	0.4758	5	AVG *
1,1,1-Trichloroethane	0.4032	0.3634	0.4115	0.3922	0.3997	0.4167	0.4201	0.4010	5	AVG
Cyclohexane	0.4942	0.4329	0.4945	0.4749	0.4972	0.5151	0.5194	0.4897	6	AVG
Cyclohexane(2)	0.3735	0.3339	0.3828	0.3720	0.3892	0.4010	0.4033	0.3794	6	AVG
Cyclohexane(3)	0.1468	0.1258	0.1458	0.1418	0.1460	0.1516	0.1525	0.1443	6	AVG
1,1-Dichloropropene	0.3997	0.3378	0.3956	0.3725	0.3817	0.3950	0.3963	0.3827	6	AVG
Carbon Tetrachloride	0.3554	0.3021	0.3644	0.3412	0.3613	0.3790	0.3901	0.3562	8	AVG
Isobutyl Alcohol	0.4599	0.3082	0.3749	0.3787	0.3720	0.4028	0.4107	0.3867	12	AVG
Benzene	1.1681	0.9610	1.0947	1.0518	1.0423	1.0802	1.0752	1.0676	6	AVG
1,2-Dichloroethane	0.4285	0.3400	0.3510	0.3382	0.3346	0.3414	0.3365	0.3529	10	AVG
1,2-Dichloroethane(2)	0.0363	0.0264	0.0270	0.0268	0.0256	0.0271	0.0266	0.0280	13	AVG
t-Amyl methyl ether	0.6234	0.5734	0.6585	0.6760	0.6902	0.7184	0.7218	0.6660	8	AVG
n-Heptane	0.5496	0.4772	0.5226	0.4733	0.5027	0.5124	0.5275	0.5093	5	AVG
n-Butanol	0.2023	0.1978	0.2660	0.2839	0.3069	0.3302	0.3399	0.2753	21	2NDDEG
Trichloroethene	0.3046	0.2493	0.3000	0.2753	0.2821	0.2905	0.2895	0.2845	6	AVG
Methylcyclohexane	0.4518	0.3662	0.4657	0.4808	0.4730	0.4913	0.5066	0.4622	10	AVG
1,2-Dichloropropane	*0.2809	0.2494	0.2817	0.2705	0.2746	0.2830	0.2820	0.2746	4	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: HP10193 Calibration Date(s): 11/25/15 11/25/15

Heated Purge: (Y/N) Y Calibration Times: 12:03 14:21

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cn25i07.d RRF0.5= cn25i06.d RRF 1 = cn25i05.d
RRF 2 = cn25i04.d RRF 5 = cn25i03.d RRF 10= cn25i02.d RRF 25= cn25i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Methyl Methacrylate	9.7795	7.5250	8.0139	8.9345	8.8047	10.030	10.270	9.0511	11	AVG
Dibromomethane	0.1286	0.1153	0.1298	0.1274	0.1250	0.1321	0.1335	0.1274	5	AVG
1,4-Dioxane		0.0656	0.0760	0.0743	0.0718	0.0666	0.0687	0.0705	6	AVG
Bromodichloromethane	0.2991	0.2702	0.3029	0.3095	0.3190	0.3424	0.3554	0.3141	9	AVG
2-Nitropropane	2.6423	2.1357	2.7785	2.9298	3.1345	3.6413	3.7545	3.0024	19	2NDDEG
1-Bromo-2-chloroethane	0.3283	0.2444	0.2953	0.2958	0.2831	0.2977	0.3042	0.2927	9	AVG
cis-1,3-Dichloropropene	0.3293	0.2906	0.3496	0.3594	0.3801	0.4079	0.4238	0.3629	13	AVG
4-Methyl-2-Pentanone	0.1618	0.1527	0.1839	0.1931	0.2063	0.2077	0.2016	0.1867	12	AVG
Toluene	*0.9917	0.8278	0.9411	0.8889	0.8833	0.9227	0.9007	0.9080	6	AVG *
trans-1,3-Dichloropropene	0.3277	0.2960	0.3578	0.3802	0.4131	0.4577	0.4710	0.3862	17	2NDDEG
Ethyl Methacrylate	0.2949	0.2702	0.3202	0.3348	0.3593	0.3892	0.3922	0.3372	14	AVG
1,1,2-Trichloroethane	0.2502	0.2132	0.2416	0.2423	0.2412	0.2528	0.2504	0.2417	6	AVG
Tetrachloroethene	0.4596	0.3840	0.4553	0.4221	0.4277	0.4452	0.4414	0.4336	6	AVG
1,3-Dichloropropane	0.4355	0.3978	0.4379	0.4370	0.4329	0.4577	0.4493	0.4354	4	AVG
2-Hexanone	0.1600	0.1525	0.1814	0.1875	0.1919	0.2002	0.1918	0.1808	10	AVG
Dibromochloromethane	0.2344	0.2174	0.2561	0.2670	0.2816	0.3110	0.3247	0.2703	14	AVG
1,2-Dibromoethane	0.2299	0.1931	0.2266	0.2330	0.2325	0.2481	0.2470	0.2300	8	AVG
Chlorobenzene	#1.1066	0.9510	1.0601	1.0109	1.0104	1.0541	1.0197	1.0304	5	AVG #
1,1,1,2-Tetrachloroethane	0.3192	0.2806	0.3314	0.3301	0.3371	0.3643	0.3695	0.3332	9	AVG
Ethylbenzene	*1.7758	1.5295	1.7926	1.7196	1.7225	1.8187	1.7524	1.7301	6	AVG *
m+p-Xylene	0.6359	0.5964	0.6932	0.6669	0.6743	0.7077	0.6929	0.6668	6	AVG
o-Xylene	0.6362	0.5859	0.6745	0.6623	0.6606	0.7035	0.6867	0.6585	6	AVG
Styrene	0.9126	0.8552	1.0444	1.0615	1.0881	1.1662	1.1402	1.0383	11	AVG
Bromoform	#0.1311	0.1082	0.1291	0.1398	0.1498	0.1687	0.1851	0.1445	18	1STDEG #
Isopropylbenzene	1.6448	1.4791	1.7816	1.7014	1.7458	1.8351	1.7775	1.7093	7	AVG
1,1,2,2-Tetrachloroethane	#0.4880	0.4365	0.5023	0.5138	0.5092	0.5360	0.5147	0.5001	6	AVG #
Bromobenzene	0.7922	0.6829	0.7854	0.7823	0.7797	0.8091	0.8129	0.7778	6	AVG
trans-1,4-Dichloro-2-butene	2.6706	2.4039	3.2453	3.4670	3.7242	4.3001	4.3171	3.4469	21	2NDDEG
1,2,3-Trichloropropane	0.1524	0.1359	0.1513	0.1477	0.1470	0.1505	0.1471	0.1474	4	AVG
n-Propylbenzene	3.4769	3.1524	3.7361	3.5739	3.5741	3.7158	3.5210	3.5358	5	AVG
2-Chlorotoluene	0.7274	0.6326	0.7328	0.7150	0.7172	0.7449	0.7334	0.7147	5	AVG
1,3,5-Trimethylbenzene	2.4573	2.2434	2.6453	2.6026	2.6103	2.7372	2.6294	2.5608	6	AVG
4-Chlorotoluene	0.7455	0.6660	0.7689	0.7467	0.7496	0.7863	0.7759	0.7484	5	AVG
tert-Butylbenzene	0.5339	0.4592	0.5419	0.5318	0.5547	0.5821	0.5764	0.5400	8	AVG
Pentachloroethane	0.3629	0.3089	0.4065	0.4443	0.4347	0.4847	0.5123	0.4220	17	2NDDEG
1,2,4-Trimethylbenzene	2.4771	2.2343	2.7259	2.6440	2.6754	2.8139	2.6934	2.6091	7	AVG
sec-Butylbenzene	3.1601	2.8692	3.4259	3.2642	3.3306	3.4603	3.3341	3.2635	6	AVG
1,3-Dichlorobenzene	1.5403	1.3885	1.5599	1.5266	1.5278	1.6031	1.5942	1.5343	5	AVG
p-Isopropyltoluene	2.6525	2.4019	2.9701	2.8895	2.9523	3.1080	2.9990	2.8533	9	AVG
1,4-Dichlorobenzene	1.7750	1.4860	1.6680	1.5920	1.5699	1.6338	1.6061	1.6187	6	AVG
1,2,3-Trimethylbenzene	1.2922	0.9991	1.2190	1.2349	1.1569	1.2254	1.2154	1.1918	8	AVG
Benzyl Chloride	0.0975	0.1005	0.1247	0.1431	0.1711	0.1973	0.2167	0.1501	31	2NDDEG
n-Butylbenzene	1.3960	1.2981	1.5488	1.4741	1.4852	1.5436	1.4806	1.4609	6	AVG
1,2-Dichlorobenzene	1.5502	1.2999	1.4674	1.4478	1.4206	1.4850	1.4693	1.4486	5	AVG
1,2-Dibromo-3-chloropropane	1.7684	1.5380	1.7690	1.9418	2.0439	2.3658	2.5928	2.0028	18	1STDEG
1,2,4-Trichlorobenzene	1.1506	1.0339	1.1668	1.1607	1.1521	1.2268	1.2516	1.1632	6	AVG
Hexachlorobutadiene	0.6696	0.5537	0.6526	0.6131	0.6215	0.6619	0.6772	0.6356	7	AVG
Naphthalene	1.5202	1.4079	1.6752	1.7590	1.8019	1.9314	1.9085	1.7149	11	AVG
1,2,3-Trichlorobenzene	1.0080	0.8812	1.0110	1.0050	1.0046	1.0538	1.0663	1.0043	6	AVG
Dibromofluoromethane	0.2476	0.2486	0.2458	0.2450	0.2498	0.2484	0.2501	0.2479	1	AVG
Dibromofluoromethane(2)	0.2547	0.2510	0.2515	0.2510	0.2561	0.2552	0.2568	0.2538	1	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: HP10193 Calibration Date(s): 11/25/15 11/25/15

Heated Purge: (Y/N) Y Calibration Times: 12:03 14:21

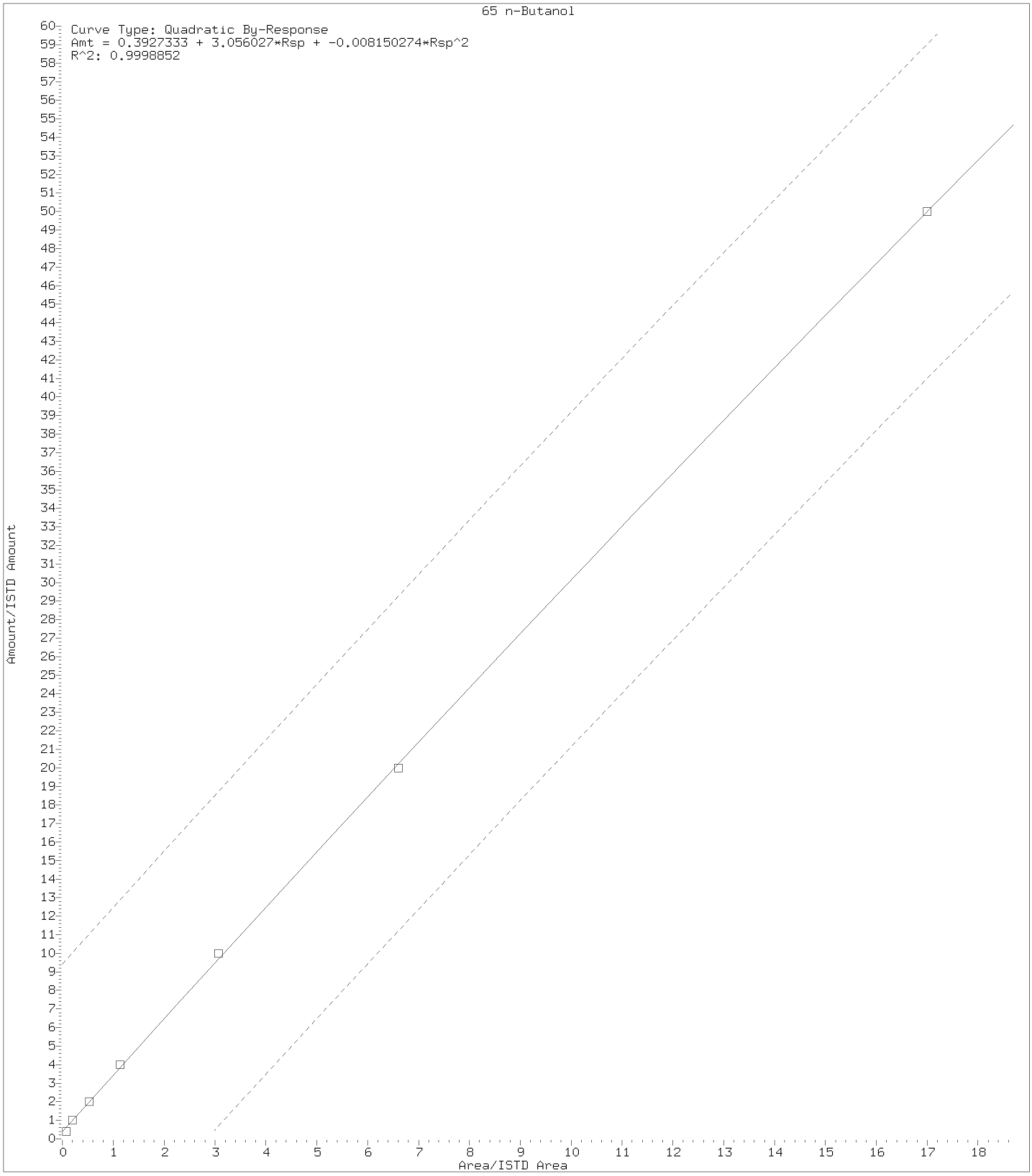
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cn25i07.d RRF0.5= cn25i06.d RRF 1 = cn25i05.d
RRF 2 = cn25i04.d RRF 5 = cn25i03.d RRF 10= cn25i02.d RRF 25= cn25i01.d

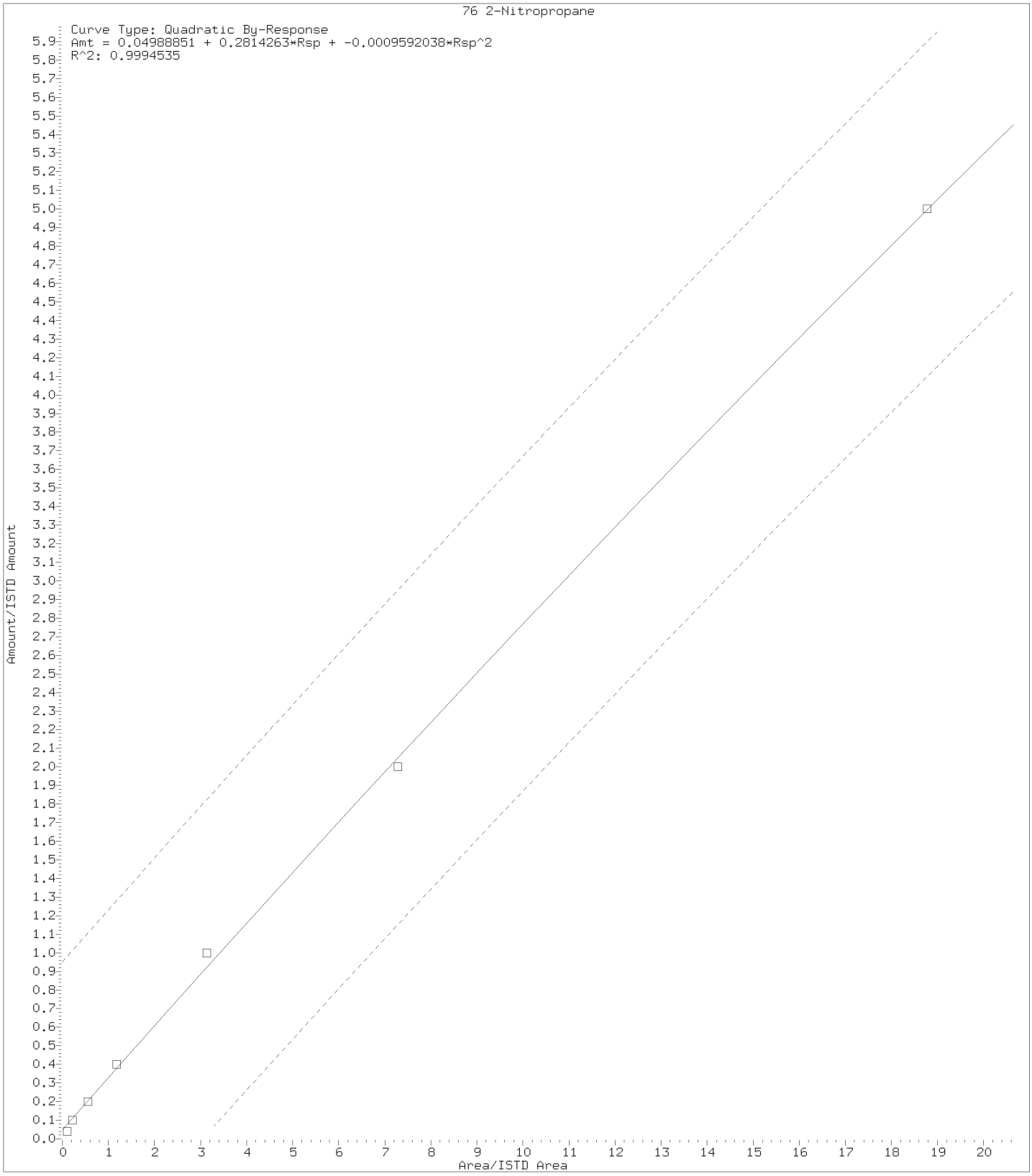
COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	___ RRF	% RSD	CAL. METHOD
1,2-Dichloroethane-d4	0.0494	0.0496	0.0492	0.0482	0.0498	0.0492	0.0493	0.0492	1	AVG
1,2-Dichloroethane-d4(2)	0.2789	0.2853	0.2839	0.2735	0.2763	0.2712	0.2707	0.2771	2	AVG
1,2-Dichloroethane-d4(3)	0.0312	0.0319	0.0325	0.0318	0.0325	0.0319	0.0321	0.0320	1	AVG
Toluene-d8	1.3749	1.3713	1.3633	1.3661	1.3579	1.3743	1.3668	1.3678	0	AVG
Toluene-d8(2)	0.8691	0.8706	0.8732	0.8749	0.8784	0.8854	0.8930	0.8778	1	AVG
4-Bromofluorobenzene	0.5102	0.5173	0.5156	0.5109	0.5151	0.5166	0.5181	0.5148	1	AVG
4-Bromofluorobenzene(2)	0.4589	0.4636	0.4659	0.4648	0.4656	0.4673	0.4614	0.4639	1	AVG

Average %RSD 8

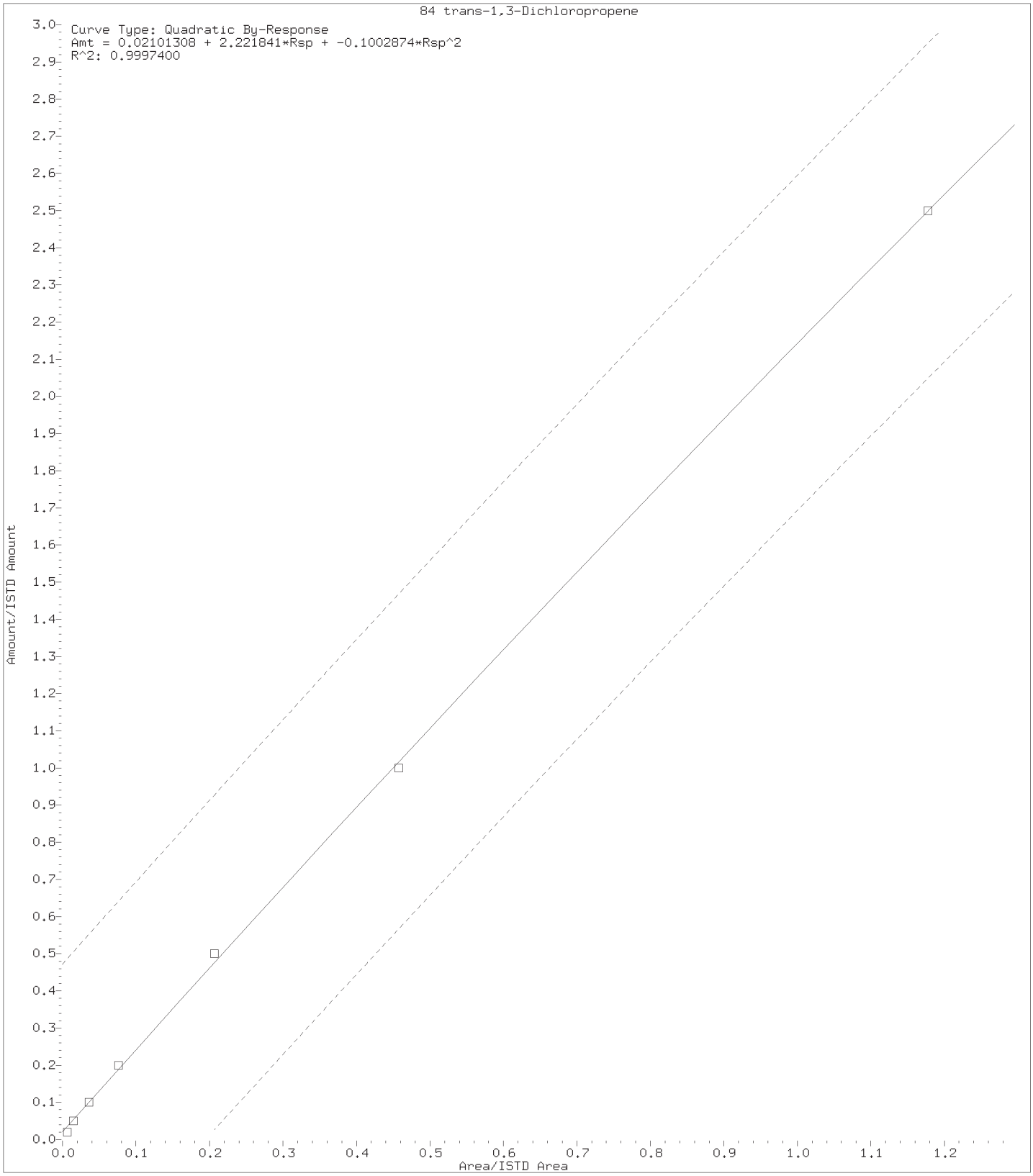
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



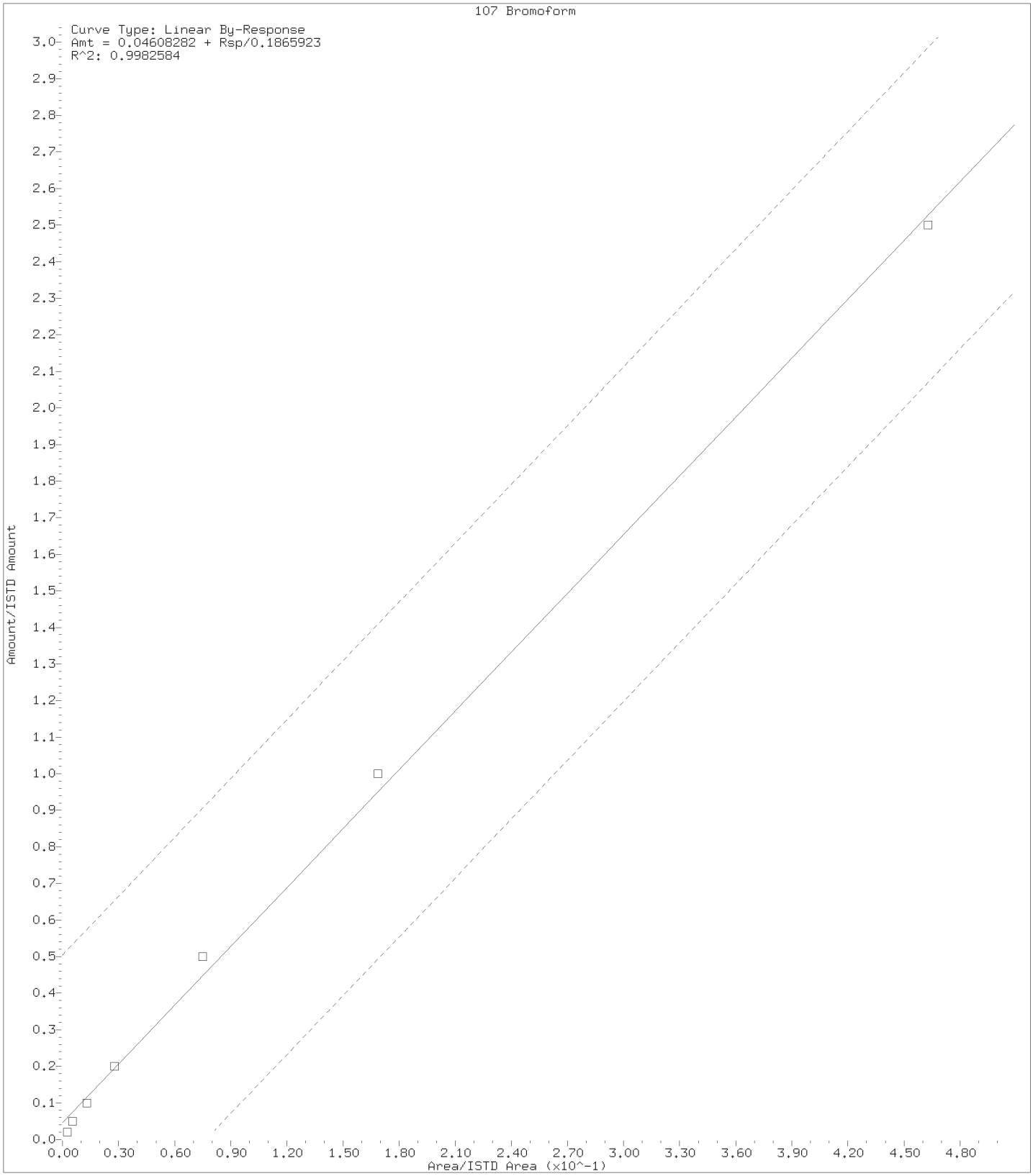
Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



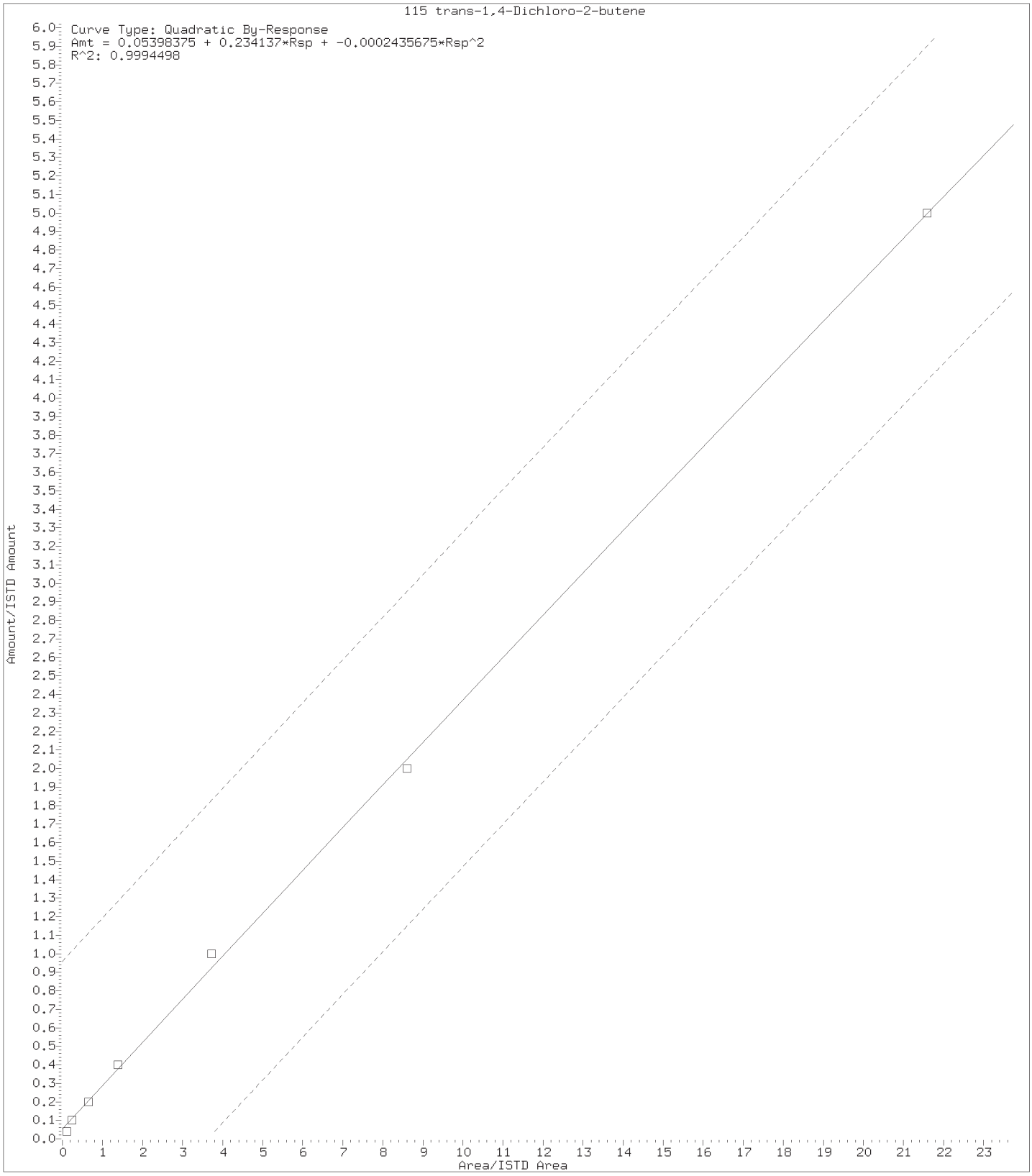
Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



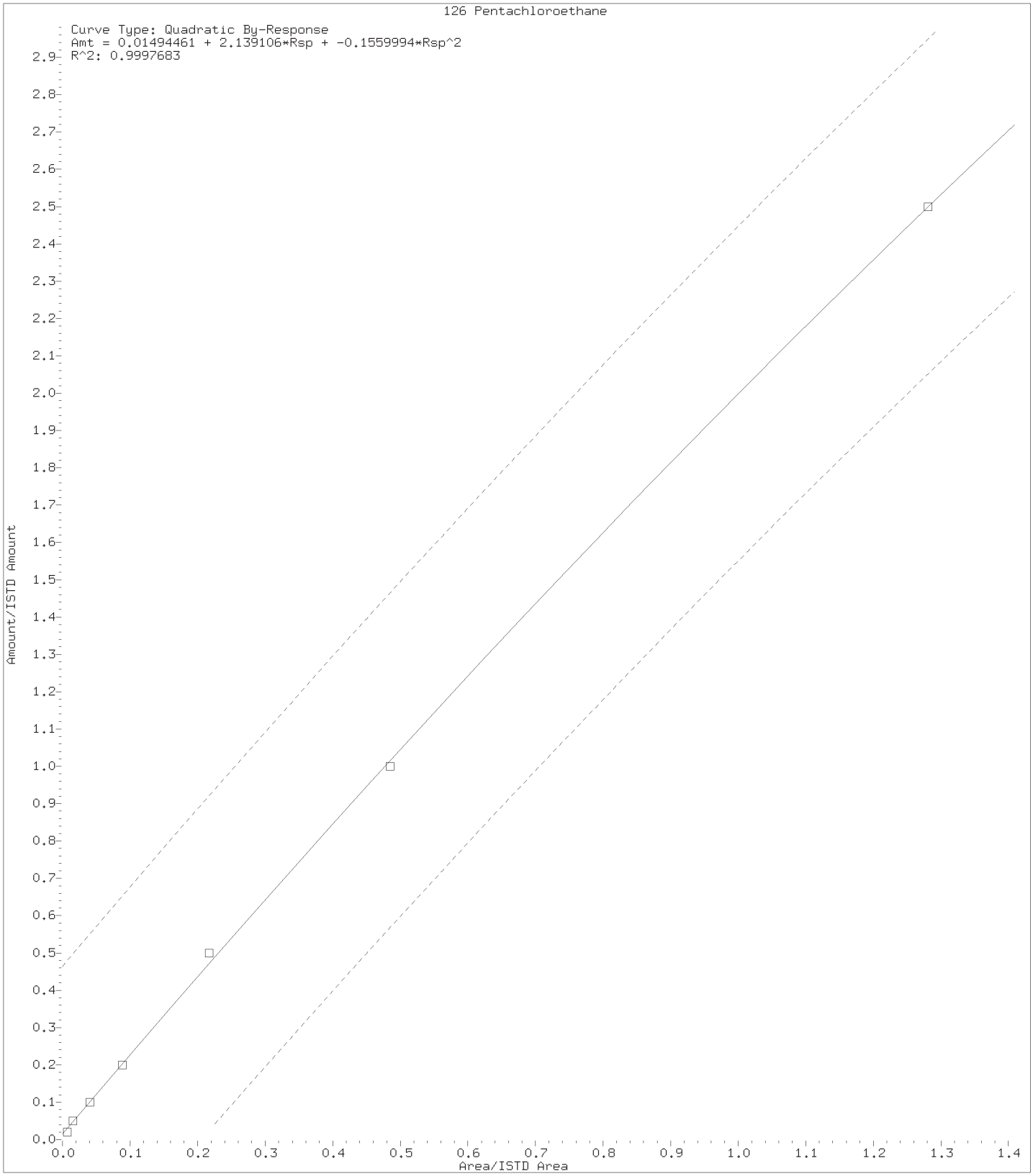
Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



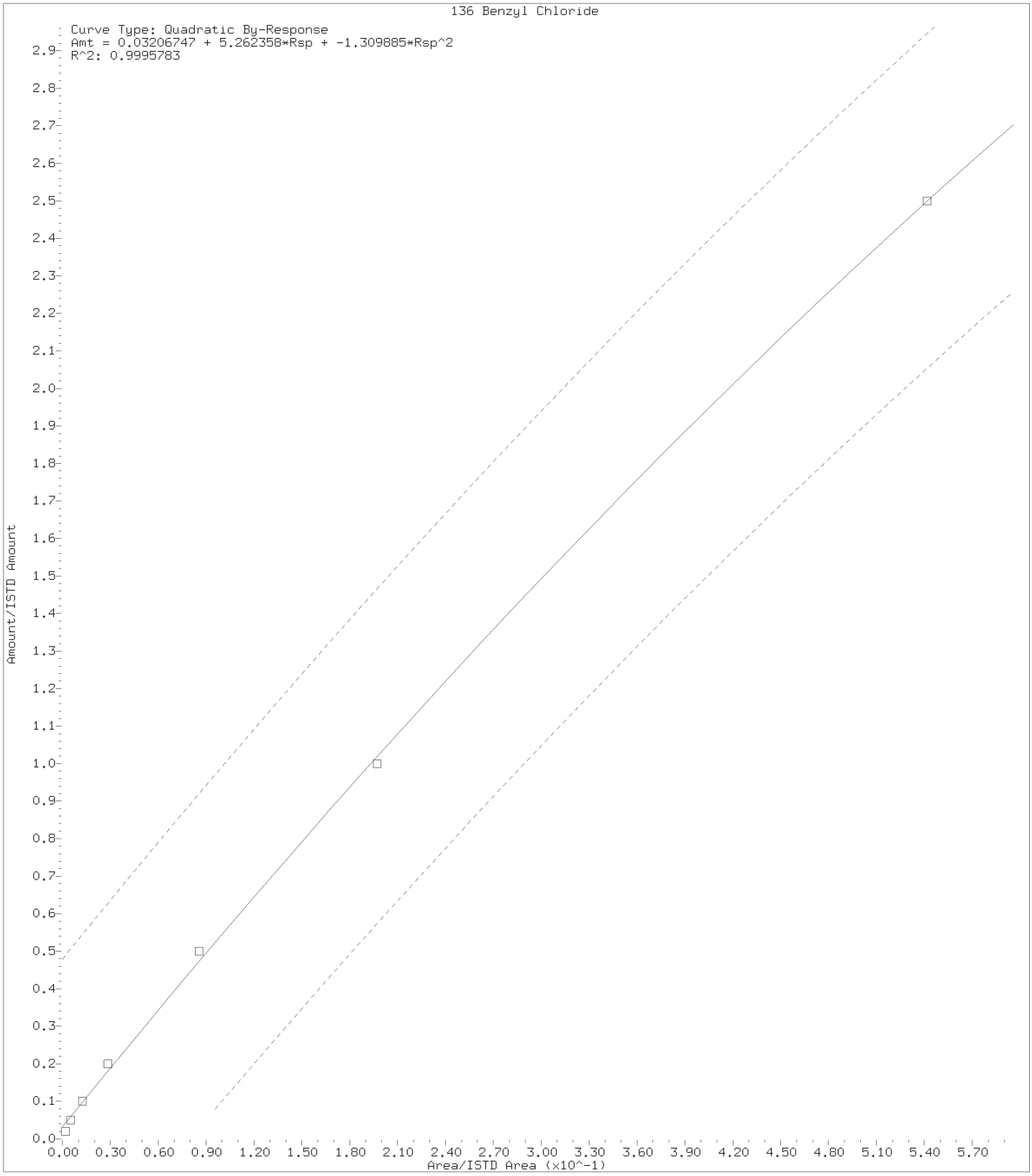
Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



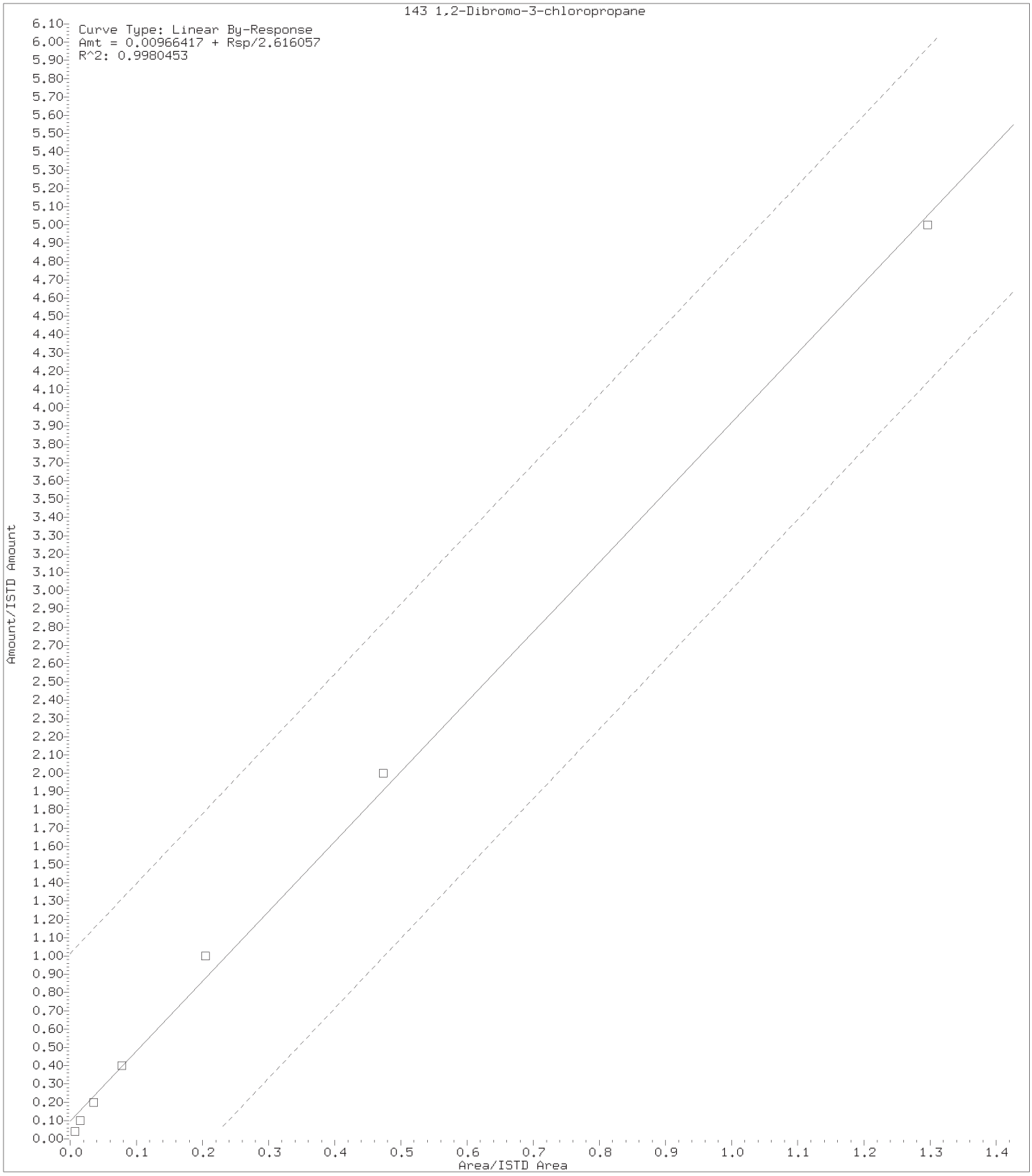
Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973



Digitally signed by Kerri E. Koch Legerlotz on 11/25/2015 at 17:29.
Target 3.5 esignature user ID: kel01973

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP10193.i/15nov25a.b/cn25i01.d VSTD025
/chem2/HP10193.i/15nov25a.b/cn25i02.d VSTD010
/chem2/HP10193.i/15nov25a.b/cn25i03.d VSTD005
/chem2/HP10193.i/15nov25a.b/cn25i04.d VSTD002
/chem2/HP10193.i/15nov25a.b/cn25i05.d VSTD001
/chem2/HP10193.i/15nov25a.b/cn25i06.d VSTD0.5
/chem2/HP10193.i/15nov25a.b/cn25i07.d VSTD0.2

Area Summary

File ID:

Internal Standard Name	cn25i01.d	cn25i02.d	cn25i03.d	cn25i04.d	cn25i05.d	cn25i06.d	cn25i07.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	164114	167584	179378	175440	172301	171389	158904	169873	4	Yes
Fluorobenzene	2449950	2494977	2486551	2529454	2502541	2463181	2429993	2479521	1	Yes
Chlorobenzene-d5	1863608	1858047	1873322	1883011	1859690	1826590	1805692	1852851	1	Yes
1,4-Dichlorobenzene-d4	1112689	1102503	1103482	1103047	1098113	1071647	1055730	1092459	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	cn25i01.d	cn25i02.d	cn25i03.d	cn25i04.d	cn25i05.d	cn25i06.d	cn25i07.d	Avg. RT
t-Butyl Alcohol-d10	3.828	3.810	3.828	3.816	3.822	3.828	3.816	3.821
Fluorobenzene	7.327	7.327	7.321	7.321	7.321	7.327	7.321	7.324
Chlorobenzene-d5	10.906	10.906	10.906	10.906	10.906	10.906	10.906	10.906
1,4-Dichlorobenzene-d4	12.820	12.820	12.820	12.820	12.820	12.820	12.820	12.820

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 11/25/2015 at 15:16.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 11/25/15 Time: 15:51

Lab File ID: cn25l01a.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
Dichlorodifluoromethane	0.3435	0.3276	4.77	5	-5	
# Chloromethane	0.3088	0.2998	4.85	5	-3	#
* Vinyl Chloride	0.2896	0.2809	4.85	5	-3	*
1,3-Butadiene	0.3316	0.2081	3.14	5	-37	
Bromomethane	0.1931	0.1790	4.63	5	-7	
Chloroethane	0.1588	0.1500	4.72	5	-6	
Dichlorofluoromethane	0.4086	0.4079	4.99	5	0	
Trichlorofluoromethane	0.4187	0.4105	4.90	5	-2	
Ethyl ether	0.1704	0.1507	4.42	5	-12	
Freon 123a	0.2584	0.2535	4.91	5	-2	
Acrolein	1.6922	1.8348	40.66	37.5	8	
* 1,1-Dichloroethene	0.2164	0.2172	5.02	5	0	*
Freon 113	0.2351	0.2390	5.08	5	2	
Acetone	2.8704	3.1578	41.26	37.5	10	
Methyl Iodide	0.4140	0.4033	4.87	5	-3	
Carbon Disulfide	0.6867	0.6430	4.68	5	-6	
Allyl Chloride	0.4360	0.4550	5.22	5	4	
Methyl Acetate	0.1209	0.1087	4.50	5	-10	
Methylene Chloride	0.2581	0.2513	4.87	5	-3	
t-Butyl Alcohol	0.8730	1.0716	61.38	50	23	
Acrylonitrile	3.4983	3.8184	27.29	25	9	
trans-1,2-Dichloroethene	0.2545	0.2561	5.03	5	1	
Methyl Tertiary Butyl Ether	0.6608	0.6700	5.07	5	1	
n-Hexane	0.4179	0.4135	4.95	5	-1	
# 1,1-Dichloroethane	0.5046	0.4863	4.82	5	-4	#
di-Isopropyl Ether	0.9336	0.9863	5.28	5	6	
2-Chloro-1,3-Butadiene	0.4237	0.3972	4.69	5	-6	
Ethyl t-butyl ether	0.7970	0.8167	5.12	5	2	
cis-1,2-Dichloroethene	0.2768	0.2773	5.01	5	0	
2,2-Dichloropropane	0.3541	0.3530	4.98	5	0	
2-Butanone	5.0613	6.0090	44.52	37.5	19	
Propionitrile	1.2648	1.4453	42.85	37.5	14	
Methacrylonitrile	4.4270	5.3701	45.49	37.5	21	
Bromochloromethane	0.1222	0.1273	5.21	5	4	
Tetrahydrofuran	1.4068	1.5225	27.06	25	8	
* Chloroform	0.4758	0.4806	5.05	5	1	*

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: HP10193 ICV Date: 11/25/15 Time: 15:51

Lab File ID: cn25l01a.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
1,1,1-Trichloroethane	0.4010	0.4006	4.99	5	0	
Cyclohexane	0.4897	0.4834	4.93	5	-1	
1,1-Dichloropropene	0.3827	0.3605	4.71	5	-6	
Carbon Tetrachloride	0.3562	0.3674	5.16	5	3	
Isobutyl Alcohol	0.3867	0.4482	144.87	125	16	
Benzene	1.0676	1.0570	4.95	5	-1	
1,2-Dichloroethane	0.3529	0.3387	4.80	5	-4	
t-Amyl methyl ether	0.6660	0.7057	5.30	5	6	
n-Heptane	0.5093	0.4927	4.84	5	-3	
n-Butanol	0.2753	0.3303	270.91	250	8	
Trichloroethene	0.2845	0.2895	5.09	5	2	
Methylcyclohexane	0.4622	0.4913	5.31	5	6	
* 1,2-Dichloropropane	0.2746	0.2863	5.21	5	4	*
Methyl Methacrylate	9.0511	10.3534	5.72	5	14	
Dibromomethane	0.1274	0.1327	5.21	5	4	
1,4-Dioxane	0.0705	0.0788	139.73	125	12	
Bromodichloromethane	0.3141	0.3322	5.29	5	6	
2-Nitropropane	3.0024	2.8325	6.48	5	30	
1-Bromo-2-chloroethane	0.2927	0.3231	5.52	5	10	
cis-1,3-Dichloropropene	0.3629	0.3895	5.37	5	7	
4-Methyl-2-Pentanone	0.1867	0.2023	27.08	25	8	
* Toluene	0.9080	0.9155	5.04	5	1	*
trans-1,3-Dichloropropene	0.3862	0.4413	5.06	5	1	
Ethyl Methacrylate	0.3372	0.3763	5.58	5	12	
1,1,2-Trichloroethane	0.2417	0.2571	5.32	5	6	
Tetrachloroethene	0.4336	0.4359	5.03	5	1	
1,3-Dichloropropane	0.4354	0.4534	5.21	5	4	
2-Hexanone	0.1808	0.1964	27.17	25	9	
Dibromochloromethane	0.2703	0.2961	5.48	5	10	
1,2-Dibromoethane	0.2300	0.2528	5.49	5	10	
# Chlorobenzene	1.0304	1.0496	5.09	5	2	#
1,1,1,2-Tetrachloroethane	0.3332	0.3591	5.39	5	8	
* Ethylbenzene	1.7301	1.8026	5.21	5	4	*
m+p-Xylene	0.6668	0.7068	10.60	10	6	
o-Xylene	0.6585	0.6932	5.26	5	5	
Styrene	1.0383	1.1615	5.59	5	12	

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: HP10193 ICV Date: 11/25/15 Time: 15:51

Lab File ID: cn25l01a.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.1445	0.1591	4.72	5	-6 #
Isopropylbenzene	1.7093	1.8339	5.36	5	7
# 1,1,2,2-Tetrachloroethane	0.5001	0.5375	5.37	5	7 #
Bromobenzene	0.7778	0.8179	5.26	5	5
trans-1,4-Dichloro-2-butene	3.4469	4.7228	30.28	25	21
1,2,3-Trichloropropane	0.1474	0.1572	5.33	5	7
n-Propylbenzene	3.5358	3.7136	5.25	5	5
2-Chlorotoluene	0.7147	0.7525	5.26	5	5
1,3,5-Trimethylbenzene	2.5608	2.7203	5.31	5	6
4-Chlorotoluene	0.7484	0.7826	5.23	5	5
tert-Butylbenzene	0.5400	0.5815	5.38	5	8
Pentachloroethane	0.4220	0.4755	5.15	5	3
1,2,4-Trimethylbenzene	2.6091	2.7977	5.36	5	7
sec-Butylbenzene	3.2635	3.4670	5.31	5	6
1,3-Dichlorobenzene	1.5343	1.6214	5.28	5	6
p-Isopropyltoluene	2.8533	3.0641	5.37	5	7
1,4-Dichlorobenzene	1.6187	1.6824	5.20	5	4
1,2,3-Trimethylbenzene	1.1918	1.2245	5.14	5	3
Benzyl Chloride	0.1501	0.1839	5.05	5	1
n-Butylbenzene	1.4609	1.5584	5.33	5	7
1,2-Dichlorobenzene	1.4486	1.5213	5.25	5	5
1,2-Dibromo-3-chloropropane	2.0028	2.4316	5.13	5	3
1,2,4-Trichlorobenzene	1.1632	1.2183	5.24	5	5
Hexachlorobutadiene	0.6356	0.6509	5.12	5	2
Naphthalene	1.7149	1.9334	5.64	5	13
1,2,3-Trichlorobenzene	1.0043	1.0350	5.15	5	3

Average %Drift 7

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP10193.i/15nov25a.b/cn25i07.d
/chem2/HP10193.i/15nov25a.b/cn25i06.d
/chem2/HP10193.i/15nov25a.b/cn25i05.d
/chem2/HP10193.i/15nov25a.b/cn25i04.d
/chem2/HP10193.i/15nov25a.b/cn25i03.d
/chem2/HP10193.i/15nov25a.b/cn25i02.d
/chem2/HP10193.i/15nov25a.b/cn25i01.d

File /chem2/HP10193.i/15nov25a.b/cn25i02.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP10193.i/16feb22a.b/cf22c01.d

RT Summary

Internal Standard Name	File ID: cf22c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.816	3.810	Yes
Fluorobenzene	7.321	7.327	Yes
Chlorobenzene-d5	10.906	10.906	Yes
1,4-Dichlorobenzene-d4	12.814	12.820	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: cf22c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	155971	167584	83792	335168	Yes
Fluorobenzene	2614059	2494977	1247488	4989954	Yes
Chlorobenzene-d5	2125778	1858047	929024	3716094	Yes
1,4-Dichlorobenzene-d4	1287717	1102503	551252	2205006	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 02/22/16 Time: 09:04

Lab File ID: cf22c01.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3435	0.3432	9.99	10	0	
#	Chloromethane	0.3088	0.2544	8.24	10	-18	#
*	Vinyl Chloride	0.2896	0.2777	9.59	10	-4	*
	1,3-Butadiene	0.3316	0.4403	13.28	10	33	
	Bromomethane	0.1931	0.2127	11.01	10	10	
	Chloroethane	0.1588	0.1561	9.83	10	-2	
	Dichlorofluoromethane	0.4086	0.4271	10.45	10	5	
	Trichlorofluoromethane	0.4187	0.4718	11.27	10	13	
	Ethyl ether	0.1704	0.1656	9.72	10	-3	
	Freon 123a	0.2584	0.2554	9.88	10	-1	
	Acrolein	1.6922	1.9241	568.53	500	14	
*	1,1-Dichloroethene	0.2164	0.2299	10.63	10	6	*
	Freon 113	0.2351	0.2580	10.97	10	10	
	Acetone	2.8704	2.9859	104.02	100	4	
	Methyl Iodide	0.4140	0.4386	10.59	10	6	
	Carbon Disulfide	0.6867	0.7838	11.41	10	14	
	Allyl Chloride	0.4360	0.3366	7.72	10	-23	
	Methyl Acetate	0.1209	0.1204	9.96	10	0	
	Methylene Chloride	0.2581	0.2501	9.69	10	-3	
	t-Butyl Alcohol	0.8730	0.8516	195.11	200	-2	
	Acrylonitrile	3.4983	3.6923	52.77	50	6	
	trans-1,2-Dichloroethene	0.2545	0.2551	10.02	10	0	
	Methyl Tertiary Butyl Ether	0.6608	0.6209	9.40	10	-6	
	n-Hexane	0.4179	0.3630	8.69	10	-13	
#	1,1-Dichloroethane	0.5046	0.4586	9.09	10	-9	#
	di-Isopropyl Ether	0.9336	0.7353	7.88	10	-21	
	2-Chloro-1,3-Butadiene	0.4237	0.3985	9.41	10	-6	
	Ethyl t-butyl ether	0.7970	0.7025	8.81	10	-12	
	cis-1,2-Dichloroethene	0.2768	0.2826	10.21	10	2	
	2,2-Dichloropropane	0.3541	0.3908	11.04	10	10	
	2-Butanone	5.0613	5.2791	104.30	100	4	
	Propionitrile	1.2648	1.2709	200.96	200	0	
	Methacrylonitrile	4.4270	5.1918	117.28	100	17	
	Bromochloromethane	0.1222	0.1347	11.02	10	10	
	Tetrahydrofuran	1.4068	1.5792	112.25	100	12	
*	Chloroform	0.4758	0.4769	10.02	10	0	*

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: HP10193 Calibration Date: 02/22/16 Time: 09:04

Lab File ID: cf22c01.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	1,1,1-Trichloroethane	0.4010	0.4271	10.65	10	7	
	Cyclohexane	0.4897	0.4367	8.92	10	-11	
	Cyclohexane(2)	0.3794	0.3863	10.18	10	2	
	Cyclohexane(3)	0.1443	0.1381	9.57	10	-4	
	1,1-Dichloropropene	0.3827	0.3787	9.90	10	-1	
	Carbon Tetrachloride	0.3562	0.3943	11.07	10	11	
	Isobutyl Alcohol	0.3867	0.3634	469.78	500	-6	
	Benzene	1.0676	1.0416	9.76	10	-2	
	1,2-Dichloroethane	0.3529	0.3362	9.53	10	-5	
	1,2-Dichloroethane(2)	0.0280	0.0273	9.77	10	-2	
	t-Amyl methyl ether	0.6660	0.6541	9.82	10	-2	
	n-Heptane	0.5093	0.4029	7.91	10	-21	
	n-Butanol	0.2753	0.3046	935.34	1000	-6	
	Trichloroethene	0.2845	0.2919	10.26	10	3	
	Methylcyclohexane	0.4622	0.4830	10.45	10	4	
*	1,2-Dichloropropane	0.2746	0.2552	9.29	10	-7	*
	Methyl Methacrylate	9.0511	10.3638	11.45	10	15	
	Dibromomethane	0.1274	0.1373	10.78	10	8	
	1,4-Dioxane	0.0705	0.0642	455.28	500	-9	
	Bromodichloromethane	0.3141	0.3541	11.27	10	13	
	2-Nitropropane	3.0024	4.0294	112.78	100	13	
	1-Bromo-2-chloroethane	0.2927	0.2724	9.31	10	-7	
	cis-1,3-Dichloropropene	0.3629	0.4016	11.07	10	11	
	4-Methyl-2-Pentanone	0.1867	0.1698	90.91	100	-9	
*	Toluene	0.9080	0.8523	9.39	10	-6	*
	trans-1,3-Dichloropropene	0.3862	0.4389	9.77	10	-2	
	Ethyl Methacrylate	0.3372	0.3317	9.83	10	-2	
	1,1,2-Trichloroethane	0.2417	0.2439	10.09	10	1	
	Tetrachloroethene	0.4336	0.4230	9.75	10	-2	
	1,3-Dichloropropane	0.4354	0.4184	9.61	10	-4	
	2-Hexanone	0.1808	0.1588	87.86	100	-12	
	Dibromochloromethane	0.2703	0.3175	11.75	10	17	
	1,2-Dibromoethane	0.2300	0.2375	10.33	10	3	
#	Chlorobenzene	1.0304	1.0384	10.08	10	1	#
	1,1,1,2-Tetrachloroethane	0.3332	0.3597	10.80	10	8	
*	Ethylbenzene	1.7301	1.7329	10.02	10	0	*

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: HP10193 Calibration Date: 02/22/16 Time: 09:04

Lab File ID: cf22c01.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.6668	0.6935	20.80	20	4	
	o-Xylene	0.6585	0.6818	10.35	10	4	
	Styrene	1.0383	1.1339	10.92	10	9	
#	Bromoform	0.1445	0.1765	9.92	10	-1	#
	Isopropylbenzene	1.7093	1.7904	10.47	10	5	
#	1,1,2,2-Tetrachloroethane	0.5001	0.4917	9.83	10	-2	#
	Bromobenzene	0.7778	0.7811	10.04	10	0	
	trans-1,4-Dichloro-2-butene	3.4469	3.2294	77.80	100	-22	
	1,2,3-Trichloropropane	0.1474	0.1470	9.97	10	0	
	n-Propylbenzene	3.5358	3.5219	9.96	10	0	
	2-Chlorotoluene	0.7147	0.7312	10.23	10	2	
	1,3,5-Trimethylbenzene	2.5608	2.6339	10.29	10	3	
	4-Chlorotoluene	0.7484	0.7698	10.29	10	3	
	tert-Butylbenzene	0.5400	0.5648	10.46	10	5	
	Pentachloroethane	0.4220	0.4689	9.84	10	-2	
	1,2,4-Trimethylbenzene	2.6091	2.7325	10.47	10	5	
	sec-Butylbenzene	3.2635	3.3444	10.25	10	2	
	1,3-Dichlorobenzene	1.5343	1.5480	10.09	10	1	
	p-Isopropyltoluene	2.8533	3.0261	10.61	10	6	
	1,4-Dichlorobenzene	1.6187	1.5840	9.79	10	-2	
	1,2,3-Trimethylbenzene	1.1918	1.2164	10.21	10	2	
	Benzyl Chloride	0.1501	0.2197	11.25	10	12	
	n-Butylbenzene	1.4609	1.4953	10.24	10	2	
	1,2-Dichlorobenzene	1.4486	1.4342	9.90	10	-1	
	1,2-Dibromo-3-chloropropane	2.0028	2.8692	11.45	10	15	
	1,2,4-Trichlorobenzene	1.1632	1.1139	9.58	10	-4	
	Hexachlorobutadiene	0.6356	0.5534	8.71	10	-13	
	Naphthalene	1.7149	1.7662	10.30	10	3	
	1,2,3-Trichlorobenzene	1.0043	0.9200	9.16	10	-8	
	Dibromofluoromethane	0.2479	0.2590	10.45	10	4	
	Dibromofluoromethane(2)	0.2538	0.2635	10.38	10	4	
	1,2-Dichloroethane-d4	0.0492	0.0514	10.44	10	4	
	1,2-Dichloroethane-d4(2)	0.2771	0.2709	9.77	10	-2	
	1,2-Dichloroethane-d4(3)	0.0320	0.0323	10.09	10	1	
	Toluene-d8	1.3678	1.3006	9.51	10	-5	

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: HP10193 Calibration Date: 02/22/16 Time: 09:04

Lab File ID: cf22c01.d Init. Calib. Date(s): 11/25/15 11/25/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT
Toluene-d8(2)	0.8778	0.8316	9.47	10	-5
4-Bromofluorobenzene	0.5148	0.4973	9.66	10	-3
4-Bromofluorobenzene(2)	0.4639	0.4440	9.57	10	-4

Average %Drift 6

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR34___

Lab File ID (Standard): cf22c01.d Date Analyzed: 02/22/16

Instrument ID: HP10193 Time Analyzed: 09:04

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	155971	3.816	2614059	7.321	2125778	10.906	1287717	12.814
UPPER LIMIT	311942	4.316	5228118	7.821	4251556	11.406	2575434	13.314
LOWER LIMIT	77986	3.316	1307030	6.821	1062889	10.406	643858	12.314
LAB SAMPLE ID								
01 LCSC51	170617	3.804	2747079	7.315	2185118	10.906	1284398	12.820
02 LCSC52	170617	3.804	2747079	7.315	2185118	10.906	1284398	12.820
03 VBLKC51	157104	3.828	2622040	7.321	2101963	10.906	1184694	12.820
04 VBLKC01	157104	3.828	2622040	7.321	2101963	10.906	1184694	12.820
05 VBLKC52	157104	3.828	2622040	7.321	2101963	10.906	1184694	12.820
06 8248657	164205	3.804	2545223	7.315	2045685	10.906	1163322	12.820
07 8248658	149469	3.822	2448620	7.321	1969594	10.906	1121089	12.820
08 8244814	147551	3.828	2496542	7.321	2006598	10.906	1126032	12.820
09 8244815MS	195659	3.822	2632360	7.321	2101920	10.906	1256573	12.814
10 8244816MSD	154806	3.816	2746234	7.321	2164757	10.906	1271359	12.820
11 8248656	140479	3.822	2515627	7.321	2009888	10.906	1128828	12.820
12 SECC010	159634	3.816	2731824	7.321	2188418	10.906	1296160	12.820
13 MDL1.0 - MD	212214	3.816	2652073	7.315	2095425	10.906	1246883	12.820
14 MDL0.5 - MD	139716	3.810	2611711	7.315	2094663	10.906	1213191	12.820
15 MDL0.4 - MD	162413	3.816	2590954	7.321	2049413	10.906	1202420	12.820
16 MDL0.2 - MD	142103	3.828	2555138	7.321	2004814	10.906	1183517	12.820
17 8248061	147301	3.828	2472743	7.321	2003018	10.906	1133709	12.820
18 8248065	137959	3.810	2442792	7.315	1966098	10.906	1111531	12.820
19 8248058	179053	3.822	2433539	7.315	1985027	10.906	1109072	12.820
20 8248059MS	152359	3.828	2610643	7.321	2088120	10.906	1236486	12.820
21 8248060MSD	148283	3.834	2693116	7.321	2145424	10.906	1253996	12.820
22 8248062	135674	3.810	2599216	7.321	2069559	10.906	1150314	12.820

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 1 of 2

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.:_DHR34___

Lab File ID (Standard): cf22c01.d Date Analyzed: 02/22/16

Instrument ID: HP10193 Time Analyzed: 09:04

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	155971	3.816	2614059	7.321	2125778	10.906	1287717	12.814
UPPER LIMIT	311942	4.316	5228118	7.821	4251556	11.406	2575434	13.314
LOWER LIMIT	77986	3.316	1307030	6.821	1062889	10.406	643858	12.314
LAB SAMPLE ID								
23 8248063	153604	3.816	2499212	7.315	1998516	10.906	1129102	12.820
24 8248064	147095	3.810	2479448	7.315	2063268	10.906	1169395	12.820
25 8248064DL	185888	3.810	2437648	7.315	1973120	10.906	1114486	12.820

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\15NOV25A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CN25T01.D	BFB AUG28-15	11/25/2015	11:06		
KEL01973	CN25X05.D	BLK	11/25/2015	11:40		
KEL01973	CN25I01.D	VSTD025	11/25/2015	12:03		
KEL01973	CN25I02.D	VSTD010	11/25/2015	12:25		
KEL01973	CN25I03.D	VSTD005	11/25/2015	12:47		
KEL01973	CN25I04.D	VSTD002	11/25/2015	13:10		
KEL01973	CN25I05.D	VSTD001	11/25/2015	13:36		
KEL01973	CN25I06.D	VSTD0.5	11/25/2015	13:58		
KEL01973	CN25I07.D	VSTD0.2	11/25/2015	14:21		
KEL01973	CN25M01.D	MDL0.1	11/25/2015	14:43		
KEL01973	CN25M02.D	MDL0.4	11/25/2015	15:05		
KEL01973	CN25V01.D	LCSCLG	11/25/2015	15:28		
KEL01973	CN25L01.D	LCSC07	11/25/2015	15:51	C153291AA	
KEL01973	CN25B01.D	VBLKC07	11/25/2015	16:13	C153291AA	
KEL01973	CN25S01.D	8142897	11/25/2015	17:22	C153291AA	
KEL01973	CN25S02.D	8142898	11/25/2015	17:44	C153291AA	
KEL01973	CN25S03.D	8142887	11/25/2015	18:06	C153291AA	
KEL01973	CN25S04.D	8142888MS	11/25/2015	18:29	C153291AA	
KEL01973	CN25S05.D	8142889MSD	11/25/2015	18:51	C153291AA	
KEL01973	CN25X11.D	BLK	11/25/2015	19:14	C153291AA	
KEL01973	CN25S06.D	8138857RE	11/25/2015	19:36	C153291AA	2
KEL01973	CN25S07.D	8138859RE	11/25/2015	19:58	C153291AA	2
KEL01973	CN25S08.D	8138860RE	11/25/2015	20:21	C153291AA	2
KEL01973	CN25S09.D	8138861RE	11/25/2015	20:43	C153291AA	2
KEL01973	CN25X12.D	BLK	11/25/2015	21:06	C153291AA	
KEL01973	CN25S10.D	8142885	11/25/2015	21:28	C153291AA	
KEL01973	CN25S11.D	8142886	11/25/2015	21:50	C153291AA	
KEL01973	CN25S12.D	8142891	11/25/2015	22:13	C153291AA	
KEL01973	CN25S13.D	8142892	11/25/2015	22:35	C153291AA	
KEL01973	CN25S18.D	SECC010	11/25/2015	22:57	C153291AA	

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\16FEB22A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CF22T01.D	BFB Aug 28-15	02/22/2016	08:27		
KEL01973	CF22X01.D	BLK	02/22/2016	08:42	C160492AB	
KEL01973	CF22C01.D	VSTD010	02/22/2016	09:04	C160492AB	
KEL01973	CF22L01.D	LCSC51	02/22/2016	09:31	C160492AB	
KEL01973	CF22B01.D	VBLKC51	02/22/2016	09:53	C160492AB	
KEL01973	CF22S01.D	8248657	02/22/2016	10:44	C160492AB	
KEL01973	CF22S02.D	8248658	02/22/2016	11:06	C160492AB	
KEL01973	CF22S03.D	8244814	02/22/2016	11:33	C160492AB	
KEL01973	CF22S04.D	8244815MS	02/22/2016	11:56	C160492AB	
KEL01973	CF22S05.D	8244816MSD	02/22/2016	12:18	C160492AB	
KEL01973	CF22X02.D	BLK	02/22/2016	12:41	C160492AB	
KEL01973	CF22S06.D	8248656	02/22/2016	13:03	C160492AB	
KEL01973	CF22S07.D	SECC010	02/22/2016	13:43	C160492AB	
KEL01973	CF22X03.D	BLK	02/22/2016	14:06	C160492AB	
KEL01973	CF22M01.D	MDL1.0	02/22/2016	14:28	C160531AA	
KEL01973	CF22M02.D	MDL0.5	02/22/2016	14:51	C160531AA	
KEL01973	CF22M03.D	MDL0.4	02/22/2016	15:13	C160531AA	
KEL01973	CF22M04.D	MDL0.2	02/22/2016	15:36	C160531AA	
KEL01973	CF22S31.D	8248061	02/22/2016	15:58	C160532AA	
KEL01973	CF22S32.D	8248065	02/22/2016	16:20	C160532AA	
KEL01973	CF22S33.D	8248058	02/22/2016	16:43	C160532AA	
KEL01973	CF22S34.D	8248059MS	02/22/2016	17:05	C160532AA	
KEL01973	CF22S35.D	8248060MSD	02/22/2016	17:28	C160532AA	
KEL01973	CF22S36.D	8248062	02/22/2016	17:50	C160532AA	
KEL01973	CF22S37.D	8248063	02/22/2016	18:12	C160532AA	
KEL01973	CF22S38.D	8248064	02/22/2016	18:35	C160532AA	
KEL01973	CF22S39.D	8248064DL	02/22/2016	18:57	C160532AA	20
KEL01973	CF22X11.D	BLK	02/22/2016	19:19	C160532AA	20
KEL01973	CF22X12.D	BLK	02/22/2016	19:42	C160532AA	20
KEL01973	CF22X13.D	BLK	02/22/2016	20:04	C160532AA	20
KEL01973	CF22X14.D	TB16043	02/22/2016	20:26	C160532AA	20
KEL01973	CF22X15.D	TB16047	02/22/2016	20:49	C160532AA	20
KEL01973	CF22X16.D	TB16049	02/22/2016	21:11	C160532AA	20
KEL01973	CF22X17.D	TB16053	02/22/2016	21:34	C160532AA	20

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

February 24, 2016

Project: Dow Hanging Rock, OH

Submittal Date: 02/18/2016
Group Number: 1632669
SDG: DHR34
PO Number: 10381-7-101541
Release Number: DHR34
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
MW10-GW-2434-021616 Grab Groundwater	8248058
MW10-GW-2434-021616MS Grab Groundwater	8248059
MW10-GW-2434-021616MSD Grab Groundwater	8248060
HGR-021616-EB01 Grab Groundwater	8248061
MW09-GW-2535-021616 Grab Groundwater	8248062
HGR-021616-FD01 Grab Groundwater	8248063
MW08-GW-2636-021616 Grab Groundwater	8248064
HGR-021616-TB01 Water	8248065

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: MW10-GW-2434-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248058
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01BKG

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.3		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.6		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 16:43	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 16:43	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW10-GW-2434-021616MS Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248059
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01MS

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	
02898	Acrylonitrile	107-13-1	31	5.0	1.0	1
02898	Benzene	71-43-2	5.3	0.5	0.1	1
02898	Bromoform	75-25-2	5.7	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.8	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	6.1	0.5	0.1	1
02898	Methylene Chloride	75-09-2	5.0	0.5	0.2	1
02898	Naphthalene	91-20-3	6.3	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.9	0.5	0.1	1
02898	Styrene	100-42-5	6.5	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.9	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	5.6	0.5	0.1	1
02898	Trichloroethene	79-01-6	6.5	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	6.1	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	12	0.5	0.1	1
02898	o-Xylene	95-47-6	5.8	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:05	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:05	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW10-GW-2434-021616MSD Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248060
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 11:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-10 SDG#: DHR34-01MSD

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l	ug/l	ug/l	
02898	Acrylonitrile	107-13-1	32	5.0	1.0	1
02898	Benzene	71-43-2	5.1	0.5	0.1	1
02898	Bromoform	75-25-2	5.5	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.8	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	6.0	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.8	0.5	0.2	1
02898	Naphthalene	91-20-3	6.3	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.9	0.5	0.1	1
02898	Styrene	100-42-5	6.4	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.7	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	5.6	0.5	0.1	1
02898	Trichloroethene	79-01-6	6.3	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	6.1	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	12	0.5	0.1	1
02898	o-Xylene	95-47-6	5.8	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:28	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:28	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-EB01 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248061
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 12:20

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-EB SDG#: DHR34-02EB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 15:58	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 15:58	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW09-GW-2535-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248062
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 13:40 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-09 SDG#: DHR34-03

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 17:50	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 17:50	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-FD01 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248063
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 13:45 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-FD SDG#: DHR34-04FD

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 18:12	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 18:12	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW08-GW-2636-021616 Grab Groundwater
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248064
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016 14:55 by DR

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-08 SDG#: DHR34-05

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.2	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.7		0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	120	E	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	14		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
Trial ID: DL							
02898	Acrylonitrile	107-13-1	100	U	100	20	20
02898	Benzene	71-43-2	10	U	10	2.0	20
02898	Bromoform	75-25-2	10	U	10	2.0	20
02898	Ethylbenzene	100-41-4	10	U	10	2.0	20
02898	Isopropylbenzene	98-82-8	10	U	10	2.0	20
02898	Methylene Chloride	75-09-2	10	U	10	4.0	20
02898	Naphthalene	91-20-3	10	U	10	2.0	20
02898	n-Propylbenzene	103-65-1	10	U	10	2.0	20
02898	Styrene	100-42-5	10	U	10	2.0	20
02898	Tetrachloroethene	127-18-4	90		10	2.0	20
02898	1,2,4-Trichlorobenzene	120-82-1	10	U	10	2.0	20
02898	Trichloroethene	79-01-6	10		10	2.0	20
02898	1,3,5-Trimethylbenzene	108-67-8	10	U	10	2.0	20
02898	m+p-Xylene	179601-23-1	10	U	10	2.0	20
02898	o-Xylene	95-47-6	10	U	10	2.0	20

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 18:35	Kerri E Legerlotz	1
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	2-DL	C160532AA	02/22/2016 18:57	Kerri E Legerlotz	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 18:35	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	C160532AA	02/22/2016 18:57	Kerri E Legerlotz	20

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-021616-TB01 Water
Hanging Rock Phase II RCRA Investigation

LL Sample # WW 8248065
LL Group # 1632669
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 02/16/2016

Submitted: 02/18/2016 09:45
Reported: 02/24/2016 13:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR-TB SDG#: DHR34-06TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C160532AA	02/22/2016 16:20	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C160532AA	02/22/2016 16:20	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc.
Reported: 02/24/2016 13:09

Group Number: 1632669

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.

Method Blank

Analysis Name	Result ug/l		LOQ** ug/l	MDL ug/l
Batch number: C160532AA	Sample number(s): 8248058-8248065			
Acrylonitrile	5.0	U	5.0	1.0
Benzene	0.5	U	0.5	0.1
Bromoform	0.5	U	0.5	0.1
Ethylbenzene	0.5	U	0.5	0.1
Isopropylbenzene	0.5	U	0.5	0.1
Methylene Chloride	0.5	U	0.5	0.2
Naphthalene	0.5	U	0.5	0.1
n-Propylbenzene	0.5	U	0.5	0.1
Styrene	0.5	U	0.5	0.1
Tetrachloroethene	0.5	U	0.5	0.1
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1
Trichloroethene	0.5	U	0.5	0.1
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1
m+p-Xylene	0.5	U	0.5	0.1
o-Xylene	0.5	U	0.5	0.1

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C160532AA	Sample number(s): 8248058-8248065								
Acrylonitrile	25	26.36			105		68-135		
Benzene	5.00	4.91			98		80-120		
Bromoform	5.00	4.70			94		62-128		
Ethylbenzene	5.00	5.06			101		80-120		
Isopropylbenzene	5.00	5.20			104		80-120		
Methylene Chloride	5.00	4.92			98		80-120		
Naphthalene	5.00	5.13			103		58-125		
n-Propylbenzene	5.00	5.15			103		79-120		
Styrene	5.00	5.42			108		80-122		
Tetrachloroethene	5.00	4.93			99		80-120		
1,2,4-Trichlorobenzene	5.00	4.75			95		67-120		
Trichloroethene	5.00	5.20			104		80-120		
1,3,5-Trimethylbenzene	5.00	5.26			105		80-120		
m+p-Xylene	10	10.45			104		80-120		
o-Xylene	5.00	5.06			101		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: CH2M Hill, Inc.
Reported: 02/24/2016 13:09

Group Number: 1632669

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: C160532AA	Sample number(s): 8248058-8248065 UNSPK: 8248058										
Acrylonitrile	5.0	U	25	30.76	25	31.55	123	126	68-135	3	30
Benzene	0.5	U	5.00	5.29	5.00	5.08	106	102	80-120	4	30
Bromoform	0.5	U	5.00	5.70	5.00	5.49	114	110	62-128	4	30
Ethylbenzene	0.5	U	5.00	5.78	5.00	5.77	116	115	80-120	0	30
Isopropylbenzene	0.5	U	5.00	6.06	5.00	6.01	121*	120	80-120	1	30
Methylene Chloride	0.5	U	5.00	5.02	5.00	4.84	100	97	80-120	3	30
Naphthalene	0.5	U	5.00	6.33	5.00	6.34	127*	127*	58-125	0	30
n-Propylbenzene	0.5	U	5.00	5.90	5.00	5.93	118	119	79-120	1	30
Styrene	0.5	U	5.00	6.47	5.00	6.38	129*	128*	80-122	2	30
Tetrachloroethene	1.30		5.00	6.87	5.00	6.72	111	108	80-120	2	30
1,2,4-Trichlorobenzene	0.5	U	5.00	5.59	5.00	5.60	112	112	67-120	0	30
Trichloroethene	0.563		5.00	6.51	5.00	6.26	119	114	80-120	4	30
1,3,5-Trimethylbenzene	0.5	U	5.00	6.05	5.00	6.09	121*	122*	80-120	1	30
m+p-Xylene	0.5	U	10	12.03	10	11.96	120	120	80-120	1	30
o-Xylene	0.5	U	5.00	5.85	5.00	5.80	117	116	80-120	1	30

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: VOCs- 25ml Water by 8260B
Batch number: C160532AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8248058	107	106	92	91
8248059	103	103	96	96
8248060	102	104	96	96
8248061	107	107	92	90
8248062	105	105	94	92
8248063	107	107	93	91
8248064	106	108	94	90
8248064DL	106	105	94	90
8248065	106	106	93	91
Blank	105	106	93	92
LCS	103	105	96	96
MS	103	103	96	96
MSD	102	104	96	96
Limits:	77-114	74-113	77-110	78-110

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11372 Group # 1632669 Sample # 8245055-065

COC # 397417

Client Information

Client: CH2M

Acct. #:

Project Name/#: CH2M PN: 652109.01.FI Hanging Rock Phase II RCRA Investigatio

PWSID #:

Project Manager: Rachel Grand 314.599.3414

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 183418

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Matrix: Soil	Matrix: Sediment	Matrix: Potable Water	Matrix: Ground Water	Matrix: NPDES	Matrix: Surface Water	Matrix: Other	Total # of Containers	Analysis Requested: VOCs	Remarks
MW10-GW-2434-021616	2/16/16	1155	✓					✓				3	✓	
MW10-GW-2434-021616MS	2/16/16	1155	✓					✓				3	✓	matrix spike
MW10-GW-2434-021616MSD	2/16/16	1155	✓					✓				3	✓	matrix spike duplicate
HGR-021616-EB01	2/16/16	1220	✓					✓				2	✓	Equip Blank
MW09-GW-2535-021616	2/16/16	1340	✓					✓				3	✓	
HGR-021616-FD01	2/16/16	1345	✓					✓				3	✓	field duplicate
MW08-GW-2636-021616	2/16/16	1455	✓					✓				3	✓	
HGR-021616-TB01	2/16/16	—	✓					✓				2	✓	trip blank

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Angela S. Montgomery	1/21/16	12:45			
Dee Roberts	2/17/16	0830			
			Kristin Abel	2/18/16	0945

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS FedEx ✓ Other

Temperature upon receipt 0.5 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 136753

Group Number(s):

Client: CH2M

1632669

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	02/18/2016 9:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	Yes		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 11:47 on 02/18/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.5	DT	Wet	Y	Bagged	N

Extra Sample Details

Sample ID on Label	Number of Extra Containers	Date on Label	Comments
TB	2	1/26/2016 --	

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) 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.

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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:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

November 20, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/07/2014
Group Number: 1517074
SDG: DHR16
PO Number: 10381-7-101541
Release Number: DHR16
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
MW01-GW-0018-110414 Grab Groundwater	7667391
MW02-GW-0020-110514 Grab Groundwater	7667392
MW03-GW-0024-110514 Grab Groundwater	7667393
MW03-GW-0024-110514MS Grab Groundwater	7667394
MW03-GW-0024-110514MSD Grab Groundwater	7667395
MW03-GW-0024-110514DUP Grab Groundwater	7667396
MW05-GW-0024-110514 Grab Groundwater	7667397
HGR-110514-FD01 Grab Groundwater	7667398
MW06-GW-0019-110514 Grab Groundwater	7667399
MW07-GW-0024-110614 Grab Groundwater	7667400
MW04-GW-0022-110614 Grab Groundwater	7667401
HGR-110614-EB01 Grab Water	7667402
110614-TB Water	7667403

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: MW01-GW-0018-110414 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667391
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/04/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR01 SDG#: DHR16-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.051	U	0.051	0.010	1
10137	Benzo(a)pyrene	50-32-8	0.051	U	0.051	0.010	1
10137	Benzo(b)fluoranthene	205-99-2	0.051	U	0.051	0.010	1
10137	Dibenz(a,h)anthracene	53-70-3	0.051	U	0.051	0.010	1
10137	Dibenzofuran	132-64-9	0.051	U	0.051	0.010	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.051	U	0.051	0.010	1
10137	2-Methylnaphthalene	91-57-6	0.051	U	0.051	0.010	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0032		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.00092	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: MW01-GW-0018-110414 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667391
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/04/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR01 SDG#: DHR16-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014	12:45	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014	12:45	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014	18:25	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014	11:54	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014	20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014	20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014	10:44	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/14/2014	18:24	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014	10:44	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014	06:42	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014	09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014	11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW02-GW-0020-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667392
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 09:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR02 SDG#: DHR16-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
	The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.						
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.056	U	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.056	U	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.056	U	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.056	U	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.056	U	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.056	U	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.018	J	0.056	0.011	1
	The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.						
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0117		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0293		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.00085	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.000064	J	0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW02-GW-0020-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667392
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 09:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR02 SDG#: DHR16-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 13:06	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 13:06	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 18:53	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 12:22	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:46	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:46	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:46	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:44	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW03-GW-0024-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667393
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.7		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.055	U	0.055	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.055	U	0.055	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.055	U	0.055	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.055	U	0.055	0.011	1
10137	Dibenzofuran	132-64-9	0.055	U	0.055	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.055	U	0.055	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.055	U	0.055	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0011	J	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0017	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

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Analysis Report

Sample Description: MW03-GW-0024-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667393
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014	11:41	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014	11:41	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014	19:21	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014	10:32	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014	20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014	20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014	09:05	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014	09:05	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014	09:05	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014	10:12	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014	22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014	01:00	Annamaria Kuhns	1

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Analysis Report

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Sample Description: MW03-GW-0024-110514MS Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667394
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	28	5.0	1.0	1
02898	Benzene	71-43-2	4.6	0.5	0.1	1
02898	Bromoform	75-25-2	3.8	0.5	0.1	1
02898	Ethylbenzene	100-41-4	4.8	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	4.8	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.8	0.5	0.2	1
02898	Naphthalene	91-20-3	4.3	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	4.6	0.5	0.1	1
02898	Styrene	100-42-5	4.8	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.7	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	4.7	0.5	0.1	1
02898	Trichloroethene	79-01-6	4.8	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	4.6	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	9.5	0.5	0.1	1
02898	o-Xylene	95-47-6	4.7	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	55	1	0.6	1
04678	Nitrobenzene	98-95-3	57	1	0.6	1
04678	Pentachlorophenol	87-86-5	49	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	1.3	0.058	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.98	0.058	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	1.1	0.058	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	1.0	0.058	0.012	1
10137	Dibenzofuran	132-64-9	1.1	0.058	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.95	0.058	0.012	1
10137	2-Methylnaphthalene	91-57-6	1.2	0.058	0.012	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0110	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0487	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0125	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0011	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW03-GW-0024-110514MS Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667394
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 12:02	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 12:02	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 19:50	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 10:59	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:12	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:12	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:12	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:17	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

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Analysis Report

Sample Description: MW03-GW-0024-110514MSD Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667395
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	25	5.0	1.0	1
02898	Benzene	71-43-2	4.8	0.5	0.1	1
02898	Bromoform	75-25-2	3.9	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.0	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	5.1	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.8	0.5	0.2	1
02898	Naphthalene	91-20-3	4.5	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	4.7	0.5	0.1	1
02898	Styrene	100-42-5	5.0	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.9	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	4.8	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.1	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	4.7	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	9.8	0.5	0.1	1
02898	o-Xylene	95-47-6	4.9	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	55	1	0.6	1
04678	Nitrobenzene	98-95-3	55	1	0.6	1
04678	Pentachlorophenol	87-86-5	48	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	1.2	0.060	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.94	0.060	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	1.1	0.060	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	1.0	0.060	0.012	1
10137	Dibenzofuran	132-64-9	1.1	0.060	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.91	0.060	0.012	1
10137	2-Methylnaphthalene	91-57-6	1.2	0.060	0.012	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0101	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0480	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0123	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0011	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: MW03-GW-0024-110514MSD Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667395
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014	12:24	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014	12:24	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014	20:18	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014	11:27	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014	20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014	20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014	09:14	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014	09:14	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014	09:14	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014	10:23	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014	22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014	01:00	Annamaria Kuhns	1

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Analysis Report

Sample Description: MW03-GW-0024-110514DUP Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667396
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR03 SDG#: DHR16-03DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0018 J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	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
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:10	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:10	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:10	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:14	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW05-GW-0024-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667397
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR05 SDG#: DHR16-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.053	U	0.053	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.053	U	0.053	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.053	U	0.053	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.053	U	0.053	0.011	1
10137	Dibenzofuran	132-64-9	0.053	U	0.053	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.053	U	0.053	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.053	U	0.053	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW05-GW-0024-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667397
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR05 SDG#: DHR16-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 16:19	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 16:19	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 20:46	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 12:49	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:24	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:24	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:24	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:25	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-110514-FD01 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667398
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHRFD SDG#: DHR16-05FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.055	U	0.055	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.055	U	0.055	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.055	U	0.055	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.055	U	0.055	0.011	1
10137	Dibenzofuran	132-64-9	0.055	U	0.055	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.055	U	0.055	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.055	U	0.055	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-110514-FD01 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667398
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHRFD SDG#: DHR16-05FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 13:27	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 13:27	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 21:14	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 13:17	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:26	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:26	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:26	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:27	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW06-GW-0019-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667399
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 16:30 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR06 SDG#: DHR16-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.056	U	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.056	U	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.056	U	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.056	U	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.056	U	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.056	U	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.056	U	0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW06-GW-0019-110514 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667399
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 16:30 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR06 SDG#: DHR16-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 13:48	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 13:48	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 21:43	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 13:44	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:29	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:29	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:29	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:29	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW07-GW-0024-110614 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667400
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 10:38 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR07 SDG#: DHR16-07

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.061	U	0.061	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.061	U	0.061	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	0.061	U	0.061	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	0.061	U	0.061	0.012	1
10137	Dibenzofuran	132-64-9	0.061	U	0.061	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.061	U	0.061	0.012	1
10137	2-Methylnaphthalene	91-57-6	0.061	U	0.061	0.012	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0031		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW07-GW-0024-110614 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667400
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 10:38 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR07 SDG#: DHR16-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 14:09	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 14:09	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 22:11	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 14:12	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:31	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:31	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:31	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:31	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW04-GW-0022-110614 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667401
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 11:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR04 SDG#: DHR16-08

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.4	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.058	U	0.058	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.058	U	0.058	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	0.058	U	0.058	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	0.058	U	0.058	0.012	1
10137	Dibenzofuran	132-64-9	0.058	U	0.058	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.058	U	0.058	0.012	1
10137	2-Methylnaphthalene	91-57-6	0.058	U	0.058	0.012	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW04-GW-0022-110614 Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667401
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 11:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHR04 SDG#: DHR16-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 14:31	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 14:31	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 22:39	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 14:39	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:34	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:34	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:34	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:33	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-110614-EB01 Grab Water
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667402
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 09:25 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHREB SDG#: DHR16-09EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.056	U	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.025	J	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.012	J	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.044	J	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.056	U	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.035	J	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.056	U	0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020	U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020	U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-110614-EB01 Grab Water
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667402
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 09:25 by DR

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHREB SDG#: DHR16-09EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 14:52	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 14:52	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14314WAB026	11/11/2014 23:07	Holly Berry	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14314WAC026	11/13/2014 15:07	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14314WAB026	11/10/2014 20:00	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14314WAC026	11/10/2014 20:00	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143146050006A	11/13/2014 09:36	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143146050006A	11/13/2014 09:36	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143146050006B	11/13/2014 09:36	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143145713002	11/11/2014 10:35	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143146050006	11/10/2014 22:30	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143145713002	11/11/2014 01:00	Annamaria Kuhns	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 110614-TB Water
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667403
LL Group # 1517074
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 13:00

Submitted: 11/07/2014 09:15
Reported: 11/20/2014 11:01

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHRTB SDG#: DHR16-10TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143171AA	11/13/2014 11:19	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143171AA	11/13/2014 11:19	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1517074
Reported: 11/20/14 at 11:01 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: I143171AA	Sample number(s): 7667391-7667395,7667397-7667403									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	119		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	101		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	82		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	102		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	103		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	104		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	92		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	98		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	103		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	105		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	102		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	105		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	98		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	103		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	101		80-120		
Batch number: 14314WAB026	Sample number(s): 7667391-7667395,7667397-7667402									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	95		56-134		
Nitrobenzene	1	U	1.	0.5	ug/l	99		77-119		
Pentachlorophenol	5	U	5.	1	ug/l	83		60-130		
Batch number: 14314WAC026	Sample number(s): 7667391-7667395,7667397-7667402									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	110		79-122		
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	114		72-126		
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	114		79-136		
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	108		42-143		
Dibenzofuran	0.050	U	0.050	0.010	ug/l	97		70-130		
Indeno(1,2,3-cd)pyrene	0.050	U	0.050	0.010	ug/l	112		53-136		
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	102		68-124		
Batch number: 143145713002	Sample number(s): 7667393-7667402									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	110		80-120		
Batch number: 143146050006A	Sample number(s): 7667393-7667402									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	102		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	101		80-120		
Batch number: 143146050006B	Sample number(s): 7667393-7667402									
Selenium	0.0020	U	0.0020	0.00050	mg/l	110		80-120		
Batch number: 143155713003	Sample number(s): 7667391-7667392									
Mercury	0.00020	U	0.00020	0.00006	mg/l	99		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1517074
Reported: 11/20/14 at 11:01 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
			0						
Batch number: 143156050006A	Sample number(s): 7667391-7667392								
Arsenic	0.0020 U	0.0020	0.00082	mg/l	97		80-120		
Chromium	0.0020 U	0.0020	0.00050	mg/l	101		80-120		
Batch number: 143156050006B	Sample number(s): 7667391-7667392								
Selenium	0.0020 U	0.0020	0.00050	mg/l	107		80-120		

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: I143171AA	Sample number(s): 7667391-7667395,7667397-7667403 UNSPK: 7667393								
Acrylonitrile	110	101	56-161	9	30				
Benzene	93	95	87-126	3	30				
Bromoform	75	78	60-138	4	30				
Ethylbenzene	95	99	80-140	4	30				
Isopropylbenzene	97	101	81-133	5	30				
Methylene Chloride	96	96	77-135	1	30				
Naphthalene	86	91	56-132	5	30				
n-Propylbenzene	92	95	79-131	3	30				
Styrene	95	99	71-138	4	30				
Tetrachloroethene	101	105	75-129	3	30				
1,2,4-Trichlorobenzene	93	97	77-120	4	30				
Trichloroethene	97	101	85-131	5	30				
1,3,5-Trimethylbenzene	92	94	89-129	3	30				
m+p-Xylene	95	98	81-137	3	30				
o-Xylene	94	98	81-137	5	30				
Batch number: 14314WAB026	Sample number(s): 7667391-7667395,7667397-7667402 UNSPK: 7667393								
1,1'-Biphenyl	96	97	73-114	0	30				
Nitrobenzene	98	96	69-127	3	30				
Pentachlorophenol	85	84	23-133	2	30				
Batch number: 14314WAC026	Sample number(s): 7667391-7667395,7667397-7667402 UNSPK: 7667393								
Benzo(a)anthracene	108	102	37-135	3	30				
Benzo(a)pyrene	84	78	32-137	4	30				
Benzo(b)fluoranthene	97	93	41-137	1	30				
Dibenz(a,h)anthracene	90	84	17-134	3	30				
Dibenzofuran	96	92	70-130	1	30				
Indeno(1,2,3-cd)pyrene	82	76	26-130	4	30				
2-Methylnaphthalene	99	98	64-129	2	30				
Batch number: 143145713002	Sample number(s): 7667393-7667402 UNSPK: 7667393 BKG: 7667393								
Mercury	111	108	75-125	2	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 143146050006A	Sample number(s): 7667393-7667402 UNSPK: 7667393 BKG: 7667393								
Arsenic	99	91	75-125	8	20	0.0011 J	0.0020 U	200* (1)	20
Chromium	97	96	75-125	1	20	0.0020 U	0.0020 U	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1517074
Reported: 11/20/14 at 11:01 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: 143146050006B	Sample number(s): 7667393-7667402 UNSPK: 7667393 BKG: 7667393								
Selenium	109	106	75-125	2	20	0.0017 J	0.0018 J	8 (1)	20
Batch number: 143155713003	Sample number(s): 7667391-7667392 UNSPK: P667406 BKG: P667406								
Mercury	101	96	75-125	5	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 143156050006A	Sample number(s): 7667391-7667392 UNSPK: P667406 BKG: P667406								
Arsenic	97	93	75-125	3	20	0.0020 U	0.0020 U	0 (1)	20
Chromium	99	98	75-125	0	20	0.0020 U	0.0020 U	0 (1)	20
Batch number: 143156050006B	Sample number(s): 7667391-7667392 UNSPK: P667406 BKG: P667406								
Selenium	98	100	75-125	2	20	0.0014 J	0.0016 J	12 (1)	20

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: VOCs- 25ml Water by 8260B
Batch number: I143171AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7667391	101	108	98	97
7667392	101	106	98	96
7667393	102	106	98	95
7667394	102	107	99	99
7667395	102	107	99	100
7667397	102	105	99	95
7667398	102	107	99	96
7667399	103	107	97	96
7667400	101	104	99	96
7667401	102	107	98	95
7667402	102	104	98	95
7667403	100	102	98	94
Blank	101	105	98	96
LCS	101	105	99	99
MS	102	107	99	99
MSD	102	107	99	100
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14314WAB026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7667391	42	28	78	80	82	90
7667392	3*	7*	3*	86	87	79
7667393	41	27	72	76	80	78
7667394	57	38	87	91	90	98
7667395	55	37	91	90	93	99
7667397	35	30	70	88	87	71

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1517074
Reported: 11/20/14 at 11:01 AM

Surrogate Quality Control

7667398	32	26	66	78	81	81
7667399	47	33	76	82	86	91
7667400	45	29	74	78	81	88
7667401	42	29	70	72	75	84
7667402	46	29	76	83	84	89
Blank	45	29	81	83	83	82
LCS	52	36	90	92	90	96
MS	57	38	87	91	90	98
MSD	55	37	91	90	93	99
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14314WAC026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7667391	103	98	93
7667392	85	32*	87
7667393	104	65	97
7667394	111	101	104
7667395	108	94	100
7667397	94	78	88
7667398	102	93	92
7667399	97	94	90
7667400	98	59	89
7667401	108	104	99
7667402	105	107	94
Blank	102	108	94
LCS	114	124	106
MS	111	101	104
MSD	108	94	100
Limits:	56-134	36-156	59-132

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1517074 Sample # 7667391-403
Instructions on reverse side correspond with circled numbers.

359790

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: RCRA II Investigation, Hanging Rock OH
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL Project number 652104
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: OH

4 Matrix: Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: ____

5 Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#: 162401

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	VOC's	SVOC's	Total metals	Dissolved metals		6 Remarks
MW01-GW-0018-110414	11/4/14	1520	✓		6	3	1	1	1	**	total metals unpreserved
MW02-GW-0020-110514	11/5/14	0950	✓		6	3	1	1	1	**	total metals unpreserved
MW03-GW-0024-110514	11/5/14	1145	✓		7	3	2	1	1		
MW03-GW-0024-110514MS	11/5/14	1145	✓		7	3	2	1	1		matrix spike
MW03-GW-0024-110514MSD	11/5/14	1145	✓		7	3	2	1	1		matrix spike dup.
MW05-GW-0024-110514	11/5/14	1520	✓		7	3	2	1	1		
HGR-110514-FD01	11/5/14	1520	✓		7	3	2	1	1		[redacted] Field Duplicate
MW06-GW-0019-110514	11/5/14	1630	✓		7	3	2	1	1		
MW07-GW-0024-110614	11/6/14	1038	✓		7	3	2	1	1		
MW04-GW-0022-110614	11/6/14	1150	✓		7	3	2	1	1		

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
L Megahko	10/8/14	8:16			
Dee Roberts	11/6/14	1215			

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.2-0.5 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1517074 Sample # 7667391-403
Instructions on reverse side correspond with circled numbers.

359793

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: RCRA II Investigation, Hanging Rock, OH
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL Project Number 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: OH

4 Matrix: Sediment ☐ Soil ☐ Water: Ground ☑ Surface ☐ Potable ☐ NPDES ☐ Other: ____

5 Analysis Requested — Preservation Codes

For Lab Use Only
FSC:
SCR#: 162402

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

2 Sample Identification / **3** Collected (Date, Time) / Grab / Composite / Total # of Containers / VOC's / SVOC's / Total metals / **6 Remarks**

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	VOC's	SVOC's	Total metals	Remarks
HGR-110614-EB01	11/6/14	0925	✓			✓		6	3	2	1	Equip blank
110614-TB	11/6/14	1300	✓			✓		3	3			trip blank

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
L Megashko	10/8/14	8:20			
Dee Roberts	11/6/14	1215			
				Date 11/7/14	Time 915

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.2-0.5 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

November 13, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/07/2014
Group Number: 1517075
SDG: DHR17
PO Number: 10381-7-101541
Release Number: DHR17
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
MW01-GW-0018-110414 Filtered Grab Groundwater	7667404
MW02-GW-0020-110514 Filtered Grab Groundwater	7667405
MW03-GW-0024-110514 Filtered Grab Groundwater	7667406
MW03-GW-0024-110514MS Filtered Grab Groundwater	7667407
MW03-GW-0024-110514MSD Filtered Grab Groundwater	7667408
MW03-GW-0024-110514DUP Filtered Grab Groundwater	7667409
MW05-GW-0024-110514 Filtered Grab Groundwater	7667410
HGR-110514-FD01 Filtered Grab Groundwater	7667411
MW06-GW-0019-110514 Filtered Grab Groundwater	7667412
MW07-GW-0024-110614 Filtered Grab Groundwater	7667413
MW04-GW-0022-110614 Filtered Grab Groundwater	7667414

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: MW01-GW-0018-110414 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667404
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/04/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF01 SDG#: DHR17-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.00087 J	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:53	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:53	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:53	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:50	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW02-GW-0020-110514 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667405
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 09:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF02 SDG#: DHR17-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0011 J	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0023	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:56	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:56	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:56	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:52	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW03-GW-0024-110514 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667406
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF03 SDG#: DHR17-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0014 J	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:29	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:29	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:29	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:30	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW03-GW-0024-110514MS Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667407
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF03 SDG#: DHR17-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0097	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0493	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0112	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0010	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:36	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:36	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:36	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:34	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW03-GW-0024-110514MSD Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667408
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF03 SDG#: DHR17-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0093	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0492	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0114	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00096	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:39	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:39	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:39	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:36	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW03-GW-0024-110514DUP Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667409
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 11:45 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF03 SDG#: DHR17-03DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0016 J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:34	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:34	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:34	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:32	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

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Analysis Report

Sample Description: MW05-GW-0024-110514 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667410
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF05 SDG#: DHR17-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 10:58	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 10:58	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 10:58	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:54	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-110514-FD01 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667411
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 15:20 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRFFD SDG#: DHR17-05FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 11:00	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 11:00	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 11:00	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:56	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

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Analysis Report

Sample Description: MW06-GW-0019-110514 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667412
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/05/2014 16:30 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF06 SDG#: DHR17-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 11:03	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 11:03	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 11:03	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 06:59	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW07-GW-0024-110614 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667413
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 10:38 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF07 SDG#: DHR17-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 11:05	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 11:05	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 11:05	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 07:01	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: MW04-GW-0022-110614 Filtered Grab Groundwater
RCRA II Investigation - Hanging Rock, OH

LL Sample # WW 7667414
LL Group # 1517075
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/06/2014 11:50 by DR

Submitted: 11/07/2014 09:15
Reported: 11/13/2014 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRF04 SDG#: DHR17-08

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		mg/l	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143156050006A	11/13/2014 11:07	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143156050006A	11/13/2014 11:07	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143156050006B	11/13/2014 11:07	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143155713003	11/13/2014 07:03	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143156050006	11/12/2014 09:20	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143155713003	11/12/2014 11:45	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1517075
Reported: 11/13/14 at 02:02 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143155713003	Sample number(s): 7667404-7667414								
Mercury	0.00020 U	0.00020	0.00006	mg/l	99		80-120		
			0						
Batch number: 143156050006A	Sample number(s): 7667404-7667414								
Arsenic	0.0020 U	0.0020	0.00082	mg/l	97		80-120		
Chromium	0.0020 U	0.0020	0.00050	mg/l	101		80-120		
Batch number: 143156050006B	Sample number(s): 7667404-7667414								
Selenium	0.0020 U	0.0020	0.00050	mg/l	107		80-120		

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: 143155713003	Sample number(s): 7667404-7667414 UNSPK: 7667406 BKG: 7667406								
Mercury	101	96	75-125	5	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 143156050006A	Sample number(s): 7667404-7667414 UNSPK: 7667406 BKG: 7667406								
Arsenic	97	93	75-125	3	20	0.0020 U	0.0020 U	0 (1)	20
Chromium	99	98	75-125	0	20	0.0020 U	0.0020 U	0 (1)	20
Batch number: 143156050006B	Sample number(s): 7667404-7667414 UNSPK: 7667406 BKG: 7667406								
Selenium	98	100	75-125	2	20	0.0014 J	0.0016 J	12 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

eurofins

Lancaster Laboratories Environmental

Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # 1517075 Sample # 7067404-15

Instructions on reverse side correspond with circled numbers.

359790

1 Client Information

Client: CH2M HILL

Acct. #:

Project Name/#: RCRA II Investigation, Hanging Rock OH

PWSID #:

Project Manager: Rachel Grand

P.O. #: CH2M HILL Project number 652104

Sampler: Dee Roberts

Quote #:

Name of state where samples were collected: OH

4 Matrix: Sediment ☐ Soil ☐ Ground ☑ Potable ☐ Surface ☐ NPDES ☐ Water ✓ Other: ____

5 Analysis Requested — Preservation Codes

For Lab Use Only

FSC:

SCR#: 162401

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

2 Sample Identification / **3 Collected**

Sample Identification	Date	Time	Grab	Composite	Sediment	Soil	Ground	Potable	Surface	NPDES	Water	Other	Total # of Containers	VOC's	SVOC's	Total metals	Dissolved metals								**6 Remarks**
MW01-GW-0018-110414	11/4/14	1520	✓								✓		6	3	1	1	1							**	total metals unpreserved
MW03-GW-0020-110514	11/5/14	0950	✓								✓		6	3	1	1	1							**	total metals unpreserved
MW03-GW-0024-110514	11/5/14	1145	✓								✓		7	3	2	1	1								
MW03-GW-0024-110514MS	11/5/14	1145	✓								✓		7	3	2	1	1								matrix spike
MW03-GW-0024-110514MSD	11/5/14	1145	✓								✓		7	3	2	1	1								matrix spike dup.
MW05-GW-0024-110514	11/5/14	1520	✓								✓		7	3	2	1	1								
HGR-110514-FD01	11/5/14	1520	✓								✓		7	3	2	1	1								Field Duplicate
MW06-GW-0019-110514	11/5/14	1630	✓								✓		7	3	2	1	1								
MW07-GW-0024-110614	11/6/14	1038	✓								✓		7	3	2	1	1								
MW04-GW-0022-110614	11/6/14	1150	✓								✓		7	3	2	1	1								

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
L Megadko	10/8/14	8:16			
Dee Roberts	11/6/14	1215			
				11/7/14	915

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.2-0.5 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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.

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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	CH2M Hill, Inc. PO Box 241329 Denver CO 80224

November 19, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/12/2014
Group Number: 1517871
SDG: DHR18
PO Number: 10381-7-101541
Release Number: DHR18
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
A24-SB06-1213-111114 Grab Soil	7671414
A24-SB06-2627-111114 Grab Soil	7671415
A24-SB04-1011-111114 Grab Soil	7671416
A24-SB04-1011-111114MS Grab Soil	7671417
A24-SB04-1011-111114MSD Grab Soil	7671418
A24-SB02-1112-111114 Grab Soil	7671419
A24-SB02-2627-111114 Grab Soil	7671420
111114TB Water	7671421
A24-SB04-2627-111114 Grab Soil	7671422

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: A24-SB06-1213-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671414
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 10:20 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1213 SDG#: DHR18-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.86
10237	Benzene	71-43-2	5	U	5	0.5	0.86
10237	Bromoform	75-25-2	5	U	5	1	0.86
10237	Ethylbenzene	100-41-4	5	U	5	1	0.86
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.86
10237	Methylene Chloride	75-09-2	5	U	5	2	0.86
10237	Naphthalene	91-20-3	5	U	5	1	0.86
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.86
10237	Styrene	100-42-5	5	U	5	1	0.86
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.86
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.86
10237	Trichloroethene	79-01-6	5	U	5	1	0.86
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.86
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.86
10237	o-Xylene	95-47-6	5	U	5	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	41	U	41	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	41	U	41	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 20:34	Christopher G Torres	0.86
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:49	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:49	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: A24-SB06-1213-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671414
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 10:20 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1213 SDG#: DHR18-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:23	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 19:48	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: A24-SB06-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671415
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 10:55 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

62627 SDG#: DHR18-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.98
10237	Benzene	71-43-2	5	U	5	0.5	0.98
10237	Bromoform	75-25-2	5	U	5	1	0.98
10237	Ethylbenzene	100-41-4	5	U	5	1	0.98
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.98
10237	Methylene Chloride	75-09-2	5	U	5	2	0.98
10237	Naphthalene	91-20-3	5	U	5	1	0.98
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.98
10237	Styrene	100-42-5	5	U	5	1	0.98
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.98
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.98
10237	Trichloroethene	79-01-6	5	U	5	1	0.98
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.98
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.98
10237	o-Xylene	95-47-6	5	U	5	1	0.98
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	5	J	18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	35	U	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 20:56	Christopher G Torres	0.98
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:49	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:49	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB06-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671415
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 10:55 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

62627 SDG#: DHR18-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:25	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 20:12	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB04-1011-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671416
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	23	U	23	5	0.92
10237	Benzene	71-43-2	6	U	6	0.6	0.92
10237	Bromoform	75-25-2	6	U	6	1	0.92
10237	Ethylbenzene	100-41-4	6	U	6	1	0.92
10237	Isopropylbenzene	98-82-8	6	U	6	1	0.92
10237	Methylene Chloride	75-09-2	6	U	6	2	0.92
10237	Naphthalene	91-20-3	6	U	6	1	0.92
10237	n-Propylbenzene	103-65-1	6	U	6	1	0.92
10237	Styrene	100-42-5	6	U	6	1	0.92
10237	Tetrachloroethene	127-18-4	6	U	6	1	0.92
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	0.92
10237	Trichloroethene	79-01-6	6	U	6	1	0.92
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	0.92
10237	m+p-Xylene	179601-23-1	6	U	6	1	0.92
10237	o-Xylene	95-47-6	6	U	6	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 21:19	Christopher G Torres	0.92
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

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Sample Description: A24-SB04-1011-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671416
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:27	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 17:28	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB04-1011-111114MS Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671417
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	120	21	4	0.88
10237	Benzene	71-43-2	26	5	0.5	0.88
10237	Bromoform	75-25-2	22	5	1	0.88
10237	Ethylbenzene	100-41-4	27	5	1	0.88
10237	Isopropylbenzene	98-82-8	27	5	1	0.88
10237	Methylene Chloride	75-09-2	30	5	2	0.88
10237	Naphthalene	91-20-3	17	5	1	0.88
10237	n-Propylbenzene	103-65-1	29	5	1	0.88
10237	Styrene	100-42-5	27	5	1	0.88
10237	Tetrachloroethene	127-18-4	26	5	1	0.88
10237	1,2,4-Trichlorobenzene	120-82-1	17	5	1	0.88
10237	Trichloroethene	79-01-6	27	5	1	0.88
10237	1,3,5-Trimethylbenzene	108-67-8	29	5	1	0.88
10237	m+p-Xylene	179601-23-1	55	5	1	0.88
10237	o-Xylene	95-47-6	26	5	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	2,100	21	4	1
10727	Benzo(a)pyrene	50-32-8	2,000	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,300	21	4	1
10727	1,1'-Biphenyl	92-52-4	1,900	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	2,100	21	4	1
10727	Dibenzofuran	132-64-9	2,000	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,000	21	4	1
10727	2-Methylnaphthalene	91-57-6	1,900	21	4	1
10727	Nitrobenzene	98-95-3	1,900	40	20	1
10727	Pentachlorophenol	87-86-5	2,000	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	18.0	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 21:41	Christopher G Torres	0.88
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:29	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 17:51	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB04-1011-111114MS Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671417
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00118	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB04-1011-111114MSD Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671418
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	97	21	4	0.85
10237	Benzene	71-43-2	21	5	0.5	0.85
10237	Bromoform	75-25-2	19	5	1	0.85
10237	Ethylbenzene	100-41-4	20	5	1	0.85
10237	Isopropylbenzene	98-82-8	20	5	1	0.85
10237	Methylene Chloride	75-09-2	25	5	2	0.85
10237	Naphthalene	91-20-3	13	5	1	0.85
10237	n-Propylbenzene	103-65-1	21	5	1	0.85
10237	Styrene	100-42-5	21	5	1	0.85
10237	Tetrachloroethene	127-18-4	19	5	1	0.85
10237	1,2,4-Trichlorobenzene	120-82-1	14	5	1	0.85
10237	Trichloroethene	79-01-6	21	5	1	0.85
10237	1,3,5-Trimethylbenzene	108-67-8	21	5	1	0.85
10237	m+p-Xylene	179601-23-1	42	5	1	0.85
10237	o-Xylene	95-47-6	20	5	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	2,100	21	4	1
10727	Benzo(a)pyrene	50-32-8	2,000	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,200	21	4	1
10727	1,1'-Biphenyl	92-52-4	1,900	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	2,100	21	4	1
10727	Dibenzofuran	132-64-9	2,000	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,000	21	4	1
10727	2-Methylnaphthalene	91-57-6	1,900	21	4	1
10727	Nitrobenzene	98-95-3	1,900	40	20	1
10727	Pentachlorophenol	87-86-5	2,000	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	18.0	0.50	0.50	1
00121	Moisture Duplicate	n.a.	17.4	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 22:03	Christopher G Torres	0.85
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: A24-SB04-1011-111114MSD Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671418
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 13:50 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1011 SDG#: DHR18-03MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:40	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 18:14	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00118	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1
00121	Moisture Duplicate	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB02-1112-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671419
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 15:25 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1112 SDG#: DHR18-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	23	U	23	5	0.94
10237	Benzene	71-43-2	6	U	6	0.6	0.94
10237	Bromoform	75-25-2	6	U	6	1	0.94
10237	Ethylbenzene	100-41-4	6	U	6	1	0.94
10237	Isopropylbenzene	98-82-8	6	U	6	1	0.94
10237	Methylene Chloride	75-09-2	6	U	6	2	0.94
10237	Naphthalene	91-20-3	6	U	6	1	0.94
10237	n-Propylbenzene	103-65-1	6	U	6	1	0.94
10237	Styrene	100-42-5	6	U	6	1	0.94
10237	Tetrachloroethene	127-18-4	6	U	6	1	0.94
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	0.94
10237	Trichloroethene	79-01-6	6	U	6	1	0.94
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	0.94
10237	m+p-Xylene	179601-23-1	6	U	6	1	0.94
10237	o-Xylene	95-47-6	6	U	6	1	0.94
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	41	U	41	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	41	U	41	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 22:25	Christopher G Torres	0.94
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: A24-SB02-1112-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671419
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 15:25 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-1112 SDG#: DHR18-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:42	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 20:35	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

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Analysis Report

Sample Description: A24-SB02-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671420
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 16:05 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

22627 SDG#: DHR18-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.97
10237	Benzene	71-43-2	5	U	5	0.5	0.97
10237	Bromoform	75-25-2	5	U	5	1	0.97
10237	Ethylbenzene	100-41-4	5	U	5	1	0.97
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.97
10237	Methylene Chloride	75-09-2	5	U	5	2	0.97
10237	Naphthalene	91-20-3	5	U	5	1	0.97
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.97
10237	Styrene	100-42-5	5	U	5	1	0.97
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.97
10237	Trichloroethene	79-01-6	5	U	5	1	0.97
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.97
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.97
10237	o-Xylene	95-47-6	5	U	5	1	0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	5	J	18	3	1
10727	Benzo(a)pyrene	50-32-8	5	J	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	10	J	18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	35	U	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7	J	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 22:47	Christopher G Torres	0.97
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: A24-SB02-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671420
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 16:05 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

22627 SDG#: DHR18-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:44	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 20:59	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111114TB Water
Phase II RCRA Investigation

LL Sample # WW 7671421
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 16:00

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

2627T SDG#: DHR18-06TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	W143181AA	11/14/2014 15:43	Chelsea B Stong	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W143181AA	11/14/2014 15:43	Chelsea B Stong	1

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Analysis Report

Sample Description: A24-SB04-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671422
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 14:35 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

42627 SDG#: DHR18-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	19	U	19	4	0.93
10237	Benzene	71-43-2	5	U	5	0.5	0.93
10237	Bromoform	75-25-2	5	U	5	1	0.93
10237	Ethylbenzene	100-41-4	5	U	5	1	0.93
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.93
10237	Methylene Chloride	75-09-2	5	U	5	2	0.93
10237	Naphthalene	91-20-3	5	U	5	1	0.93
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.93
10237	Styrene	100-42-5	5	U	5	1	0.93
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.93
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.93
10237	Trichloroethene	79-01-6	5	U	5	1	0.93
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.93
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.93
10237	o-Xylene	95-47-6	5	U	5	1	0.93
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	18	U	18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	35	U	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143202AA	11/16/2014 23:09	Christopher G Torres	0.93
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431636159	11/12/2014 15:50	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB04-2627-111114 Grab Soil
Phase II RCRA Investigation

LL Sample # SW 7671422
LL Group # 1517871
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/11/2014 14:35 by DR

Submitted: 11/12/2014 08:00
Reported: 11/19/2014 08:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

42627 SDG#: DHR18-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431636159	11/12/2014 15:46	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14317SLC026	11/14/2014 21:22	Holly Berry	1
10809	BNA Soil Microwave	SW-846 3546	1	14317SLC026	11/14/2014 02:40	Sherry L Morrow	1
00111	Moisture	SM 2540 G-1997	1	14322820002A	11/18/2014 18:45	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1517871
Reported: 11/19/14 at 08:03 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B143202AA	Sample number(s): 7671414-7671420,7671422									
Acrylonitrile	20	U	20.	4	ug/kg	103		58-123		
Benzene	5	U	5.	0.5	ug/kg	92		80-120		
Bromoform	5	U	5.	1	ug/kg	88		70-126		
Ethylbenzene	5	U	5.	1	ug/kg	92		80-120		
Isopropylbenzene	5	U	5.	1	ug/kg	92		76-120		
Methylene Chloride	5	U	5.	2	ug/kg	103		80-124		
Naphthalene	5	U	5.	1	ug/kg	84		64-120		
n-Propylbenzene	5	U	5.	1	ug/kg	94		77-120		
Styrene	5	U	5.	1	ug/kg	93		76-120		
Tetrachloroethene	5	U	5.	1	ug/kg	101		78-120		
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	78		68-120		
Trichloroethene	5	U	5.	1	ug/kg	92		80-125		
1,3,5-Trimethylbenzene	5	U	5.	1	ug/kg	94		78-120		
m+p-Xylene	5	U	5.	1	ug/kg	94		80-120		
o-Xylene	5	U	5.	1	ug/kg	89		80-120		
Batch number: W143181AA	Sample number(s): 7671421									
Acrylonitrile	20	U	20.	4	ug/l	63	63	62-120	1	30
Benzene	1	U	1.	0.5	ug/l	95	99	78-120	3	30
Bromoform	4	U	4.	0.5	ug/l	89	92	61-120	4	30
Ethylbenzene	1	U	1.	0.5	ug/l	93	98	79-120	5	30
Isopropylbenzene	5	U	5.	1	ug/l	93	96	80-120	3	30
Methylene Chloride	4	U	4.	2	ug/l	94	95	80-120	2	30
Naphthalene	5	U	5.	1	ug/l	69	72	47-126	4	30
n-Propylbenzene	5	U	5.	1	ug/l	92	95	80-120	3	30
Styrene	5	U	5.	1	ug/l	98	100	80-120	2	30
Tetrachloroethene	1	U	1.	0.5	ug/l	105	106	80-120	1	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/l	83	85	73-120	2	30
Trichloroethene	1	U	1.	0.5	ug/l	100	104	80-120	4	30
1,3,5-Trimethylbenzene	5	U	5.	1	ug/l	92	95	80-120	3	30
m+p-Xylene	1	U	1.	0.5	ug/l	99	102	80-120	2	30
o-Xylene	1	U	1.	0.5	ug/l	96	98	80-120	1	30
Batch number: 14317SLC026	Sample number(s): 7671414-7671420,7671422									
Benzo(a)anthracene	17	U	17.	3	ug/kg	106		76-119		
Benzo(a)pyrene	17	U	17.	3	ug/kg	107		84-122		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	110		78-129		
1,1'-Biphenyl	33	U	33.	17	ug/kg	100		78-111		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	109		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	102		85-115		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	111		76-122		
2-Methylnaphthalene	17	U	17.	3	ug/kg	100		83-109		
Nitrobenzene	33	U	33.	17	ug/kg	101		80-115		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1517871
Reported: 11/19/14 at 08:03 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Pentachlorophenol	170 U	170.	33	ug/kg	106		46-133		
Batch number: 14322820002A	Sample number(s): 7671414-7671420,7671422								
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: B143202AA	Sample number(s): 7671414-7671420,7671422 UNSPK: 7671416								
Acrylonitrile	108	93	48-139	18	30				
Benzene	122	99	55-143	24	30				
Bromoform	103	93	50-144	13	30				
Ethylbenzene	126	98	44-141	28	30				
Isopropylbenzene	124	98	38-144	26	30				
Methylene Chloride	140	118	60-149	20	30				
Naphthalene	80	65	10-138	24	30				
n-Propylbenzene	134	102	39-157	30	30				
Styrene	125	103	35-134	23	30				
Tetrachloroethene	120	90	42-149	32*	30				
1,2,4-Trichlorobenzene	81	66	10-136	23	30				
Trichloroethene	125	102	53-144	23	30				
1,3,5-Trimethylbenzene	135	102	38-150	31*	30				
m+p-Xylene	127	100	44-137	26	30				
o-Xylene	121	95	42-137	27	30				
Batch number: 14317SLC026	Sample number(s): 7671414-7671420,7671422 UNSPK: 7671416								
Benzo(a)anthracene	104	102	32-150	1	30				
Benzo(a)pyrene	99	97	36-151	2	30				
Benzo(b)fluoranthene	113	111	29-150	2	30				
1,1'-Biphenyl	93	94	57-123	2	30				
Dibenz(a,h)anthracene	103	103	54-142	0	30				
Dibenzofuran	99	100	46-137	1	30				
Indeno(1,2,3-cd)pyrene	101	100	44-147	0	30				
2-Methylnaphthalene	95	95	39-140	1	30				
Nitrobenzene	94	94	41-141	0	30				
Pentachlorophenol	98	101	23-145	3	30				
Batch number: 14322820002A	Sample number(s): 7671414-7671420,7671422 BKG: 7671416								
Moisture						18.0	17.4	3	5
Moisture						18.0	17.4	3	5
Moisture Duplicate						18.0	17.4	3	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1517871
Reported: 11/19/14 at 08:03 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: VOCs- Solid by 8260B
Batch number: B143202AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7671414	100	98	105	95
7671415	102	101	100	100
7671416	105	108	101	94
7671417	100	95	108	105
7671418	101	100	99	107
7671419	101	101	101	94
7671420	105	101	103	95
7671422	104	101	106	91
Blank	101	101	101	99
LCS	101	104	106	111
MS	100	95	108	105
MSD	101	100	99	107
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- 5ml Water by 8260B
Batch number: W143181AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7671421	106	102	95	90
Blank	107	102	96	89
LCS	103	101	99	100
LCSD	102	99	100	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 14317SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7671414	104	105	107	94	90	102
7671415	102	105	121	95	96	108
7671416	87	89	96	82	82	99
7671417	107	109	105	91	89	103
7671418	99	103	107	89	90	100
7671419	97	99	108	86	88	101
7671420	105	109	104	92	91	107
7671422	98	101	102	90	89	102
Blank	96	103	111	95	97	109
LCS	104	107	114	95	94	105
MS	107	109	105	91	89	103
MSD	99	103	107	89	90	100
Limits:	44-129	40-141	36-142	54-123	63-124	61-142

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # 1517871 Sample # 7607414-22

Instructions on reverse side correspond with circled numbers.

361446

1 Client Information

Client: CH2M HILL

Acct. #:

Project Name/#: Phase II RCRA Investigation

PWSID #:

Project Manager: Rachel Grand

P.O. #: CH2M HILL Project # 652109

Sampler: Dee Roberts

Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only

FSC:

SCR#: 163389

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Water: Ground	Potable	Surface	NPDES	Other:	Total # of Containers	VOC's	SVOC's	6 Remarks
															depth (bgs)
A24-SBØ6-1213-111114	11/11/14	1020	✓		✓							4	3	1	11.5-12.5'
A24-SBØ6-2627-111114	11/11/14	1055	✓		✓							4	3	1	26-27'
A24-SBØ4-1Ø11-111114	11/11/14	1350	✓		✓							4	3	1	10-11'
A24-SBØ4-1Ø11-111114 MS	11/11/14	1350	✓		✓							4	3	1	10-11' Matrix Spike
A24-SBØ4-1Ø11-111114 MSD	11/11/14	1350	✓		✓							4	3	1	10-11' Matrix Spike Duplicate
A24-SBØ2-1112-111114	11/11/14	1525	✓		✓							4	3	1	11-12'
A24-SBØ2-2627-111114	11/11/14	1605	✓		✓							4	3	1	26-27'
111114ØTB	11/11/14	1600	✓		✓		✓					2	2		trip blank

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
L Megashko	10/29/14	8:25			
Dee Roberts	11/11/14	1700			

9

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx ✓ Other _____

Temperature upon receipt 3.3 °C

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7044 0514

Amended COC received 11/12/14 mkz 11/12/14

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # 1517871 Sample # 7671414-22
Instructions on reverse side correspond with circled numbers.

361446

(1) Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL Project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#: 163389

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	(4) Matrix: Soil ✓	Sediment	Water: Potable	Ground	NPDES	Surface	Other:	Total # of Containers	(5) Analysis Requested: VOCs	SVOCs	(6) Remarks (depth(bgs))
A24-SB06-1213-111114	11/11/14	1020	✓		✓							4	3	1	11.5-12.5'
A24-SB06-2627-111114	11/11/14	1055	✓		✓							4	3	1	26-27'
A24-SB04-1011-111114	11/11/14	1350	✓		✓							4	3	1	10-11'
A24-SB04-1011-111114 MS	11/11/14	1350	✓		✓							4	3	1	10-11' Matrix spike
A24-SB04-1011-111114 MSD	11/11/14	1350	✓		✓							4	3	1	10-11' Matrix Spike Duplic
A24-SB02-1112-111114	11/11/14	1525	✓		✓							4	3	1	11-12'
A24-SB02-2627-111114	11/11/14	1605	✓		✓							4	3	1	26-27'
111140TB DR	11/11/14	1600	✓		✓		✓					2	2		trip blank
A24-SB04-2627-111114	11/11/14	1435	✓		✓							4	3	1	26-27'

(7) Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

(8) Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

(9)

Relinquished by	Date	Time	Received by	Date	Time
L Megashko	10/29/14	8.25			
				11-12-14	8:00

EDD Required? Yes No
If yes, format: _____
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____
Temperature upon receipt 3.3 °C

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0514

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

November 26, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/14/2014
Group Number: 1518698
SDG: DHR20
PO Number: 10381-7-101541
Release Number: DHR20
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
A24-GW02-2529-111314 Grab Groundwater	7675868
A24-GW02-2529-111314 Grab Groundwater Filtered	7675869
A24-SB03-1314-111314 Grab Soil	7675870
A24-SB03-2526-111314 Grab Soil	7675871
111314TB Water	7675872

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Sample Description: A24-GW02-2529-111314 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7675868
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 10:25 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

GW02- SDG#: DHR20-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	J	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.066		0.054	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.057		0.054	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.12		0.054	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.017	J	0.054	0.011	1
10137	Dibenzofuran	132-64-9	0.024	J	0.054	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.075		0.054	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.022	J	0.054	0.011	1

Target analytes were detected in the method blank associated with the samples as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0205		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.124		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0010	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00015	J	0.00020	0.000060	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW02-2529-111314 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7675868
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 10:25 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

GW02- SDG#: DHR20-01

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143232AA	11/20/2014 00:37	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143232AA	11/20/2014 00:37	Kevin A Sposito	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14321WAL026	11/18/2014 19:58	Holly Berry	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14324WAF026	11/22/2014 01:15	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14321WAM026	11/25/2014 06:29	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14321WAL026	11/17/2014 15:30	Kelli M Barto	1
00813	BNA Water Extraction	SW-846 3510C	2	14324WAF026	11/21/2014 09:30	Jessica M Velez	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14321WAM026	11/17/2014 15:30	Kelli M Barto	1
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014 19:23	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/19/2014 19:23	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014 19:23	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713001	11/19/2014 06:17	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014 09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713001	11/18/2014 11:33	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW02-2529-111314 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7675869
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 10:25 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

GW02F SDG#: DHR20-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014 19:26	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/19/2014 19:26	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014 19:26	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713001	11/19/2014 06:55	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014 09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713001	11/18/2014 11:33	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-SB03-1314-111314 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 7675870
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 14:05 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SB031 SDG#: DHR20-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20,000 U	20,000	4,000	796.18
10237	Benzene	71-43-2	4,900 U	4,900	490	796.18
10237	Bromoform	75-25-2	4,900 U	4,900	990	796.18
10237	Ethylbenzene	100-41-4	850,000 E	4,900	990	796.18
10237	Isopropylbenzene	98-82-8	130,000	4,900	990	796.18
10237	Methylene Chloride	75-09-2	4,900 U	4,900	2,000	796.18
10237	Naphthalene	91-20-3	1,700 J	4,900	990	796.18
10237	n-Propylbenzene	103-65-1	89,000	4,900	990	796.18
10237	Styrene	100-42-5	340,000 E	4,900	990	796.18
10237	Tetrachloroethene	127-18-4	4,900 U	4,900	990	796.18
10237	1,2,4-Trichlorobenzene	120-82-1	4,900 U	4,900	990	796.18
10237	Trichloroethene	79-01-6	4,900 U	4,900	990	796.18
10237	1,3,5-Trimethylbenzene	108-67-8	1,700 J	4,900	990	796.18
10237	m+p-Xylene	179601-23-1	27,000	4,900	990	796.18
10237	o-Xylene	95-47-6	23,000	4,900	990	796.18
Trial ID: DL						
10237	Acrylonitrile	107-13-1	200,000 U	200,000	40,000	7961.78
10237	Benzene	71-43-2	49,000 U	49,000	4,900	7961.78
10237	Bromoform	75-25-2	49,000 U	49,000	9,900	7961.78
10237	Ethylbenzene	100-41-4	1,500,000	49,000	9,900	7961.78
10237	Isopropylbenzene	98-82-8	130,000	49,000	9,900	7961.78
10237	Methylene Chloride	75-09-2	49,000 U	49,000	20,000	7961.78
10237	Naphthalene	91-20-3	49,000 U	49,000	9,900	7961.78
10237	n-Propylbenzene	103-65-1	86,000	49,000	9,900	7961.78
10237	Styrene	100-42-5	310,000	49,000	9,900	7961.78
10237	Tetrachloroethene	127-18-4	49,000 U	49,000	9,900	7961.78
10237	1,2,4-Trichlorobenzene	120-82-1	49,000 U	49,000	9,900	7961.78
10237	Trichloroethene	79-01-6	49,000 U	49,000	9,900	7961.78
10237	1,3,5-Trimethylbenzene	108-67-8	49,000 U	49,000	9,900	7961.78

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Analysis Report

Sample Description: A24-SB03-1314-111314 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 7675870
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 14:05 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
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Denver CO 80224

SB031 SDG#: DHR20-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	m+p-Xylene	179601-23-1	28,000	J	49,000	9,900	7961.78
10237	o-Xylene	95-47-6	23,000	J	49,000	9,900	7961.78
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	17	J	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	45,000	E	41	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	220		41	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	650		21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Trial ID: DL							
10727	Benzo(a)anthracene	56-55-3	420	U	420	82	20
10727	Benzo(a)pyrene	50-32-8	420	U	420	82	20
10727	Benzo(b)fluoranthene	205-99-2	420	U	420	82	20
10727	1,1'-Biphenyl	92-52-4	71,000		820	410	20
10727	Dibenz(a,h)anthracene	53-70-3	420	U	420	82	20
10727	Dibenzofuran	132-64-9	820	U	820	410	20
10727	Indeno(1,2,3-cd)pyrene	193-39-5	420	U	420	82	20
10727	2-Methylnaphthalene	91-57-6	680		420	82	20
10727	Nitrobenzene	98-95-3	820	U	820	410	20
10727	Pentachlorophenol	87-86-5	4,200	U	4,200	820	20
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q143221AA	11/18/2014 17:52	Anita M Dale	796.18
10237	VOCs- Solid by 8260B	SW-846 8260B	2-DL	Q143231AA	11/19/2014 15:41	Anita M Dale	7961.78
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431836187	11/14/2014 16:42	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: A24-SB03-1314-111314 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 7675870
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 14:05 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SB031 SDG#: DHR20-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431836187	11/14/2014 16:42	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431836187	11/14/2014 16:36	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14322SLB026	11/19/2014 12:24	Joseph M Gambler	1
10727	TCL 8270 (microwave)	SW-846 8270C	2-DL	14322SLB026	11/19/2014 20:19	Holly Berry	20
10809	BNA Soil Microwave	SW-846 3546	1	14322SLB026	11/18/2014 19:10	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	14324820001A	11/20/2014 18:35	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: A24-SB03-2526-111314 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 7675871
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 14:40 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SB032 SDG#: DHR20-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	19	U	19	4	0.89
10237	Benzene	71-43-2	5	U	5	0.5	0.89
10237	Bromoform	75-25-2	5	U	5	1	0.89
10237	Ethylbenzene	100-41-4	260		5	1	0.89
10237	Isopropylbenzene	98-82-8	27		5	1	0.89
10237	Methylene Chloride	75-09-2	5	U	5	2	0.89
10237	Naphthalene	91-20-3	5	U	5	1	0.89
10237	n-Propylbenzene	103-65-1	21		5	1	0.89
10237	Styrene	100-42-5	140		5	1	0.89
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.89
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.89
10237	Trichloroethene	79-01-6	5	U	5	1	0.89
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.89
10237	m+p-Xylene	179601-23-1	5		5	1	0.89
10237	o-Xylene	95-47-6	6		5	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	6	J	18	4	1
10727	Benzo(a)pyrene	50-32-8	5	J	18	4	1
10727	Benzo(b)fluoranthene	205-99-2	13	J	18	4	1
10727	1,1'-Biphenyl	92-52-4	1,200		36	18	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	4	1
10727	Dibenzofuran	132-64-9	36	U	36	18	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	J	18	4	1
10727	2-Methylnaphthalene	91-57-6	12	J	18	4	1
10727	Nitrobenzene	98-95-3	36	U	36	18	1
10727	Pentachlorophenol	87-86-5	180	U	180	36	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	7.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143221AA	11/19/2014 01:20	Christopher G Torres	0.89
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201431836187	11/14/2014 16:42	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201431836187	11/14/2014 16:42	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: A24-SB03-2526-111314 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 7675871
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 14:40 by DR

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SB032 SDG#: DHR20-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201431836187	11/14/2014 16:38	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14322SLB026	11/19/2014 12:48	Joseph M Gambler	1
10809	BNA Soil Microwave	SW-846 3546	1	14322SLB026	11/18/2014 19:10	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	14324820001A	11/20/2014 18:35	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111314TB Water
Dow Hanging Rock, OH

LL Sample # WW 7675872
LL Group # 1518698
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/13/2014 16:00

Submitted: 11/14/2014 08:45
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

GW02T SDG#: DHR20-05TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	I143232AA	11/19/2014 23:12	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	I143232AA	11/19/2014 23:12	Kevin A Sposito	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1518698
Reported: 11/26/14 at 03:03 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B143221AA	Sample number(s): 7675871									
Acrylonitrile	20	U	20.	4	ug/kg	105	97	58-123	9	30
Benzene	5	U	5.	0.5	ug/kg	93	96	80-120	3	30
Bromoform	5	U	5.	1	ug/kg	90	89	70-126	1	30
Ethylbenzene	5	U	5.	1	ug/kg	94	95	80-120	2	30
Isopropylbenzene	5	U	5.	1	ug/kg	96	96	76-120	1	30
Methylene Chloride	5	U	5.	2	ug/kg	108	110	80-124	2	30
Naphthalene	5	U	5.	1	ug/kg	87	84	64-120	2	30
n-Propylbenzene	5	U	5.	1	ug/kg	97	96	77-120	0	30
Styrene	5	U	5.	1	ug/kg	97	99	76-120	2	30
Tetrachloroethene	5	U	5.	1	ug/kg	90	91	78-120	1	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	80	80	68-120	0	30
Trichloroethene	5	U	5.	1	ug/kg	96	97	80-125	1	30
1,3,5-Trimethylbenzene	5	U	5.	1	ug/kg	98	100	78-120	1	30
m+p-Xylene	5	U	5.	1	ug/kg	97	96	80-120	1	30
o-Xylene	5	U	5.	1	ug/kg	90	92	80-120	3	30
Batch number: I143232AA	Sample number(s): 7675868,7675872									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	129	102	64-141	23	30
Benzene	0.5	U	0.5	0.1	ug/l	100	98	80-120	2	30
Bromoform	0.5	U	0.5	0.1	ug/l	79	77	72-138	2	30
Ethylbenzene	0.5	U	0.5	0.1	ug/l	102	99	80-120	3	30
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	102	100	80-120	2	30
Methylene Chloride	0.5	U	0.5	0.2	ug/l	103	101	80-120	2	30
Naphthalene	0.5	U	0.5	0.1	ug/l	92	93	72-120	1	30
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	102	98	80-120	4	30
Styrene	0.5	U	0.5	0.1	ug/l	103	100	80-120	3	30
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	101	98	80-120	3	30
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	99	98	80-120	1	30
Trichloroethene	0.5	U	0.5	0.1	ug/l	102	100	80-120	2	30
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	102	99	80-120	4	30
m+p-Xylene	0.5	U	0.5	0.1	ug/l	101	99	80-120	2	30
o-Xylene	0.5	U	0.5	0.1	ug/l	101	99	80-120	2	30
Batch number: Q143221AA	Sample number(s): 7675870									
Acrylonitrile	1,000 U		1,000.	200	ug/kg	86	85	58-123	1	30
Benzene	250 U		250.	25	ug/kg	96	93	80-120	3	30
Bromoform	250 U		250.	50	ug/kg	89	88	70-126	1	30
Ethylbenzene	250 U		250.	50	ug/kg	93	92	80-120	2	30
Isopropylbenzene	250		250.	50	ug/kg	92	91	76-120	1	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1518698
Reported: 11/26/14 at 03:03 PM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methylene Chloride	U 250	250.	100	ug/kg	97	96	80-124	1	30
Naphthalene	U 250	250.	50	ug/kg	73	75	64-120	2	30
n-Propylbenzene	U 250	250.	50	ug/kg	94	93	77-120	1	30
Styrene	U 250	250.	50	ug/kg	94	91	76-120	3	30
Tetrachloroethene	U 250	250.	50	ug/kg	104	97	78-120	7	30
1,2,4-Trichlorobenzene	U 250	250.	50	ug/kg	81	87	68-120	8	30
Trichloroethene	U 250	250.	50	ug/kg	98	94	80-125	4	30
1,3,5-Trimethylbenzene	U 250	250.	50	ug/kg	96	94	78-120	3	30
m+p-Xylene	U 250	250.	50	ug/kg	95	92	80-120	2	30
o-Xylene	U 250	250.	50	ug/kg	96	92	80-120	4	30
Batch number: Q143231AA	Sample number(s): 7675870								
Acrylonitrile	U 1,000	1,000.	200	ug/kg	94	83	58-123	13	30
Benzene	U 250	250.	25	ug/kg	107	94	80-120	13	30
Bromoform	U 250	250.	50	ug/kg	101	89	70-126	12	30
Ethylbenzene	U 250	250.	50	ug/kg	103	90	80-120	13	30
Isopropylbenzene	U 250	250.	50	ug/kg	100	95	76-120	5	30
Methylene Chloride	U 250	250.	100	ug/kg	110	94	80-124	15	30
Naphthalene	U 250	250.	50	ug/kg	84	76	64-120	9	30
n-Propylbenzene	U 250	250.	50	ug/kg	103	98	77-120	5	30
Styrene	U 250	250.	50	ug/kg	105	93	76-120	12	30
Tetrachloroethene	U 250	250.	50	ug/kg	112	98	78-120	13	30
1,2,4-Trichlorobenzene	U 250	250.	50	ug/kg	95	90	68-120	5	30
Trichloroethene	U 250	250.	50	ug/kg	104	95	80-125	9	30
1,3,5-Trimethylbenzene	U 250	250.	50	ug/kg	106	100	78-120	5	30
m+p-Xylene	U 250	250.	50	ug/kg	108	93	80-120	15	30
o-Xylene	U 250	250.	50	ug/kg	107	95	80-120	12	30
Batch number: 14321WAL026	Sample number(s): 7675868								
1,1'-Biphenyl	1 U	1.	0.5	ug/l	86	90	56-134	4	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: 1518698
Reported: 11/26/14 at 03:03 PM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Nitrobenzene	1	U	1.	0.5	ug/l	93	96	77-119	3	30
Pentachlorophenol	5	U	5.	1	ug/l	72	77	60-130	7	30
Batch number: 14321WAM026	Sample number(s): 7675868									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	111	115	79-122	3	30
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	115	117	72-126	2	30
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	117	121	79-136	3	30
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	107	111	42-143	4	30
Dibenzofuran	0.050	U	0.050	0.010	ug/l	105	108	70-130	3	30
Indeno(1,2,3-cd)pyrene	0.013	J	0.050	0.010	ug/l	109	111	53-136	2	30
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	93	95	68-124	3	30
Batch number: 14322SLB026	Sample number(s): 7675870-7675871									
Benzo(a)anthracene	17	U	17.	3	ug/kg	108		76-119		
Benzo(a)pyrene	17	U	17.	3	ug/kg	101		84-122		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	116		78-129		
1,1'-Biphenyl	33	U	33.	17	ug/kg	91		78-111		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	112		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	97		85-115		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	109		76-122		
2-Methylnaphthalene	17	U	17.	3	ug/kg	93		83-109		
Nitrobenzene	33	U	33.	17	ug/kg	101		80-115		
Pentachlorophenol	170	U	170.	33	ug/kg	92		46-133		
Batch number: 14324WAF026	Sample number(s): 7675868									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	86	88	56-134	3	30
Nitrobenzene	1	U	1.	0.5	ug/l	92	97	77-119	6	30
Pentachlorophenol	5	U	5.	1	ug/l	89	77	60-130	14	30
Batch number: 143215713001	Sample number(s): 7675868-7675869									
Mercury	0.00020	U	0.00020	0.00006	mg/l	85		80-120		
				0						
Batch number: 143216050003A	Sample number(s): 7675868-7675869									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	108		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	101		80-120		
Batch number: 143216050003B	Sample number(s): 7675868-7675869									
Selenium	0.0020	U	0.0020	0.00050	mg/l	105		80-120		
Batch number: 14324820001A	Sample number(s): 7675870-7675871									
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: B143221AA	Sample number(s): 7675871 UNSPK: 7675871 BKG: P677613								
Acrylonitrile	91		48-139						

*- 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: 1518698
Reported: 11/26/14 at 03:03 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
Benzene	104		55-143			5	U	5	U	0 (1)	30
Bromoform	88		50-144			5	U	5	U	0 (1)	30
Ethylbenzene	-272 (2)		44-141			5	U	5	U	0 (1)	30
Isopropylbenzene	51		38-144			5	U	5	U	0 (1)	30
Methylene Chloride	111		60-149			5	U	5	U	0 (1)	30
Naphthalene	54		10-138								
n-Propylbenzene	74		39-157								
Styrene	-29 (2)		35-134			5	U	5	U	0 (1)	30
Tetrachloroethene	93		42-149			5	U	5	U	0 (1)	30
1,2,4-Trichlorobenzene	48		10-136			5	U	5	U	0 (1)	30
Trichloroethene	105		53-144			5	U	5	U	0 (1)	30
1,3,5-Trimethylbenzene	100		38-150								
m+p-Xylene	98		44-137			5	U	5	U	0 (1)	30
o-Xylene	90		42-137			5	U	5	U	0 (1)	30
Batch number: Q143231AA	Sample number(s): 7675870 BKG: P673751										
Acrylonitrile						1,100 U		1,100 U		0 (1)	30
Benzene						270	U	270	U	0 (1)	30
Bromoform						270	U	270	U	0 (1)	30
Ethylbenzene						270	U	270	U	0 (1)	30
Methylene Chloride						270	U	270	U	0 (1)	30
Styrene						270	U	270	U	0 (1)	30
Tetrachloroethene						270	U	270	U	0 (1)	30
Trichloroethene						270	U	270	U	0 (1)	30
m+p-Xylene						270	U	270	U	0 (1)	30
o-Xylene						270	U	270	U	0 (1)	30
Batch number: 14322SLB026	Sample number(s): 7675870-7675871 UNSPK: P672472										
Benzo(a)anthracene	87	100	32-150	13	30						
Benzo(a)pyrene	85	97	36-151	12	30						
Benzo(b)fluoranthene	88	96	29-150	8	30						
1,1'-Biphenyl	78	86	57-123	9	30						
Dibenz(a,h)anthracene	97	107	54-142	10	30						
Dibenzofuran	79	96	46-137	19	30						
Indeno(1,2,3-cd)pyrene	88	100	44-147	12	30						
2-Methylnaphthalene	80	88	39-140	10	30						
Nitrobenzene	85	90	41-141	6	30						
Pentachlorophenol	62	74	23-145	17	30						
Batch number: 143215713001	Sample number(s): 7675868-7675869 UNSPK: 7675868 BKG: 7675868										
Mercury	96	97	75-125	1	20	0.00015 J		0.00012 J		22* (1)	20
Batch number: 143216050003A	Sample number(s): 7675868-7675869 UNSPK: P677636 BKG: P677636										
Arsenic	102	106	75-125	3	20	0.0030		0.0029		4 (1)	20
Chromium	104	103	75-125	1	20	0.0020 U		0.0020 U		0 (1)	20
Batch number: 143216050003B	Sample number(s): 7675868-7675869 UNSPK: P677636 BKG: P677636										
Selenium	100	98	75-125	2	20	0.0020 U		0.0020 U		0 (1)	20
Batch number: 14324820001A	Sample number(s): 7675870-7675871 BKG: P675955										

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1518698
Reported: 11/26/14 at 03:03 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
Moisture						45.8	45.1	2	5

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: VOCs- Solid by 8260B
Batch number: B143221AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7675871	113	108	97	118
Blank	103	100	101	98
DUP	110	105	105	86
LCS	102	106	103	112
LCSD	102	103	103	109
MS	105	104	102	110
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- 25ml Water by 8260B
Batch number: I143232AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7675868	100	105	98	98
7675872	100	107	98	97
Blank	99	105	98	95
LCS	100	101	99	97
LCSD	100	103	100	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: VOCs- Solid by 8260B
Batch number: Q143221AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7675870	75	87	91	92
Blank	98	101	99	95
LCS	94	97	97	94
LCSD	91	92	92	89
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: Q143231AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7675870 DL	51	0*	83	138*
Blank	92	97	94	87
DUP	83	89	80	86
LCS	102	99	107	100
LCSD	91	90	94	94
Limits:	50-141	54-135	52-141	50-131

*- Outside of specification
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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: 1518698
Reported: 11/26/14 at 03:03 PM

Surrogate Quality Control

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14321WAL026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7675868	2*	1*	1*	79	79	71
Blank	69	53	81	79	84	103
LCS	74	57	85	85	87	102
LCSD	74	57	90	87	87	102
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14321WAM026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7675868	101	37	83
Blank	110	123	85
LCS	113	130	90
LCSD	114	133	92
Limits:	56-134	36-156	59-132

Analysis Name: TCL 8270 (microwave)
Batch number: 14322SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7675870	85	92	102	92	85	106
7675870 DL	85	88	85	94	87	104
7675871	93	100	97	97	88	106
Blank	88	94	100	95	92	111
LCS	95	100	104	98	93	107
MS	87	90	92	85	84	99
MSD	90	91	99	90	87	101
Limits:	44-129	40-141	36-142	54-123	63-124	61-142

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14324WAF026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7675868 RE	9*	24	6*	94	82	59
Blank	66	52	93	101	93	110
LCS	75	60	92	91	90	98
LCSD	70	57	83	96	87	73
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
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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.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1518698 Sample # 7675868-72
Instructions on reverse side correspond with circled numbers.

359792

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

4 Matrix: Sediment ☐ Soil ☑ Ground ☑ Surface ☐ Potable ☐ NPDES ☐ Water ☑ Other: ____

5 Analysis Requested — Preservation Codes

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	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	VOC's	SVOC's	metals (see SOW)	metals (see SOW) Filtered	6 Remarks (depths)
A24-GW02-25.29-111314	11/13/14	1025	✓		7	3	2	~~2~~	1	* 25-29'
A24-SB03-13.14-111314	11/13/14	1405	✓		4	3	1			13-13.5'
A24-SB03-25.26-111314	11/13/14	1440	✓		4	3	1			25-26'
~~A24-GW03-25.29-111314~~ DK	~~11/13/14~~	~~1515~~	~~✓~~		~~7~~	~~3~~	~~2~~	~~1~~	~~1~~ DK	DK ~~25-29'~~
111314TB	11/13/14	1600	✓		2	2				trip blank

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	11/13/14	1700			
			[signature]	11.14.14	845

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx X Other ____

Temperature upon receipt 2.1 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

November 26, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/15/2014
Group Number: 1518971
SDG: DHR21
PO Number: 10381-7-101541
Release Number: DHR21
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
A24-GW03-2529-111414 Grab Groundwater	7677863
A24-GW03-2529-111414 Grab Groundwater Filtered	7677864
A24-GW04-2529-111414 Grab Groundwater	7677865
A24-GW04-2529-111414 Grab Groundwater Filtered	7677866
111414TB Water	7677867

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: A24-GW03-2529-111414 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7677863
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 08:35 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G03-T SDG#: DHR21-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.051	U	0.051	0.010	1
10137	Benzo(a)pyrene	50-32-8	0.051	U	0.051	0.010	1
10137	Benzo(b)fluoranthene	205-99-2	0.014	J	0.051	0.010	1
10137	Dibenz(a,h)anthracene	53-70-3	0.051	U	0.051	0.010	1
10137	Dibenzofuran	132-64-9	0.022	J	0.051	0.010	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.051	U	0.051	0.010	1
10137	2-Methylnaphthalene	91-57-6	0.015	J	0.051	0.010	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0223		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.188		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0011	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00012	J	0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW03-2529-111414 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7677863
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 08:35 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G03-T SDG#: DHR21-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 15:36	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 15:36	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14321WAL026	11/18/2014 20:26	Holly Berry	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14324WAF026	11/22/2014 12:40	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14321WAM026	11/25/2014 09:42	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14321WAL026	11/17/2014 15:30	Kelli M Barto	1
00813	BNA Water Extraction	SW-846 3510C	2	14324WAF026	11/21/2014 09:30	Jessica M Velez	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14321WAM026	11/17/2014 15:30	Kelli M Barto	1
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014 18:58	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/19/2014 18:58	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014 18:58	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713002	11/19/2014 07:16	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014 09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713002	11/18/2014 11:33	Micaela L Dishong	1

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Analysis Report

Sample Description: A24-GW03-2529-111414 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7677864
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 08:35 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G03-F SDG#: DHR21-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014 19:00	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/19/2014 19:00	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014 19:00	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713002	11/19/2014 08:05	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014 09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713002	11/18/2014 11:33	Micaela L Dishong	1

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Analysis Report

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Sample Description: A24-GW04-2529-111414 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7677865
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 10:30 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G04-T SDG#: DHR21-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.012	J	0.053	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.053	U	0.053	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.017	J	0.053	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.053	U	0.053	0.011	1
10137	Dibenzofuran	132-64-9	0.053	U	0.053	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.053	U	0.053	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.053	U	0.053	0.011	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.102		0.0020	0.00082	1
06031	Chromium	7440-47-3	3.28		0.0100	0.0025	5
06041	Selenium	7782-49-2	0.0034		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00028		0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW04-2529-111414 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7677865
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 10:30 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G04-T SDG#: DHR21-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014	15:59	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014	15:59	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14324WAF026	11/22/2014	13:08	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14321WAM026	11/25/2014	10:10	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	2	14324WAF026	11/21/2014	09:30	Jessica M Velez	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14321WAM026	11/17/2014	15:30	Kelli M Barto	1
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014	19:02	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/20/2014	11:42	Choon Y Tian	5
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014	19:02	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713002	11/19/2014	08:07	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014	09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713002	11/18/2014	11:33	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW04-2529-111414 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7677866
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 10:30 by DR

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

G04-F SDG#: DHR21-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.00093 J	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.00087 J	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143216050003A	11/19/2014 19:05	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143216050003A	11/19/2014 19:05	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143216050003B	11/19/2014 19:05	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143215713002	11/19/2014 08:09	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143216050003	11/18/2014 09:14	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143215713002	11/18/2014 11:33	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111414TB Water
Dow Hanging Rock, OH

LL Sample # WW 7677867
LL Group # 1518971
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/14/2014 09:00

Submitted: 11/15/2014 09:15
Reported: 11/26/2014 15:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

N14TB SDG#: DHR21-05TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 12:53	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 12:53	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1518971
Reported: 11/26/14 at 03:03 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C143281AA	Sample number(s): 7677863,7677865,7677867									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	109		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	84		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	99		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	91		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	96		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	96		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	100		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	95		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	94		80-120		
Batch number: 14321WAL026	Sample number(s): 7677863									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	86	90	56-134	4	30
Nitrobenzene	1	U	1.	0.5	ug/l	93	96	77-119	3	30
Pentachlorophenol	5	U	5.	1	ug/l	72	77	60-130	7	30
Batch number: 14321WAM026	Sample number(s): 7677863,7677865									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	111	115	79-122	3	30
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	115	117	72-126	2	30
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	117	121	79-136	3	30
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	107	111	42-143	4	30
Dibenzofuran	0.050	U	0.050	0.010	ug/l	105	108	70-130	3	30
Indeno(1,2,3-cd)pyrene	0.013	J	0.050	0.010	ug/l	109	111	53-136	2	30
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	93	95	68-124	3	30
Batch number: 14324WAF026	Sample number(s): 7677863,7677865									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	86	88	56-134	3	30
Nitrobenzene	1	U	1.	0.5	ug/l	92	97	77-119	6	30
Pentachlorophenol	5	U	5.	1	ug/l	89	77	60-130	14	30
Batch number: 143215713002	Sample number(s): 7677863-7677866									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	93		80-120		
Batch number: 143216050003A	Sample number(s): 7677863-7677866									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	108		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	101		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1518971
Reported: 11/26/14 at 03:03 PM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143216050003B	Sample number(s): 7677863-7677866								
Selenium	0.0020 U	0.0020	0.00050	mg/l	105		80-120		

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: C143281AA	Sample number(s): 7677863,7677865,7677867 UNSPK: P679735								
Acrylonitrile	101	103	56-161	2	30				
Benzene	97	97	87-126	1	30				
Bromoform	85	85	60-138	1	30				
Ethylbenzene	100	99	80-140	2	30				
Isopropylbenzene	101	99	81-133	1	30				
Methylene Chloride	97	98	77-135	1	30				
Naphthalene	88	90	56-132	2	30				
n-Propylbenzene	97	96	79-131	1	30				
Styrene	98	98	71-138	1	30				
Tetrachloroethene	103	101	75-129	2	30				
1,2,4-Trichlorobenzene	86	87	77-120	1	30				
Trichloroethene	103	103	85-131	0	30				
1,3,5-Trimethylbenzene	96	95	89-129	0	30				
m+p-Xylene	99	98	81-137	1	30				
o-Xylene	98	97	81-137	1	30				
Batch number: 143215713002	Sample number(s): 7677863-7677866 UNSPK: 7677863 BKG: 7677863								
Mercury	98	98	75-125	1	20	0.00012 J	0.00012 J	4 (1)	20
Batch number: 143216050003A	Sample number(s): 7677863-7677866 UNSPK: P677636 BKG: P677636								
Arsenic	102	106	75-125	3	20	0.0030	0.0029	4 (1)	20
Chromium	104	103	75-125	1	20	0.0020 U	0.0020 U	0 (1)	20
Batch number: 143216050003B	Sample number(s): 7677863-7677866 UNSPK: P677636 BKG: P677636								
Selenium	100	98	75-125	2	20	0.0020 U	0.0020 U	0 (1)	20

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: VOCs- 25ml Water by 8260B
Batch number: C143281AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7677863	102	102	97	97
7677865	102	104	98	98
7677867	102	100	96	95
Blank	101	101	98	96
LCS	102	101	98	98

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1518971
Reported: 11/26/14 at 03:03 PM

Surrogate Quality Control

MS	103	101	98	98
MSD	101	101	98	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14321WAL026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7677863	2*	1*	1*	72	76	64
Blank	69	53	81	79	84	103
LCS	74	57	85	85	87	102
LCSD	74	57	90	87	87	102
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14321WAM026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7677863	103	42	77
7677865	106	31*	83
Blank	110	123	85
LCS	113	130	90
LCSD	114	133	92
Limits:	56-134	36-156	59-132

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14324WAF026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7677863	9*	25	10*	101	93	85
RE						
7677865	17	34	24	101	93	96
Blank	66	52	93	101	93	110
LCS	75	60	92	91	90	98
LCSD	70	57	83	96	87	73
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1518971 Sample # 2677863-67
Instructions on reverse side correspond with circled numbers.

361450

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL Project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#: 163382

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Ground	Surface	Potable	NPDES	Water	Other:	Total # of Containers	VOC's	SVOC's	metals (filtered) see SOW	metals see SOW						6 Remarks
A24-GW03-2529-111414	11/14/14	0835	✓								✓		7	3	2	1	1						depth 25-29'
A24-GW04-2529-111414	11/14/14	1030	✓								✓		7	3	2	1	1						25-29'
111414TB	11/14/14	0900	✓								✓		2	2									trip blank

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@ch2m.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
L Megadko	10/29/14	9:00			
Dee Roberts	11/14/14	1400			
			[illegible]	11-15-14	915

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____

Temperature upon receipt 1.0 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	CH2M Hill, Inc. PO Box 241329 Denver CO 80224

December 02, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/18/2014
Group Number: 1519429
SDG: DHR22
PO Number: 10381-7-101541
Release Number: DHR22
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
A24-GW01-2529-111714 Grab Groundwater	7679733
VP08-GW-2529-111714 Grab Groundwater	7679735
VP08-GW-2529-111714MS Grab Groundwater	7679736
VP08-GW-2529-111714MSD Grab Groundwater	7679737
VP08-GW-2529-111714DUP Grab Groundwater	7679738
VP08-GW-4549-111714 Grab Groundwater	7679743
111714TB Water	7679745

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: A24-GW01-2529-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679733
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 10:45 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA24 SDG#: DHR22-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.1	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.013	J	0.053	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.053	U	0.053	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.019	J	0.053	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.053	U	0.053	0.011	1
10137	Dibenzofuran	132-64-9	0.032	J	0.053	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.053	U	0.053	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.034	J	0.053	0.011	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0469		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.385		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0023		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00019	J	0.00020	0.000060	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: A24-GW01-2529-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679733
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 10:45 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA24 SDG#: DHR22-01

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 16:21	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 16:21	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014 11:36	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14325WAJ026	11/23/2014 23:34	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 09:11	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014 20:30	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014 10:08	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014 10:08	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014 10:08	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014 07:58	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014 15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679735
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.3		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.012	J	0.054	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.054	U	0.054	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.020	J	0.054	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.054	U	0.054	0.011	1
10137	Dibenzofuran	132-64-9	0.015	J	0.054	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.054	U	0.054	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.015	J	0.054	0.011	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0897		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.301		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0099		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020		0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679735
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014	14:05	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014	14:05	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014	12:03	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014	07:48	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014	20:30	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014	16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014	09:52	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014	09:52	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014	09:52	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014	07:39	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014	15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014	11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714MS Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679736
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	25	5.0	1.0	1
02898	Benzene	71-43-2	4.8	0.5	0.1	1
02898	Bromoform	75-25-2	4.3	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.0	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	5.0	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.9	0.5	0.2	1
02898	Naphthalene	91-20-3	4.4	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	4.9	0.5	0.1	1
02898	Styrene	100-42-5	4.9	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.4	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	4.3	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.3	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	4.8	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	9.9	0.5	0.1	1
02898	o-Xylene	95-47-6	4.9	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	39	1	0.5	1
04678	Nitrobenzene	98-95-3	44	1	0.5	1
04678	Pentachlorophenol	87-86-5	29	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.93	0.057	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.46	0.057	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.74	0.057	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.49	0.057	0.011	1
10137	Dibenzofuran	132-64-9	1.1	0.057	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.45	0.057	0.011	1
10137	2-Methylnaphthalene	91-57-6	1.1	0.057	0.011	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0915	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.341	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0184	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0012	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714MS Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679736
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 14:28	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 14:28	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 00:33	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 08:16	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014 09:59	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014 09:59	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014 09:59	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014 07:47	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014 15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014 11:36	Micaela L Dishong	1

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Analysis Report

Sample Description: VP08-GW-2529-111714MSD Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679737
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	26	5.0	1.0	1
02898	Benzene	71-43-2	4.9	0.5	0.1	1
02898	Bromoform	75-25-2	4.2	0.5	0.1	1
02898	Ethylbenzene	100-41-4	4.9	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	5.0	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.9	0.5	0.2	1
02898	Naphthalene	91-20-3	4.5	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	4.8	0.5	0.1	1
02898	Styrene	100-42-5	4.9	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.3	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	4.3	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.3	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	4.8	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	9.8	0.5	0.1	1
02898	o-Xylene	95-47-6	4.8	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**	**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	44	1	0.5	1
04678	Nitrobenzene	98-95-3	51	1	0.5	1
04678	Pentachlorophenol	87-86-5	30	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.99	0.058	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.50	0.058	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	0.81	0.058	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	0.57	0.058	0.012	1
10137	Dibenzofuran	132-64-9	1.1	0.058	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.52	0.058	0.012	1
10137	2-Methylnaphthalene	91-57-6	1.1	0.058	0.012	1
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.100	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.347	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0186	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.0012	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714MSD Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679737
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014	14:51	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014	14:51	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014	01:02	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014	08:43	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014	16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014	16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014	10:01	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014	10:01	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014	10:01	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014	07:50	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014	15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014	11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714DUP Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679738
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA08 SDG#: DHR22-03DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0952	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.292	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.010	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00021	0.00020	0.000060	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
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014 09:57	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014 09:57	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014 09:57	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014 07:45	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014 15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-4549-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679743
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 15:15 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA49 SDG#: DHR22-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.3	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.053	U	0.053	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.053	U	0.053	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.053	U	0.053	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.053	U	0.053	0.011	1
10137	Dibenzofuran	132-64-9	0.053	U	0.053	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.053	U	0.053	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.053	U	0.053	0.011	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.124		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.568		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0063		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00029		0.00020	0.000060	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-4549-111714 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679743
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 15:15 by DR

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHA49 SDG#: DHR22-05

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 16:44	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 16:44	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014 12:29	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14325WAJ026	11/24/2014 01:31	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 09:38	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014 20:30	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143246050001A	11/21/2014 10:16	Choon Y Tian	1
06031	Chromium	SW-846 6020	1	143246050001A	11/21/2014 10:16	Choon Y Tian	1
06041	Selenium	SW-846 6020	1	143246050001B	11/21/2014 10:16	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	143245713001	11/24/2014 08:00	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143246050001	11/20/2014 15:16	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713001	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111714TB Water
Dow Hanging Rock, OH

LL Sample # WW 7679745
LL Group # 1519429
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 15:00

Submitted: 11/18/2014 10:10
Reported: 12/02/2014 11:35

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

CHATB SDG#: DHR22-07TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 13:20	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 13:20	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1519429
Reported: 12/02/14 at 11:35 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C143281AA	Sample number(s): 7679733,7679735-7679737,7679743,7679745									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	109		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	84		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	99		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	91		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	96		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	96		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	100		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	95		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	94		80-120		
Batch number: 14325WAJ026	Sample number(s): 7679733,7679736-7679737,7679743									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	87		56-134		
Nitrobenzene	1	U	1.	0.5	ug/l	95		77-119		
Pentachlorophenol	5	U	5.	1	ug/l	80		60-130		
Batch number: 14325WAK026	Sample number(s): 7679733,7679735-7679737,7679743									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	114		79-122		
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	115		72-126		
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	118		79-136		
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	111		42-143		
Dibenzofuran	0.050	U	0.050	0.010	ug/l	105		70-130		
Indeno(1,2,3-cd)pyrene	0.050	U	0.050	0.010	ug/l	111		53-136		
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	106		68-124		
Batch number: 14328WAJ026	Sample number(s): 7679733,7679735,7679743									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	92	88	56-134	4	30
Nitrobenzene	1	U	1.	0.5	ug/l	101	97	77-119	3	30
Pentachlorophenol	5	U	5.	1	ug/l	87	89	60-130	2	30
Batch number: 143245713001	Sample number(s): 7679733,7679735-7679738,7679743									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	94		80-120		
Batch number: 143246050001A	Sample number(s): 7679733,7679735-7679738,7679743									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	99		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	99		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1519429
Reported: 12/02/14 at 11:35 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143246050001B	Sample number(s): 7679733,7679735-7679738,7679743								
Selenium	0.0020 U	0.0020	0.00050	mg/l	104		80-120		

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: C143281AA	Sample number(s): 7679733,7679735-7679737,7679743,7679745 UNSPK: 7679735								
Acrylonitrile	101	103	56-161	2	30				
Benzene	97	97	87-126	1	30				
Bromoform	85	85	60-138	1	30				
Ethylbenzene	100	99	80-140	2	30				
Isopropylbenzene	101	99	81-133	1	30				
Methylene Chloride	97	98	77-135	1	30				
Naphthalene	88	90	56-132	2	30				
n-Propylbenzene	97	96	79-131	1	30				
Styrene	98	98	71-138	1	30				
Tetrachloroethene	103	101	75-129	2	30				
1,2,4-Trichlorobenzene	86	87	77-120	1	30				
Trichloroethene	103	103	85-131	0	30				
1,3,5-Trimethylbenzene	96	95	89-129	0	30				
m+p-Xylene	99	98	81-137	1	30				
o-Xylene	98	97	81-137	1	30				
Batch number: 14325WAJ026	Sample number(s): 7679733,7679736-7679737,7679743 UNSPK: P679735								
1,1'-Biphenyl	75	83	73-114	11	30				
Nitrobenzene	83	97	69-127	16	30				
Pentachlorophenol	55	56	23-133	2	30				
Batch number: 14325WAK026	Sample number(s): 7679733,7679735-7679737,7679743 UNSPK: 7679735								
Benzo(a)anthracene	81	85	37-135	6	30				
Benzo(a)pyrene	40	44	32-137	10	30				
Benzo(b)fluoranthene	64	69	41-137	9	30				
Dibenz(a,h)anthracene	43	50	17-134	16	30				
Dibenzofuran	94	94	70-130	2	30				
Indeno(1,2,3-cd)pyrene	39	45	26-130	15	30				
2-Methylnaphthalene	96	94	64-129	0	30				
Batch number: 143245713001	Sample number(s): 7679733,7679735-7679738,7679743 UNSPK: 7679735 BKG: 7679735								
Mercury	95	98	75-125	3	20	0.00020	0.00021	5 (1)	20
Batch number: 143246050001A	Sample number(s): 7679733,7679735-7679738,7679743 UNSPK: 7679735 BKG: 7679735								
Arsenic	18 (2)	107 (2)	75-125	9	20	0.0897	0.0952	6	20
Chromium	81 (2)	92 (2)	75-125	2	20	0.301	0.292	3	20
Batch number: 143246050001B	Sample number(s): 7679733,7679735-7679738,7679743 UNSPK: 7679735 BKG: 7679735								
Selenium	84	86	75-125	1	20	0.0099	0.010	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1519429
Reported: 12/02/14 at 11:35 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: VOCs- 25ml Water by 8260B
Batch number: C143281AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7679733	102	101	97	97
7679735	102	103	97	96
7679736	103	101	98	98
7679737	101	101	98	99
7679743	103	103	97	96
7679745	102	102	97	96
Blank	101	101	98	96
LCS	102	101	98	98
MS	103	101	98	98
MSD	101	101	98	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14325WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7679733	5*	12	7*	85	76	57
RE						
7679736	24	21	29	80	71	67
7679737	31	30	35	94	80	62
7679743	8*	7*	41	82	74	79
RE						
Blank	43	27	70	73	72	84
LCS	54	36	79	85	81	91
MS	24	21	29	80	71	67
MSD	31	30	35	94	80	62
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14325WAK026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7679733	95	8*	87
7679735	100	15*	88
7679736	97	45	95
7679737	100	50	93
7679743	104	20*	88
Blank	116	127	100
LCS	110	124	105
MS	97	45	95
MSD	100	50	93
Limits:	56-134	36-156	59-132

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14328WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7679733	7*	19	11*	90	91	76
7679735	19	16	38	90	88	75
7679743	7*	9*	33	92	90	97

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1519429
Reported: 12/02/14 at 11:35 AM

Surrogate Quality Control

Blank	52	34	98	98	98	105
LCS	53	36	98	93	94	102
LCSD	54	37	96	91	91	101
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 151409 Sample # 14-9733-745
Instructions on reverse side correspond with circled numbers.

361447

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
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	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Ground Water	Surface Water	Potable Water	NPDES Water	Other:	Total # of Containers	VOC's	SVOC's	metals filtered (see SOW)	metals unfiltered (see SOW)	6 Remarks (depth)
A24-GW01-2529-111714	11/17/14	1045	✓				✓					7	3	2	1	1	25-29
VP08-GW-2529-111714	11/17/14	1425	✓				✓					7	3	2	1	1	25-29
VP08-GW-2529-111714 MS	11/17/14	1425	✓				✓					7	3	2	1	1	25-29 matrix spike
VP08-GW-2529-111714 MSD	11/17/14	1425	✓				✓					7	3	2	1	1	25-29 matrix spike dup.
VP08-GW-~~2529~~ 4549-111714	11/17/14	1515	✓				✓					7	3	2	1	1	45-49
111714TB	11/17/14	1500	✓				✓					2	2				trip blank

7 Turnaround ~~Time~~ (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Dee A Roberts	11/17/14	1700			
			[illegible]	11/18/14	1010

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____

Temperature upon receipt 1.6 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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.

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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	CH2M Hill, Inc. PO Box 241329 Denver CO 80224

December 01, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/18/2014
Group Number: 1519468
SDG: DHR23
PO Number: 10381-7-101541
Release Number: DHR23
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
A24-GW01-2529-111714 Filtered Grab Groundwater	7679952
VP08-GW-2529-111714 Filtered Grab Groundwater	7679953
VP08-GW-2529-111714 MS Filtered Grab Groundwater	7679954
VP08-GW-2529-111714 MSD Filtered Grab Groundwater	7679955
VP08-GW-2529-111714 DUP Filtered Grab Groundwater	7679956
VP08-GW-4549-111714 Filtered Grab Groundwater	7679957

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: A24-GW01-2529-111714 Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679952
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 10:45 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

A24-- SDG#: DHR23-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0089	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.00056 J	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:09	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:09	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:09	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143285713004	11/26/2014 09:08	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143285713004	11/25/2014 11:34	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679953
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

VP8-- SDG#: DHR23-02BKG

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0040	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0080	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 16:55	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 16:55	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 16:55	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 08:43	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 MS Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679954
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

VP8-- SDG#: DHR23-02MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0138	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0721	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0184	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00093	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:02	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:02	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:02	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 08:47	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 MSD Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679955
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

VP8-- SDG#: DHR23-02MSD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0118	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0527	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0186	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00086	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:04	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:04	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:04	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 08:49	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-2529-111714 DUP Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679956
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 14:25 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

VP8-- SDG#: DHR23-02DUP

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.00096 J	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0038	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0085	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:00	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:00	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:00	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 08:45	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-4549-111714 Filtered Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7679957
LL Group # 1519468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/17/2014 15:15 by DR

Submitted: 11/18/2014 10:10
Reported: 12/01/2014 10:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

VP845 SDG#: DHR23-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0086	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0200	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:12	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:12	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:12	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 08:51	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1519468
Reported: 12/01/14 at 10:50 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143245713002	Sample number(s): 7679953-7679957								
Mercury	0.00020 U	0.00020	0.00006 0	mg/l	89		80-120		
Batch number: 143256050011A	Sample number(s): 7679952-7679957								
Arsenic	0.0020 U	0.0020	0.00082	mg/l	112		80-120		
Chromium	0.0020 U	0.0020	0.00050	mg/l	102		80-120		
Batch number: 143256050011B	Sample number(s): 7679952-7679957								
Selenium	0.0020 U	0.0020	0.00050	mg/l	103		80-120		
Batch number: 143285713004	Sample number(s): 7679952								
Mercury	0.00020 U	0.00020	0.00006 0	mg/l	85		80-120		

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: 143245713002	Sample number(s): 7679953-7679957 UNSPK: 7679953 BKG: 7679953								
Mercury	93	86	75-125	8	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 143256050011A	Sample number(s): 7679952-7679957 UNSPK: 7679953 BKG: 7679953								
Arsenic	138*	118	75-125	15	20	0.0020 U	0.00096 J	200* (1)	20
Chromium	136*	97	75-125	31*	20	0.0040	0.0038	4 (1)	20
Batch number: 143256050011B	Sample number(s): 7679952-7679957 UNSPK: 7679953 BKG: 7679953								
Selenium	104	106	75-125	1	20	0.0080	0.0085	5 (1)	20
Batch number: 143285713004	Sample number(s): 7679952 UNSPK: P683986 BKG: P683986								
Mercury	84	83	75-125	2	20	0.00020 U	0.00020 U	0 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # ~~1519468~~ 1519468 Sample # ~~L0A783-745~~ 767952-57 OMC 11/18/14

Instructions on reverse side correspond with circled numbers.

③ 361447

For Lab Use Only
FSC:
SCR#:

① Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

④ Matrix

Sediment ☐ Soil ☐ Ground ☑ Surface ☐ Potable ☐ NPDES ☐ Water ☑ Other: ____

⑤ Analysis Requested / Preservation Codes

② Sample Identification / ③ Collected

Sample Identification	Date	Time	Grab	Composite	Total # of Containers	VOC's	SVOC's	metals filtered (see below)	metals unfiltered (see below)	Remarks (depth)
A24-GW01-2529-111714	11/17/14	1045	✓		7	3	2	1	1	25-29
VP08-GW-2529-111714	11/17/14	1425	✓		7	3	2	1	1	25-29
VP08-GW-2529-111714 MS	11/17/14	1425	✓		7	3	2	1	1	25-29 matrix spike
VP08-GW-2529-111714 MSD	11/17/14	1425	✓		7	3	2	1	1	25-29 matrix spike dup
VP08-GW-~~2529~~ 4549-111714	11/17/14	1515	✓		7	3	2	1	1	45-49
111714TB	11/17/14	1500	✓		2	2				trip blank

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

⑥ Remarks

⑦ Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

⑧ Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

⑨

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	11/17/14	1700			
			[illegible]	11/18/14	1010

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.6 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 03, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/19/2014
Group Number: 1519627
SDG: DHR24
PO Number: 10381-7-101541
Release Number: DHR24
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
VP08-GW-6569-111814 Grab Groundwater	7680736
111814TB Water	7680737
VP08-GW-7175-111814 Grab Groundwater	7680738
VP09-GW-2529-111814 Grab Groundwater	7680739

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: VP08-GW-6569-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680736
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 11:05 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V8-65 SDG#: DHR24-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.046	J	0.057	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.055	J	0.057	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.085		0.057	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.012	J	0.057	0.011	1
10137	Dibenzofuran	132-64-9	0.11		0.057	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.046	J	0.057	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.34		0.057	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.202		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.807		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0088		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00016	J	0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-6569-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680736
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 11:05 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V8-65 SDG#: DHR24-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 12:08	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 12:08	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014 12:56	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 10:06	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014 20:30	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:19	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	11/25/2014 17:19	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:19	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 09:01	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111814TB Water
Dow Hanging Rock, OH

LL Sample # WW 7680737
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 11:00

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

TBN18 SDG#: DHR24-02TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 13:43	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 13:43	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-7175-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680738
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 12:05 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V8-71 SDG#: DHR24-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.055	U	0.055	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.055	U	0.055	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.015	J	0.055	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.055	U	0.055	0.011	1
10137	Dibenzofuran	132-64-9	0.055	U	0.055	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.055	U	0.055	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.035	J	0.055	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.359		0.0020	0.00082	1
06031	Chromium	7440-47-3	1.21		0.0100	0.0025	5
06041	Selenium	7782-49-2	0.0137		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00025		0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP08-GW-7175-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680738
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 12:05 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V8-71 SDG#: DHR24-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 12:31	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 12:31	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 04:37	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 10:34	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:21	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	12/02/2014 00:38	Tara L Snyder	5
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:21	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 09:03	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP09-GW-2529-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680739
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 15:30 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V9-25 SDG#: DHR24-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.7		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.1	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.051	U	0.051	0.010	1
10137	Benzo(a)pyrene	50-32-8	0.051	U	0.051	0.010	1
10137	Benzo(b)fluoranthene	205-99-2	0.051	U	0.051	0.010	1
10137	Dibenz(a,h)anthracene	53-70-3	0.051	U	0.051	0.010	1
10137	Dibenzofuran	132-64-9	0.013	J	0.051	0.010	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.051	U	0.051	0.010	1
10137	2-Methylnaphthalene	91-57-6	0.011	J	0.051	0.010	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.

Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.170		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.628		0.0100	0.0025	5
06041	Selenium	7782-49-2	0.0055		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00030		0.00020	0.000060	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP09-GW-2529-111814 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7680739
LL Group # 1519627
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/18/2014 15:30 by DR

Submitted: 11/19/2014 08:45
Reported: 12/03/2014 08:55

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

V9-25 SDG#: DHR24-04

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143281AA	11/24/2014 17:07	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143281AA	11/24/2014 17:07	Kerri E Legerlotz	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014 13:23	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14325WAJ026	11/24/2014 05:36	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 11:01	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014 20:30	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050011A	11/25/2014 17:23	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050011A	12/02/2014 00:39	Tara L Snyder	5
06041	Selenium	SW-846 6020	1	143256050011B	11/25/2014 17:23	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143245713002	11/24/2014 09:05	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050011	11/22/2014 07:59	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143245713002	11/21/2014 11:36	Micaela L Dishong	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1519627
Reported: 12/03/14 at 08:55 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C143281AA	Sample number(s): 7680736-7680739									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	109		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	84		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	99		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	91		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	96		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	96		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	100		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	95		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	94		80-120		
Batch number: 14325WAJ026	Sample number(s): 7680738-7680739									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	87		56-134		
Nitrobenzene	1	U	1.	0.5	ug/l	95		77-119		
Pentachlorophenol	5	U	5.	1	ug/l	80		60-130		
Batch number: 14325WAK026	Sample number(s): 7680736,7680738-7680739									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	114		79-122		
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	115		72-126		
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	118		79-136		
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	111		42-143		
Dibenzofuran	0.050	U	0.050	0.010	ug/l	105		70-130		
Indeno(1,2,3-cd)pyrene	0.050	U	0.050	0.010	ug/l	111		53-136		
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	106		68-124		
Batch number: 14328WAJ026	Sample number(s): 7680736,7680739									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	92	88	56-134	4	30
Nitrobenzene	1	U	1.	0.5	ug/l	101	97	77-119	3	30
Pentachlorophenol	5	U	5.	1	ug/l	87	89	60-130	2	30
Batch number: 143245713002	Sample number(s): 7680736,7680738-7680739									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	89		80-120		
Batch number: 143256050011A	Sample number(s): 7680736,7680738-7680739									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	112		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	102		80-120		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1519627
Reported: 12/03/14 at 08:55 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143256050011B	Sample number(s): 7680736,7680738-7680739								
Selenium	0.0020 U	0.0020	0.00050	mg/l	103		80-120		

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: C143281AA	Sample number(s): 7680736-7680739 UNSPK: P679735								
Acrylonitrile	101	103	56-161	2	30				
Benzene	97	97	87-126	1	30				
Bromoform	85	85	60-138	1	30				
Ethylbenzene	100	99	80-140	2	30				
Isopropylbenzene	101	99	81-133	1	30				
Methylene Chloride	97	98	77-135	1	30				
Naphthalene	88	90	56-132	2	30				
n-Propylbenzene	97	96	79-131	1	30				
Styrene	98	98	71-138	1	30				
Tetrachloroethene	103	101	75-129	2	30				
1,2,4-Trichlorobenzene	86	87	77-120	1	30				
Trichloroethene	103	103	85-131	0	30				
1,3,5-Trimethylbenzene	96	95	89-129	0	30				
m+p-Xylene	99	98	81-137	1	30				
o-Xylene	98	97	81-137	1	30				
Batch number: 14325WAJ026	Sample number(s): 7680738-7680739 UNSPK: P679735								
1,1'-Biphenyl	75	83	73-114	11	30				
Nitrobenzene	83	97	69-127	16	30				
Pentachlorophenol	55	56	23-133	2	30				
Batch number: 14325WAK026	Sample number(s): 7680736,7680738-7680739 UNSPK: P679735								
Benzo(a)anthracene	81	85	37-135	6	30				
Benzo(a)pyrene	40	44	32-137	10	30				
Benzo(b)fluoranthene	64	69	41-137	9	30				
Dibenz(a,h)anthracene	43	50	17-134	16	30				
Dibenzofuran	94	94	70-130	2	30				
Indeno(1,2,3-cd)pyrene	39	45	26-130	15	30				
2-Methylnaphthalene	96	94	64-129	0	30				
Batch number: 143245713002	Sample number(s): 7680736,7680738-7680739 UNSPK: P679953 BKG: P679953								
Mercury	93	86	75-125	8	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 143256050011A	Sample number(s): 7680736,7680738-7680739 UNSPK: P679953 BKG: P679953								
Arsenic	138*	118	75-125	15	20	0.0020 U	0.00096 J	200* (1)	20
Chromium	136*	97	75-125	31*	20	0.0040	0.0038	4 (1)	20
Batch number: 143256050011B	Sample number(s): 7680736,7680738-7680739 UNSPK: P679953 BKG: P679953								
Selenium	104	106	75-125	1	20	0.0080	0.0085	5 (1)	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1519627
Reported: 12/03/14 at 08:55 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: VOCs- 25ml Water by 8260B
Batch number: C143281AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7680736	102	102	97	96
7680737	103	101	97	95
7680738	102	101	97	96
7680739	102	102	96	95
Blank	101	101	98	96
LCS	102	101	98	98
MS	103	101	98	98
MSD	101	101	98	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14325WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7680738	38	28	61	81	72	79
7680739	9*	16	8*	84	72	56
RE						
Blank	43	27	70	73	72	84
LCS	54	36	79	85	81	91
MS	24	21	29	80	71	67
MSD	31	30	35	94	80	62
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14325WAK026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7680736	83	57	75
7680738	106	80	94
7680739	78	2*	78
Blank	116	127	100
LCS	110	124	105
MS	97	45	95
MSD	100	50	93
Limits:	56-134	36-156	59-132

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14328WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7680736	10	12	55	92	93	82
7680739	5*	12	15*	91	90	94
Blank	52	34	98	98	98	105
LCS	53	36	98	93	94	102
LCSD	54	37	96	91	91	101
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1519627 Sample # 7680736-39
Instructions on reverse side correspond with circled numbers.

361453

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

4 Matrix: Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: ____

5 Analysis Requested — Preservation Codes

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	Collected Date	Collected Time	3 Grab	Composite	Soil	Sediment	Potable	Ground	NPDES	Surface	Other	Total # of Containers	VOC's	SVOC's	metals (filtered) see SOW	metals (unfiltered) see SOW	6 Remarks (depth)
VP08-GW-6569-111814	11/18/14	1105	✓					✓				7	3	2	1	1	65-69' VOC's no preservative
111814TB	11/18/14	1100	✓					✓				2	2				trip blank
VP08-GW-7175-111814	11/18/14	1205	✓					✓				7	3	2	1	1	71-75' VOC's no preservative
VP09-GW-2529-111814	11/18/14	1530	✓					✓				7	3	2	1	1	25-29' VOC's no preservative

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	11/18/14	1700			
			[signature]	11-19-14	8:45

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.7 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 03, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/20/2014
Group Number: 1520050
SDG: DHR26
PO Number: 10381-7-101541
Release Number: DHR26
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
HGR-111914-EB01 Grab Water	7682827
HGR-111914-FD01 Grab Groundwater	7682829
HGR-111914-FD01 Grab Groundwater Filtered	7682830
VP09-GW-4549-111914 Grab Groundwater	7682831
VP09-GW-4549-111914 Grab Groundwater Filtered	7682832
VP09-GW-6569-111914 Grab Groundwater	7682833
VP09-GW-6569-111914 Grab Groundwater Filtered	7682834
111914TB Water	7682835
VP09-GW-7175-111914 Grab Groundwater	7682836
VP09-GW-7175-111914 Grab Groundwater Filtered	7682837
VP10-GW-7680-111914 Grab Groundwater	7682838
VP10-GW-7680-111914 Grab Groundwater Filtered	7682839
VP10-GW-6569-111914 Grab Groundwater	7682840
VP10-GW-6569-111914 Grab Groundwater Filtered	7682841
VP10-GW-4549-111914 Grab Groundwater	7682842
VP10-GW-4549-111914 Grab Groundwater Filtered	7682843

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: HGR-111914-EB01 Grab Water
Dow Hanging Rock, OH

LL Sample # WW 7682827
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 08:20 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE1 SDG#: DHR26-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.017	J	0.057	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.018	J	0.057	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.031	J	0.057	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.057	U	0.057	0.011	1
10137	Dibenzofuran	132-64-9	0.057	U	0.057	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.016	J	0.057	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.019	J	0.057	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0058		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0330		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020	U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: HGR-111914-EB01 Grab Water
Dow Hanging Rock, OH

LL Sample # WW 7682827
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 08:20 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE1 SDG#: DHR26-01EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/24/2014 23:12	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/24/2014 23:12	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 06:05	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14329WAE026	11/26/2014 02:12	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 11:29	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14329WAE026	11/25/2014 16:40	JoElla L Rice	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:26	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:26	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:25	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 06:49	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-111914-FD01 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682829
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD1 SDG#: DHR26-02FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.056	U	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.056	U	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.056	U	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.056	U	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.014	J	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.056	U	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.036	J	0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.165		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.560		0.0040	0.0010	2
06041	Selenium	7782-49-2	0.0214		0.0040	0.0010	2
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00060		0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-111914-FD01 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682829
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD1 SDG#: DHR26-02FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014 00:21	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014 00:21	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 06:34	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 11:56	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:28	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/30/2014 14:42	Deborah A Krady	2
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:27	Deborah A Krady	2
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 06:51	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-111914-FD01 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682830
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRDF SDG#: DHR26-03FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.00066 J	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:31	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:31	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:29	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 06:53	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

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Analysis Report

Sample Description: VP09-GW-4549-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682831
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR91 SDG#: DHR26-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.055	U	0.055	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.055	U	0.055	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.055	U	0.055	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.055	U	0.055	0.011	1
10137	Dibenzofuran	132-64-9	0.013	J	0.055	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.055	U	0.055	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.036	J	0.055	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0998		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.378		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0137		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00059		0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP09-GW-4549-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682831
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR91 SDG#: DHR26-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014 00:43	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014 00:43	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 07:03	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 12:24	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:33	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:33	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:30	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 06:59	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

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Analysis Report

Sample Description: VP09-GW-4549-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682832
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:00 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG91F SDG#: DHR26-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:35	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:35	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:32	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:01	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP09-GW-6569-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682833
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR92 SDG#: DHR26-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.058	U	0.058	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.058	U	0.058	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	0.058	U	0.058	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	0.058	U	0.058	0.012	1
10137	Dibenzofuran	132-64-9	0.018	J	0.058	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.058	U	0.058	0.012	1
10137	2-Methylnaphthalene	91-57-6	0.050	J	0.058	0.012	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.213		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.352		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0095		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00041		0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP09-GW-6569-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682833
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR92 SDG#: DHR26-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014	01:06	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014	01:06	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014	07:33	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014	12:52	Mark A Clark	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014	16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014	16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014	11:38	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014	11:38	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014	05:34	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014	07:04	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014	14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014	15:59	James L Mertz	1

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Analysis Report

Sample Description: VP09-GW-6569-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682834
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 09:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG92F SDG#: DHR26-07

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0227	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0311	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.00056 J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 10:57	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 10:57	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:04	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:06	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 111914TB Water
Dow Hanging Rock, OH

LL Sample # WW 7682835
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 10:00

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRT- SDG#: DHR26-08TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/24/2014 23:35	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/24/2014 23:35	Sara E Johnson	1

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Analysis Report

Sample Description: VP09-GW-7175-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682836
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 10:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR93 SDG#: DHR26-09

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.21		0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.15		0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.19		0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.021	J	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.86		0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.050	J	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	3.9		0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.410		0.0020	0.00082	1
06031	Chromium	7440-47-3	4.93		0.0200	0.0050	10
06041	Selenium	7782-49-2	0.0108		0.0100	0.0025	5
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00061		0.00020	0.000060	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

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Analysis Report

Sample Description: VP09-GW-7175-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682836
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 10:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGR93 SDG#: DHR26-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014 01:29	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014 01:29	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 08:02	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 22:35	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:40	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/30/2014 15:06	Deborah A Krady	10
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:43	Deborah A Krady	5
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:08	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

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Analysis Report

Sample Description: VP09-GW-7175-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682837
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 10:45 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG93F SDG#: DHR26-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0028	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.00066 J	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:42	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:42	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:36	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:10	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

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Analysis Report

Sample Description: VP10-GW-7680-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682838
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:10 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG101 SDG#: DHR26-11

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.2	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.056	U	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.056	U	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.014	J	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.056	U	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.031	J	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.056	U	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.087		0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.253		0.0020	0.00082	1
06031	Chromium	7440-47-3	1.25		0.0100	0.0025	5
06041	Selenium	7782-49-2	0.0093		0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00055		0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-7680-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682838
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:10 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG101 SDG#: DHR26-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014 01:51	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014 01:51	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 08:31	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14329WAE026	11/26/2014 02:41	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 23:03	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14329WAE026	11/25/2014 16:40	JoElla L Rice	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:50	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/30/2014 15:11	Deborah A Krady	5
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:37	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 06:41	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

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Analysis Report

Sample Description: VP10-GW-7680-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682839
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:10 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

H101F SDG#: DHR26-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0098	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0441	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:52	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:52	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:44	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:12	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-6569-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682840
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:55 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG102 SDG#: DHR26-13

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.3	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.058	U	0.058	0.012	1
10137	Benzo(a)pyrene	50-32-8	0.058	U	0.058	0.012	1
10137	Benzo(b)fluoranthene	205-99-2	0.058	U	0.058	0.012	1
10137	Dibenz(a,h)anthracene	53-70-3	0.058	U	0.058	0.012	1
10137	Dibenzofuran	132-64-9	0.058	U	0.058	0.012	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.058	U	0.058	0.012	1
10137	2-Methylnaphthalene	91-57-6	0.015	J	0.058	0.012	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0307		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.269		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0010	J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00031		0.00020	0.000060	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

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-6569-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682840
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:55 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG102 SDG#: DHR26-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014	02:13	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014	02:13	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014	09:00	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014	23:31	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014	16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014	16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014	11:54	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014	11:54	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014	05:46	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014	07:14	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014	14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014	15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-6569-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682841
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 14:55 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

H102F SDG#: DHR26-14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0011 J	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0050	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:57	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:57	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:48	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:16	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: VP10-GW-4549-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682842
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 15:35 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG103 SDG#: DHR26-15

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.2	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**		**ug/l**	**ug/l**	
10137	Benzo(a)anthracene	56-55-3	0.014	J	0.056	0.011	1
10137	Benzo(a)pyrene	50-32-8	0.056	U	0.056	0.011	1
10137	Benzo(b)fluoranthene	205-99-2	0.018	J	0.056	0.011	1
10137	Dibenz(a,h)anthracene	53-70-3	0.056	U	0.056	0.011	1
10137	Dibenzofuran	132-64-9	0.038	J	0.056	0.011	1
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.056	U	0.056	0.011	1
10137	2-Methylnaphthalene	91-57-6	0.022	J	0.056	0.011	1
Metals	**SW-846 6020**		**mg/l**		**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.129		0.0020	0.00082	1
06031	Chromium	7440-47-3	0.228		0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0028	J	0.0100	0.0025	5
	Reporting limits were raised due to interference from the sample matrix.						
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00037		0.00020	0.000060	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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-4549-111914 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7682842
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 15:35 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG103 SDG#: DHR26-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014 02:36	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014 02:36	Sara E Johnson	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14325WAJ026	11/24/2014 09:30	Brian K Graham	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14325WAK026	11/29/2014 23:58	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	14325WAJ026	11/22/2014 16:15	Nicholas W Shroyer	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14325WAK026	11/22/2014 16:15	Nicholas W Shroyer	1
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 11:59	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 11:59	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:49	Deborah A Krady	5
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:18	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VP10-GW-4549-111914 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7682843
LL Group # 1520050
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/19/2014 15:35 by DR

Submitted: 11/20/2014 08:30
Reported: 12/03/2014 08:53

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

H103F SDG#: DHR26-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0020 U	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050007A	11/29/2014 12:02	Deborah A Krady	1
06031	Chromium	SW-846 6020	1	143256050007A	11/29/2014 12:02	Deborah A Krady	1
06041	Selenium	SW-846 6020	1	143256050007B	12/03/2014 05:51	Deborah A Krady	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:24	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050007	11/24/2014 14:24	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520050
Reported: 12/03/14 at 08:53 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C143282AA	Sample number(s): 7682827,7682829,7682831,7682833,7682835-7682836,7682838,7682840,7682842									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	110		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	80		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	97		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	92		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	95		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	93		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	97		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	91		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	93		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	91		80-120		
Batch number: 14325WAJ026	Sample number(s): 7682827,7682829,7682831,7682833,7682836,7682838,7682840,7682842									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	87		56-134		
Nitrobenzene	1	U	1.	0.5	ug/l	95		77-119		
Pentachlorophenol	5	U	5.	1	ug/l	80		60-130		
Batch number: 14325WAK026	Sample number(s): 7682827,7682829,7682831,7682833,7682836,7682838,7682840,7682842									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	114		79-122		
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	115		72-126		
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	118		79-136		
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	111		42-143		
Dibenzofuran	0.050	U	0.050	0.010	ug/l	105		70-130		
Indeno(1,2,3-cd)pyrene	0.050	U	0.050	0.010	ug/l	111		53-136		
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	106		68-124		
Batch number: 14329WAE026	Sample number(s): 7682827,7682838									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	93	94	56-134	0	30
Nitrobenzene	1	U	1.	0.5	ug/l	96	97	77-119	1	30
Pentachlorophenol	5	U	5.	1	ug/l	82	81	60-130	1	30
Batch number: 143255713006	Sample number(s): 7682827,7682829-7682834,7682836-7682843									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	92		80-120		
Batch number: 143256050007A	Sample number(s): 7682827,7682829-7682834,7682836-7682843									

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520050
Reported: 12/03/14 at 08:53 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Arsenic	0.0020 U	0.0020	0.00082	mg/l	108		80-120		
Chromium	0.0020 U	0.0020	0.00050	mg/l	95		80-120		
Batch number: 143256050007B	Sample number(s): 7682827,7682829-7682834,7682836-7682843								
Selenium	0.0020 U	0.0020	0.00050	mg/l	99		80-120		

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: C143282AA	Sample number(s): 7682827,7682829,7682831,7682833,7682835-7682836,7682838,7682840,7682842 UNSPK: P684748								
Acrylonitrile	106	107	56-161	0	30				
Benzene	103	102	87-126	1	30				
Bromoform	85	86	60-138	1	30				
Ethylbenzene	103	103	80-140	0	30				
Isopropylbenzene	105	103	81-133	1	30				
Methylene Chloride	104	104	77-135	0	30				
Naphthalene	94	96	56-132	2	30				
n-Propylbenzene	103	102	79-131	1	30				
Styrene	103	103	71-138	0	30				
Tetrachloroethene	108	106	75-129	2	30				
1,2,4-Trichlorobenzene	98	99	77-120	1	30				
Trichloroethene	109	108	85-131	1	30				
1,3,5-Trimethylbenzene	101	101	89-129	0	30				
m+p-Xylene	104	104	81-137	0	30				
o-Xylene	101	101	81-137	0	30				
Batch number: 14325WAJ026	Sample number(s): 7682827,7682829,7682831,7682833,7682836,7682838,7682840,7682842 UNSPK: P679735								
1,1'-Biphenyl	75	83	73-114	11	30				
Nitrobenzene	83	97	69-127	16	30				
Pentachlorophenol	55	56	23-133	2	30				
Batch number: 14325WAK026	Sample number(s): 7682827,7682829,7682831,7682833,7682836,7682838,7682840,7682842 UNSPK: P679735								
Benzo(a)anthracene	81	85	37-135	6	30				
Benzo(a)pyrene	40	44	32-137	10	30				
Benzo(b)fluoranthene	64	69	41-137	9	30				
Dibenz(a,h)anthracene	43	50	17-134	16	30				
Dibenzofuran	94	94	70-130	2	30				
Indeno(1,2,3-cd)pyrene	39	45	26-130	15	30				
2-Methylnaphthalene	96	94	64-129	0	30				
Batch number: 143255713006	Sample number(s): 7682827,7682829-7682834,7682836-7682843 UNSPK: 7682838 BKG: 7682838								
Mercury	84	88	75-125	3	20	0.00055	0.00056	1 (1)	20
Batch number: 143256050007A	Sample number(s): 7682827,7682829-7682834,7682836-7682843 UNSPK: 7682834 BKG: 7682834								

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520050
Reported: 12/03/14 at 08:53 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
Arsenic	97	102	75-125	2	20	0.0227	0.0218	4	20
Chromium	91	95	75-125	3	20	0.0311	0.0306	2	20
Batch number: 143256050007B	Sample number(s): 7682827,7682829-7682834,7682836-7682843 UNSPK: 7682834 BKG: 7682834								
Selenium	102	101	75-125	1	20	0.00056 J	0.0020 U	200* (1)	20

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: VOCs- 25ml Water by 8260B
Batch number: C143282AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7682827	100	100	97	95
7682829	101	101	97	95
7682831	102	102	97	96
7682833	102	102	97	96
7682835	101	101	97	96
7682836	102	101	97	96
7682838	102	101	97	96
7682840	103	102	96	95
7682842	103	100	97	96
Blank	101	100	98	96
LCS	101	102	98	98
MS	102	101	98	99
MSD	102	102	99	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14325WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7682827	42	26	60	74	63*	54
7682829	34	24	58	78	71	75
7682831	35	25	62	80	75	83
7682833	39	29	68	85	77	82
7682836	36	27	54	75	69	67
7682838	5*	6*	28	79	70	71
7682840	36	29	49	89	78	62
7682842	29	24	37	74	67	65
Blank	43	27	70	73	72	84
LCS	54	36	79	85	81	91
MS	24	21	29	80	71	67
MSD	31	30	35	94	80	62
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520050
Reported: 12/03/14 at 08:53 AM

Surrogate Quality Control

Batch number: 14325WAK026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7682827	105	66	93
7682829	102	50	87
7682831	100	67	82
7682833	100	78	87
7682836	108	61	104
7682838	101	43	96
7682840	92	36	89
7682842	88	36	91
Blank	116	127	100
LCS	110	124	105
MS	97	45	95
MSD	100	50	93
Limits:	56-134	36-156	59-132

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14329WAE026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7682827 RE	46	35	51	87	70	20*
7682838 RE	4*	1*	7*	95	90	80
Blank	60	42	95	90	85	97
LCS	65	48	98	94	91	95
LCSD	67	49	98	96	90	98
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # 1520050 Sample # 7682827-43
Instructions on reverse side correspond with circled numbers.

361451

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
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	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Water: Ground	Potable	Surface	NPDES	Other	Total # of Containers	VOC's	SVOC's	metals (filtered) see SOW	metals (unfiltered) see SOW							6 Remarks
HGR-111914-EB01	11/19/14	0820	✓				✓					7	3	2		2							equip blank
HGR-111914-FD01	11/19/14	0900	✓				✓					7	3	2	1	1	VOCs	no preservative				**	Field duplicate
VP09-GW-4549-111914	11/19/14	0900	✓				✓					7	3	2	1	1	VOCs	no preservative				**	45-49'
VP09-GW-6569-111914	11/19/14	0945	✓				✓					7	3	2	1	1	VOCs	no preservative				**	65-69'
111914TB	11/19/14	1000	✓				✓					2	2										trip blank
~~VP10~~ VP09-GW-7175-111914	11/19/14	1045	✓				✓					7	3	2	1	1	VOCs	no preservative				**	71-75'
VP10-GW-7680-111914	11/19/14	1410	✓				✓					7	3	2	1	1	VOCs	no preservative				**	76-80'
VP10-GW-6569-111914	11/19/14	1455	✓				✓					7	3	2	1	1	VOCs	no preservative				**	65-69'
VP10-GW-4549-111914	11/19/14	1535	✓				✓					7	3	2	1	1	VOCs	no preservative				**	45-49'

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	11/19/14	1700			

EDD Required? Yes No
If yes, format: _____
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____
Temperature upon receipt 0.5 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 02, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/21/2014
Group Number: 1520423
SDG: DHR27
PO Number: 10381-7-101541
Release Number: DHR27
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
HGR-WS01-112014 Composite Soil	7684699
HGR-WS02-112014 Composite Soil	7684700
HGR-WL01-112014 Composite Groundwater	7684701

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: HGR-WS01-112014 Composite Soil
Drum #1
Dow Hanging Rock, OH

LL Sample # SW 7684699
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:25 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-01 SDG#: DHR27-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	24	U	24	8	1.01
10237	Benzene	71-43-2	6	U	6	0.6	1.01
10237	Bromodichloromethane	75-27-4	6	U	6	1	1.01
10237	Bromoform	75-25-2	6	U	6	1	1.01
10237	Bromomethane	74-83-9	6	U	6	2	1.01
10237	2-Butanone	78-93-3	12	U	12	5	1.01
10237	Carbon Disulfide	75-15-0	6	U	6	1	1.01
10237	Carbon Tetrachloride	56-23-5	6	U	6	1	1.01
10237	Chlorobenzene	108-90-7	6	U	6	1	1.01
10237	Chloroethane	75-00-3	6	U	6	2	1.01
10237	Chloroform	67-66-3	6	U	6	1	1.01
10237	Chloromethane	74-87-3	6	U	6	2	1.01
10237	Cyclohexane	110-82-7	6	U	6	1	1.01
10237	1,2-Dibromo-3-chloropropane	96-12-8	6	U	6	2	1.01
10237	Dibromochloromethane	124-48-1	6	U	6	1	1.01
10237	1,2-Dibromoethane	106-93-4	6	U	6	1	1.01
10237	1,2-Dichlorobenzene	95-50-1	6	U	6	1	1.01
10237	1,3-Dichlorobenzene	541-73-1	6	U	6	1	1.01
10237	1,4-Dichlorobenzene	106-46-7	6	U	6	1	1.01
10237	Dichlorodifluoromethane	75-71-8	6	U	6	2	1.01
10237	1,1-Dichloroethane	75-34-3	6	U	6	1	1.01
10237	1,2-Dichloroethane	107-06-2	6	U	6	1	1.01
10237	1,1-Dichloroethene	75-35-4	6	U	6	1	1.01
10237	cis-1,2-Dichloroethene	156-59-2	6	U	6	1	1.01
10237	trans-1,2-Dichloroethene	156-60-5	6	U	6	1	1.01
10237	1,2-Dichloropropane	78-87-5	6	U	6	1	1.01
10237	cis-1,3-Dichloropropene	10061-01-5	6	U	6	1	1.01
10237	trans-1,3-Dichloropropene	10061-02-6	6	U	6	1	1.01
10237	Ethylbenzene	100-41-4	8		6	1	1.01
10237	Freon 113	76-13-1	12	U	12	2	1.01
10237	2-Hexanone	591-78-6	12	U	12	4	1.01
10237	Isopropylbenzene	98-82-8	6	U	6	1	1.01
10237	Methyl Acetate	79-20-9	6	U	6	2	1.01
10237	Methyl Tertiary Butyl Ether	1634-04-4	6	U	6	0.6	1.01
10237	4-Methyl-2-pentanone	108-10-1	12	U	12	4	1.01
10237	Methylcyclohexane	108-87-2	6	U	6	1	1.01
10237	Methylene Chloride	75-09-2	6	U	6	2	1.01
10237	Styrene	100-42-5	6	U	6	1	1.01
10237	1,1,2,2-Tetrachloroethane	79-34-5	6	U	6	1	1.01
10237	Tetrachloroethene	127-18-4	6	U	6	1	1.01
10237	Toluene	108-88-3	6	U	6	1	1.01
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	1.01
10237	1,1,1-Trichloroethane	71-55-6	6	U	6	1	1.01
10237	1,1,2-Trichloroethane	79-00-5	6	U	6	1	1.01
10237	Trichloroethene	79-01-6	6	U	6	1	1.01
10237	Trichlorofluoromethane	75-69-4	6	U	6	2	1.01
10237	Vinyl Chloride	75-01-4	6	U	6	1	1.01
10237	Xylene (Total)	1330-20-7	6	U	6	1	1.01

*=This limit was used in the evaluation of the final result

Sample Description: HGR-WS01-112014 Composite Soil
Drum #1
Dow Hanging Rock, OH

LL Sample # SW 7684699
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:25 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-01 SDG#: DHR27-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/kg		ug/kg	ug/kg	
10727	Acenaphthene	83-32-9	150	J	200	39	10
10727	Acenaphthylene	208-96-8	73	J	200	39	10
10727	Acetophenone	98-86-2	390	U	390	190	10
10727	Anthracene	120-12-7	120	J	200	39	10
10727	Atrazine	1912-24-9	1,900	U	1,900	390	10
10727	Benzaldehyde	100-52-7	1,900	U	1,900	780	10
10727	Benzo(a)anthracene	56-55-3	230		200	39	10
10727	Benzo(a)pyrene	50-32-8	250		200	39	10
10727	Benzo(b)fluoranthene	205-99-2	360		200	39	10
10727	Benzo(g,h,i)perylene	191-24-2	230		200	39	10
10727	Benzo(k)fluoranthene	207-08-9	170	J	200	39	10
10727	1,1'-Biphenyl	92-52-4	390	U	390	190	10
10727	4-Bromophenyl-phenylether	101-55-3	390	U	390	190	10
10727	Butylbenzylphthalate	85-68-7	1,900	U	1,900	780	10
10727	Di-n-butylphthalate	84-74-2	1,900	U	1,900	780	10
10727	Caprolactam	105-60-2	1,900	U	1,900	390	10
10727	Carbazole	86-74-8	390	U	390	190	10
10727	4-Chloro-3-methylphenol	59-50-7	390	U	390	190	10
10727	4-Chloroaniline	106-47-8	390	U	390	190	10
10727	bis(2-Chloroethoxy)methane	111-91-1	390	U	390	190	10
10727	bis(2-Chloroethyl)ether	111-44-4	390	U	390	190	10
10727	2-Chloronaphthalene	91-58-7	380	U	380	82	10
10727	2-Chlorophenol	95-57-8	390	U	390	190	10
10727	4-Chlorophenyl-phenylether	7005-72-3	390	U	390	190	10
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	390	U	390	190	10
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	230		200	39	10
10727	Dibenz(a,h)anthracene	53-70-3	71	J	200	39	10
10727	Dibenzofuran	132-64-9	200	J	390	190	10
10727	3,3'-Dichlorobenzidine	91-94-1	3,900	U	3,900	1,200	10
10727	2,4-Dichlorophenol	120-83-2	390	U	390	190	10
10727	Diethylphthalate	84-66-2	1,900	U	1,900	780	10
10727	2,4-Dimethylphenol	105-67-9	390	U	390	190	10
10727	Dimethylphthalate	131-11-3	1,900	U	1,900	780	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	5,800	U	5,800	1,900	10
10727	2,4-Dinitrophenol	51-28-5	12,000	U	12,000	3,500	10
10727	2,4-Dinitrotoluene	121-14-2	1,900	U	1,900	780	10
10727	2,6-Dinitrotoluene	606-20-2	390	U	390	190	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,000	U	2,000	780	10
10727	Fluoranthene	206-44-0	580		200	39	10
10727	Fluorene	86-73-7	100	J	200	39	10
10727	Hexachlorobenzene	118-74-1	200	U	200	39	10
10727	Hexachlorobutadiene	87-68-3	390	U	390	190	10
10727	Hexachlorocyclopentadiene	77-47-4	5,800	U	5,800	1,900	10
10727	Hexachloroethane	67-72-1	1,900	U	1,900	390	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	210		200	39	10
10727	Isophorone	78-59-1	390	U	390	190	10

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS01-112014 Composite Soil
Drum #1
Dow Hanging Rock, OH

LL Sample # SW 7684699
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:25 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-01 SDG#: DHR27-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	2-Methylnaphthalene	91-57-6	57	J	200	39	10
10727	2-Methylphenol	95-48-7	390	U	390	190	10
10727	4-Methylphenol	106-44-5	390	U	390	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	Naphthalene	91-20-3	200	U	200	39	10
10727	2-Nitroaniline	88-74-4	390	U	390	190	10
10727	3-Nitroaniline	99-09-2	1,900	U	1,900	780	10
10727	4-Nitroaniline	100-01-6	1,900	U	1,900	780	10
10727	Nitrobenzene	98-95-3	390	U	390	190	10
10727	2-Nitrophenol	88-75-5	390	U	390	190	10
10727	4-Nitrophenol	100-02-7	5,800	U	5,800	1,900	10
10727	N-Nitroso-di-n-propylamine	621-64-7	390	U	390	190	10
10727	N-Nitrosodiphenylamine	86-30-6	390	U	390	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	1,900	U	1,900	780	10
10727	Pentachlorophenol	87-86-5	2,000	U	2,000	390	10
10727	Phenanthrene	85-01-8	440		200	39	10
10727	Phenol	108-95-2	390	U	390	190	10
10727	Pyrene	129-00-0	510		200	39	10
10727	2,4,5-Trichlorophenol	95-95-4	390	U	390	190	10
10727	2,4,6-Trichlorophenol	88-06-2	390	U	390	190	10
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	9.60		2.24	0.717	1
06946	Barium	7440-39-3	105		0.560	0.0370	1
06949	Cadmium	7440-43-9	0.236	J	0.560	0.0370	1
06951	Chromium	7440-47-3	15.9		1.68	0.123	1
06955	Lead	7439-92-1	8.70		1.68	0.560	1
06936	Selenium	7782-49-2	2.39		2.24	0.493	1
06966	Silver	7440-22-4	0.560	U	0.560	0.213	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0199	J	0.114	0.0114	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.0		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS01-112014 Composite Soil
Drum #1
Dow Hanging Rock, OH

LL Sample # SW 7684699
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:25 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-01 SDG#: DHR27-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	B143291AA	11/25/2014	14:09	Chelsea B Stong	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201432536245	11/21/2014	13:16	Larry E Bevins	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201432536245	11/21/2014	13:16	Larry E Bevins	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201432536245	11/21/2014	13:10	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14329SLF026	11/27/2014	00:15	Catherine E Bachman	10
10809	BNA Soil Microwave	SW-846 3546	1	14329SLF026	11/26/2014	09:30	David S Schrum	1
06935	Arsenic	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	143255708001	11/25/2014	04:37	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	143255711001	11/25/2014	06:26	Damary Valentin	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	143255708001	11/24/2014	07:31	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	143255711001	11/24/2014	09:35	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14328820001B	11/24/2014	21:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS02-112014 Composite Soil
Drum #2
Dow Hanging Rock, OH

LL Sample # SW 7684700
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:35 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-02 SDG#: DHR27-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Acetone	67-64-1	1,100	U	1,100	380	49.02
10237	Benzene	71-43-2	270	U	270	27	49.02
10237	Bromodichloromethane	75-27-4	270	U	270	54	49.02
10237	Bromoform	75-25-2	270	U	270	54	49.02
10237	Bromomethane	74-83-9	270	U	270	110	49.02
10237	2-Butanone	78-93-3	540	U	540	220	49.02
10237	Carbon Disulfide	75-15-0	270	U	270	54	49.02
10237	Carbon Tetrachloride	56-23-5	270	U	270	54	49.02
10237	Chlorobenzene	108-90-7	270	U	270	54	49.02
10237	Chloroethane	75-00-3	270	U	270	110	49.02
10237	Chloroform	67-66-3	270	U	270	54	49.02
10237	Chloromethane	74-87-3	270	U	270	110	49.02
10237	Cyclohexane	110-82-7	270	U	270	54	49.02
10237	1,2-Dibromo-3-chloropropane	96-12-8	270	U	270	110	49.02
10237	Dibromochloromethane	124-48-1	270	U	270	54	49.02
10237	1,2-Dibromoethane	106-93-4	270	U	270	54	49.02
10237	1,2-Dichlorobenzene	95-50-1	270	U	270	54	49.02
10237	1,3-Dichlorobenzene	541-73-1	270	U	270	54	49.02
10237	1,4-Dichlorobenzene	106-46-7	270	U	270	54	49.02
10237	Dichlorodifluoromethane	75-71-8	270	U	270	110	49.02
10237	1,1-Dichloroethane	75-34-3	270	U	270	54	49.02
10237	1,2-Dichloroethane	107-06-2	270	U	270	54	49.02
10237	1,1-Dichloroethene	75-35-4	270	U	270	54	49.02
10237	cis-1,2-Dichloroethene	156-59-2	270	U	270	54	49.02
10237	trans-1,2-Dichloroethene	156-60-5	270	U	270	54	49.02
10237	1,2-Dichloropropane	78-87-5	270	U	270	54	49.02
10237	cis-1,3-Dichloropropene	10061-01-5	270	U	270	54	49.02
10237	trans-1,3-Dichloropropene	10061-02-6	270	U	270	54	49.02
10237	Ethylbenzene	100-41-4	12,000		270	54	49.02
10237	Freon 113	76-13-1	540	U	540	110	49.02
10237	2-Hexanone	591-78-6	540	U	540	160	49.02
10237	Isopropylbenzene	98-82-8	2,000		270	54	49.02
10237	Methyl Acetate	79-20-9	270	U	270	110	49.02
10237	Methyl Tertiary Butyl Ether	1634-04-4	270	U	270	27	49.02
10237	4-Methyl-2-pentanone	108-10-1	540	U	540	160	49.02
10237	Methylcyclohexane	108-87-2	270	U	270	54	49.02
10237	Methylene Chloride	75-09-2	270	U	270	110	49.02
10237	Styrene	100-42-5	3,400		270	54	49.02
10237	1,1,2,2-Tetrachloroethane	79-34-5	270	U	270	54	49.02
10237	Tetrachloroethene	127-18-4	270	U	270	54	49.02
10237	Toluene	108-88-3	270	U	270	54	49.02
10237	1,2,4-Trichlorobenzene	120-82-1	270	U	270	54	49.02
10237	1,1,1-Trichloroethane	71-55-6	270	U	270	54	49.02
10237	1,1,2-Trichloroethane	79-00-5	270	U	270	54	49.02
10237	Trichloroethene	79-01-6	270	U	270	54	49.02
10237	Trichlorofluoromethane	75-69-4	270	U	270	110	49.02
10237	Vinyl Chloride	75-01-4	270	U	270	54	49.02
10237	Xylene (Total)	1330-20-7	470		270	54	49.02

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS02-112014 Composite Soil
Drum #2
Dow Hanging Rock, OH

LL Sample # SW 7684700
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:35 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-02 SDG#: DHR27-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/kg		ug/kg	ug/kg	
10727	Acenaphthene	83-32-9	2,500		18	4	1
10727	Acenaphthylene	208-96-8	18	U	18	4	1
10727	Acetophenone	98-86-2	130		36	18	1
10727	Anthracene	120-12-7	13	J	18	4	1
10727	Atrazine	1912-24-9	180	U	180	36	1
10727	Benzaldehyde	100-52-7	180	U	180	73	1
10727	Benzo(a)anthracene	56-55-3	6	J	18	4	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	4	1
10727	Benzo(b)fluoranthene	205-99-2	18	U	18	4	1
10727	Benzo(g,h,i)perylene	191-24-2	21		18	4	1
10727	Benzo(k)fluoranthene	207-08-9	18	U	18	4	1
10727	1,1'-Biphenyl	92-52-4	27,000		360	180	10
10727	4-Bromophenyl-phenylether	101-55-3	36	U	36	18	1
10727	Butylbenzylphthalate	85-68-7	180	U	180	73	1
10727	Di-n-butylphthalate	84-74-2	180	U	180	73	1
10727	Caprolactam	105-60-2	180	U	180	36	1
10727	Carbazole	86-74-8	36	U	36	18	1
10727	4-Chloro-3-methylphenol	59-50-7	36	U	36	18	1
10727	4-Chloroaniline	106-47-8	36	U	36	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	36	U	36	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	36	U	36	18	1
10727	2-Chloronaphthalene	91-58-7	36	U	36	8	1
10727	2-Chlorophenol	95-57-8	36	U	36	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	36	U	36	18	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	36	U	36	18	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	14	J	18	4	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	4	1
10727	Dibenzofuran	132-64-9	36	U	36	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	360	U	360	110	1
10727	2,4-Dichlorophenol	120-83-2	36	U	36	18	1
10727	Diethylphthalate	84-66-2	180	U	180	73	1
10727	2,4-Dimethylphenol	105-67-9	36	U	36	18	1
10727	Dimethylphthalate	131-11-3	180	U	180	73	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	540	U	540	180	1
10727	2,4-Dinitrophenol	51-28-5	1,100	U	1,100	330	1
10727	2,4-Dinitrotoluene	121-14-2	180	U	180	73	1
10727	2,6-Dinitrotoluene	606-20-2	36	U	36	18	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	180	U	180	73	1
10727	Fluoranthene	206-44-0	18	J	18	4	1
10727	Fluorene	86-73-7	68		18	4	1
10727	Hexachlorobenzene	118-74-1	18	U	18	4	1
10727	Hexachlorobutadiene	87-68-3	36	U	36	18	1
10727	Hexachlorocyclopentadiene	77-47-4	540	U	540	180	1
10727	Hexachloroethane	67-72-1	180	U	180	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7	J	18	4	1
10727	Isophorone	78-59-1	36	U	36	18	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS02-112014 Composite Soil
Drum #2
Dow Hanging Rock, OH

LL Sample # SW 7684700
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:35 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-02 SDG#: DHR27-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	2-Methylnaphthalene	91-57-6	220		18	4	1
10727	2-Methylphenol	95-48-7	36	U	36	18	1
10727	4-Methylphenol	106-44-5	36	U	36	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	Naphthalene	91-20-3	100		18	4	1
10727	2-Nitroaniline	88-74-4	36	U	36	18	1
10727	3-Nitroaniline	99-09-2	180	U	180	73	1
10727	4-Nitroaniline	100-01-6	180	U	180	73	1
10727	Nitrobenzene	98-95-3	36	U	36	18	1
10727	2-Nitrophenol	88-75-5	36	U	36	18	1
10727	4-Nitrophenol	100-02-7	540	U	540	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	36	U	36	18	1
10727	N-Nitrosodiphenylamine	86-30-6	36	U	36	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	180	U	180	73	1
10727	Pentachlorophenol	87-86-5	180	U	180	36	1
10727	Phenanthrene	85-01-8	120		18	4	1
10727	Phenol	108-95-2	36	U	36	18	1
10727	Pyrene	129-00-0	29		18	4	1
10727	2,4,5-Trichlorophenol	95-95-4	36	U	36	18	1
10727	2,4,6-Trichlorophenol	88-06-2	36	U	36	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	14.8		2.11	0.676	1
06946	Barium	7440-39-3	123		0.528	0.0349	1
06949	Cadmium	7440-43-9	0.0465 J		0.528	0.0349	1
06951	Chromium	7440-47-3	8.98		1.58	0.116	1
06955	Lead	7439-92-1	7.07		1.58	0.528	1
06936	Selenium	7782-49-2	3.70		2.11	0.465	1
06966	Silver	7440-22-4	0.528	U	0.528	0.201	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0257 J		0.102	0.0102	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	9.0		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: HGR-WS02-112014 Composite Soil
Drum #2
Dow Hanging Rock, OH

LL Sample # SW 7684700
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:35 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WS-02 SDG#: DHR27-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q143281AA	11/24/2014	20:48	Anita M Dale	49.02
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201432536245	11/21/2014	13:16	Larry E Bevins	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201432536245	11/21/2014	13:16	Larry E Bevins	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201432536245	11/21/2014	13:13	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	14329SLF026	11/27/2014	00:40	Catherine E Bachman	1
10727	TCL 8270 (microwave)	SW-846 8270C	1	14329SLF026	11/29/2014	12:11	Linda M Hartenstine	10
10809	BNA Soil Microwave	SW-846 3546	1	14329SLF026	11/26/2014	09:30	David S Schrum	1
06935	Arsenic	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	143255708001	11/25/2014	04:42	Tara L Snyder	1
00159	Mercury	SW-846 7471A	1	143255711001	11/25/2014	06:28	Damary Valentin	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	143255708001	11/24/2014	07:31	Christopher M Klumpp	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	143255711001	11/24/2014	09:35	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	14328820001B	11/24/2014	21:56	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WL01-112014 Composite Groundwater
Drum #3
Dow Hanging Rock, OH

LL Sample # WW 7684701
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:50 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WL-01 SDG#: DHR27-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acetone	67-64-1	200	U	200	60	10
10335	Benzene	71-43-2	10	U	10	5	10
10335	Bromodichloromethane	75-27-4	10	U	10	5	10
10335	Bromoform	75-25-2	40	U	40	5	10
10335	Bromomethane	74-83-9	10	U	10	5	10
10335	2-Butanone	78-93-3	100	U	100	30	10
10335	Carbon Disulfide	75-15-0	50	U	50	10	10
10335	Carbon Tetrachloride	56-23-5	10	U	10	5	10
10335	Chlorobenzene	108-90-7	10	U	10	5	10
10335	Chloroethane	75-00-3	10	U	10	5	10
10335	Chloroform	67-66-3	10	U	10	5	10
10335	Chloromethane	74-87-3	10	U	10	5	10
10335	Cyclohexane	110-82-7	50	U	50	20	10
10335	1,2-Dibromo-3-chloropropane	96-12-8	50	U	50	20	10
10335	Dibromochloromethane	124-48-1	10	U	10	5	10
10335	1,2-Dibromoethane	106-93-4	10	U	10	5	10
10335	1,2-Dichlorobenzene	95-50-1	50	U	50	10	10
10335	1,3-Dichlorobenzene	541-73-1	50	U	50	10	10
10335	1,4-Dichlorobenzene	106-46-7	50	U	50	10	10
10335	Dichlorodifluoromethane	75-71-8	10	U	10	5	10
10335	1,1-Dichloroethane	75-34-3	10	U	10	5	10
10335	1,2-Dichloroethane	107-06-2	10	U	10	5	10
10335	1,1-Dichloroethene	75-35-4	10	U	10	5	10
10335	cis-1,2-Dichloroethene	156-59-2	10	U	10	5	10
10335	trans-1,2-Dichloroethene	156-60-5	10	U	10	5	10
10335	1,2-Dichloropropane	78-87-5	10	U	10	5	10
10335	cis-1,3-Dichloropropene	10061-01-5	10	U	10	5	10
10335	trans-1,3-Dichloropropene	10061-02-6	10	U	10	5	10
10335	Ethylbenzene	100-41-4	10	U	10	5	10
10335	Freon 113	76-13-1	100	U	100	20	10
10335	2-Hexanone	591-78-6	100	U	100	30	10
10335	Isopropylbenzene	98-82-8	50	U	50	10	10
10335	Methyl Acetate	79-20-9	50	U	50	10	10
10335	Methyl Tertiary Butyl Ether	1634-04-4	10	U	10	5	10
10335	4-Methyl-2-pentanone	108-10-1	100	U	100	30	10
10335	Methylcyclohexane	108-87-2	50	U	50	10	10
10335	Methylene Chloride	75-09-2	40	U	40	20	10
10335	Styrene	100-42-5	50	U	50	10	10
10335	1,1,2,2-Tetrachloroethane	79-34-5	10	U	10	5	10
10335	Tetrachloroethene	127-18-4	10	U	10	5	10
10335	Toluene	108-88-3	10	U	10	5	10
10335	1,2,4-Trichlorobenzene	120-82-1	50	U	50	10	10
10335	1,1,1-Trichloroethane	71-55-6	10	U	10	5	10
10335	1,1,2-Trichloroethane	79-00-5	10	U	10	5	10
10335	Trichloroethene	79-01-6	10	U	10	5	10
10335	Trichlorofluoromethane	75-69-4	10	U	10	5	10
10335	Vinyl Chloride	75-01-4	10	U	10	5	10
10335	Xylene (Total)	1330-20-7	10	U	10	5	10

Reporting limits were raised due to sample foaming.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WL01-112014 Composite Groundwater
Drum #3
Dow Hanging Rock, OH

LL Sample # WW 7684701
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:50 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WL-01 SDG#: DHR27-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/l		ug/l	ug/l	
04678	Acenaphthene	83-32-9	0.6	U	0.6	0.1	1
04678	Acenaphthylene	208-96-8	0.6	U	0.6	0.1	1
04678	Acetophenone	98-86-2	1	U	1	0.6	1
04678	Anthracene	120-12-7	0.6	U	0.6	0.1	1
04678	Atrazine	1912-24-9	6	U	6	2	1
04678	Benzaldehyde	100-52-7	6	U	6	1	1
04678	Benzo(a)anthracene	56-55-3	0.6	U	0.6	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.6	U	0.6	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.6	U	0.6	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.6	U	0.6	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.6	U	0.6	0.1	1
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	4-Bromophenyl-phenylether	101-55-3	1	U	1	0.6	1
04678	Butylbenzylphthalate	85-68-7	6	U	6	2	1
04678	Di-n-butylphthalate	84-74-2	6	U	6	2	1
04678	Caprolactam	105-60-2	17	U	17	6	1
04678	Carbazole	86-74-8	1	U	1	0.6	1
04678	4-Chloro-3-methylphenol	59-50-7	1	U	1	0.6	1
04678	4-Chloroaniline	106-47-8	1	U	1	0.6	1
04678	bis(2-Chloroethoxy)methane	111-91-1	1	U	1	0.6	1
04678	bis(2-Chloroethyl)ether	111-44-4	1	U	1	0.6	1
04678	2-Chloronaphthalene	91-58-7	1	U	1	0.5	1
04678	2-Chlorophenol	95-57-8	1	U	1	0.6	1
04678	4-Chlorophenyl-phenylether	7005-72-3	1	U	1	0.6	1
04678	2,2'-oxybis(1-Chloropropane)	108-60-1	1	U	1	0.6	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	Chrysene	218-01-9	0.6	U	0.6	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.6	U	0.6	0.1	1
04678	Dibenzofuran	132-64-9	1	U	1	0.6	1
04678	3,3'-Dichlorobenzidine	91-94-1	6	U	6	2	1
04678	2,4-Dichlorophenol	120-83-2	1	U	1	0.6	1
04678	Diethylphthalate	84-66-2	6	U	6	2	1
04678	2,4-Dimethylphenol	105-67-9	1	U	1	0.6	1
04678	Dimethylphthalate	131-11-3	6	U	6	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	17	U	17	6	1
04678	2,4-Dinitrophenol	51-28-5	35	U	35	12	1
04678	2,4-Dinitrotoluene	121-14-2	6	U	6	1	1
04678	2,6-Dinitrotoluene	606-20-2	1	U	1	0.6	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	6	U	6	2	1
04678	Fluoranthene	206-44-0	0.6	U	0.6	0.1	1
04678	Fluorene	86-73-7	0.6	U	0.6	0.1	1
04678	Hexachlorobenzene	118-74-1	0.6	U	0.6	0.1	1
04678	Hexachlorobutadiene	87-68-3	1	U	1	0.6	1
04678	Hexachlorocyclopentadiene	77-47-4	17	U	17	6	1
04678	Hexachloroethane	67-72-1	6	U	6	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.6	U	0.6	0.1	1
04678	Isophorone	78-59-1	1	U	1	0.6	1

*=This limit was used in the evaluation of the final result

Sample Description: HGR-WL01-112014 Composite Groundwater
Drum #3
Dow Hanging Rock, OH

LL Sample # WW 7684701
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:50 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WL-01 SDG#: DHR27-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/l		ug/l	ug/l	
04678	2-Methylnaphthalene	91-57-6	0.6	U	0.6	0.1	1
04678	2-Methylphenol	95-48-7	1	U	1	0.6	1
04678	4-Methylphenol	106-44-5	1	U	1	0.6	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	Naphthalene	91-20-3	0.6	U	0.6	0.1	1
04678	2-Nitroaniline	88-74-4	1	U	1	0.6	1
04678	3-Nitroaniline	99-09-2	1	U	1	0.6	1
04678	4-Nitroaniline	100-01-6	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	2-Nitrophenol	88-75-5	1	U	1	0.6	1
04678	4-Nitrophenol	100-02-7	35	U	35	12	1
04678	N-Nitroso-di-n-propylamine	621-64-7	1	U	1	0.6	1
04678	N-Nitrosodiphenylamine	86-30-6	1	U	1	0.6	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	6	U	6	2	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
04678	Phenanthrene	85-01-8	0.6	U	0.6	0.1	1
04678	Phenol	108-95-2	1	U	1	0.6	1
04678	Pyrene	129-00-0	0.6	U	0.6	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	1	U	1	0.6	1
04678	2,4,6-Trichlorophenol	88-06-2	1	U	1	0.6	1
Trial ID: RE							
04678	Acenaphthene	83-32-9	0.6	U	0.6	0.1	1
04678	Acenaphthylene	208-96-8	0.6	U	0.6	0.1	1
04678	Acetophenone	98-86-2	1	U	1	0.6	1
04678	Anthracene	120-12-7	0.6	U	0.6	0.1	1
04678	Atrazine	1912-24-9	6	U	6	2	1
04678	Benzaldehyde	100-52-7	6	U	6	1	1
04678	Benzo(a)anthracene	56-55-3	0.6	U	0.6	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.6	U	0.6	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.6	U	0.6	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.6	U	0.6	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.6	U	0.6	0.1	1
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	4-Bromophenyl-phenylether	101-55-3	1	U	1	0.6	1
04678	Butylbenzylphthalate	85-68-7	6	U	6	2	1
04678	Di-n-butylphthalate	84-74-2	6	U	6	2	1
04678	Caprolactam	105-60-2	18	U	18	6	1
04678	Carbazole	86-74-8	1	U	1	0.6	1
04678	4-Chloro-3-methylphenol	59-50-7	1	U	1	0.6	1
04678	4-Chloroaniline	106-47-8	1	U	1	0.6	1
04678	bis(2-Chloroethoxy)methane	111-91-1	1	U	1	0.6	1
04678	bis(2-Chloroethyl)ether	111-44-4	1	U	1	0.6	1
04678	2-Chloronaphthalene	91-58-7	1	U	1	0.5	1
04678	2-Chlorophenol	95-57-8	1	U	1	0.6	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WL01-112014 Composite Groundwater
Drum #3
Dow Hanging Rock, OH

LL Sample # WW 7684701
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:50 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WL-01 SDG#: DHR27-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/l		ug/l	ug/l	
04678	4-Chlorophenyl-phenylether	7005-72-3	1	U	1	0.6	1
04678	2,2'-oxybis(1-Chloropropane)	108-60-1	1	U	1	0.6	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	Chrysene	218-01-9	0.6	U	0.6	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.6	U	0.6	0.1	1
04678	Dibenzofuran	132-64-9	1	U	1	0.6	1
04678	3,3'-Dichlorobenzidine	91-94-1	6	U	6	2	1
04678	2,4-Dichlorophenol	120-83-2	1	U	1	0.6	1
04678	Diethylphthalate	84-66-2	6	U	6	2	1
04678	2,4-Dimethylphenol	105-67-9	1	U	1	0.6	1
04678	Dimethylphthalate	131-11-3	6	U	6	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	18	U	18	6	1
04678	2,4-Dinitrophenol	51-28-5	36	U	36	12	1
04678	2,4-Dinitrotoluene	121-14-2	6	U	6	1	1
04678	2,6-Dinitrotoluene	606-20-2	1	U	1	0.6	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	6	U	6	2	1
04678	Fluoranthene	206-44-0	0.6	U	0.6	0.1	1
04678	Fluorene	86-73-7	0.6	U	0.6	0.1	1
04678	Hexachlorobenzene	118-74-1	0.6	U	0.6	0.1	1
04678	Hexachlorobutadiene	87-68-3	1	U	1	0.6	1
04678	Hexachlorocyclopentadiene	77-47-4	18	U	18	6	1
04678	Hexachloroethane	67-72-1	6	U	6	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.6	U	0.6	0.1	1
04678	Isophorone	78-59-1	1	U	1	0.6	1
04678	2-Methylnaphthalene	91-57-6	0.6	U	0.6	0.1	1
04678	2-Methylphenol	95-48-7	1	U	1	0.6	1
04678	4-Methylphenol	106-44-5	1	U	1	0.6	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	Naphthalene	91-20-3	0.6	U	0.6	0.1	1
04678	2-Nitroaniline	88-74-4	1	U	1	0.6	1
04678	3-Nitroaniline	99-09-2	1	U	1	0.6	1
04678	4-Nitroaniline	100-01-6	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	2-Nitrophenol	88-75-5	1	U	1	0.6	1
04678	4-Nitrophenol	100-02-7	36	U	36	12	1
04678	N-Nitroso-di-n-propylamine	621-64-7	1	U	1	0.6	1
04678	N-Nitrosodiphenylamine	86-30-6	1	U	1	0.6	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	6	U	6	2	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
04678	Phenanthrene	85-01-8	0.6	U	0.6	0.1	1
04678	Phenol	108-95-2	1	U	1	0.6	1
04678	Pyrene	129-00-0	0.6	U	0.6	0.1	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: HGR-WL01-112014 Composite Groundwater
Drum #3
Dow Hanging Rock, OH

LL Sample # WW 7684701
LL Group # 1520423
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:50 by DR

Submitted: 11/21/2014 08:30
Reported: 12/02/2014 09:09

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WL-01 SDG#: DHR27-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	2,4,5-Trichlorophenol	95-95-4	1	U	1	0.6	1
04678	2,4,6-Trichlorophenol	88-06-2	1	U	1	0.6	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	**mg/l**	
07035	Arsenic	7440-38-2	0.0200	U	0.0200	0.0072	1
07046	Barium	7440-39-3	0.0214		0.0050	0.00033	1
07049	Cadmium	7440-43-9	0.00036	J	0.0050	0.00033	1
07051	Chromium	7440-47-3	0.0107	J	0.0150	0.0013	1
07055	Lead	7439-92-1	0.0150	U	0.0150	0.0047	1
07036	Selenium	7782-49-2	0.0200	U	0.0200	0.0048	1
07066	Silver	7440-22-4	0.0050	U	0.0050	0.0018	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000060	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
10335	TCL 4.3 VOCs Water	SW-846 8260B	1	T143331AA	11/29/2014	10:30	Sarah A Guill	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T143331AA	11/29/2014	10:30	Sarah A Guill	10
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14328WAJ026	11/25/2014	13:49	Brian K Graham	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14325WAJ026	11/24/2014	09:59	Brian K Graham	1
00813	BNA Water Extraction	SW-846 3510C	1	14328WAJ026	11/24/2014	20:30	Nicholas W Shroyer	1
00813	BNA Water Extraction	SW-846 3510C	2	14325WAJ026	11/22/2014	16:15	Nicholas W Shroyer	1
07035	Arsenic	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07046	Barium	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07049	Cadmium	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07051	Chromium	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07055	Lead	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07036	Selenium	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
07066	Silver	SW-846 6010B	1	143251848001	11/23/2014	12:28	Eric L Eby	1
00259	Mercury	SW-846 7470A	1	143255713003	11/24/2014	09:32	Damary Valentin	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	143251848001	11/22/2014	13:18	James L Mertz	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713003	11/23/2014	07:35	James L Mertz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B143291AA	Sample number(s): 7684699									
Acetone	20	U	20.	7	ug/kg	88	92	53-141	5	30
Benzene	5	U	5.	0.5	ug/kg	88	92	80-120	5	30
Bromodichloromethane	5	U	5.	1	ug/kg	91	94	75-120	3	30
Bromoform	5	U	5.	1	ug/kg	85	86	70-126	1	30
Bromomethane	5	U	5.	2	ug/kg	95	101	32-162	6	30
2-Butanone	10	U	10.	4	ug/kg	82	87	62-123	6	30
Carbon Disulfide	5	U	5.	1	ug/kg	94	95	63-128	2	30
Carbon Tetrachloride	5	U	5.	1	ug/kg	98	103	69-130	5	30
Chlorobenzene	5	U	5.	1	ug/kg	89	91	80-120	2	30
Chloroethane	5	U	5.	2	ug/kg	91	95	17-171	5	30
Chloroform	5	U	5.	1	ug/kg	97	100	80-125	3	30
Chloromethane	5	U	5.	2	ug/kg	81	87	56-120	7	30
Cyclohexane	5	U	5.	1	ug/kg	78	83	64-121	7	30
1,2-Dibromo-3-chloropropane	5	U	5.	2	ug/kg	92	93	59-122	2	30
Dibromochloromethane	5	U	5.	1	ug/kg	93	93	77-120	0	30
1,2-Dibromoethane	5	U	5.	1	ug/kg	89	92	80-120	3	30
1,2-Dichlorobenzene	5	U	5.	1	ug/kg	85	88	80-120	3	30
1,3-Dichlorobenzene	5	U	5.	1	ug/kg	81	84	80-120	4	30
1,4-Dichlorobenzene	5	U	5.	1	ug/kg	83	85	80-120	2	30
Dichlorodifluoromethane	5	U	5.	2	ug/kg	93	97	26-137	5	30
1,1-Dichloroethane	5	U	5.	1	ug/kg	86	95	80-122	10	30
1,2-Dichloroethane	5	U	5.	1	ug/kg	100	106	77-130	6	30
1,1-Dichloroethene	5	U	5.	1	ug/kg	100	105	73-129	5	30
cis-1,2-Dichloroethene	5	U	5.	1	ug/kg	88	93	80-120	5	30
trans-1,2-Dichloroethene	5	U	5.	1	ug/kg	102	102	80-129	0	30
1,2-Dichloropropane	5	U	5.	1	ug/kg	83	83	80-120	0	30
cis-1,3-Dichloropropene	5	U	5.	1	ug/kg	86	90	74-120	5	30
trans-1,3-Dichloropropene	5	U	5.	1	ug/kg	90	92	76-120	2	30
Ethylbenzene	5	U	5.	1	ug/kg	90	92	80-120	3	30
Freon 113	10	U	10.	2	ug/kg	95	99	64-137	4	30
2-Hexanone	10	U	10.	3	ug/kg	85	89	51-120	5	30
Isopropylbenzene	5	U	5.	1	ug/kg	91	93	76-120	2	30
Methyl Acetate	5	U	5.	2	ug/kg	94	101	55-149	7	30
Methyl Tertiary Butyl Ether	5	U	5.	0.5	ug/kg	98	102	76-122	5	30
4-Methyl-2-pentanone	10	U	10.	3	ug/kg	75	82	57-123	8	30
Methylcyclohexane	5	U	5.	1	ug/kg	87	91	65-127	4	30
Methylene Chloride	5	U	5.	2	ug/kg	98	98	80-124	0	30
Styrene	5	U	5.	1	ug/kg	94	94	76-120	0	30
1,1,2,2-Tetrachloroethane	5	U	5.	1	ug/kg	82	86	71-123	5	30
Tetrachloroethene	5	U	5.	1	ug/kg	85	87	78-120	3	30
Toluene	5	U	5.	1	ug/kg	90	92	80-120	2	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	74	79	68-120	6	30
1,1,1-Trichloroethane	5	U	5.	1	ug/kg	93	98	63-135	5	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	5	U	5.	1	ug/kg	91	94	80-120	3	30
Trichloroethene	5	U	5.	1	ug/kg	90	94	80-125	4	30
Trichlorofluoromethane	5	U	5.	2	ug/kg	107	114	58-133	6	30
Vinyl Chloride	5	U	5.	1	ug/kg	87	96	59-120	9	30
Xylene (Total)	5	U	5.	1	ug/kg	90	92	80-120	2	30
Batch number: Q143281AA	Sample number(s): 7684700									
Acetone	1,000 U		1,000.	350	ug/kg	85	82	53-141	4	30
Benzene	250 U		250.	25	ug/kg	94	94	80-120	0	30
Bromodichloromethane	250 U		250.	50	ug/kg	97	94	75-120	3	30
Bromoform	250 U		250.	50	ug/kg	88	88	70-126	1	30
Bromomethane	250 U		250.	100	ug/kg	141	141	32-162	0	30
2-Butanone	500 U		500.	200	ug/kg	88	84	62-123	4	30
Carbon Disulfide	250 U		250.	50	ug/kg	82	82	63-128	1	30
Carbon Tetrachloride	250 U		250.	50	ug/kg	104	104	69-130	0	30
Chlorobenzene	250 U		250.	50	ug/kg	95	95	80-120	0	30
Chloroethane	250 U		250.	100	ug/kg	109	111	17-171	1	30
Chloroform	250 U		250.	50	ug/kg	104	104	80-125	1	30
Chloromethane	250 U		250.	100	ug/kg	84	83	56-120	1	30
Cyclohexane	250 U		250.	50	ug/kg	75	76	64-121	1	30
1,2-Dibromo-3-chloropropane	250 U		250.	100	ug/kg	87	86	59-122	2	30
Dibromochloromethane	250 U		250.	50	ug/kg	92	94	77-120	2	30
1,2-Dibromoethane	250 U		250.	50	ug/kg	95	97	80-120	1	30
1,2-Dichlorobenzene	250 U		250.	50	ug/kg	93	93	80-120	0	30
1,3-Dichlorobenzene	250 U		250.	50	ug/kg	94	94	80-120	0	30
1,4-Dichlorobenzene	250 U		250.	50	ug/kg	95	94	80-120	1	30
Dichlorodifluoromethane	250 U		250.	100	ug/kg	73	74	26-137	1	30
1,1-Dichloroethane	250 U		250.	50	ug/kg	101	100	80-122	1	30
1,2-Dichloroethane	250 U		250.	50	ug/kg	117	115	77-130	2	30
1,1-Dichloroethene	250 U		250.	50	ug/kg	99	94	73-129	4	30
cis-1,2-Dichloroethene	250 U		250.	50	ug/kg	96	95	80-120	0	30
trans-1,2-Dichloroethene	250		250.	50	ug/kg	95	97	80-129	2	30

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloropropane	U 250	250.	50	ug/kg	93	93	80-120	0	30
cis-1,3-Dichloropropene	U 250	250.	50	ug/kg	96	95	74-120	0	30
trans-1,3-Dichloropropene	U 250	250.	50	ug/kg	98	99	76-120	1	30
Ethylbenzene	U 250	250.	50	ug/kg	93	93	80-120	1	30
Freon 113	U 500	500.	100	ug/kg	81	81	64-137	1	30
2-Hexanone	U 500	500.	150	ug/kg	93	90	51-120	3	30
Isopropylbenzene	U 250	250.	50	ug/kg	91	89	76-120	2	30
Methyl Acetate	U 250	250.	100	ug/kg	98	95	55-149	3	30
Methyl Tertiary Butyl Ether	U 250	250.	25	ug/kg	102	100	76-122	2	30
4-Methyl-2-pentanone	U 500	500.	150	ug/kg	88	88	57-123	0	30
Methylcyclohexane	U 250	250.	50	ug/kg	76	77	65-127	2	30
Methylene Chloride	U 250	250.	100	ug/kg	99	97	80-124	3	30
Styrene	U 250	250.	50	ug/kg	90	91	76-120	0	30
1,1,2,2-Tetrachloroethane	U 250	250.	50	ug/kg	93	91	71-123	1	30
Tetrachloroethene	U 250	250.	50	ug/kg	92	95	78-120	3	30
Toluene	U 250	250.	50	ug/kg	93	92	80-120	0	30
1,2,4-Trichlorobenzene	U 250	250.	50	ug/kg	79	83	68-120	6	30
1,1,1-Trichloroethane	U 250	250.	50	ug/kg	105	106	63-135	0	30
1,1,2-Trichloroethane	U 250	250.	50	ug/kg	94	93	80-120	0	30
Trichloroethene	U 250	250.	50	ug/kg	100	99	80-125	2	30
Trichlorofluoromethane	U 250	250.	100	ug/kg	102	103	58-133	1	30
Vinyl Chloride	U 250	250.	50	ug/kg	86	86	59-120	0	30
Xylene (Total)	U 250	250.	50	ug/kg	91	91	80-120	0	30

Batch number: T143331AA Sample number(s): 7684701

Acetone	20 U	20.	6	ug/l	96	55-129
Benzene	1 U	1.	0.5	ug/l	104	78-120
Bromodichloromethane	1 U	1.	0.5	ug/l	97	73-120
Bromoform	4 U	4.	0.5	ug/l	86	61-120
Bromomethane	1 U	1.	0.5	ug/l	107	53-130
2-Butanone	10 U	10.	3	ug/l	96	54-133
Carbon Disulfide	5 U	5.	1	ug/l	107	58-126

*- 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: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Carbon Tetrachloride	1	U	1.	0.5	ug/l	98		74-130		
Chlorobenzene	1	U	1.	0.5	ug/l	102		80-120		
Chloroethane	1	U	1.	0.5	ug/l	102		56-120		
Chloroform	1	U	1.	0.5	ug/l	103		80-122		
Chloromethane	1	U	1.	0.5	ug/l	100		63-120		
Cyclohexane	5	U	5.	2	ug/l	103		62-121		
1,2-Dibromo-3-chloropropane	5	U	5.	2	ug/l	101		56-120		
Dibromochloromethane	1	U	1.	0.5	ug/l	95		72-120		
1,2-Dibromoethane	1	U	1.	0.5	ug/l	102		80-120		
1,2-Dichlorobenzene	5	U	5.	1	ug/l	95		80-120		
1,3-Dichlorobenzene	5	U	5.	1	ug/l	97		80-120		
1,4-Dichlorobenzene	5	U	5.	1	ug/l	100		80-120		
Dichlorodifluoromethane	1	U	1.	0.5	ug/l	83		55-127		
1,1-Dichloroethane	1	U	1.	0.5	ug/l	101		80-120		
1,2-Dichloroethane	1	U	1.	0.5	ug/l	93		65-135		
1,1-Dichloroethene	1	U	1.	0.5	ug/l	101		76-124		
cis-1,2-Dichloroethene	1	U	1.	0.5	ug/l	105		80-120		
trans-1,2-Dichloroethene	1	U	1.	0.5	ug/l	109		80-120		
1,2-Dichloropropane	1	U	1.	0.5	ug/l	105		80-120		
cis-1,3-Dichloropropene	1	U	1.	0.5	ug/l	100		80-120		
trans-1,3-Dichloropropene	1	U	1.	0.5	ug/l	94		76-120		
Ethylbenzene	1	U	1.	0.5	ug/l	101		79-120		
Freon 113	10	U	10.	2	ug/l	102		67-127		
2-Hexanone	10	U	10.	3	ug/l	91		57-127		
Isopropylbenzene	5	U	5.	1	ug/l	99		80-120		
Methyl Acetate	5	U	5.	1	ug/l	99		54-138		
Methyl Tertiary Butyl Ether	1	U	1.	0.5	ug/l	97		75-120		
4-Methyl-2-pentanone	10	U	10.	3	ug/l	93		51-124		
Methylcyclohexane	5	U	5.	1	ug/l	99		66-126		
Methylene Chloride	4	U	4.	2	ug/l	109		80-120		
Styrene	5	U	5.	1	ug/l	99		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	0.5	ug/l	105		70-120		
Tetrachloroethene	1	U	1.	0.5	ug/l	106		80-120		
Toluene	1	U	1.	0.5	ug/l	104		80-120		
1,2,4-Trichlorobenzene	5	U	5.	1	ug/l	89		73-120		
1,1,1-Trichloroethane	1	U	1.	0.5	ug/l	101		66-126		
1,1,2-Trichloroethane	1	U	1.	0.5	ug/l	101		80-120		
Trichloroethene	1	U	1.	0.5	ug/l	105		80-120		
Trichlorofluoromethane	1	U	1.	0.5	ug/l	74		58-135		
Vinyl Chloride	1	U	1.	0.5	ug/l	95		63-120		
Xylene (Total)	1	U	1.	0.5	ug/l	99		80-120		
Batch number: 14325WAJ026	Sample number(s): 7684701									
Acenaphthene	0.5	U	0.5	0.1	ug/l	82		80-112		
Acenaphthylene	0.5	U	0.5	0.1	ug/l	86		84-125		
Acetophenone	1	U	1.	0.5	ug/l	83		78-112		
Anthracene	0.5	U	0.5	0.1	ug/l	85		82-116		
Atrazine	5	U	5.	2	ug/l	87		79-129		
Benzaldehyde	5	U	5.	1	ug/l	65		10-123		
Benzo(a)anthracene	0.5	U	0.5	0.1	ug/l	90		81-126		
Benzo(a)pyrene	0.5	U	0.5	0.1	ug/l	86		82-116		
Benzo(b)fluoranthene	0.5	U	0.5	0.1	ug/l	88		82-121		
Benzo(g,h,i)perylene	0.5	U	0.5	0.1	ug/l	90		76-128		
Benzo(k)fluoranthene	0.5	U	0.5	0.1	ug/l	89		81-122		
1,1'-Biphenyl	1	U	1.	0.5	ug/l	87		56-134		
4-Bromophenyl-phenylether	1	U	1.	0.5	ug/l	91		82-118		

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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: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Butylbenzylphthalate	5	U	5.	2	ug/l	76		73-122		
Di-n-butylphthalate	5	U	5.	2	ug/l	81		80-119		
Caprolactam	15	U	15.	5	ug/l	18		10-56		
Carbazole	1	U	1.	0.5	ug/l	92		84-117		
4-Chloro-3-methylphenol	1	U	1.	0.5	ug/l	81		78-118		
4-Chloroaniline	1	U	1.	0.5	ug/l	65		44-114		
bis(2-Chloroethoxy)methane	1	U	1.	0.5	ug/l	89		77-115		
bis(2-Chloroethyl)ether	1	U	1.	0.5	ug/l	86		78-112		
2-Chloronaphthalene	1	U	1.	0.4	ug/l	78		66-125		
2-Chlorophenol	1	U	1.	0.5	ug/l	79		76-111		
4-Chlorophenyl-phenylether	1	U	1.	0.5	ug/l	85		78-119		
2,2'-oxybis(1-Chloropropane)	1	U	1.	0.5	ug/l	99		66-115		
Chrysene	0.5	U	0.5	0.1	ug/l	92		81-120		
Dibenz(a,h)anthracene	0.5	U	0.5	0.1	ug/l	90		80-130		
Dibenzofuran	1	U	1.	0.5	ug/l	86		81-110		
3,3'-Dichlorobenzidine	5	U	5.	2	ug/l	55		39-111		
2,4-Dichlorophenol	1	U	1.	0.5	ug/l	82*		84-119		
Diethylphthalate	5	U	5.	2	ug/l	79		70-118		
2,4-Dimethylphenol	1	U	1.	0.5	ug/l	81		75-110		
Dimethylphthalate	5	U	5.	2	ug/l	79		43-128		
4,6-Dinitro-2-methylphenol	15	U	15.	5	ug/l	91		63-131		
2,4-Dinitrophenol	30	U	30.	10	ug/l	84		39-130		
2,4-Dinitrotoluene	5	U	5.	1	ug/l	86		84-126		
2,6-Dinitrotoluene	1	U	1.	0.5	ug/l	90		81-124		
bis(2-Ethylhexyl)phthalate	5	U	5.	2	ug/l	83		78-124		
Fluoranthene	0.5	U	0.5	0.1	ug/l	86		82-121		
Fluorene	0.5	U	0.5	0.1	ug/l	88		80-117		
Hexachlorobenzene	0.5	U	0.5	0.1	ug/l	88		80-119		
Hexachlorobutadiene	1	U	1.	0.5	ug/l	68		55-124		
Hexachlorocyclopentadiene	15	U	15.	5	ug/l	50		18-130		
Hexachloroethane	5	U	5.	1	ug/l	76		55-109		
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	0.1	ug/l	87		80-126		
Isophorone	1	U	1.	0.5	ug/l	92		81-124		
2-Methylnaphthalene	0.5	U	0.5	0.1	ug/l	74*		75-106		
2-Methylphenol	1	U	1.	0.5	ug/l	80		72-111		
4-Methylphenol	1	U	1.	0.5	ug/l	71		56-109		
Naphthalene	0.5	U	0.5	0.1	ug/l	83		75-108		
2-Nitroaniline	1	U	1.	0.5	ug/l	85		84-122		
3-Nitroaniline	1	U	1.	0.5	ug/l	75		61-117		
4-Nitroaniline	1	U	1.	0.5	ug/l	72		66-110		
Nitrobenzene	1	U	1.	0.5	ug/l	95		77-119		
2-Nitrophenol	1	U	1.	0.5	ug/l	81*		82-121		
4-Nitrophenol	30	U	30.	10	ug/l	41		20-89		
N-Nitroso-di-n-propylamine	1	U	1.	0.5	ug/l	84		71-117		
N-Nitrosodiphenylamine	1	U	1.	0.5	ug/l	89		80-115		
Di-n-octylphthalate	5	U	5.	2	ug/l	87		78-129		
Pentachlorophenol	5	U	5.	1	ug/l	80		60-130		
Phenanthrene	0.5	U	0.5	0.1	ug/l	83		81-114		
Phenol	1	U	1.	0.5	ug/l	42		25-80		
Pyrene	0.5	U	0.5	0.1	ug/l	84		81-112		
2,4,5-Trichlorophenol	1	U	1.	0.5	ug/l	85		81-121		
2,4,6-Trichlorophenol	1	U	1.	0.5	ug/l	83*		84-119		
Batch number: 14328WAJ026	Sample number(s): 7684701									
Acenaphthene	0.5	U	0.5	0.1	ug/l	93	91	80-112	3	30
Acenaphthylene	0.5	U	0.5	0.1	ug/l	93	89	84-125	4	30

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423

Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Acetophenone	1	U	1.	0.5	ug/l	95	93	78-112	2	30
Anthracene	0.5	U	0.5	0.1	ug/l	92	92	82-116	1	30
Atrazine	5	U	5.	2	ug/l	96	96	79-129	1	30
Benzaldehyde	5	U	5.	1	ug/l	39	39	10-123	0	30
Benzo(a)anthracene	0.5	U	0.5	0.1	ug/l	104	100	81-126	3	30
Benzo(a)pyrene	0.5	U	0.5	0.1	ug/l	94	92	82-116	2	30
Benzo(b)fluoranthene	0.5	U	0.5	0.1	ug/l	101	94	82-121	7	30
Benzo(g,h,i)perylene	0.5	U	0.5	0.1	ug/l	102	100	76-128	2	30
Benzo(k)fluoranthene	0.5	U	0.5	0.1	ug/l	97	98	81-122	1	30
1,1'-Biphenyl	1	U	1.	0.5	ug/l	92	88	56-134	4	30
4-Bromophenyl-phenylether	1	U	1.	0.5	ug/l	101	98	82-118	4	30
Butylbenzylphthalate	5	U	5.	2	ug/l	89	87	73-122	2	30
Di-n-butylphthalate	5	U	5.	2	ug/l	87	85	80-119	2	30
Caprolactam	15	U	15.	5	ug/l	23	24	10-56	4	30
Carbazole	1	U	1.	0.5	ug/l	93	92	84-117	2	30
4-Chloro-3-methylphenol	1	U	1.	0.5	ug/l	94	94	78-118	0	30
4-Chloroaniline	1	U	1.	0.5	ug/l	86	84	44-114	2	30
bis(2-Chloroethoxy)methane	1	U	1.	0.5	ug/l	98	95	77-115	4	30
bis(2-Chloroethyl)ether	1	U	1.	0.5	ug/l	94	92	78-112	2	30
2-Chloronaphthalene	1	U	1.	0.4	ug/l	85	92	66-125	8	30
2-Chlorophenol	1	U	1.	0.5	ug/l	86	86	76-111	1	30
4-Chlorophenyl-phenylether	1	U	1.	0.5	ug/l	101	96	78-119	4	30
2,2'-oxybis(1-Chloropropane)	1	U	1.	0.5	ug/l	76	75	66-115	1	30
Chrysene	0.5	U	0.5	0.1	ug/l	107	103	81-120	4	30
Dibenz(a,h)anthracene	0.5	U	0.5	0.1	ug/l	102	99	80-130	4	30
Dibenzofuran	1	U	1.	0.5	ug/l	94	90	81-110	4	30
3,3'-Dichlorobenzidine	5	U	5.	2	ug/l	82	81	39-111	1	30
2,4-Dichlorophenol	1	U	1.	0.5	ug/l	98	96	84-119	3	30
Diethylphthalate	5	U	5.	2	ug/l	90	89	70-118	1	30
2,4-Dimethylphenol	1	U	1.	0.5	ug/l	93	91	75-110	2	30
Dimethylphthalate	5	U	5.	2	ug/l	88	88	43-128	1	30
4,6-Dinitro-2-methylphenol	15	U	15.	5	ug/l	100	99	63-131	1	30
2,4-Dinitrophenol	30	U	30.	10	ug/l	96	94	39-130	1	30
2,4-Dinitrotoluene	5	U	5.	1	ug/l	105	103	84-126	3	30
2,6-Dinitrotoluene	1	U	1.	0.5	ug/l	104	102	81-124	2	30
bis(2-Ethylhexyl)phthalate	5	U	5.	2	ug/l	94	90	78-124	4	30
Fluoranthene	0.5	U	0.5	0.1	ug/l	94	90	82-121	4	30
Fluorene	0.5	U	0.5	0.1	ug/l	95	91	80-117	5	30
Hexachlorobenzene	0.5	U	0.5	0.1	ug/l	101	98	80-119	3	30
Hexachlorobutadiene	1	U	1.	0.5	ug/l	90	87	55-124	4	30
Hexachlorocyclopentadiene	15	U	15.	5	ug/l	62	54	18-130	14	30
Hexachloroethane	5	U	5.	1	ug/l	83	80	55-109	4	30
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	0.1	ug/l	98	96	80-126	2	30
Isophorone	1	U	1.	0.5	ug/l	98	95	81-124	3	30
2-Methylnaphthalene	0.5	U	0.5	0.1	ug/l	89	85	75-106	5	30
2-Methylphenol	1	U	1.	0.5	ug/l	81	82	72-111	0	30
4-Methylphenol	1	U	1.	0.5	ug/l	74	75	56-109	1	30
Naphthalene	0.5	U	0.5	0.1	ug/l	92	88	75-108	5	30
2-Nitroaniline	1	U	1.	0.5	ug/l	95	95	84-122	1	30
3-Nitroaniline	1	U	1.	0.5	ug/l	86	83	61-117	4	30
4-Nitroaniline	1	U	1.	0.5	ug/l	85	84	66-110	1	30
Nitrobenzene	1	U	1.	0.5	ug/l	101	97	77-119	3	30
2-Nitrophenol	1	U	1.	0.5	ug/l	104	103	82-121	1	30
4-Nitrophenol	30	U	30.	10	ug/l	41	40	20-89	4	30
N-Nitroso-di-n-propylamine	1	U	1.	0.5	ug/l	94	91	71-117	3	30
N-Nitrosodiphenylamine	1	U	1.	0.5	ug/l	93	91	80-115	2	30

*- Outside of specification

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Di-n-octylphthalate	5	U	5.	2	ug/l	87	86	78-129	1	30
Pentachlorophenol	5	U	5.	1	ug/l	87	89	60-130	2	30
Phenanthrene	0.5	U	0.5	0.1	ug/l	92	90	81-114	2	30
Phenol	1	U	1.	0.5	ug/l	43	44	25-80	2	30
Pyrene	0.5	U	0.5	0.1	ug/l	92	88	81-112	5	30
2,4,5-Trichlorophenol	1	U	1.	0.5	ug/l	105	102	81-121	3	30
2,4,6-Trichlorophenol	1	U	1.	0.5	ug/l	100	100	84-119	0	30
Batch number: 14329SLF026	Sample number(s): 7684699-7684700									
Acenaphthene	17	U	17.	3	ug/kg	103		83-111		
Acenaphthylene	17	U	17.	3	ug/kg	113		83-127		
Acetophenone	33	U	33.	17	ug/kg	100		76-108		
Anthracene	17	U	17.	3	ug/kg	103		82-118		
Atrazine	170 U		170.	33	ug/kg	107		75-123		
Benzaldehyde	170 U		170.	67	ug/kg	39		10-82		
Benzo(a)anthracene	17	U	17.	3	ug/kg	98		76-119		
Benzo(a)pyrene	17	U	17.	3	ug/kg	104		84-122		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	109		78-129		
Benzo(g,h,i)perylene	17	U	17.	3	ug/kg	104		77-121		
Benzo(k)fluoranthene	17	U	17.	3	ug/kg	100		79-120		
1,1'-Biphenyl	33	U	33.	17	ug/kg	101		78-111		
4-Bromophenyl-phenylether	33	U	33.	17	ug/kg	97		84-120		
Butylbenzylphthalate	170 U		170.	67	ug/kg	96		80-118		
Di-n-butylphthalate	170 U		170.	67	ug/kg	102		84-120		
Caprolactam	170 U		170.	33	ug/kg	107		75-118		
Carbazole	33	U	33.	17	ug/kg	99		78-117		
4-Chloro-3-methylphenol	33	U	33.	17	ug/kg	109		79-127		
4-Chloroaniline	33	U	33.	17	ug/kg	34		10-105		
bis(2-Chloroethoxy)methane	33	U	33.	17	ug/kg	100		65-123		
bis(2-Chloroethyl)ether	33	U	33.	17	ug/kg	98		77-115		
2-Chloronaphthalene	33	U	33.	7	ug/kg	107		63-146		
2-Chlorophenol	33	U	33.	17	ug/kg	104		80-122		
4-Chlorophenyl-phenylether	33	U	33.	17	ug/kg	101		83-115		
2,2'-oxybis(1-Chloropropane)	33	U	33.	17	ug/kg	96		56-120		
Chrysene	17	U	17.	3	ug/kg	104		77-116		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	101		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	100		85-115		
3,3'-Dichlorobenzidine	330 U		330.	100	ug/kg	23		10-125		
2,4-Dichlorophenol	33	U	33.	17	ug/kg	111		81-123		
Diethylphthalate	170 U		170.	67	ug/kg	101		81-118		
2,4-Dimethylphenol	33	U	33.	17	ug/kg	102		83-120		
Dimethylphthalate	170 U		170.	67	ug/kg	100		82-113		
4,6-Dinitro-2-methylphenol	500 U		500.	170	ug/kg	82		67-131		
2,4-Dinitrophenol	1,000 U		1,000.	300	ug/kg	68		42-131		
2,4-Dinitrotoluene	170 U		170.	67	ug/kg	105		81-122		

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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: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,6-Dinitrotoluene	33	U	33.	17	ug/kg	105		83-120		
bis(2-Ethylhexyl)phthalate	170	U	170.	67	ug/kg	97		81-121		
Fluoranthene	17	U	17.	3	ug/kg	101		75-118		
Fluorene	17	U	17.	3	ug/kg	106		86-118		
Hexachlorobenzene	17	U	17.	3	ug/kg	95		80-121		
Hexachlorobutadiene	33	U	33.	17	ug/kg	98		78-121		
Hexachlorocyclopentadiene	500	U	500.	170	ug/kg	124		60-157		
Hexachloroethane	170	U	170.	33	ug/kg	96		78-114		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	100		76-122		
Isophorone	33	U	33.	17	ug/kg	110		83-119		
2-Methylnaphthalene	17	U	17.	3	ug/kg	98		83-109		
2-Methylphenol	33	U	33.	17	ug/kg	109		82-125		
4-Methylphenol	33	U	33.	17	ug/kg	105		75-119		
Naphthalene	17	U	17.	3	ug/kg	98		83-112		
2-Nitroaniline	33	U	33.	17	ug/kg	104		84-126		
3-Nitroaniline	170	U	170.	67	ug/kg	91		66-119		
4-Nitroaniline	170	U	170.	67	ug/kg	72		48-112		
Nitrobenzene	33	U	33.	17	ug/kg	102		80-115		
2-Nitrophenol	33	U	33.	17	ug/kg	98		83-120		
4-Nitrophenol	500	U	500.	170	ug/kg	97		64-121		
N-Nitroso-di-n-propylamine	33	U	33.	17	ug/kg	99		70-119		
N-Nitrosodiphenylamine	33	U	33.	17	ug/kg	101		83-118		
Di-n-octylphthalate	170	U	170.	67	ug/kg	101		82-134		
Pentachlorophenol	170	U	170.	33	ug/kg	99		46-133		
Phenanthrene	17	U	17.	3	ug/kg	98		80-114		
Phenol	33	U	33.	17	ug/kg	106		75-117		
Pyrene	17	U	17.	3	ug/kg	97		81-114		
2,4,5-Trichlorophenol	33	U	33.	17	ug/kg	103		86-123		
2,4,6-Trichlorophenol	33	U	33.	17	ug/kg	106		81-123		
Batch number: 143251848001	Sample number(s): 7684701									
Arsenic	0.0200	U	0.0200	0.0072	mg/l	97		80-120		
Barium	0.0050	U	0.0050	0.00033	mg/l	96		80-120		
Cadmium	0.0050	U	0.0050	0.00033	mg/l	99		80-120		
Chromium	0.0150	U	0.0150	0.0013	mg/l	95		80-120		
Lead	0.0150	U	0.0150	0.0047	mg/l	95		80-120		
Selenium	0.0200	U	0.0200	0.0048	mg/l	97		80-120		
Silver	0.0050	U	0.0050	0.0018	mg/l	97		80-120		
Batch number: 143255708001	Sample number(s): 7684699-7684700									
Arsenic	2.00	U	2.00	0.640	mg/kg	107		80-120		
Barium	0.500	U	0.500	0.0330	mg/kg	102		80-120		
Cadmium	0.500	U	0.500	0.0330	mg/kg	105		80-120		
Chromium	1.50	U	1.50	0.110	mg/kg	103		80-120		
Lead	1.50	U	1.50	0.500	mg/kg	103		80-120		
Selenium	2.00	U	2.00	0.440	mg/kg	108		80-120		
Silver	0.500	U	0.500	0.190	mg/kg	100		80-120		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 AM

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 143255711001	Sample number(s): 7684699-7684700								
Mercury	0.100 U	0.100	0.0100	mg/kg	84		80-120		
Batch number: 143255713003	Sample number(s): 7684701								
Mercury	0.00020 U	0.00020	0.00006 0	mg/l	81		80-120		
Batch number: 14328820001B	Sample number(s): 7684699-7684700								
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: Q143281AA	Sample number(s): 7684700 UNSPK: P682326								
Acetone	75	85	31-195	16	30				
Benzene	90	97	55-143	11	30				
Bromodichloromethane	90	97	53-136	10	30				
Bromoform	82	89	50-144	12	30				
Bromomethane	137	151	42-168	13	30				
2-Butanone	81	87	37-163	10	30				
Carbon Disulfide	72	80	48-146	13	30				
Carbon Tetrachloride	96	105	51-165	11	30				
Chlorobenzene	88	95	49-135	11	30				
Chloroethane	109	124	39-152	16	30				
Chloroform	96	106	61-142	13	30				
Chloromethane	77	82	36-143	10	30				
Cyclohexane	70	79	57-151	15	30				
1,2-Dibromo-3-chloropropane	80	87	34-165	11	30				
Dibromochloromethane	87	94	51-128	10	30				
1,2-Dibromoethane	89	98	54-129	12	30				
1,2-Dichlorobenzene	85	95	36-133	14	30				
1,3-Dichlorobenzene	86	95	34-134	12	30				
1,4-Dichlorobenzene	86	95	35-136	13	30				
Dichlorodifluoromethane	57	63	26-151	11	30				
1,1-Dichloroethane	91	100	63-142	12	30				
1,2-Dichloroethane	108	115	54-143	9	30				
1,1-Dichloroethene	89	98	61-149	12	30				
cis-1,2-Dichloroethene	91	98	67-135	10	30				
trans-1,2-Dichloroethene	92	101	64-144	12	30				
1,2-Dichloropropane	88	93	54-144	9	30				
cis-1,3-Dichloropropene	89	95	45-137	9	30				
trans-1,3-Dichloropropene	91	99	51-134	12	30				
Ethylbenzene	87	97	44-141	14	30				
Freon 113	72	83	56-156	18	30				
2-Hexanone	86	94	32-160	12	30				
Isopropylbenzene	83	94	38-144	14	30				
Methyl Acetate	97	102	48-161	8	30				
Methyl Tertiary Butyl Ether	93	101	55-129	12	30				
4-Methyl-2-pentanone	84	89	46-139	8	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 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
Methylcyclohexane	71	83	39-168	18	30				
Methylene Chloride	96	103	60-149	10	30				
Styrene	84	94	35-134	14	30				
1,1,2,2-Tetrachloroethane	81	92	29-182	15	30				
Tetrachloroethene	87	97	42-149	13	30				
Toluene	87	106	50-146	22	30				
1,2,4-Trichlorobenzene	71	84	10-136	19	30				
1,1,1-Trichloroethane	90	99	52-146	13	30				
1,1,2-Trichloroethane	87	95	58-152	12	30				
Trichloroethene	93	102	53-144	12	30				
Trichlorofluoromethane	94	107	47-163	15	30				
Vinyl Chloride	76	84	50-154	13	30				
Xylene (Total)	84	97	44-136	17	30				
Batch number: T143331AA	Sample number(s): 7684701 UNSPK: P689009								
Acetone	97	99	35-144	3	30				
Benzene	109	110	72-134	1	30				
Bromodichloromethane	98	96	73-125	2	30				
Bromoform	80	80	48-118	0	30				
Bromomethane	110	114	47-129	3	30				
2-Butanone	93	94	44-135	1	30				
Carbon Disulfide	114	112	53-149	2	30				
Carbon Tetrachloride	106	109	75-148	3	30				
Chlorobenzene	102	106	87-124	3	30				
Chloroethane	109	109	55-130	0	30				
Chloroform	106	107	81-134	1	30				
Chloromethane	104	113	61-125	9	30				
Cyclohexane	119	120	63-151	2	30				
1,2-Dibromo-3-chloropropane	86	89	50-123	3	30				
Dibromochloromethane	95	95	74-116	0	30				
1,2-Dibromoethane	101	105	77-116	4	30				
1,2-Dichlorobenzene	96	98	84-119	2	30				
1,3-Dichlorobenzene	96	100	86-121	4	30				
1,4-Dichlorobenzene	98	99	85-121	0	30				
Dichlorodifluoromethane	102	100	58-156	2	30				
1,1-Dichloroethane	105	108	84-129	2	30				
1,2-Dichloroethane	96	94	63-142	2	30				
1,1-Dichloroethene	108	108	79-137	0	30				
cis-1,2-Dichloroethene	120 (2)	111 (2)	80-141	2	30				
trans-1,2-Dichloroethene	112	112	86-131	0	30				
1,2-Dichloropropane	103	106	83-124	3	30				
cis-1,3-Dichloropropene	100	99	70-116	1	30				
trans-1,3-Dichloropropene	93	97	74-119	5	30				
Ethylbenzene	103	103	71-134	0	30				
Freon 113	118	118	89-148	0	30				
2-Hexanone	88	90	38-131	3	30				
Isopropylbenzene	100	102	75-128	2	30				
Methyl Acetate	94	96	51-137	2	30				
Methyl Tertiary Butyl Ether	98	98	72-126	0	30				
4-Methyl-2-pentanone	92	91	45-128	1	30				
Methylcyclohexane	116	115	80-156	1	30				
Methylene Chloride	112	111	78-133	0	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520423
Reported: 12/02/14 at 09:09 AM

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
Styrene	98	101	78-125	2	30				
1,1,2,2-Tetrachloroethane	96	100	72-128	4	30				
Tetrachloroethene	111	112	80-128	2	30				
Toluene	105	106	80-125	1	30				
1,2,4-Trichlorobenzene	89	91	56-137	2	30				
1,1,1-Trichloroethane	108	107	69-140	0	30				
1,1,2-Trichloroethane	98	100	71-141	2	30				
Trichloroethene	106	106	88-133	0	30				
Trichlorofluoromethane	89	88	63-163	1	30				
Vinyl Chloride	103	106	66-133	2	30				
Xylene (Total)	100	102	79-125	2	30				
Batch number: 14325WAJ026	Sample number(s): 7684701 UNSPK: P679735								
Acenaphthene	72*	82	74-119	13	30				
Acenaphthylene	74*	83*	86-121	13	30				
Acetophenone	74*	85	77-114	15	30				
Anthracene	74*	80	78-114	9	30				
Atrazine	78	86	65-141	11	30				
Benzaldehyde	61	70	10-77	15	30				
Benzo(a)anthracene	70*	72*	77-122	3	30				
Benzo(a)pyrene	63*	67*	73-125	6	30				
Benzo(b)fluoranthene	71*	72*	73-126	2	30				
Benzo(g,h,i)perylene	67	68	66-134	3	30				
Benzo(k)fluoranthene	71*	72	72-122	2	30				
1,1'-Biphenyl	75	83	73-114	11	30				
4-Bromophenyl-phenylether	80	85	76-124	7	30				
Butylbenzylphthalate	61*	69*	76-124	14	30				
Di-n-butylphthalate	73*	77*	79-118	7	30				
Caprolactam	17	18	10-44	7	30				
Carbazole	78	87	72-122	12	30				
4-Chloro-3-methylphenol	42	60	19-155	36*	30				
4-Chloroaniline	58	57	34-122	1	30				
bis(2-Chloroethoxy)methane	77	89	73-115	15	30				
bis(2-Chloroethyl)ether	76*	86	77-113	12	30				
2-Chloronaphthalene	67	83	64-134	22	30				
2-Chlorophenol	47	52	27-146	13	30				
4-Chlorophenyl-phenylether	75	80	73-117	7	30				
2,2'-oxybis(1-Chloropropane)	95	107	59-117	13	30				
Chrysene	73*	73*	78-128	1	30				
Dibenz(a,h)anthracene	66*	68*	72-132	3	30				
Dibenzofuran	74	83	71-116	13	30				
3,3'-Dichlorobenzidine	45	47	16-128	6	30				
2,4-Dichlorophenol	42	52	31-147	22	30				
Diethylphthalate	74	82	69-118	10	30				
2,4-Dimethylphenol	60	66	40-133	12	30				
Dimethylphthalate	73	85	54-125	15	30				
4,6-Dinitro-2-methylphenol	81	75	36-151	6	30				
2,4-Dinitrophenol	68	73	20-168	7	30				
2,4-Dinitrotoluene	69*	81	72-133	17	30				
2,6-Dinitrotoluene	78*	89	79-127	14	30				
bis(2-Ethylhexyl)phthalate	59*	60*	73-129	3	30				
Fluoranthene	76*	77*	78-122	3	30				

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520423
Reported: 12/02/14 at 09:09 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
Fluorene	74*	84	77-122	13	30				
Hexachlorobenzene	76	75	72-124	1	30				
Hexachlorobutadiene	61	66	53-126	8	30				
Hexachlorocyclopentadiene	63	68	26-142	9	30				
Hexachloroethane	67	75	50-119	12	30				
Indeno(1,2,3-cd)pyrene	64*	65*	69-129	3	30				
Isophorone	80	93	67-139	16	30				
2-Methylnaphthalene	64*	72	65-120	12	30				
2-Methylphenol	44	60	26-135	33*	30				
4-Methylphenol	37	52	13-128	34*	30				
Naphthalene	71	82	68-118	15	30				
2-Nitroaniline	75*	88	76-132	16	30				
3-Nitroaniline	65	69	49-124	7	30				
4-Nitroaniline	69	72	43-126	6	30				
Nitrobenzene	83	97	69-127	16	30				
2-Nitrophenol	82	77	53-147	5	30				
4-Nitrophenol	43	38	10-116	13	30				
N-Nitroso-di-n-propylamine	81	93	70-123	14	30				
N-Nitrosodiphenylamine	66*	80	75-124	20	30				
Di-n-octylphthalate	65*	66*	71-137	2	30				
Pentachlorophenol	55	56	23-133	2	30				
Phenanthrene	72*	79	76-112	10	30				
Phenol	25	34	10-107	31*	30				
Pyrene	69*	73*	79-111	7	30				
2,4,5-Trichlorophenol	57	64	37-148	12	30				
2,4,6-Trichlorophenol	37	45	19-162	22	30				

Batch number: 14329SLF026 Sample number(s): 7684699-7684700 UNSPK: P684010

Acenaphthene	-65*	100	55-132	51*	30
Acenaphthylene	98	103	53-143	3	30
Acetophenone	23*	83	67-111	30	30
Anthracene	-456 (2)	-294 (2)	42-147	41*	30
Atrazine	93	100	33-141	6	30
Benzaldehyde	55	56	10-85	1	30
Benzo(a)anthracene	-9*	90	32-150	34*	30
Benzo(a)pyrene	67	91	36-151	11	30
Benzo(b)fluoranthene	32	111	29-150	28	30
Benzo(g,h,i)perylene	93	95	41-147	1	30
Benzo(k)fluoranthene	79	84	35-146	2	30
1,1'-Biphenyl	28*	97	57-123	35*	30
4-Bromophenyl-phenylether	95	101	58-142	5	30
Butylbenzylphthalate	97	93	50-137	6	30
Di-n-butylphthalate	90	92	57-130	1	30
Caprolactam	94	104	53-124	9	30
Carbazole	-32*	63	36-143	43*	30
4-Chloro-3-methylphenol	92	93	39-150	0	30
4-Chloroaniline	63	67	10-100	4	30
bis(2-Chloroethoxy)methane	92	93	54-128	0	30
bis(2-Chloroethyl)ether	98	99	69-114	1	30
2-Chloronaphthalene	117	115	40-156	3	30
2-Chlorophenol	96	95	35-152	2	30

*- Outside of specification
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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: 1520423
Reported: 12/02/14 at 09:09 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
4-Chlorophenyl-phenylether	98	95	56-130	4	30				
2,2'-oxybis(1-Chloropropane)	94	93	62-114	2	30				
Chrysene	0*	82	28-146	32*	30				
Dibenz(a,h)anthracene	102	111	54-142	5	30				
Dibenzofuran	-137 (2)	88 (2)	46-137	54*	30				
3,3'-Dichlorobenzidine	67	66	10-143	3	30				
2,4-Dichlorophenol	97	98	39-153	1	30				
Diethylphthalate	88	89	54-127	1	30				
2,4-Dimethylphenol	70	81	38-140	10	30				
Dimethylphthalate	89	85	45-135	6	30				
4,6-Dinitro-2-methylphenol	139	147	10-148	4	30				
2,4-Dinitrophenol	114	116	20-143	0	30				
2,4-Dinitrotoluene	65	71	39-144	8	30				
2,6-Dinitrotoluene	71	79	54-134	9	30				
bis(2-Ethylhexyl)phthalate	113	130	52-138	13	30				
Fluoranthene	-283 (2)	126 (2)	41-135	45*	30				
Fluorene	-159 (2)	104 (2)	55-128	54*	30				
Hexachlorobenzene	93	97	46-132	4	30				
Hexachlorobutadiene	100	103	65-125	2	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	80	86	24-138	5	30				
Indeno(1,2,3-cd)pyrene	93	102	44-147	4	30				
Isophorone	100	100	68-119	1	30				
2-Methylnaphthalene	-333 (2)	59 (2)	39-140	64*	30				
2-Methylphenol	101	100	36-149	2	30				
4-Methylphenol	98	98	29-143	0	30				
Naphthalene	-1228 (2)	-90 (2)	44-142	77*	30				
2-Nitroaniline	112	106	64-131	7	30				
3-Nitroaniline	77	82	31-145	6	30				
4-Nitroaniline	116	125	30-131	7	30				
Nitrobenzene	89	93	41-141	3	30				
2-Nitrophenol	41*	41*	45-146	1	30				
4-Nitrophenol	0*	0*	25-142	0	30				
N-Nitroso-di-n-propylamine	93	88	58-126	7	30				
N-Nitrosodiphenylamine	96	102	59-135	5	30				
Di-n-octylphthalate	116	112	54-151	5	30				
Pentachlorophenol	68	79	23-145	13	30				
Phenanthrene	-579 (2)	140 (2)	42-141	58*	30				
Phenol	-152 (2)	92 (2)	61-130	36*	30				
Pyrene	-139 (2)	135 (2)	37-140	42*	30				
2,4,5-Trichlorophenol	93	89	64-131	5	30				
2,4,6-Trichlorophenol	83	90	60-136	7	30				

Batch number: 143251848001 Sample number(s): 7684701 UNSPK: P682896 BKG: P682896

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520423
Reported: 12/02/14 at 09:09 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
Arsenic	100	101	75-125	1	20	0.0200 U	0.0200 U	0 (1)	20
Barium	101	103	75-125	2	20	0.0435	0.0430	1	20
Cadmium	101	104	75-125	3	20	0.0050 U	0.0050 U	0 (1)	20
Chromium	100	101	75-125	2	20	0.0150 U	0.0150 U	0 (1)	20
Lead	98	101	75-125	3	20	0.0150 U	0.0150 U	0 (1)	20
Selenium	97	98	75-125	2	20	0.0200 U	0.0200 U	0 (1)	20
Silver	99	101	75-125	1	20	0.0050 U	0.0050 U	0 (1)	20
Batch number: 143255708001	Sample number(s): 7684699-7684700 UNSPK: P683061 BKG: P683061								
Arsenic	95	104	75-125	7	20	6.00	4.49	29* (1)	20
Barium	103	85	75-125	9	20	199	184	8	20
Cadmium	83	80	75-125	2	20	1.37	0.512	91* (1)	20
Chromium	99	119	75-125	7	20	33.7	33.7	0	20
Lead	-19*	-53*	75-125	10	20	55.0	29.9	59*	20
Selenium	95	94	75-125	1	20	3.05	1.88 J	47* (1)	20
Silver	96	97	75-125	2	20	0.490 U	0.476 U	0 (1)	20
Batch number: 143255711001	Sample number(s): 7684699-7684700 UNSPK: P679813 BKG: P679813								
Mercury	85	52*	75-125	16	20	0.247	0.246	0 (1)	20
Batch number: 143255713003	Sample number(s): 7684701 UNSPK: 7684701 BKG: 7684701								
Mercury	88	89	75-125	1	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 14328820001B	Sample number(s): 7684699-7684700 BKG: P685848								
Moisture						15.8	19.4	20*	5

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: VOCs- Solid by 8260B
Batch number: B143291AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7684699	104	93	100	100
Blank	103	100	99	102
LCS	101	95	106	115
LCSD	101	96	103	112
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: Q143281AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7684700	88	88	85	87
Blank	108	105	106	101
LCS	100	95	98	95
LCSD	100	97	99	96
MS	92	90	89	86

*- 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: 1520423
Reported: 12/02/14 at 09:09 AM

Surrogate Quality Control

MSD	99	94	97	93
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL 4.3 VOCs Water
Batch number: T143331AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7684701	99	102	95	94
Blank	102	103	98	94
LCS	97	100	96	96
MS	101	100	95	94
MSD	102	102	96	96
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14325WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7684701	1*	3*	1*	79	71	29*
RE						
Blank	43	27	70	73	72	84
LCS	54	36	79	85	81	91
MS	24	21	29	80	71	67
MSD	31	30	35	94	80	62
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14328WAJ026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7684701	6*	8*	2*	87	85	37*
Blank	52	34	98	98	98	105
LCS	53	36	98	93	94	102
LCSD	54	37	96	91	91	101
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: TCL 8270 (microwave)
Batch number: 14329SLF026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7684699	95	95	92	92	91	106
7684700	101	103	65	99	68	111
Blank	93	100	94	97	106	122
LCS	104	104	99	96	96	106
MS	91	95	66	83	94	105
MSD	90	90	79	85	92	104
Limits:	44-129	40-141	36-142	54-123	63-124	61-142

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

Acct. # 11372 For Eurofins Lancaster Laboratories Environmental use only Group # 1520423 Sample # 7684699-701
Instructions on reverse side correspond with circled numbers.

361440

1 Client Information

Client: CH2M HILL
Acct. #:
Project Name/#: Phase II RCRA Investigation
PWSID #:
Project Manager: Rachel Grand
P.O. #: CH2M HILL project # 652109
Sampler: Dee Roberts
Quote #:
Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#: 163390

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Sediment	Ground Water	Surface Water	Potable	NPDES	Other:	Total # of Containers	VOC's	SVOC's	metals RCRA	6 Remarks
HGR-WS01-112014	11/20/14	0925	✓	✓	✓							2	✓	✓	✓	Drum # 1
HGR-WS02-112014	11/20/14	0935		✓	✓							2	✓	✓	✓	2
HGR-WL01-112014	11/20/14	0950		✓			✓					6	3	2	1	3

7 Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 7 day TAT

E-mail address:

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
L Megahke	10/29/14	07:38			
Dee Roberts	11/20/14	1500			
			Received by	11-21-14	830

9

EDD Required? Yes No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ✓ Other ____
Temperature upon receipt 0.5 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 05, 2014

Project: Dow Hanging Rock, OH

Submittal Date: 11/21/2014
Group Number: 1520430
SDG: DHR28
PO Number: 10381-7-101541
Release Number: DHR28
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
VD10-GW-2529-112014 Grab Groundwater	7684730
VD10-GW-2529-112014 Grab Groundwater Filtered	7684731
112014TB Water	7684732

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
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: VD10-GW-2529-112014 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7684730
LL Group # 1520430
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 08:30 by DR

Submitted: 11/21/2014 08:30
Reported: 12/05/2014 08:37

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

2529T SDG#: DHR28-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.2	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	42	E	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.9		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1
Trial ID: DL							
02898	Acrylonitrile	107-13-1	50	U	50	10	10
02898	Benzene	71-43-2	5.0	U	5.0	1.0	10
02898	Bromoform	75-25-2	5.0	U	5.0	1.0	10
02898	Ethylbenzene	100-41-4	5.0	U	5.0	1.0	10
02898	Isopropylbenzene	98-82-8	5.0	U	5.0	1.0	10
02898	Methylene Chloride	75-09-2	5.0	U	5.0	2.0	10
02898	Naphthalene	91-20-3	5.0	U	5.0	1.0	10
02898	n-Propylbenzene	103-65-1	5.0	U	5.0	1.0	10
02898	Styrene	100-42-5	5.0	U	5.0	1.0	10
02898	Tetrachloroethene	127-18-4	35		5.0	1.0	10
02898	1,2,4-Trichlorobenzene	120-82-1	5.0	U	5.0	1.0	10
02898	Trichloroethene	79-01-6	5.0		5.0	1.0	10
02898	1,3,5-Trimethylbenzene	108-67-8	5.0	U	5.0	1.0	10
02898	m+p-Xylene	179601-23-1	5.0	U	5.0	1.0	10
02898	o-Xylene	95-47-6	5.0	U	5.0	1.0	10
GC/MS Semivolatiles	**SW-846 8270C**		ug/l		ug/l	ug/l	
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
Trial ID: RE							
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.6	1
04678	Nitrobenzene	98-95-3	1	U	1	0.6	1
04678	Pentachlorophenol	87-86-5	6	U	6	1	1
GC/MS Semivolatiles	**SW-846 8270C SIM**		ug/l		ug/l	ug/l	
10137	Benzo(a)anthracene	56-55-3	0.050	U	0.050	0.010	1
10137	Benzo(a)pyrene	50-32-8	0.050	U	0.050	0.010	1
10137	Benzo(b)fluoranthene	205-99-2	0.050	U	0.050	0.010	1
10137	Dibenz(a,h)anthracene	53-70-3	0.050	U	0.050	0.010	1
10137	Dibenzofuran	132-64-9	0.013	J	0.050	0.010	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VD10-GW-2529-112014 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 7684730
LL Group # 1520430
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 08:30 by DR

Submitted: 11/21/2014 08:30
Reported: 12/05/2014 08:37

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

2529T SDG#: DHR28-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C SIM**		**ug/l**	**ug/l**	**ug/l**	
10137	Indeno(1,2,3-cd)pyrene	193-39-5	0.050 U	0.050	0.010	1
10137	2-Methylnaphthalene	91-57-6	0.040 J	0.050	0.010	1
	The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. Sufficient sample was not available to repeat the analysis.					
Metals	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.124	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.563	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.0018 J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00057	0.00020	0.000060	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/25/2014	02:59	Sara E Johnson	1
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	2-DL	C143291AA	11/25/2014	12:48	Kerri E Legerlotz	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/25/2014	02:59	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	C143291AA	11/25/2014	12:48	Kerri E Legerlotz	10
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	14329WAI026	11/26/2014	17:09	Holly Berry	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	2-RE	14331WAH026	12/01/2014	20:27	William H Saadeh	1
10137	Selected SVOAs in water by SIM	SW-846 8270C SIM	1	14329WAJ026	11/29/2014	21:40	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	14329WAI026	11/26/2014	09:00	Jessica M Velez	1
00813	BNA Water Extraction	SW-846 3510C	2	14331WAH026	12/01/2014	10:00	Jessica M Velez	1
10466	BNA Water Extraction SIM	SW-846 3510C	1	14329WAJ026	11/26/2014	09:00	Jessica M Velez	1
06025	Arsenic	SW-846 6020	1	143256050006A	11/24/2014	18:31	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050006A	11/24/2014	18:31	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050006B	11/24/2014	18:31	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014	07:26	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050006	11/24/2014	08:53	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014	15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: VD10-GW-2529-112014 Grab Groundwater Filtered
Dow Hanging Rock, OH

LL Sample # WW 7684731
LL Group # 1520430
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 08:30 by DR

Submitted: 11/21/2014 08:30
Reported: 12/05/2014 08:37

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

2529F SDG#: DHR28-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
Metals Dissolved	**SW-846 6020**		**mg/l**	**mg/l**	**mg/l**	
06025	Arsenic	7440-38-2	0.0020 U	0.0020	0.00082	1
06031	Chromium	7440-47-3	0.0020 U	0.0020	0.00050	1
06041	Selenium	7782-49-2	0.00068 J	0.0020	0.00050	1
	SW-846 7470A		**mg/l**	**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020 U	0.00020	0.000060	1

General Sample Comments

This sample was field filtered for dissolved metals.

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
06025	Arsenic	SW-846 6020	1	143256050006A	11/24/2014 17:24	Maria A Orrs	1
06031	Chromium	SW-846 6020	1	143256050006A	11/24/2014 17:24	Maria A Orrs	1
06041	Selenium	SW-846 6020	1	143256050006B	11/24/2014 17:24	Maria A Orrs	1
00259	Mercury	SW-846 7470A	1	143255713006	11/25/2014 07:28	Damary Valentin	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	143256050006	11/24/2014 08:53	Micaela L Dishong	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	143255713006	11/24/2014 15:59	James L Mertz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 112014TB Water
Dow Hanging Rock, OH

LL Sample # WW 7684732
LL Group # 1520430
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 11/20/2014 09:00

Submitted: 11/21/2014 08:30
Reported: 12/05/2014 08:37

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

2529B SDG#: DHR28-03TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.2	J	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C143282AA	11/24/2014 23:58	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C143282AA	11/24/2014 23:58	Sara E Johnson	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1520430
Reported: 12/05/14 at 08:37 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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C143282AA	Sample number(s): 7684730,7684732									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	110		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	80		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	97		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	92		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	95		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	93		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	92		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	97		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	91		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	93		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	91		80-120		
Batch number: C143291AA	Sample number(s): 7684730									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	110		64-141		
Benzene	0.5	U	0.5	0.1	ug/l	97		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	80		72-138		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	96		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	97		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	99		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	91		72-120		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	95		80-120		
Styrene	0.5	U	0.5	0.1	ug/l	98		80-120		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	100		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Trichloroethene	0.5	U	0.5	0.1	ug/l	103		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	95		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	98		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	97		80-120		
Batch number: 14329WAI026	Sample number(s): 7684730									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	86	87	56-134	0	30
Nitrobenzene	1	U	1.	0.5	ug/l	99	98	77-119	1	30
Pentachlorophenol	5	U	5.	1	ug/l	86	87	60-130	1	30
Batch number: 14329WAJ026	Sample number(s): 7684730									
Benzo(a)anthracene	0.050	U	0.050	0.010	ug/l	105	112	79-122	6	30
Benzo(a)pyrene	0.050	U	0.050	0.010	ug/l	99	108	72-126	8	30
Benzo(b)fluoranthene	0.050	U	0.050	0.010	ug/l	105	117	79-136	11	30
Dibenz(a,h)anthracene	0.050	U	0.050	0.010	ug/l	86	98	42-143	13	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520430
Reported: 12/05/14 at 08:37 AM

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Dibenzofuran	0.050	U	0.050	0.010	ug/l	96	97	70-130	2	30
Indeno(1,2,3-cd)pyrene	0.050	U	0.050	0.010	ug/l	88	99	53-136	11	30
2-Methylnaphthalene	0.050	U	0.050	0.010	ug/l	95	100	68-124	4	30
Batch number: 14331WAH026	Sample number(s): 7684730									
1,1'-Biphenyl	1	U	1.	0.5	ug/l	98	101	56-134	2	30
Nitrobenzene	1	U	1.	0.5	ug/l	110	112	77-119	2	30
Pentachlorophenol	5	U	5.	1	ug/l	84	86	60-130	2	30
Batch number: 143255713006	Sample number(s): 7684730-7684731									
Mercury	0.00020	U	0.00020	0.00006 0	mg/l	92		80-120		
Batch number: 143256050006A	Sample number(s): 7684730-7684731									
Arsenic	0.0020	U	0.0020	0.00082	mg/l	104		80-120		
Chromium	0.0020	U	0.0020	0.00050	mg/l	100		80-120		
Batch number: 143256050006B	Sample number(s): 7684730-7684731									
Selenium	0.0020	U	0.0020	0.00050	mg/l	99		80-120		

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: C143282AA	Sample number(s): 7684730,7684732 UNSPK: P684748								
Acrylonitrile	106	107	56-161	0	30				
Benzene	103	102	87-126	1	30				
Bromoform	85	86	60-138	1	30				
Ethylbenzene	103	103	80-140	0	30				
Isopropylbenzene	105	103	81-133	1	30				
Methylene Chloride	104	104	77-135	0	30				
Naphthalene	94	96	56-132	2	30				
n-Propylbenzene	103	102	79-131	1	30				
Styrene	103	103	71-138	0	30				
Tetrachloroethene	108	106	75-129	2	30				
1,2,4-Trichlorobenzene	98	99	77-120	1	30				
Trichloroethene	109	108	85-131	1	30				
1,3,5-Trimethylbenzene	101	101	89-129	0	30				
m+p-Xylene	104	104	81-137	0	30				
o-Xylene	101	101	81-137	0	30				
Batch number: C143291AA	Sample number(s): 7684730 UNSPK: P684779								
Acrylonitrile	109	117	56-161	8	30				
Benzene	93	95	87-126	1	30				
Bromoform	84	86	60-138	2	30				
Ethylbenzene	97	100	80-140	3	30				
Isopropylbenzene	99	102	81-133	3	30				
Methylene Chloride	92	92	77-135	1	30				
Naphthalene	93	98	56-132	6	30				
n-Propylbenzene	96	99	79-131	3	30				

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520430
Reported: 12/05/14 at 08:37 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
Styrene	98	101	71-138	3	30				
Tetrachloroethene	101	103	75-129	2	30				
1,2,4-Trichlorobenzene	94	98	77-120	4	30				
Trichloroethene	101	102	85-131	1	30				
1,3,5-Trimethylbenzene	95	98	89-129	3	30				
m+p-Xylene	97	101	81-137	4	30				
o-Xylene	96	100	81-137	4	30				
Batch number: 143255713006	Sample number(s): 7684730-7684731 UNSPK: P682838 BKG: P682838								
Mercury	84	88	75-125	3	20	0.00055	0.00056	1 (1)	20
Batch number: 143256050006A	Sample number(s): 7684730-7684731 UNSPK: 7684731 BKG: 7684731								
Arsenic	105	112	75-125	6	20	0.0020 U	0.0020 U	0 (1)	20
Chromium	97	97	75-125	1	20	0.0020 U	0.0020 U	0 (1)	20
Batch number: 143256050006B	Sample number(s): 7684730-7684731 UNSPK: 7684731 BKG: 7684731								
Selenium	99	100	75-125	0	20	0.00068 J	0.00091 J	28* (1)	20

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: VOCs- 25ml Water by 8260B
Batch number: C143282AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7684730	103	101	98	95
7684732	101	100	97	96
Blank	101	100	98	96
LCS	101	102	98	98
MS	102	101	98	99
MSD	102	102	99	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: VOCs- 25ml Water by 8260B
Batch number: C143291AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7684730 DL	103	104	96	95
Blank	103	101	97	96
LCS	102	102	98	100
MS	103	101	98	99
MSD	102	100	98	98
Limits:	77-114	74-113	77-110	78-110

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14329WAI026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1520430
Reported: 12/05/14 at 08:37 AM

Surrogate Quality Control

7684730	10	13	11*	86	81	51
Blank	62	47	84	85	85	100
LCS	71	53	90	92	90	97
LCSD	74	54	92	92	91	100
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

Analysis Name: Selected SVOAs in water by SIM
Batch number: 14329WAJ026

	Fluoranthene-d10	Benzo(a)pyrene-d12	1-Methylnaphthalene-d10
7684730	78	14*	87
Blank	97	95	83
LCS	115	121	103
LCSD	120	130	106
Limits:	56-134	36-156	59-132

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 14331WAH026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
7684730 RE	3*	9*	2*	103	90	71
Blank	68	47	86	104	94	100
LCS	73	55	88	104	92	96
LCSD	72	53	90	107	95	99
Limits:	10-107	10-83	22-150	60-123	67-116	40-147

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Acct. # ~~1520430~~ 11372 Group # ~~7685~~ 7684 Sample # 7684730 - 32

Instructions on reverse side correspond with circled numbers.

361449

1 Client Information

Client: CH2M HILL

Acct. #:

Project Name/#: Phase II RCRA Investigation

PWSID #:

Project Manager: Rachel Grand

P.O. #: CH2M HILL project # 652109

Sampler: Dee Roberts

Quote #:

Name of state where samples were collected: Ohio

4 Matrix: Sediment ☐ Soil ☐ Ground ☑ Potable ☐ Surface ☐ NPDES ☐ Water ☑ Other: ____

5 Analysis Requested / Preservation Codes

For Lab Use Only

FSC:

SCR#: 163384

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	VOC's	SVOC's	metals (filtered) see SOW	metals (unfiltered) see SOW							6 Remarks (depth)
VP10-GW-2529-112014	11/20/14	0830	✓		7	3	2	1	1		**no preservative in VOC's					25-29'
112014TB	11/20/14	0900	✓		2	2										trip blank

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

8 Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
L Megashko	10/29/14	8:35			
Dee Roberts	11/20/14	1500			
			[illegible]	11.21.14	830

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.5 °C

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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

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 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.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

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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Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Soil and Water Samples
Collected on 10/06/15

SDG# DHR29

GROUP	SAMPLE NUMBERS
1598820	8079083-8079105

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:** **10/26/2015**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

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Sample Reference List for SDG Number DHR29
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
8079083	SS120	S01-SS12-0002-100615 Grab Soil
8079084	SS123	S01-SS12-0305-100615 Grab Soil
8079085	SS125	S01-SS12-0506-100615 Grab Soil
8079086	SS128	S01-SS12-0810-100615 Grab Soil
8079087	SS124	S01-SS12-2324-100615 Grab Soil
8079088	SS127	S01-SS12-2729-100615 Grab Soil
8079089	SSFD1	HGR-100615-FD01 Grab Soil
8079090	SS130	S01-SS13-0002-100615 Grab Soil
8079091	SS135	S01-SS13-0506-100615 Grab Soil
8079092	SS138	S01-SS13-0810-100615 Grab Soil
8079093	SS136	S01-SS13-2628-100615 Grab Soil
8079094	SS136	S01-SS13-2628-100615-MS Grab Soil
8079095	SS136	S01-SS13-2628-100615-MSD Grab Soil
8079096	SS110	S01-SS11-0002-100615 Grab Soil
8079097	SS113	S01-SS11-0304-100615 Grab Soil
8079098	SS118	S01-SS11-0810-100615 Grab Soil
8079099	SS119	S01-SS11-2829-100615 Grab Soil
8079100	SS100	S01-SS10-0002-100615 Grab Soil
8079101	SS103	S01-SS10-0305-100615 Grab Soil
8079102	SS101	S01-SS10-0809-100615 Grab Soil
8079103	SS107	S01-SS10-2728-100615 Grab Soil
8079104	SSTB1	100615TB01 Water
8079105	SSTB2	100615TB02 Water

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Sample pH Log

SDG: DHR29

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8079104	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8079105	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

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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.

10335 VOCs- 5ml Water by 8260B

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

10237 VOCs- Solid by 8260B

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

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-1997

07320 GC/MS - LL DIH2O 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 DI water. 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. DI vials are frozen after they are weighed to complete preservation step.

Reference: Test Methods for Evaluating Solid Wastes, SW-846, Method 5035A, Revision 1, July 2002.

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 5035A, Revision 1, July 2002.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

October 22, 2015

Project: Dow Hanging Rock, OH

Submittal Date: 10/07/2015
Group Number: 1598820
SDG: DHR29
PO Number: 10381-7-101541
Release Number: DHR29
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
S01-SS12-0002-100615 Grab Soil	8079083
S01-SS12-0305-100615 Grab Soil	8079084
S01-SS12-0506-100615 Grab Soil	8079085
S01-SS12-0810-100615 Grab Soil	8079086
S01-SS12-2324-100615 Grab Soil	8079087
S01-SS12-2729-100615 Grab Soil	8079088
HGR-100615-FD01 Grab Soil	8079089
S01-SS13-0002-100615 Grab Soil	8079090
S01-SS13-0506-100615 Grab Soil	8079091
S01-SS13-0810-100615 Grab Soil	8079092
S01-SS13-2628-100615 Grab Soil	8079093
S01-SS13-2628-100615-MS Grab Soil	8079094
S01-SS13-2628-100615-MSD Grab Soil	8079095
S01-SS11-0002-100615 Grab Soil	8079096
S01-SS11-0304-100615 Grab Soil	8079097
S01-SS11-0810-100615 Grab Soil	8079098
S01-SS11-2829-100615 Grab Soil	8079099
S01-SS10-0002-100615 Grab Soil	8079100
S01-SS10-0305-100615 Grab Soil	8079101
S01-SS10-0809-100615 Grab Soil	8079102
S01-SS10-2728-100615 Grab Soil	8079103
100615TB01 Water	8079104
100615TB02 Water	8079105

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

Sample Description: S01-SS12-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079083
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:45 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS120 SDG#: DHR29-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	970	U	970	190	40.13
10237	Benzene	71-43-2	240	U	240	24	40.13
10237	Bromoform	75-25-2	240	U	240	48	40.13
10237	Ethylbenzene	100-41-4	10,000		240	48	40.13
10237	Isopropylbenzene	98-82-8	240	U	240	48	40.13
10237	Methylene Chloride	75-09-2	240	U	240	97	40.13
10237	Naphthalene	91-20-3	240	U	240	48	40.13
10237	n-Propylbenzene	103-65-1	240	U	240	48	40.13
10237	Styrene	100-42-5	240	U	240	48	40.13
10237	Tetrachloroethene	127-18-4	240	U	240	48	40.13
10237	1,2,4-Trichlorobenzene	120-82-1	240	U	240	48	40.13
10237	Trichloroethene	79-01-6	240	U	240	48	40.13
10237	1,3,5-Trimethylbenzene	108-67-8	240	U	240	48	40.13
10237	m+p-Xylene	179601-23-1	240	U	240	48	40.13
10237	o-Xylene	95-47-6	240	U	240	48	40.13
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	4	J	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	6	J	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.2		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	R152851AA	10/12/2015 11:02	Anita M Dale	40.13
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: S01-SS12-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079083
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:45 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS120 SDG#: DHR29-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 16:54	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 11:30	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-0305-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079084
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:50 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS123 SDG#: DHR29-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	1,100	U	1,100	210	44.33
10237	Benzene	71-43-2	270	U	270	27	44.33
10237	Bromoform	75-25-2	270	U	270	53	44.33
10237	Ethylbenzene	100-41-4	23,000	E	270	53	44.33
10237	Isopropylbenzene	98-82-8	270	U	270	53	44.33
10237	Methylene Chloride	75-09-2	270	U	270	110	44.33
10237	Naphthalene	91-20-3	270	U	270	53	44.33
10237	n-Propylbenzene	103-65-1	270	U	270	53	44.33
10237	Styrene	100-42-5	270	U	270	53	44.33
10237	Tetrachloroethene	127-18-4	270	U	270	53	44.33
10237	1,2,4-Trichlorobenzene	120-82-1	270	U	270	53	44.33
10237	Trichloroethene	79-01-6	270	U	270	53	44.33
10237	1,3,5-Trimethylbenzene	108-67-8	270	U	270	53	44.33
10237	m+p-Xylene	179601-23-1	270	U	270	53	44.33
10237	o-Xylene	95-47-6	270	U	270	53	44.33
Trial ID: DL							
10237	Acrylonitrile	107-13-1	11,000	U	11,000	2,100	443.26
10237	Benzene	71-43-2	2,700	U	2,700	270	443.26
10237	Bromoform	75-25-2	2,700	U	2,700	530	443.26
10237	Ethylbenzene	100-41-4	21,000		2,700	530	443.26
10237	Isopropylbenzene	98-82-8	2,700	U	2,700	530	443.26
10237	Methylene Chloride	75-09-2	2,700	U	2,700	1,100	443.26
10237	Naphthalene	91-20-3	2,700	U	2,700	530	443.26
10237	n-Propylbenzene	103-65-1	2,700	U	2,700	530	443.26
10237	Styrene	100-42-5	2,700	U	2,700	530	443.26
10237	Tetrachloroethene	127-18-4	2,700	U	2,700	530	443.26
10237	1,2,4-Trichlorobenzene	120-82-1	2,700	U	2,700	530	443.26
10237	Trichloroethene	79-01-6	2,700	U	2,700	530	443.26
10237	1,3,5-Trimethylbenzene	108-67-8	2,700	U	2,700	530	443.26
10237	m+p-Xylene	179601-23-1	2,700	U	2,700	530	443.26
10237	o-Xylene	95-47-6	2,700	U	2,700	530	443.26
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-0305-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079084
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:50 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS123 SDG#: DHR29-02

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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	R152851AA	10/12/2015 11:25	Anita M Dale	44.33
10237	VOCs- Solid by 8260B	SW-846 8260B	2-DL	Q152861AA	10/13/2015 14:15	Anita M Dale	443.26
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 16:57	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 11:52	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS12-0506-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079085
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:05 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS125 SDG#: DHR29-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	970	U	970	190	41.25
10237	Benzene	71-43-2	240	U	240	24	41.25
10237	Bromoform	75-25-2	240	U	240	48	41.25
10237	Ethylbenzene	100-41-4	22,000	E	240	48	41.25
10237	Isopropylbenzene	98-82-8	240	U	240	48	41.25
10237	Methylene Chloride	75-09-2	240	U	240	97	41.25
10237	Naphthalene	91-20-3	240	U	240	48	41.25
10237	n-Propylbenzene	103-65-1	240	U	240	48	41.25
10237	Styrene	100-42-5	240	U	240	48	41.25
10237	Tetrachloroethene	127-18-4	240	U	240	48	41.25
10237	1,2,4-Trichlorobenzene	120-82-1	240	U	240	48	41.25
10237	Trichloroethene	79-01-6	240	U	240	48	41.25
10237	1,3,5-Trimethylbenzene	108-67-8	240	U	240	48	41.25
10237	m+p-Xylene	179601-23-1	240	U	240	48	41.25
10237	o-Xylene	95-47-6	240	U	240	48	41.25
Trial ID: DL							
10237	Acrylonitrile	107-13-1	9,700	U	9,700	1,900	412.54
10237	Benzene	71-43-2	2,400	U	2,400	240	412.54
10237	Bromoform	75-25-2	2,400	U	2,400	480	412.54
10237	Ethylbenzene	100-41-4	18,000		2,400	480	412.54
10237	Isopropylbenzene	98-82-8	2,400	U	2,400	480	412.54
10237	Methylene Chloride	75-09-2	2,400	U	2,400	970	412.54
10237	Naphthalene	91-20-3	2,400	U	2,400	480	412.54
10237	n-Propylbenzene	103-65-1	2,400	U	2,400	480	412.54
10237	Styrene	100-42-5	2,400	U	2,400	480	412.54
10237	Tetrachloroethene	127-18-4	2,400	U	2,400	480	412.54
10237	1,2,4-Trichlorobenzene	120-82-1	2,400	U	2,400	480	412.54
10237	Trichloroethene	79-01-6	2,400	U	2,400	480	412.54
10237	1,3,5-Trimethylbenzene	108-67-8	2,400	U	2,400	480	412.54
10237	m+p-Xylene	179601-23-1	2,400	U	2,400	480	412.54
10237	o-Xylene	95-47-6	2,400	U	2,400	480	412.54
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	4	J	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	8	J	20	4	1
10727	1,1'-Biphenyl	92-52-4	39	U	39	19	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	39	U	39	19	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	23		20	4	1
10727	Nitrobenzene	98-95-3	39	U	39	19	1
10727	Pentachlorophenol	87-86-5	200	U	200	39	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-0506-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079085
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:05 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS125 SDG#: DHR29-03

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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	R152851AA	10/12/2015 11:48	Anita M Dale	41.25
10237	VOCs- Solid by 8260B	SW-846 8260B	2-DL	Q152861AA	10/13/2015 14:39	Anita M Dale	412.54
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:24	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 16:58	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 12:13	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079086
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS128 SDG#: DHR29-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.83
10237	Benzene	71-43-2	0.5	J	5	0.5	0.83
10237	Bromoform	75-25-2	10		5	1	0.83
10237	Ethylbenzene	100-41-4	5	U	5	1	0.83
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.83
10237	Methylene Chloride	75-09-2	5	U	5	2	0.83
10237	Naphthalene	91-20-3	5	U	5	1	0.83
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.83
10237	Styrene	100-42-5	5	U	5	1	0.83
10237	Tetrachloroethene	127-18-4	62		5	1	0.83
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.83
10237	Trichloroethene	79-01-6	6		5	1	0.83
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.83
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.83
10237	o-Xylene	95-47-6	5	U	5	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	39	U	39	19	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	39	U	39	19	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	39	U	39	19	1
10727	Pentachlorophenol	87-86-5	200	U	200	39	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 22:06	Anita M Dale	0.83
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:02	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079086
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 09:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS128 SDG#: DHR29-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 12:35	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: S01-SS12-2324-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079087
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:20 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS124 SDG#: DHR29-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.98
10237	Benzene	71-43-2	5	U	5	0.5	0.98
10237	Bromoform	75-25-2	5	U	5	1	0.98
10237	Ethylbenzene	100-41-4	5	U	5	1	0.98
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.98
10237	Methylene Chloride	75-09-2	5	U	5	2	0.98
10237	Naphthalene	91-20-3	5	U	5	1	0.98
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.98
10237	Styrene	100-42-5	5	U	5	1	0.98
10237	Tetrachloroethene	127-18-4	2	J	5	1	0.98
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.98
10237	Trichloroethene	79-01-6	5	U	5	1	0.98
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.98
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.98
10237	o-Xylene	95-47-6	5	U	5	1	0.98
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	8	J	18	3	1
10727	1,1'-Biphenyl	92-52-4	34	U	34	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	34	U	34	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	34	U	34	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	34	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	3.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 22:29	Anita M Dale	0.98
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:03	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: S01-SS12-2324-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079087
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:20 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS124 SDG#: DHR29-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 12:57	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS12-2729-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079088
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:35 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS127 SDG#: DHR29-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	1.02
10237	Benzene	71-43-2	5	U	5	0.5	1.02
10237	Bromoform	75-25-2	5	U	5	1	1.02
10237	Ethylbenzene	100-41-4	5	U	5	1	1.02
10237	Isopropylbenzene	98-82-8	5	U	5	1	1.02
10237	Methylene Chloride	75-09-2	5	U	5	2	1.02
10237	Naphthalene	91-20-3	5	U	5	1	1.02
10237	n-Propylbenzene	103-65-1	5	U	5	1	1.02
10237	Styrene	100-42-5	5	U	5	1	1.02
10237	Tetrachloroethene	127-18-4	1	J	5	1	1.02
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1.02
10237	Trichloroethene	79-01-6	5	U	5	1	1.02
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1.02
10237	m+p-Xylene	179601-23-1	5	U	5	1	1.02
10237	o-Xylene	95-47-6	5	U	5	1	1.02
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	17	U	17	3	1
10727	Benzo(a)pyrene	50-32-8	17	U	17	3	1
10727	Benzo(b)fluoranthene	205-99-2	17	U	17	3	1
10727	1,1'-Biphenyl	92-52-4	34	U	34	17	1
10727	Dibenz(a,h)anthracene	53-70-3	17	U	17	3	1
10727	Dibenzofuran	132-64-9	34	U	34	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	17	U	17	3	1
10727	2-Methylnaphthalene	91-57-6	17	U	17	3	1
10727	Nitrobenzene	98-95-3	34	U	34	17	1
10727	Pentachlorophenol	87-86-5	170	U	170	34	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	3.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 22:52	Anita M Dale	1.02
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:07	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS12-2729-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079088
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:35 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS127 SDG#: DHR29-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 13:18	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: HGR-100615-FD01 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079089
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:30 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SSFD1 SDG#: DHR29-07FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.97
10237	Benzene	71-43-2	5	U	5	0.5	0.97
10237	Bromoform	75-25-2	5	U	5	1	0.97
10237	Ethylbenzene	100-41-4	110		5	1	0.97
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.97
10237	Methylene Chloride	75-09-2	5	U	5	2	0.97
10237	Naphthalene	91-20-3	5	U	5	1	0.97
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.97
10237	Styrene	100-42-5	5	U	5	1	0.97
10237	Tetrachloroethene	127-18-4	38		5	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.97
10237	Trichloroethene	79-01-6	1	J	5	1	0.97
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.97
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.97
10237	o-Xylene	95-47-6	5	U	5	1	0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	18	U	18	3	1
10727	1,1'-Biphenyl	92-52-4	34	U	34	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	34	U	34	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	34	U	34	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	34	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 23:14	Anita M Dale	0.97
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:09	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: HGR-100615-FD01 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079089
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 10:30 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SSFD1 SDG#: DHR29-07FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 13:40	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS13-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079090
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS130 SDG#: DHR29-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.87
10237	Benzene	71-43-2	5	U	5	0.5	0.87
10237	Bromoform	75-25-2	5	U	5	1	0.87
10237	Ethylbenzene	100-41-4	5	U	5	1	0.87
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.87
10237	Methylene Chloride	75-09-2	5	U	5	2	0.87
10237	Naphthalene	91-20-3	5	U	5	1	0.87
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.87
10237	Styrene	100-42-5	5	U	5	1	0.87
10237	Tetrachloroethene	127-18-4	1	J	5	1	0.87
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.87
10237	Trichloroethene	79-01-6	5	U	5	1	0.87
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.87
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.87
10237	o-Xylene	95-47-6	5	U	5	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	26		20	4	1
10727	Benzo(a)pyrene	50-32-8	20	J	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	28		20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	12	J	20	4	1
10727	2-Methylnaphthalene	91-57-6	8	J	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 23:37	Anita M Dale	0.87
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:10	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS13-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079090
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS130 SDG#: DHR29-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 14:01	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS13-0506-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079091
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS135 SDG#: DHR29-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.83
10237	Benzene	71-43-2	5	U	5	0.5	0.83
10237	Bromoform	75-25-2	5	U	5	1	0.83
10237	Ethylbenzene	100-41-4	2	J	5	1	0.83
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.83
10237	Methylene Chloride	75-09-2	5	U	5	2	0.83
10237	Naphthalene	91-20-3	8		5	1	0.83
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.83
10237	Styrene	100-42-5	5	U	5	1	0.83
10237	Tetrachloroethene	127-18-4	5		5	1	0.83
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.83
10237	Trichloroethene	79-01-6	5	U	5	1	0.83
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.83
10237	m+p-Xylene	179601-23-1	9		5	1	0.83
10237	o-Xylene	95-47-6	3	J	5	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	130		21	4	1
10727	Benzo(a)pyrene	50-32-8	110		21	4	1
10727	Benzo(b)fluoranthene	205-99-2	170		21	4	1
10727	1,1'-Biphenyl	92-52-4	41	U	41	20	1
10727	Dibenz(a,h)anthracene	53-70-3	23		21	4	1
10727	Dibenzofuran	132-64-9	41	U	41	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	66		21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 23:59	Anita M Dale	0.83
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:12	Mitchell R Washel	n.a.

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Analysis Report

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Sample Description: S01-SS13-0506-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079091
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS135 SDG#: DHR29-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 14:23	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS13-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079092
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:30 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS138 SDG#: DHR29-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	22	U	22	4	0.85
10237	Benzene	71-43-2	5	U	5	0.5	0.85
10237	Bromoform	75-25-2	5	U	5	1	0.85
10237	Ethylbenzene	100-41-4	5	U	5	1	0.85
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.85
10237	Methylene Chloride	75-09-2	5	U	5	2	0.85
10237	Naphthalene	91-20-3	5	U	5	1	0.85
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.85
10237	Styrene	100-42-5	5	U	5	1	0.85
10237	Tetrachloroethene	127-18-4	24		5	1	0.85
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.85
10237	Trichloroethene	79-01-6	5	U	5	1	0.85
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.85
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.85
10237	o-Xylene	95-47-6	5	U	5	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	41	U	41	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	41	U	41	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 00:22	Anita M Dale	0.85
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:25	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:14	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS13-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079092
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:30 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS138 SDG#: DHR29-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 14:44	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS13-2628-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079093
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.93
10237	Benzene	71-43-2	5	U	5	0.5	0.93
10237	Bromoform	75-25-2	5	U	5	1	0.93
10237	Ethylbenzene	100-41-4	5	U	5	1	0.93
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.93
10237	Methylene Chloride	75-09-2	5	U	5	2	0.93
10237	Naphthalene	91-20-3	5	U	5	1	0.93
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.93
10237	Styrene	100-42-5	5	U	5	1	0.93
10237	Tetrachloroethene	127-18-4	69		5	1	0.93
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.93
10237	Trichloroethene	79-01-6	1	J	5	1	0.93
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.93
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.93
10237	o-Xylene	95-47-6	5	U	5	1	0.93
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	110		18	3	1
10727	Benzo(a)pyrene	50-32-8	71		18	3	1
10727	Benzo(b)fluoranthene	205-99-2	110		18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	16	J	18	3	1
10727	Dibenzofuran	132-64-9	28	J	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	46		18	3	1
10727	2-Methylnaphthalene	91-57-6	6	J	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 20:59	Anita M Dale	0.93
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:26	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:21	Mitchell R Washel	n.a.

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Analysis Report

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Sample Description: S01-SS13-2628-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079093
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 15:06	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS13-2628-100615-MS Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079094
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Acrylonitrile	107-13-1	67	18	4	0.86
10237	Benzene	71-43-2	17	5	0.5	0.86
10237	Bromoform	75-25-2	11	5	0.9	0.86
10237	Ethylbenzene	100-41-4	15	5	0.9	0.86
10237	Isopropylbenzene	98-82-8	15	5	0.9	0.86
10237	Methylene Chloride	75-09-2	18	5	2	0.86
10237	Naphthalene	91-20-3	5	5	0.9	0.86
10237	n-Propylbenzene	103-65-1	14	5	0.9	0.86
10237	Styrene	100-42-5	13	5	0.9	0.86
10237	Tetrachloroethene	127-18-4	79	5	0.9	0.86
10237	1,2,4-Trichlorobenzene	120-82-1	5	5	0.9	0.86
10237	Trichloroethene	79-01-6	17	5	0.9	0.86
10237	1,3,5-Trimethylbenzene	108-67-8	14	5	0.9	0.86
10237	m+p-Xylene	179601-23-1	30	5	0.9	0.86
10237	o-Xylene	95-47-6	15	5	0.9	0.86
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Benzo(a)anthracene	56-55-3	1,700	18	3	1
10727	Benzo(a)pyrene	50-32-8	1,700	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	1,800	18	3	1
10727	1,1'-Biphenyl	92-52-4	1,600	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	1,800	18	3	1
10727	Dibenzofuran	132-64-9	1,700	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,700	18	3	1
10727	2-Methylnaphthalene	91-57-6	1,600	18	3	1
10727	Nitrobenzene	98-95-3	1,600	35	17	1
10727	Pentachlorophenol	87-86-5	1,500	180	35	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	4.9	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 21:21	Anita M Dale	0.86
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 17:26	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 17:23	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 15:28	Linda M Hartenstine	1

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Analysis Report

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Sample Description: S01-SS13-2628-100615-MS Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079094
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11MS

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	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00118	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS13-2628-100615-MSD Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079095
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	71	19	4	0.89
10237	Benzene	71-43-2	20	5	0.5	0.89
10237	Bromoform	75-25-2	13	5	0.9	0.89
10237	Ethylbenzene	100-41-4	20	5	0.9	0.89
10237	Isopropylbenzene	98-82-8	19	5	0.9	0.89
10237	Methylene Chloride	75-09-2	21	5	2	0.89
10237	Naphthalene	91-20-3	10	5	0.9	0.89
10237	n-Propylbenzene	103-65-1	21	5	0.9	0.89
10237	Styrene	100-42-5	18	5	0.9	0.89
10237	Tetrachloroethene	127-18-4	120	5	0.9	0.89
10237	1,2,4-Trichlorobenzene	120-82-1	10	5	0.9	0.89
10237	Trichloroethene	79-01-6	21	5	0.9	0.89
10237	1,3,5-Trimethylbenzene	108-67-8	21	5	0.9	0.89
10237	m+p-Xylene	179601-23-1	39	5	0.9	0.89
10237	o-Xylene	95-47-6	19	5	0.9	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	1,700	18	3	1
10727	Benzo(a)pyrene	50-32-8	1,700	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	1,800	18	3	1
10727	1,1'-Biphenyl	92-52-4	1,600	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	1,800	18	3	1
10727	Dibenzofuran	132-64-9	1,700	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,800	18	3	1
10727	2-Methylnaphthalene	91-57-6	1,600	18	3	1
10727	Nitrobenzene	98-95-3	1,600	35	17	1
10727	Pentachlorophenol	87-86-5	1,400	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	4.9	0.50	0.50	1
00121	Moisture Duplicate	n.a.	4.8	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/10/2015 21:44	Anita M Dale	0.89
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS13-2628-100615-MSD Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079095
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 11:55 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS136 SDG#: DHR29-11MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:10	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 15:49	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00118	Moisture	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997	1	15286820002A	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS11-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079096
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:05 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS110 SDG#: DHR29-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	19	U	19	4	0.81
10237	Benzene	71-43-2	5	U	5	0.5	0.81
10237	Bromoform	75-25-2	5	U	5	0.9	0.81
10237	Ethylbenzene	100-41-4	5	U	5	0.9	0.81
10237	Isopropylbenzene	98-82-8	5	U	5	0.9	0.81
10237	Methylene Chloride	75-09-2	5	U	5	2	0.81
10237	Naphthalene	91-20-3	5	U	5	0.9	0.81
10237	n-Propylbenzene	103-65-1	5	U	5	0.9	0.81
10237	Styrene	100-42-5	5	U	5	0.9	0.81
10237	Tetrachloroethene	127-18-4	5	U	5	0.9	0.81
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	0.9	0.81
10237	Trichloroethene	79-01-6	5	U	5	0.9	0.81
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	0.9	0.81
10237	m+p-Xylene	179601-23-1	5	U	5	0.9	0.81
10237	o-Xylene	95-47-6	5	U	5	0.9	0.81
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	39	U	39	19	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	39	U	39	19	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	39	U	39	19	1
10727	Pentachlorophenol	87-86-5	200	U	200	39	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	14.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 00:44	Anita M Dale	0.81
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:13	Mitchell R Washel	n.a.

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Analysis Report

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Sample Description: S01-SS11-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079096
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:05 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS110 SDG#: DHR29-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 16:11	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS11-0304-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079097
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS113 SDG#: DHR29-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.84
10237	Benzene	71-43-2	5	U	5	0.5	0.84
10237	Bromoform	75-25-2	5	U	5	1	0.84
10237	Ethylbenzene	100-41-4	5	U	5	1	0.84
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.84
10237	Methylene Chloride	75-09-2	5	U	5	2	0.84
10237	Naphthalene	91-20-3	5	U	5	1	0.84
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.84
10237	Styrene	100-42-5	5	U	5	1	0.84
10237	Tetrachloroethene	127-18-4	5	U	5	1	0.84
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.84
10237	Trichloroethene	79-01-6	5	U	5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.84
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.84
10237	o-Xylene	95-47-6	5	U	5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 01:07	Anita M Dale	0.84
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:16	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS11-0304-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079097
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS113 SDG#: DHR29-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 16:32	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS11-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079098
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS118 SDG#: DHR29-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.83
10237	Benzene	71-43-2	5	U	5	0.5	0.83
10237	Bromoform	75-25-2	5	U	5	1	0.83
10237	Ethylbenzene	100-41-4	5	U	5	1	0.83
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.83
10237	Methylene Chloride	75-09-2	5	U	5	2	0.83
10237	Naphthalene	91-20-3	5	U	5	1	0.83
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.83
10237	Styrene	100-42-5	5	U	5	1	0.83
10237	Tetrachloroethene	127-18-4	38		5	1	0.83
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.83
10237	Trichloroethene	79-01-6	1	J	5	1	0.83
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.83
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.83
10237	o-Xylene	95-47-6	5	U	5	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	39	U	39	19	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	39	U	39	19	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	39	U	39	19	1
10727	Pentachlorophenol	87-86-5	200	U	200	39	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 01:30	Anita M Dale	0.83
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:18	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS11-0810-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079098
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS118 SDG#: DHR29-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 16:54	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS11-2829-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079099
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:35 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS119 SDG#: DHR29-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	22	U	22	4	1.05
10237	Benzene	71-43-2	6	U	6	0.6	1.05
10237	Bromoform	75-25-2	6	U	6	1	1.05
10237	Ethylbenzene	100-41-4	6	U	6	1	1.05
10237	Isopropylbenzene	98-82-8	6	U	6	1	1.05
10237	Methylene Chloride	75-09-2	6	U	6	2	1.05
10237	Naphthalene	91-20-3	6	U	6	1	1.05
10237	n-Propylbenzene	103-65-1	6	U	6	1	1.05
10237	Styrene	100-42-5	6	U	6	1	1.05
10237	Tetrachloroethene	127-18-4	5	J	6	1	1.05
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	1.05
10237	Trichloroethene	79-01-6	6	U	6	1	1.05
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	1.05
10237	m+p-Xylene	179601-23-1	6	U	6	1	1.05
10237	o-Xylene	95-47-6	6	U	6	1	1.05
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	35	U	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 01:52	Anita M Dale	1.05
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:20	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

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Sample Description: S01-SS11-2829-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079099
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 14:35 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS119 SDG#: DHR29-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 17:16	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS10-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079100
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS100 SDG#: DHR29-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	920	U	920	180	38.64
10237	Benzene	71-43-2	230	U	230	23	38.64
10237	Bromoform	75-25-2	230	U	230	46	38.64
10237	Ethylbenzene	100-41-4	230	U	230	46	38.64
10237	Isopropylbenzene	98-82-8	230	U	230	46	38.64
10237	Methylene Chloride	75-09-2	230	U	230	92	38.64
10237	Naphthalene	91-20-3	230	U	230	46	38.64
10237	n-Propylbenzene	103-65-1	230	U	230	46	38.64
10237	Styrene	100-42-5	230	U	230	46	38.64
10237	Tetrachloroethene	127-18-4	230	U	230	46	38.64
10237	1,2,4-Trichlorobenzene	120-82-1	230	U	230	46	38.64
10237	Trichloroethene	79-01-6	230	U	230	46	38.64
10237	1,3,5-Trimethylbenzene	108-67-8	230	U	230	46	38.64
10237	m+p-Xylene	179601-23-1	230	U	230	46	38.64
10237	o-Xylene	95-47-6	230	U	230	46	38.64
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	26,000	E	39	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	170		39	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	11	J	20	4	1
10727	Nitrobenzene	98-95-3	39	U	39	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	39	1
Trial ID: DL							
10727	Benzo(a)anthracene	56-55-3	400	U	400	78	20
10727	Benzo(a)pyrene	50-32-8	400	U	400	78	20
10727	Benzo(b)fluoranthene	205-99-2	400	U	400	78	20
10727	1,1'-Biphenyl	92-52-4	73,000		780	390	20
10727	Dibenz(a,h)anthracene	53-70-3	400	U	400	78	20
10727	Dibenzofuran	132-64-9	780	U	780	390	20
10727	Indeno(1,2,3-cd)pyrene	193-39-5	400	U	400	78	20
10727	2-Methylnaphthalene	91-57-6	400	U	400	78	20
10727	Nitrobenzene	98-95-3	780	U	780	390	20
10727	Pentachlorophenol	87-86-5	4,000	U	4,000	780	20
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	15.9		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.						

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS10-0002-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079100
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:10 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS100 SDG#: DHR29-16

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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q152861AA	10/13/2015 13:29	Anita M Dale	38.64
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:23	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 17:37	Linda M Hartenstine	1
10727	TCL 8270 (microwave)	SW-846 8270C	2-DL	15288SLA026	10/16/2015 23:46	William H Saadeh	20
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS10-0305-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079101
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS103 SDG#: DHR29-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	1,300	U	1,300	270	54.95
10237	Benzene	71-43-2	340	U	340	34	54.95
10237	Bromoform	75-25-2	340	U	340	67	54.95
10237	Ethylbenzene	100-41-4	340	U	340	67	54.95
10237	Isopropylbenzene	98-82-8	340	U	340	67	54.95
10237	Methylene Chloride	75-09-2	340	U	340	130	54.95
10237	Naphthalene	91-20-3	340	U	340	67	54.95
10237	n-Propylbenzene	103-65-1	340	U	340	67	54.95
10237	Styrene	100-42-5	340	U	340	67	54.95
10237	Tetrachloroethene	127-18-4	73	J	340	67	54.95
10237	1,2,4-Trichlorobenzene	120-82-1	340	U	340	67	54.95
10237	Trichloroethene	79-01-6	340	U	340	67	54.95
10237	1,3,5-Trimethylbenzene	108-67-8	340	U	340	67	54.95
10237	m+p-Xylene	179601-23-1	340	U	340	67	54.95
10237	o-Xylene	95-47-6	340	U	340	67	54.95
Reporting limits were raised due to interference from the sample matrix.							
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	34,000	E	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	170		40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	6	J	21	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	40	1
Trial ID: DL							
10727	Benzo(a)anthracene	56-55-3	820	U	820	160	40
10727	Benzo(a)pyrene	50-32-8	820	U	820	160	40
10727	Benzo(b)fluoranthene	205-99-2	820	U	820	160	40
10727	1,1'-Biphenyl	92-52-4	110,000		1,600	810	40
10727	Dibenz(a,h)anthracene	53-70-3	820	U	820	160	40
10727	Dibenzofuran	132-64-9	1,600	U	1,600	810	40
10727	Indeno(1,2,3-cd)pyrene	193-39-5	820	U	820	160	40
10727	2-Methylnaphthalene	91-57-6	820	U	820	160	40
10727	Nitrobenzene	98-95-3	1,600	U	1,600	810	40
10727	Pentachlorophenol	87-86-5	8,200	U	8,200	1,600	40
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.4		0.50	0.50	1
Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.							

*=This limit was used in the evaluation of the final result

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: S01-SS10-0305-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079101
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:15 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS103 SDG#: DHR29-17

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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q152861AA	10/13/2015 13:52	Anita M Dale	54.95
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:25	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 17:59	Linda M Hartenstine	1
10727	TCL 8270 (microwave)	SW-846 8270C	2-DL	15288SLA026	10/17/2015 11:49	Linda M Hartenstine	40
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: S01-SS10-0809-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079102
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:20 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS101 SDG#: DHR29-18

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	1,100	U	1,100	220	44.4
10237	Benzene	71-43-2	270	U	270	27	44.4
10237	Bromoform	75-25-2	270	U	270	55	44.4
10237	Ethylbenzene	100-41-4	270	U	270	55	44.4
10237	Isopropylbenzene	98-82-8	270	U	270	55	44.4
10237	Methylene Chloride	75-09-2	270	U	270	110	44.4
10237	Naphthalene	91-20-3	270	U	270	55	44.4
10237	n-Propylbenzene	103-65-1	270	U	270	55	44.4
10237	Styrene	100-42-5	270	U	270	55	44.4
10237	Tetrachloroethene	127-18-4	170	J	270	55	44.4
10237	1,2,4-Trichlorobenzene	120-82-1	270	U	270	55	44.4
10237	Trichloroethene	79-01-6	270	U	270	55	44.4
10237	1,3,5-Trimethylbenzene	108-67-8	270	U	270	55	44.4
10237	m+p-Xylene	179601-23-1	270	U	270	55	44.4
10237	o-Xylene	95-47-6	270	U	270	55	44.4
	Reporting limits were raised due to interference from the sample matrix.						
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	1,500		40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.6		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	R152851AA	10/12/2015 14:57	Anita M Dale	44.4
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS10-0809-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079102
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:20 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS101 SDG#: DHR29-18

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:27	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 18:21	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS10-2728-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079103
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:45 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS107 SDG#: DHR29-19

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	22	U	22	4	1.05
10237	Benzene	71-43-2	6	U	6	0.6	1.05
10237	Bromoform	75-25-2	6	U	6	1	1.05
10237	Ethylbenzene	100-41-4	6	U	6	1	1.05
10237	Isopropylbenzene	98-82-8	6	U	6	1	1.05
10237	Methylene Chloride	75-09-2	6	U	6	2	1.05
10237	Naphthalene	91-20-3	6	U	6	1	1.05
10237	n-Propylbenzene	103-65-1	6	U	6	1	1.05
10237	Styrene	100-42-5	6	U	6	1	1.05
10237	Tetrachloroethene	127-18-4	3	J	6	1	1.05
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	1.05
10237	Trichloroethene	79-01-6	6	U	6	1	1.05
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	1.05
10237	m+p-Xylene	179601-23-1	6	U	6	1	1.05
10237	o-Xylene	95-47-6	6	U	6	1	1.05
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	18	U	18	3	1
10727	Benzo(a)pyrene	50-32-8	18	U	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	18	3	1
10727	1,1'-Biphenyl	92-52-4	120		34	17	1
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	3	1
10727	Dibenzofuran	132-64-9	34	U	34	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	34	U	34	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	34	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152832AA	10/11/2015 02:15	Anita M Dale	1.05
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528039035	10/07/2015 18:32	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528039035	10/07/2015 18:30	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: S01-SS10-2728-100615 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8079103
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015 15:45 by DR

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SS107 SDG#: DHR29-19

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15288SLA026	10/16/2015 18:42	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15288SLA026	10/15/2015 17:45	Nicholas W Shroyer	1
00111	Moisture	SM 2540 G-1997	1	15286820002B	10/13/2015 10:41	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 100615TB01 Water
Dow Hanging Rock, OH

LL Sample # WW 8079104
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
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Denver CO 80224

SSTB1 SDG#: DHR29-20TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T152882AA	10/15/2015 23:22	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T152882AA	10/15/2015 23:22	Sara E Johnson	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 100615TB02 Water
Dow Hanging Rock, OH

LL Sample # WW 8079105
LL Group # 1598820
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/06/2015

Submitted: 10/07/2015 09:50
Reported: 10/22/2015 20:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SSTB2 SDG#: DHR29-21TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	T152882AA	10/15/2015 23:46	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T152882AA	10/15/2015 23:46	Sara E Johnson	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1598820
Reported: 10/22/2015 20:50

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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A152832AA	Sample number(s): 8079086-8079099,8079103									
Acrylonitrile	20	U	20.	4	ug/kg	77	80	55-128	5	30
Benzene	5	U	5.	0.5	ug/kg	98	99	80-120	1	30
Bromoform	5	U	5.	1	ug/kg	76	78	64-120	3	30
Ethylbenzene	5	U	5.	1	ug/kg	100	101	80-120	1	30
Isopropylbenzene	5	U	5.	1	ug/kg	102	102	76-120	0	30
Methylene Chloride	5	U	5.	2	ug/kg	97	98	76-122	1	30
Naphthalene	5	U	5.	1	ug/kg	85	87	53-120	2	30
n-Propylbenzene	5	U	5.	1	ug/kg	100	102	67-124	2	30
Styrene	5	U	5.	1	ug/kg	98	99	76-120	1	30
Tetrachloroethene	5	U	5.	1	ug/kg	102	112	78-120	9	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	92	92	60-120	0	30
Trichloroethene	5	U	5.	1	ug/kg	97	99	80-120	2	30
1,3,5-Trimethylbenzene	5	U	5.	1	ug/kg	101	103	73-120	2	30
m+p-Xylene	5	U	5.	1	ug/kg	101	101	80-120	0	30
o-Xylene	5	U	5.	1	ug/kg	98	100	80-120	1	30
Batch number: Q152861AA	Sample number(s): 8079084-8079085,8079100-8079101									
Acrylonitrile	1,000 U		1,000.	200	ug/kg	109	106	55-128	2	30
Benzene	250 U		250.	25	ug/kg	103	99	80-120	4	30
Bromoform	250 U		250.	50	ug/kg	92	87	64-120	5	30
Ethylbenzene	250 U		250.	50	ug/kg	95	91	80-120	5	30
Isopropylbenzene	250 U		250.	50	ug/kg	88	85	76-120	3	30
Methylene Chloride	250 U		250.	100	ug/kg	105	100	76-122	4	30
Naphthalene	250 U		250.	50	ug/kg	90	87	53-120	3	30
n-Propylbenzene	250 U		250.	50	ug/kg	96	92	67-124	5	30
Styrene	250 U		250.	50	ug/kg	94	89	76-120	5	30
Tetrachloroethene	250 U		250.	50	ug/kg	95	92	78-120	4	30
1,2,4-Trichlorobenzene	250 U		250.	50	ug/kg	81	82	60-120	1	30
Trichloroethene	250 U		250.	50	ug/kg	104	97	80-120	7	30
1,3,5-Trimethylbenzene	250 U		250.	50	ug/kg	96	92	73-120	4	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1598820
Reported: 10/22/2015 20:50

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
m+p-Xylene	250 U	250.	50	ug/kg	96	90	80-120	6	30
o-Xylene	250 U	250.	50	ug/kg	96	90	80-120	6	30
Batch number: R152851AA	Sample number(s): 8079083-8079085,8079102								
Acrylonitrile	1,000 U	1,000.	200	ug/kg	90	86	55-128	4	30
Benzene	250 U	250.	25	ug/kg	98	101	80-120	2	30
Bromoform	250 U	250.	50	ug/kg	97	100	64-120	4	30
Ethylbenzene	250 U	250.	50	ug/kg	97	99	80-120	3	30
Isopropylbenzene	250 U	250.	50	ug/kg	94	97	76-120	3	30
Methylene Chloride	250 U	250.	100	ug/kg	105	101	76-122	4	30
Naphthalene	250 U	250.	50	ug/kg	73	78	53-120	7	30
n-Propylbenzene	250 U	250.	50	ug/kg	91	95	67-124	4	30
Styrene	250 U	250.	50	ug/kg	96	100	76-120	5	30
Tetrachloroethene	250 U	250.	50	ug/kg	101	107	78-120	6	30
1,2,4-Trichlorobenzene	250 U	250.	50	ug/kg	70	76	60-120	9	30
Trichloroethene	250 U	250.	50	ug/kg	104	99	80-120	5	30
1,3,5-Trimethylbenzene	250 U	250.	50	ug/kg	91	94	73-120	3	30
m+p-Xylene	250 U	250.	50	ug/kg	102	104	80-120	2	30
o-Xylene	250 U	250.	50	ug/kg	95	99	80-120	4	30
Batch number: T152882AA	Sample number(s): 8079104-8079105								
Acrylonitrile	20 U	20.	4	ug/l	94		55-127		
Benzene	1 U	1.	0.5	ug/l	98		78-120		
Bromoform	4 U	4.	0.5	ug/l	91		61-121		
Ethylbenzene	1 U	1.	0.5	ug/l	93		78-120		
Isopropylbenzene	5 U	5.	1	ug/l	86		80-120		
Methylene Chloride	4 U	4.	2	ug/l	101		77-121		
Naphthalene	5 U	5.	1	ug/l	77		59-120		
n-Propylbenzene	5 U	5.	1	ug/l	89		75-130		
Styrene	5 U	5.	1	ug/l	85		80-120		
Tetrachloroethene	1 U	1.	0.5	ug/l	101		80-122		
1,2,4-Trichlorobenzene	5 U	5.	1	ug/l	85		73-120		
Trichloroethene	1 U	1.	0.5	ug/l	96		80-120		
1,3,5-Trimethylbenzene	5 U	5.	1	ug/l	80		80-120		
m+p-Xylene	1 U	1.	0.5	ug/l	89		80-120		
o-Xylene	1 U	1.	0.5	ug/l	86		79-120		
Batch number: 15288SLA026	Sample number(s): 8079083-8079103								
Benzo(a)anthracene	17 U	17.	3	ug/kg	104		76-119		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1598820
Reported: 10/22/2015 20:50

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	17	U	17.	3	ug/kg	97		85-117		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	105		78-129		
1,1'-Biphenyl	33	U	33.	17	ug/kg	95		80-116		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	104		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	98		85-115		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	99		81-118		
2-Methylnaphthalene	17	U	17.	3	ug/kg	99		83-109		
Nitrobenzene	33	U	33.	17	ug/kg	98		70-122		
Pentachlorophenol	170 U		170.	33	ug/kg	78		57-126		
Batch number: 15286820002A	Sample number(s): 8079083-8079095									
Moisture						100		99-101		
Moisture						100		99-101		
Moisture Duplicate						100		99-101		
Batch number: 15286820002B	Sample number(s): 8079096-8079103									
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: A152832AA	Sample number(s): 8079086-8079099,8079103 UNSPK: 8079093								
Acrylonitrile	74	76	55-128	6	30				
Benzene	95	107	80-120	15	30				
Bromoform	60*	72	64-120	22	30				
Ethylbenzene	85	104	80-120	24	30				
Isopropylbenzene	83	103	76-120	26	30				
Methylene Chloride	102	110	76-122	10	30				
Naphthalene	26*	55	53-120	74*	30				
n-Propylbenzene	80	111	67-124	36*	30				
Styrene	72*	97	76-120	33*	30				
Tetrachloroethene	56*	256*	78-120	38*	30				
1,2,4-Trichlorobenzene	30*	56*	60-120	65*	30				
Trichloroethene	89	108	80-120	21	30				
1,3,5-Trimethylbenzene	80	111	73-120	36*	30				
m+p-Xylene	84	104	80-120	25	30				
o-Xylene	80	102	80-120	27	30				
Batch number: Q152861AA	Sample number(s): 8079084-8079085,8079100-8079101 UNSPK: P079941								
Acrylonitrile	147*	113	55-128	38*	30				
Benzene	341 (2)	-224 (2)	80-120	77*	30				
Bromoform	0*	55*	64-120	200*	30				
Ethylbenzene	205*	26*	80-120	45*	30				
Isopropylbenzene	413 (2)	-69 (2)	76-120	36*	30				
Methylene Chloride	102	0*	76-122	200*	30				
Naphthalene	866 (2)	45 (2)	53-120	46*	30				
n-Propylbenzene	415 (2)	-32 (2)	67-124	35*	30				

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1598820
Reported: 10/22/2015 20:50

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	93	92	76-120	13	30				
Tetrachloroethene	0*	0*	78-120	0	30				
1,2,4-Trichlorobenzene	173*	161*	60-120	19	30				
Trichloroethene	79*	75*	80-120	17	30				
1,3,5-Trimethylbenzene	1306 (2)	-161 (2)	73-120	38*	30				
m+p-Xylene	258 (2)	-50 (2)	80-120	39*	30				
o-Xylene	456 (2)	41 (2)	80-120	36*	30				
Batch number: T152882AA	Sample number(s): 8079104-8079105 UNSPK: P087717								
Acrylonitrile	93	113	55-127	19	30				
Benzene	90	117	78-120	17	30				
Bromoform	91	110	61-121	20	30				
Ethylbenzene	97	118	78-120	20	30				
Isopropylbenzene	89	110	80-120	21	30				
Methylene Chloride	102	119	77-121	16	30				
Naphthalene	78	95	59-120	19	30				
n-Propylbenzene	93	111	75-130	18	30				
Styrene	89	107	80-120	18	30				
Tetrachloroethene	109	133*	80-122	20	30				
1,2,4-Trichlorobenzene	87	104	73-120	19	30				
Trichloroethene	101	118	80-120	15	30				
1,3,5-Trimethylbenzene	84	99	80-120	16	30				
m+p-Xylene	92	113	80-120	20	30				
o-Xylene	88	109	79-120	22	30				
Batch number: 15288SLA026	Sample number(s): 8079083-8079103 UNSPK: 8079093								
Benzo(a)anthracene	93	91	76-119	2	30				
Benzo(a)pyrene	92	92	85-117	0	30				
Benzo(b)fluoranthene	98	100	78-129	1	30				
1,1'-Biphenyl	91	90	80-116	2	30				
Dibenz(a,h)anthracene	103	102	81-123	1	30				
Dibenzofuran	95	94	85-115	1	30				
Indeno(1,2,3-cd)pyrene	97	98	81-118	1	30				
2-Methylnaphthalene	93	93	83-109	1	30				
Nitrobenzene	92	91	70-122	1	30				
Pentachlorophenol	87	82	57-126	6	30				
Batch number: 15286820002A	Sample number(s): 8079083-8079095 BKG: 8079093								
Moisture						4.9	4.8	2	5
Moisture						4.9	4.8	2	5
Moisture Duplicate						4.9	4.8	2	5
Batch number: 15286820002B	Sample number(s): 8079096-8079103 BKG: 8079096								
Moisture						14.4	14.4	0	5

Surrogate Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1598820
Reported: 10/22/2015 20:50

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: VOCs- Solid by 8260B
Batch number: A152832AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8079086	100	99	102	93
8079087	102	98	99	92
8079088	102	99	99	92
8079089	101	97	102	88
8079090	102	98	100	89
8079091	102	101	103	84
8079092	101	97	100	90
8079093	102	99	99	89
8079094	101	100	102	96
8079095	99	99	103	93
8079096	102	97	100	89
8079097	103	101	101	88
8079098	102	98	99	88
8079099	102	99	99	91
8079103	103	100	99	88
Blank	101	105	99	94
LCS	100	98	100	98
LCSD	99	98	100	98
MS	101	100	102	96
MSD	99	99	103	93
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: Q152861AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8079084 DL	79	81	71	91
8079085 DL	72	72	65	75
8079100	91	95	85	87
8079101	81	87	77	79
Blank	98	105	97	90
LCS	107	113	106	99
LCSD	101	108	100	94
MS	66	71	55	55
MSD	72	73	59	53
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- Solid by 8260B
Batch number: R152851AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8079083	77	81	74	72
8079084	75	79	76	77
8079085	81	86	83	79
8079102	71	79	73	73
Blank	102	107	101	93
LCS	93	95	96	93
LCSD	92	97	97	96
Limits:	50-141	54-135	52-141	50-131

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1598820
Reported: 10/22/2015 20:50

Surrogate Quality Control

Analysis Name: VOCs- 5ml Water by 8260B
Batch number: T152882AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8079104	109	107	99	89
8079105	110	104	97	89
Blank	108	106	97	88
LCS	106	105	99	95
MS	105	104	99	96
MSD	106	106	100	96
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 15288SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8079083	88	88	92	83	91	73
8079084	90	92	95	86	88	73
8079085	78	82	76	78	85	66
8079086	92	94	90	93	97	78
8079087	93	94	103	93	99	79
8079088	93	95	96	92	98	78
8079089	92	92	90	92	99	78
8079090	90	91	88	89	95	76
8079091	85	87	90	86	90	75
8079092	92	92	94	88	90	76
8079093	92	93	99	92	98	79
8079094	91	93	97	90	96	79
8079095	88	90	92	89	93	76
8079096	84	86	84	84	88	72
8079097	81	81	84	86	88	70
8079098	87	88	91	85	89	74
8079099	90	90	97	89	95	80
8079100	82	83	85	81	85	72
8079100 DL	73	74	78	73	81	65
8079101	86	86	92	88	91	74
8079101 DL	72	74	78	75	80	64
8079102	87	90	91	87	95	76
8079103	89	89	92	91	93	79
Blank	80	81	90	81	81	68
LCS	98	98	100	97	99	79
MS	91	93	97	90	96	79
MSD	88	90	92	89	93	76
Limits:	58-122	49-134	36-142	54-123	63-117	59-129

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1598820 Sample # 8079083-105

COC # 388982

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation 652109.01.FI

PWSID #:

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 178325

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil ✓	Ground	Potable	Surface	NPDES	Water	Other:	Total # of Containers	VOC's	SVOC's	% Solids							Remarks (depth (ft))
S01-SS12-0002-100615	10-6-15	0945	✓			✓							4	✓	✓	✓							0-2'
S01-SS12-0305-100615	10-6-15	0950	✓			✓							4	✓	✓	✓							3-5'
S01-SS12-0506-100615	10-6-15	1005	✓			✓							4	✓	✓	✓							5-6'
S01-SS12-0810-100615	10-6-15	0955	✓			✓							4	✓	✓	✓							8-10'
S01-SS12-2324-100615	10-6-15	1020	✓			✓							4	✓	✓	✓							23-24'
S01-SS12-2729-100615	10-6-15	1035	✓			✓							4	✓	✓	✓							27-29'
HGR-100615-FD01	10-6-15	1030	✓			✓							4	✓	✓	✓							field Duplicate
S01-SS13-0002-100615	10-6-15	1115	✓			✓							4	✓	✓	✓							0-2'
S01-SS13-0506-100615	10-6-15	1110	✓			✓							4	✓	✓	✓							5-6'
S01-SS13-0810-100615	10-6-15	1130	✓			✓							4	✓	✓	✓							8-10'

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@ch2m.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[illegible]	9-30-15	11:40			
Dee Roberts	10-6-15	1700			
			[illegible]	10-7-15	950

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.9-1.7 °C

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7044 0615

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1598820 Sample # 8079083-105

COC # 388983

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation 652109.01.FT

PWSID #:

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

Matrix: Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: ____

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	VOCs	SVOCs	% solids								Remarks (depth)
S01-SS13-2628-100615	10-6-15	1155	✓		✓			4	✓	✓	✓								26-28'
S01-SS13-2628-100615 MS	10-6-15	1155	✓		✓			4	✓	✓	✓								Matrix spike
S01-SS13-2628-100615 MSD	10-6-15	1155	✓		✓			4	✓	✓	✓								Matrix spike duplicate
S01-SS13-0002-100615	10-6-15	1405	✓		✓			4	✓	✓	✓								0-2'
S01-SS11-0304-100615	10-6-15	1410	✓		✓			4	✓	✓	✓								3-4'
S01-SS11-0810-100615	10-6-15	1415	✓		✓			4	✓	✓	✓								8-10'
S01-SS11-2829-100615	10-6-15	1435	✓		✓			4	✓	✓	✓								28-29'
S01-SS10-0002-100615	10-6-15	1510	✓		✓			4	✓	✓	✓								0-2'
S01-SS10-0305-100615	10-6-15	1515	✓		✓			4	✓	✓	✓								3-5'
S01-SS10-0809-100615	10-6-15	1520	✓		✓			4	✓	✓	✓								8-9'

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	10-6-15	1700			

EDD Required? Yes No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.9-1.7 °C

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7044 0615

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1598820 Sample # 8079083-105

COC # 388984

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation (652109.01.F)

PWSID #:

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Water (Ground / Potable / Surface / NPDES)	Other:	Total # of Containers	VOCs	SVOCs	% solids								Remarks (depth)
S01-SS10-2728-100615	10.6.15	1545	✓		✓				4	✓	✓	✓								27-28'
100615TB01	10.6.15	—	✓				✓		1	✓										trip blank
100615TB02	10.6.15	—	✓				✓		1	✓										trip blank

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	10.6.15	1700			
			[illegible]	10.7.15	950

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.9-1.7 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 111658

Group Number(s): 1598820

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/07/2015 9:50
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:54 on 10/07/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.9	DT	Wet	Y	Bagged	N
2	DT131	1.7	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-2425
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and the < Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) 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.

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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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Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR29

GC/MS Volatiles

Fraction: Volatiles by GC/MS

VOCs- 5ml Water by 8260B

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8079083	S01-SS12-0002-100615		X	40.13	
8079084	S01-SS12-0305-100615		X	443.26; 44.33	
8079085	S01-SS12-0506-100615		X	412.54; 41.25	
8079086	S01-SS12-0810-100615		X	0.83	
8079087	S01-SS12-2324-100615		X	0.98	
8079088	S01-SS12-2729-100615		X	1.02	
8079089	HGR-100615-FD01		X	0.97	Field Duplicate Sample
8079090	S01-SS13-0002-100615		X	0.87	
8079091	S01-SS13-0506-100615		X	0.83	
8079092	S01-SS13-0810-100615		X	0.85	
8079093	S01-SS13-2628-100615		X	0.93	Unspiked
8079094	S01-SS13-2628-100615-MS		X	0.86	Matrix Spike
8079095	S01-SS13-2628-100615-MSD		X	0.89	Matrix Spike Duplicate
8079096	S01-SS11-0002-100615		X	0.81	
8079097	S01-SS11-0304-100615		X	0.84	
8079098	S01-SS11-0810-100615		X	0.83	
8079099	S01-SS11-2829-100615		X	1.05	
8079100	S01-SS10-0002-100615		X	38.64	
8079101	S01-SS10-0305-100615		X	54.95	
8079102	S01-SS10-0809-100615		X	44.4	
8079103	S01-SS10-2728-100615		X	1.05	
8079104	100615TB01	X		1	Trip Blank
8079105	100615TB02	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

(Sample number(s): 8079083-8079086, 8079090-8079092, 8079094-8079098, 8079100: Analysis: 10237)
The VOA soil weight is outside the acceptable weight range.
See the VOA Prep Summary Sheet for the affected sample(s).

HOLDING TIME:

All holding times were met.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR29

GC/MS Volatiles

Fraction: Volatiles by GC/MS

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.

Batch#: A152832AA (Sample number(s): 8079086-8079099, 8079103, UNSPK: 8079093)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: 1,2,4-Trichlorobenzene, 1,3,5-Trimethylbenzene, Naphthalene, n-Propylbenzene, Styrene, Tetrachloroethene
The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Bromoform, Naphthalene, Styrene
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: 1,2,4-Trichlorobenzene, Tetrachloroethene
Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

(Sample number(s): 8079083, 8079100-8079102: Analysis: 10237)
Reporting limits were raised due to interference from the sample matrix.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR29

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
VOCs- 5ml Water by 8260B	T152882AA	VBLKT12	10/15/2015 21:22:00
		LCST12	10/15/2015 21:45:00
		8079104	10/15/2015 23:22:00
		8079105	10/15/2015 23:46:00
VOCs- Solid by 8260B	A152832AA	VBLKA70	10/10/2015 19:13:00
		LCSA70	10/10/2015 18:28:00
		LCDA70	10/10/2015 18:50:00
		8079086	10/10/2015 22:06:00
		8079087	10/10/2015 22:29:00
		8079088	10/10/2015 22:52:00
		8079089	10/10/2015 23:14:00
		8079090	10/10/2015 23:37:00
		8079091	10/10/2015 23:59:00
		8079092	10/11/2015 00:22:00
		8079093 UNSPK	10/10/2015 20:59:00
		8079094 MS	10/10/2015 21:21:00
		8079095 MSD	10/10/2015 21:44:00
		8079096	10/11/2015 00:44:00
		8079097	10/11/2015 01:07:00
		8079098	10/11/2015 01:30:00
		8079099	10/11/2015 01:52:00
		8079103	10/11/2015 02:15:00
VOCs- Solid by 8260B	Q152861AA	VBLKQ71	10/13/2015 07:24:00
		LCSQ71	10/13/2015 07:47:00
		LCDQ71	10/13/2015 08:10:00
		8079084DL	10/13/2015 14:15:00
		8079085DL	10/13/2015 14:39:00
		8079100	10/13/2015 13:29:00
		8079101	10/13/2015 13:52:00
VOCs- Solid by 8260B	R152851AA	VBLKR64	10/12/2015 08:14:00
		LCSR64	10/12/2015 08:37:00
		LCDR64	10/12/2015 09:00:00
		8079083	10/12/2015 11:02:00
		8079084	10/12/2015 11:25:00
		8079085	10/12/2015 11:48:00
		8079102	10/12/2015 14:57:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR29
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152832AA / VBLKA70 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Acrylonitrile	10/10/15	N.D.	ug/kg	4	20
Methylene Chloride	10/10/15	N.D.	ug/kg	2	5
Benzene	10/10/15	N.D.	ug/kg	0.5	5
Trichloroethene	10/10/15	N.D.	ug/kg	1	5
Tetrachloroethene	10/10/15	N.D.	ug/kg	1	5
Bromoform	10/10/15	N.D.	ug/kg	1	5
Ethylbenzene	10/10/15	N.D.	ug/kg	1	5
Isopropylbenzene	10/10/15	N.D.	ug/kg	1	5
n-Propylbenzene	10/10/15	N.D.	ug/kg	1	5
Styrene	10/10/15	N.D.	ug/kg	1	5
m+p-Xylene	10/10/15	N.D.	ug/kg	1	5
o-Xylene	10/10/15	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	10/10/15	N.D.	ug/kg	1	5
Naphthalene	10/10/15	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	10/10/15	N.D.	ug/kg	1	5

Q152861AA / VBLKQ71 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Acrylonitrile	10/13/15	N.D.	ug/kg	200	1000
Methylene Chloride	10/13/15	N.D.	ug/kg	100	250
Benzene	10/13/15	N.D.	ug/kg	25	250
Trichloroethene	10/13/15	N.D.	ug/kg	50	250
Tetrachloroethene	10/13/15	N.D.	ug/kg	50	250
Bromoform	10/13/15	N.D.	ug/kg	50	250
Ethylbenzene	10/13/15	N.D.	ug/kg	50	250
Isopropylbenzene	10/13/15	N.D.	ug/kg	50	250
n-Propylbenzene	10/13/15	N.D.	ug/kg	50	250
Styrene	10/13/15	N.D.	ug/kg	50	250
m+p-Xylene	10/13/15	N.D.	ug/kg	50	250
o-Xylene	10/13/15	N.D.	ug/kg	50	250
1,3,5-Trimethylbenzene	10/13/15	N.D.	ug/kg	50	250
Naphthalene	10/13/15	N.D.	ug/kg	50	250
1,2,4-Trichlorobenzene	10/13/15	N.D.	ug/kg	50	250

R152851AA / VBLKR64 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Acrylonitrile	10/12/15	N.D.	ug/kg	200	1000
Methylene Chloride	10/12/15	N.D.	ug/kg	100	250
Benzene	10/12/15	N.D.	ug/kg	25	250
Trichloroethene	10/12/15	N.D.	ug/kg	50	250
Tetrachloroethene	10/12/15	N.D.	ug/kg	50	250
Bromoform	10/12/15	N.D.	ug/kg	50	250
Ethylbenzene	10/12/15	N.D.	ug/kg	50	250
Isopropylbenzene	10/12/15	N.D.	ug/kg	50	250
n-Propylbenzene	10/12/15	N.D.	ug/kg	50	250

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR29
Matrix: SOLID

Fraction: Volatiles by GC/MS

R152851AA / VBLKR64 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Styrene	10/12/15	N.D.	ug/kg	50	250
m+p-Xylene	10/12/15	N.D.	ug/kg	50	250
o-Xylene	10/12/15	N.D.	ug/kg	50	250
1,3,5-Trimethylbenzene	10/12/15	N.D.	ug/kg	50	250
Naphthalene	10/12/15	N.D.	ug/kg	50	250
1,2,4-Trichlorobenzene	10/12/15	N.D.	ug/kg	50	250

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR29
Matrix: LIQUID

Fraction: Volatiles by GC/MS

T152882AA / VBLKT12 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Methylene Chloride	10/15/15	N.D.	ug/l	2	4
Acrylonitrile	10/15/15	N.D.	ug/l	4	20
Benzene	10/15/15	N.D.	ug/l	0.5	1
Trichloroethene	10/15/15	N.D.	ug/l	0.5	1
Tetrachloroethene	10/15/15	N.D.	ug/l	0.5	1
Ethylbenzene	10/15/15	N.D.	ug/l	0.5	1
m+p-Xylene	10/15/15	N.D.	ug/l	0.5	1
o-Xylene	10/15/15	N.D.	ug/l	0.5	1
Styrene	10/15/15	N.D.	ug/l	1	5
Bromoform	10/15/15	N.D.	ug/l	0.5	4
Isopropylbenzene	10/15/15	N.D.	ug/l	1	5
n-Propylbenzene	10/15/15	N.D.	ug/l	1	5
1,3,5-Trimethylbenzene	10/15/15	N.D.	ug/l	1	5
1,2,4-Trichlorobenzene	10/15/15	N.D.	ug/l	1	5
Naphthalene	10/15/15	N.D.	ug/l	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR29
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152832AA	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
VBLKA70	101	50 - 141	105	54 - 135	99	52 - 141	94	50 - 131
LCSA70	100	50 - 141	98	54 - 135	100	52 - 141	98	50 - 131
LCDA70	99	50 - 141	98	54 - 135	100	52 - 141	98	50 - 131
8079086	100	50 - 141	99	54 - 135	102	52 - 141	93	50 - 131
8079087	102	50 - 141	98	54 - 135	99	52 - 141	92	50 - 131
8079088	102	50 - 141	99	54 - 135	99	52 - 141	92	50 - 131
8079089	101	50 - 141	97	54 - 135	102	52 - 141	88	50 - 131
8079090	102	50 - 141	98	54 - 135	100	52 - 141	89	50 - 131
8079091	102	50 - 141	101	54 - 135	103	52 - 141	84	50 - 131
8079092	101	50 - 141	97	54 - 135	100	52 - 141	90	50 - 131
8079093 UNSPK	102	50 - 141	99	54 - 135	99	52 - 141	89	50 - 131
8079094 MS	101	50 - 141	100	54 - 135	102	52 - 141	96	50 - 131
8079095 MSD	99	50 - 141	99	54 - 135	103	52 - 141	93	50 - 131
8079096	102	50 - 141	97	54 - 135	100	52 - 141	89	50 - 131
8079097	103	50 - 141	101	54 - 135	101	52 - 141	88	50 - 131
8079098	102	50 - 141	98	54 - 135	99	52 - 141	88	50 - 131
8079099	102	50 - 141	99	54 - 135	99	52 - 141	91	50 - 131
8079103	103	50 - 141	100	54 - 135	99	52 - 141	88	50 - 131

Q152861AA	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
VBLKQ71	98	50 - 141	105	54 - 135	97	52 - 141	90	50 - 131
LCSQ71	107	50 - 141	113	54 - 135	106	52 - 141	99	50 - 131
LCDQ71	101	50 - 141	108	54 - 135	100	52 - 141	94	50 - 131
8079084DL	79	50 - 141	81	54 - 135	71	52 - 141	91	50 - 131
8079085DL	72	50 - 141	72	54 - 135	65	52 - 141	75	50 - 131
8079100	91	50 - 141	95	54 - 135	85	52 - 141	87	50 - 131
8079101	81	50 - 141	87	54 - 135	77	52 - 141	79	50 - 131

R152851AA	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
VBLKR64	102	50 - 141	107	54 - 135	101	52 - 141	93	50 - 131
LCSR64	93	50 - 141	95	54 - 135	96	52 - 141	93	50 - 131
LCDR64	92	50 - 141	97	54 - 135	97	52 - 141	96	50 - 131
8079083	77	50 - 141	81	54 - 135	74	52 - 141	72	50 - 131

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR29
Matrix: SOLID

Fraction: Volatiles by GC/MS

R152851AA	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
8079084	75	50 - 141	79	54 - 135	76	52 - 141	77	50 - 131
8079085	81	50 - 141	86	54 - 135	83	52 - 141	79	50 - 131
8079102	71	50 - 141	79	54 - 135	73	52 - 141	73	50 - 131

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR29
Matrix: LIQUID

Fraction: Volatiles by GC/MS

T152882AA	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
VBLKT12	108	80 - 116	106	77 - 113	97	80 - 113	88	78 - 113
LCST12	106	80 - 116	105	77 - 113	99	80 - 113	95	78 - 113
8079104	109	80 - 116	107	77 - 113	99	80 - 113	89	78 - 113
8079105	110	80 - 116	104	77 - 113	97	80 - 113	89	78 - 113

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR29
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 8079093 MS: 8079094 MSD: 8079095 **Analyte**	Batch: **A152832AA** (Sample number(s): 8079086-8079099, 8079103)								
	Spike Added ug/kg MS/MSD	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	85.76 / 88.81	N.D.	63.33	67.1	74	76	55-128	6	30
Methylene Chloride	17.15 / 17.76	N.D.	17.57	19.5	102	110	76-122	10	30
Benzene	17.15 / 17.76	N.D.	16.35	19.01	95	107	80-120	15	30
Trichloroethene	17.15 / 17.76	1.24	16.59	20.41	89	108	80-120	21	30
Tetrachloroethene	17.15 / 17.76	65.73	75.36	111.23	56 *	256 *	78-120	38 *	30
Bromoform	17.15 / 17.76	N.D.	10.27	12.77	60 *	72	64-120	22	30
Ethylbenzene	17.15 / 17.76	N.D.	14.53	18.55	85	104	80-120	24	30
Isopropylbenzene	17.15 / 17.76	N.D.	14.18	18.35	83	103	76-120	26	30
m+p-Xylene	34.3 / 35.52	N.D.	28.7	36.97	84	104	80-120	25	30
n-Propylbenzene	17.15 / 17.76	N.D.	13.71	19.71	80	111	67-124	36 *	30
o-Xylene	17.15 / 17.76	N.D.	13.81	18.14	80	102	80-120	27	30
Styrene	17.15 / 17.76	N.D.	12.43	17.27	72 *	97	76-120	33 *	30
1,3,5-Trimethylbenzene	17.15 / 17.76	N.D.	13.72	19.65	80	111	73-120	36 *	30
1,2,4-Trichlorobenzene	17.15 / 17.76	N.D.	5.07	9.91	30 *	56 *	60-120	65 *	30
Naphthalene	17.15 / 17.76	N.D.	4.48	9.76	26 *	55	53-120	74 *	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR29
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

LCS: LCSA70 LCSD: LCDA70	Batch: **A152832AA** (Sample number(s): 8079086-8079099, 8079103)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	100	76.83	80.5	77	80	55-128	5	30
Methylene Chloride	20	19.45	19.59	97	98	76-122	1	30
Benzene	20	19.6	19.88	98	99	80-120	1	30
Trichloroethene	20	19.5	19.89	97	99	80-120	2	30
Tetrachloroethene	20	20.43	22.36	102	112	78-120	9	30
Bromoform	20	15.21	15.67	76	78	64-120	3	30
Ethylbenzene	20	19.98	20.17	100	101	80-120	1	30
Isopropylbenzene	20	20.36	20.45	102	102	76-120	0	30
m+p-Xylene	40	40.24	40.42	101	101	80-120	0	30
n-Propylbenzene	20	20.08	20.45	100	102	67-124	2	30
o-Xylene	20	19.67	19.92	98	100	80-120	1	30
Styrene	20	19.67	19.79	98	99	76-120	1	30
1,3,5-Trimethylbenzene	20	20.16	20.57	101	103	73-120	2	30
1,2,4-Trichlorobenzene	20	18.46	18.46	92	92	60-120	0	30
Naphthalene	20	16.97	17.35	85	87	53-120	2	30

LCS: LCSQ71 LCSD: LCDQ71	Batch: **Q152861AA** (Sample number(s): 8079084-8079085, 8079100-8079101)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	5000	5426.11	5293.83	109	106	55-128	2	30
Methylene Chloride	1000	1045.24	1002.95	105	100	76-122	4	30
Benzene	1000	1034.23	990.32	103	99	80-120	4	30
Trichloroethene	1000	1040.23	970.6	104	97	80-120	7	30
Tetrachloroethene	1000	953.4	915.53	95	92	78-120	4	30
Bromoform	1000	915.72	872.71	92	87	64-120	5	30
Ethylbenzene	1000	954.96	907.81	95	91	80-120	5	30
Isopropylbenzene	1000	877.4	848.42	88	85	76-120	3	30
m+p-Xylene	2000	1927.76	1806.46	96	90	80-120	6	30
n-Propylbenzene	1000	964.57	916.24	96	92	67-124	5	30
o-Xylene	1000	955.63	895.62	96	90	80-120	6	30
Styrene	1000	940.43	894.36	94	89	76-120	5	30
1,3,5-Trimethylbenzene	1000	958.28	920.18	96	92	73-120	4	30
1,2,4-Trichlorobenzene	1000	809.27	816.84	81	82	60-120	1	30
Naphthalene	1000	902.03	874.23	90	87	53-120	3	30

LCS: LCSR64 LCSD: LCDR64	Batch: **R152851AA** (Sample number(s): 8079083-8079085, 8079102)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	5000	4498.12	4305.62	90	86	55-128	4	30
Methylene Chloride	1000	1050.1	1010.73	105	101	76-122	4	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR29
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSR64 LCSD: LCDR64	Batch: **R152851AA** (Sample number(s): 8079083-8079085, 8079102)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Benzene	1000	983.76	1007.55	98	101	80-120	2	30
Trichloroethene	1000	1039.51	990.8	104	99	80-120	5	30
Tetrachloroethene	1000	1011.82	1070.44	101	107	78-120	6	30
Bromoform	1000	965.59	1001.09	97	100	64-120	4	30
Ethylbenzene	1000	966.14	990.94	97	99	80-120	3	30
Isopropylbenzene	1000	935.31	965.58	94	97	76-120	3	30
m+p-Xylene	2000	2033.09	2073.06	102	104	80-120	2	30
n-Propylbenzene	1000	909.11	947.45	91	95	67-124	4	30
o-Xylene	1000	946.35	985.5	95	99	80-120	4	30
Styrene	1000	957.01	1003.34	96	100	76-120	5	30
1,3,5-Trimethylbenzene	1000	909.13	935.82	91	94	73-120	3	30
1,2,4-Trichlorobenzene	1000	698.07	761.74	70	76	60-120	9	30
Naphthalene	1000	730.64	780.18	73	78	53-120	7	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR29
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCST12	Batch: **T152882AA** (Sample number(s): 8079104-8079105)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Methylene Chloride	20	20.2	NA	101	NA	77-121	NA	NA
Acrylonitrile	100	93.74	NA	94	NA	55-127	NA	NA
Benzene	20	19.66	NA	98	NA	78-120	NA	NA
Trichloroethene	20	19.24	NA	96	NA	80-120	NA	NA
Tetrachloroethene	20	20.13	NA	101	NA	80-122	NA	NA
Ethylbenzene	20	18.62	NA	93	NA	78-120	NA	NA
m+p-Xylene	40	35.6	NA	89	NA	80-120	NA	NA
o-Xylene	20	17.1	NA	86	NA	79-120	NA	NA
Styrene	20	16.94	NA	85	NA	80-120	NA	NA
Bromoform	20	18.24	NA	91	NA	61-121	NA	NA
Isopropylbenzene	20	17.23	NA	86	NA	80-120	NA	NA
n-Propylbenzene	20	17.83	NA	89	NA	75-130	NA	NA
1,3,5-Trimethylbenzene	20	16.03	NA	80	NA	80-120	NA	NA
1,2,4-Trichlorobenzene	20	16.96	NA	85	NA	73-120	NA	NA
Naphthalene	20	15.35	NA	77	NA	59-120	NA	NA

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR29

Lab File ID: ac08t01.d BFB Injection Date: 10/08/15

Instrument ID: HP09685 BFB Injection Time: 11:07

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	15.66
75	30.0 - 60.0% of mass 95	46.34
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	0.00 (0.00)1
174	Greater than 50.0% of mass 95	84.91
175	5.0 - 9.0% of mass 174	6.23 (7.33)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.75 (96.28)1
177	5.0 - 9.0% of mass 176	5.43 (6.64)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	ac08i01.d	10/08/15	11:55
02	VSTD100	ac08i02.d	10/08/15	12:22
03	VSTD50	ac08i03.d	10/08/15	12:48
04	VSTD10	ac08i05.d	10/08/15	14:16
05	VSTD4	ac08i06.d	10/08/15	14:38
06	VSTD001	ac08m01.d	10/08/15	15:01
07	VSTD20	ac08i07.d	10/08/15	15:46
08	LCSAICV	al06v01.d	10/08/15	16:40

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.: DHR29

Lab File ID: ac10t05.d BFB Injection Date: 10/10/15

Instrument ID: HP09685 BFB Injection Time: 17:30

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	15.43
75	30.0 - 60.0% of mass 95	46.59
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.77
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	77.17
175	5.0 - 9.0% of mass 174	5.59 (7.24)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.37 (96.37)1
177	5.0 - 9.0% of mass 176	5.09 (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	VSTD50	ac10c05.d	10/10/15	18:05
02	LCSA70	ac10l41.d	10/10/15	18:28
03	LCDA70	ac10l42.d	10/10/15	18:50
04	VBLKA70	ac10b05.d	10/10/15	19:13
05	8076191	ac10s41.d	10/10/15	19:51
06	8076192	ac10s42.d	10/10/15	20:14
07	8077351	ac10s43.d	10/10/15	20:36
08	8079093	ac10s44.d	10/10/15	20:59
09	8079094MS	ac10s45.d	10/10/15	21:21
10	8079095MSD	ac10s46.d	10/10/15	21:44
11	8079086	ac10s47.d	10/10/15	22:06
12	8079087	ac10s48.d	10/10/15	22:29
13	8079088	ac10s49.d	10/10/15	22:52
14	8079089	ac10s50.d	10/10/15	23:14
15	8079090	ac10s51.d	10/10/15	23:37
16	8079091	ac10s52.d	10/10/15	23:59
17	8079092	ac10s53.d	10/11/15	00:22
18	8079096	ac10s54.d	10/11/15	00:44
19	8079097	ac10s55.d	10/11/15	01:07
20	8079098	ac10s56.d	10/11/15	01:30
21	8079099	ac10s57.d	10/11/15	01:52
22	8079103	ac10s58.d	10/11/15	02:15

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.: DHR29

Lab File ID: ac10t05.d BFB Injection Date: 10/10/15

Instrument ID: HP09685 BFB Injection Time: 17:30

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	15.43
75	30.0 - 60.0% of mass 95	46.59
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.77
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	77.17
175	5.0 - 9.0% of mass 174	5.59 (7.24)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.37 (96.37)1
177	5.0 - 9.0% of mass 176	5.09 (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
23	8076193	ac10s59.d	10/11/15	02:37
24	8076194	ac10s60.d	10/11/15	03:00
25	8076195	ac10s61.d	10/11/15	03:22
26	8076196	ac10s62.d	10/11/15	03:45

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.: DHR29

Lab File ID: qa07t01.d BFB Injection Date: 04/07/15

Instrument ID: HP07536 BFB Injection Time: 14:00

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	18.23
75	30.0 - 60.0% of mass 95	48.34
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.06
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	93.05
175	5.0 - 9.0% of mass 174	7.11 (7.64)1
176	Greater than 95.0%, but less than 101.0% of mass 174	91.62 (98.46)1
177	5.0 - 9.0% of mass 176	6.23 (6.80)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	qa07i01.d	04/07/15	14:54
02	VSTD100	qa07i02.d	04/07/15	15:17
03	VSTD50	qa07i03.d	04/07/15	15:41
04	VSTD20	qa07i04.d	04/07/15	16:04
05	VSTD10	qa07i05.d	04/07/15	16:27
06	VSTD4	qa07i06.d	04/07/15	16:50
07	VSTD2	qa07i07.d	04/07/15	17:14
08	1PPBMDL - 1PPBMDL	qa07m01.d	04/07/15	17:37
09	ICVLG	qa07v01.d	04/07/15	18:00

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.: DHR29

Lab File ID: qc13t01.d BFB Injection Date: 10/13/15

Instrument ID: HP07536 BFB Injection Time: 06:05

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	18.98
75	30.0 - 60.0% of mass 95	48.48
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.58
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	86.71
175	5.0 - 9.0% of mass 174	6.20 (7.15)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.40 (97.34)1
177	5.0 - 9.0% of mass 176	5.70 (6.75)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	qc13c01.d	10/13/15	06:38
02	VBLKQ71	qc13b01.d	10/13/15	07:24
03	LCSQ71	qc13l01.d	10/13/15	07:47
04	LCDQ71	qc13l02.d	10/13/15	08:10
05	8081560DL	qc13s01.d	10/13/15	08:39
06	8079944	qc13s02.d	10/13/15	09:01
07	8081563DL	qc13s03.d	10/13/15	09:24
08	8081569DL	qc13s04.d	10/13/15	10:02
09	8079941	qc13s05.d	10/13/15	10:25
10	8081573DL	qc13s06.d	10/13/15	10:48
11	8079946	qc13s08.d	10/13/15	11:34
12	8079942MS	qc13s10.d	10/13/15	12:19
13	8079943MSD	qc13s11.d	10/13/15	12:43
14	8079941DL	qc13s12.d	10/13/15	13:06
15	8079100	qc13s13.d	10/13/15	13:29
16	8079101	qc13s14.d	10/13/15	13:52
17	8079084DL	qc13s15.d	10/13/15	14:15
18	8079085DL	qc13s16.d	10/13/15	14:39
19	8076185	qc13s18.d	10/13/15	15:25
20	8076186	qc13s19.d	10/13/15	15:47
21	8077302DL	qc13s20.d	10/13/15	16:10
22	8077811DL	qc13s21.d	10/13/15	16:33

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.: DHR29

Lab File ID: qc13t01.d BFB Injection Date: 10/13/15

Instrument ID: HP07536 BFB Injection Time: 06:05

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	18.98
75	30.0 - 60.0% of mass 95	48.48
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.58
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	86.71
175	5.0 - 9.0% of mass 174	6.20 (7.15)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.40 (97.34)1
177	5.0 - 9.0% of mass 176	5.70 (6.75)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	8079946DL	qc13s24.d	10/13/15	17:43

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.: DHR29

Lab File ID: rl31t01.d BFB Injection Date: 07/31/15

Instrument ID: HP07566 BFB Injection Time: 22:51

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	19.95
75	30.0 - 60.0% of mass 95	48.92
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	0.20 (0.24)1
174	Greater than 50.0% of mass 95	81.25
175	5.0 - 9.0% of mass 174	5.91 (7.27)1
176	Greater than 95.0%, but less than 101.0% of mass 174	79.69 (98.07)1
177	5.0 - 9.0% of mass 176	5.24 (6.57)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	rl31i01.d	07/31/15	23:42
02	VSTD100	rl31i02.d	08/01/15	00:04
03	VSTD50	rl31i03.d	08/01/15	00:27
04	VSTD20	rl31i04.d	08/01/15	00:50
05	VSTD10	rl31i05.d	08/01/15	01:13
06	VSTD4	rl31i06.d	08/01/15	01:36
07	VSTD2	rl31i07.d	08/01/15	01:58
08	MDL008 - MDL008	rl31m01.d	08/01/15	02:21
09	RICV	rl31v01.d	08/01/15	02:44
10	VBLKR68	rl31b01.d	08/01/15	03:07
11	LCSR68	rl31l01.d	08/01/15	03:36
12	LCDR68	rl31l02.d	08/01/15	03:59
13	7983410	rl31s01.d	08/01/15	04:31
14	LODV004 - LODV004	rl31m02.d	08/01/15	06:04
15	LODV002 - LODV002	rl31m03.d	08/01/15	06:27
16	LODSPEC - LODVSP	rl31m04.d	08/01/15	06:50
17	LODVSS - LODVSS	rl31m05.d	08/01/15	07:13
18	7983412	rl31s03.d	08/01/15	07:53
19	SECC050	rl31ec2.d	08/01/15	08:16

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.: DHR29

Lab File ID: rc12t01.d BFB Injection Date: 10/12/15

Instrument ID: HP07566 BFB Injection Time: 06:54

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	18.79
75	30.0 - 60.0% of mass 95	45.93
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.04
173	Less than 2.0% of mass 174	0.16 (0.19)1
174	Greater than 50.0% of mass 95	86.23
175	5.0 - 9.0% of mass 174	6.15 (7.13)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.45 (97.93)1
177	5.0 - 9.0% of mass 176	5.43 (6.43)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	rc12c01.d	10/12/15	07:29
02	VBLKR64	rc12b01.d	10/12/15	08:14
03	LCSR64	rc12l01.d	10/12/15	08:37
04	LCDR64	rc12l02.d	10/12/15	09:00
05	8076380	rc12s01.d	10/12/15	09:26
06	8075463DL	rc12s02.d	10/12/15	09:48
07	8077353	rc12s04.d	10/12/15	10:39
08	8079083	rc12s05.d	10/12/15	11:02
09	8079084	rc12s06.d	10/12/15	11:25
10	8079085	rc12s07.d	10/12/15	11:48
11	8077349	rc12s08.d	10/12/15	12:16
12	8076185DL	rc12s10.d	10/12/15	13:02
13	8076186DL	rc12s11.d	10/12/15	13:25
14	8077302	rc12s12.d	10/12/15	13:48
15	8079102	rc12s15.d	10/12/15	14:57
16	8081560	rc12s16.d	10/12/15	15:19
17	8081563	rc12s17.d	10/12/15	15:42
18	8081569	rc12s18.d	10/12/15	16:05
19	8081570	rc12s19.d	10/12/15	16:28
20	8081573	rc12s20.d	10/12/15	16:51
21	8055945	rc12s23.d	10/12/15	17:59
22	8055946	rc12s24.d	10/12/15	18:22

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.: DHR29

Lab File ID: rc12t01.d BFB Injection Date: 10/12/15

Instrument ID: HP07566 BFB Injection Time: 06:54

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	18.79
75	30.0 - 60.0% of mass 95	45.93
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.04
173	Less than 2.0% of mass 174	0.16 (0.19)1
174	Greater than 50.0% of mass 95	86.23
175	5.0 - 9.0% of mass 174	6.15 (7.13)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.45 (97.93)1
177	5.0 - 9.0% of mass 176	5.43 (6.43)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	8055941	rc12s25.d	10/12/15	18:45

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.: DHR29

Lab File ID: ts22t01.d BFB Injection Date: 09/22/15

Instrument ID: SH08363 BFB Injection Time: 11:20

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	26.08
75	30.0 - 60.0% of mass 95	43.96
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.60
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	78.22
175	5.0 - 9.0% of mass 174	5.64 (7.22)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.38 (98.93)1
177	5.0 - 9.0% of mass 176	4.87 (6.30)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	ts22i01.d	09/22/15	12:16
02	VSTD100	ts22i02.d	09/22/15	12:40
03	VSTD50	ts22i03.d	09/22/15	13:03
04	VSTD20	ts22i04.d	09/22/15	13:27
05	VSTD10	ts22i05.d	09/22/15	13:50
06	VSTD4	ts22i06.d	09/22/15	14:14
07	VSTD1	ts22i07.d	09/22/15	14:37
08	MDL0.5 - MDL0.5	ts22m01.d	09/22/15	15:10
09	LGTICV	ts22v01.d	09/22/15	15:33

page 1 of 1

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.: DHR29

Lab File ID: tc15t05.d BFB Injection Date: 10/15/15

Instrument ID: SH08363 BFB Injection Time: 20:30

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	25.85
75	30.0 - 60.0% of mass 95	41.84
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.12
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	88.22
175	5.0 - 9.0% of mass 174	6.64 (7.52)1
176	Greater than 95.0%, but less than 101.0% of mass 174	85.57 (97.00)1
177	5.0 - 9.0% of mass 176	5.38 (6.29)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	tc15c51.d	10/15/15	20:58
02	VBLKT12	tc15b51.d	10/15/15	21:22
03	LCST12	tc15s51.d	10/15/15	21:45
04	8081649	tc15s52.d	10/15/15	22:35
05	8081650	tc15s53.d	10/15/15	22:59
06	8079104	tc15s54.d	10/15/15	23:22
07	8079105	tc15s55.d	10/15/15	23:46
08	8087717	tc15s56.d	10/16/15	00:09
09	8087718MS	tc15s57.d	10/16/15	00:33
10	8087719MSD	tc15s58.d	10/16/15	00:56
11	8087722	tc15s59.d	10/16/15	01:19
12	8084346	tc15s60.d	10/16/15	01:43
13	8084347	tc15s61.d	10/16/15	02:06
14	8084350	tc15s62.d	10/16/15	02:30
15	8084351	tc15s63.d	10/16/15	02:53
16	8084352	tc15s64.d	10/16/15	03:17
17	8084353	tc15s65.d	10/16/15	03:40
18	8081651	tc15s67.d	10/16/15	04:27
19	8081652	tc15s68.d	10/16/15	04:51
20	8081653	tc15s69.d	10/16/15	05:14
21	8081654	tc15s70.d	10/16/15	05:38
22	8087720	tc15s71.d	10/16/15	06:01

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.: DHR29

Lab File ID: tc15t05.d BFB Injection Date: 10/15/15

Instrument ID: SH08363 BFB Injection Time: 20:30

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	25.85
75	30.0 - 60.0% of mass 95	41.84
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.12
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	88.22
175	5.0 - 9.0% of mass 174	6.64 (7.52)1
176	Greater than 95.0%, but less than 101.0% of mass 174	85.57 (97.00)1
177	5.0 - 9.0% of mass 176	5.38 (6.29)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	8087721	tc15s72.d	10/16/15	06:25
24	8087723	tc15s73.d	10/16/15	06:48

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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane		0.4439	0.4642	0.4484	0.3385	0.4216	0.4045	0.4202	11	AVG
Chloromethane	#	0.3428	0.3604	0.3484	0.2419	0.2950	0.2821	0.3118	15	AVG #
Vinyl Chloride	*	0.2994	0.3290	0.3162	0.2234	0.2660	0.2571	0.2819	14	AVG *
Bromomethane		0.2139	0.2297	0.2179	0.1585	0.1859	0.1506	0.1928	17	2NDDEG
Chloroethane		0.1690	0.1767	0.1666	0.1215	0.1462	0.1220	0.1504	16	2NDDEG
Dichlorofluoromethane		0.4103	0.4108	0.4017	0.3422	0.3600	0.3366	0.3769	9	AVG
Trichlorofluoromethane		0.4327	0.4596	0.4485	0.3350	0.4206	0.3885	0.4142	11	AVG
Ethanol		0.2170	0.2079	0.2062	0.1957	0.2037	0.1876	0.2030	5	AVG
Freon 123a		0.3377	0.3417	0.3385	0.2885	0.2996	0.2873	0.3155	8	AVG
Acrolein		3.0663	2.8469	2.7579	2.9448	3.1038	2.7852	2.9175	5	AVG
1,1-Dichloroethene	*	0.2588	0.2444	0.2576	0.2368	0.2444	0.2244	0.2444	5	AVG *
Acetone		0.0221	0.0255	0.0229	0.0231	0.0241	0.0190	0.0228	10	AVG
Freon 113		0.2712	0.2622	0.2700	0.2499	0.2496	0.2149	0.2530	8	AVG
2-Propanol		1.1437	1.2707	1.1282	1.0421	1.0867	0.9510	1.1037	10	AVG
Methyl Iodide		0.4798	0.4578	0.4904	0.4518	0.4767	0.4413	0.4663	4	AVG
Carbon Disulfide		0.8358	0.7838	0.8386	0.7745	0.8094	0.7521	0.7990	4	AVG
Methyl Acetate		0.1435	0.1807	0.1700	0.1420	0.1630	0.1369	0.1560	11	AVG
Allyl Chloride		0.3295	0.3738	0.3513	0.3129	0.3682	0.3346	0.3450	7	AVG
Methylene Chloride		0.3112	0.2887	0.2909	0.2647	0.2791	0.2547	0.2815	7	AVG
t-Butyl alcohol		1.3376	1.6399	1.5221	1.4757	1.6276	1.4694	1.5121	7	AVG
Acrylonitrile		0.0652	0.0845	0.0827	0.0870	0.0950	0.0781	0.0821	12	AVG
Methyl Tertiary Butyl Ether		0.5640	0.6233	0.6416	0.6165	0.6685	0.5932	0.6178	6	AVG
trans-1,2-Dichloroethene		0.2921	0.2788	0.2891	0.2719	0.2838	0.2615	0.2795	4	AVG
n-Hexane		0.3495	0.3571	0.3575	0.3504	0.3602	0.2539	0.3381	12	AVG
1,1-Dichloroethane	#	0.5097	0.4851	0.5011	0.4697	0.4950	0.4549	0.4859	4	AVG #
di-Isopropyl ether		0.7219	0.7439	0.7685	0.7407	0.7902	0.7059	0.7452	4	AVG
2-Chloro-1,3-butadiene		0.3347	0.3320	0.3613	0.3509	0.3744	0.3489	0.3503	5	AVG
Ethyl t-butyl ether		0.4207	0.4490	0.4773	0.4803	0.5302	0.4947	0.4754	8	AVG
2-Butanone		0.0826	0.1006	0.0993	0.1135	0.1211	0.0931	0.1017	14	AVG
cis-1,2-Dichloroethene		0.3158	0.3043	0.3187	0.2995	0.3191	0.2894	0.3078	4	AVG
2,2-Dichloropropane		0.3853	0.3768	0.4016	0.3917	0.4210	0.3949	0.3952	4	AVG
Propionitrile		2.1236	2.1326	2.0860	1.9178	2.0715	1.9391	2.0451	5	AVG
Methacrylonitrile		0.0807	0.0991	0.0996	0.0929	0.1005	0.0839	0.0928	9	AVG
Bromochloromethane		0.1534	0.1721	0.1598	0.1401	0.1655	0.1484	0.1566	7	AVG
Tetrahydrofuran		1.8379	1.9430	1.8273	1.9489	2.1640	1.9803	1.9502	6	AVG
Chloroform	*	0.5064	0.4777	0.4988	0.4692	0.4975	0.4584	0.4847	4	AVG *
1,1,1-Trichloroethane		0.5612	0.4782	0.4996	0.4482	0.4811	0.4550	0.4872	8	AVG
Cyclohexane		0.4199	0.4212	0.4273	0.4262	0.4406	0.3589	0.4157	7	AVG
Cyclohexane(2)		0.3923	0.4031	0.4016	0.3977	0.4129	0.3376	0.3909	7	AVG
Cyclohexane(3)		0.1324	0.1357	0.1362	0.1371	0.1434	0.1169	0.1336	7	AVG
1,1-Dichloropropene		0.3975	0.3843	0.4005	0.3829	0.4082	0.3744	0.3913	3	AVG
Carbon Tetrachloride		0.3871	0.3750	0.3944	0.3804	0.4127	0.3836	0.3889	3	AVG
Isobutyl Alcohol		0.5356	0.6658	0.5939	0.5537	0.6020	0.5429	0.5823	8	AVG
Benzene		1.1920	1.1199	1.1615	1.0856	1.1434	1.0422	1.1241	5	AVG
1,2-Dichloroethane		0.3613	0.3518	0.3572	0.3397	0.3633	0.3282	0.3502	4	AVG
1,2-Dichloroethane(2)		0.0335	0.0337	0.0361	0.0329	0.0354	0.0328	0.0341	4	AVG
t-Amyl methyl ether		0.3314	0.3651	0.3946	0.4045	0.4493	0.4265	0.3952	11	AVG
n-Heptane		0.3929	0.3869	0.3565	0.3692	0.3801		0.3771	4	AVG
n-Butanol		0.4056	0.5254	0.4934	0.4731	0.5340	0.4806	0.4854	9	AVG
Trichloroethene		0.3241	0.3065	0.3167	0.2979	0.3181	0.2950	0.3097	4	AVG
Methylcyclohexane		0.4173	0.5388	0.4890	0.4573	0.5397	0.4766	0.4864	10	AVG
1,2-Dichloropropane	*	0.2844	0.2753	0.2847	0.2727	0.2897	0.2628	0.2783	4	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methyl Methacrylate		0.1307	0.1610	0.1785	0.1742	0.1932	0.1661	0.1673	13	AVG
1,4-Dioxane		0.1998	0.2213	0.2130	0.2027	0.2164	0.2001	0.2089	4	AVG
Dibromomethane		0.1645	0.1703	0.1772	0.1661	0.1805	0.1611	0.1699	4	AVG
Bromodichloromethane		0.3353	0.3350	0.3598	0.3541	0.3868	0.3639	0.3558	5	AVG
2-Nitropropane		3.1699	3.3407	3.1989	4.2677	4.7365	4.4486	3.8604	18	1STDEG
cis-1,3-Dichloropropene		0.3732	0.3956	0.4354	0.4393	0.4819	0.4407	0.4277	9	AVG
4-Methyl-2-pentanone		0.1453	0.2021	0.2084	0.2782	0.2893		0.2247	26	1STDEG
Toluene	*	1.0864	1.0042	1.0378	0.9700	1.0257	0.9193	1.0072	6	AVG *
trans-1,3-Dichloropropene		0.4517	0.4853	0.5312	0.5354	0.5902	0.5380	0.5220	9	AVG
Ethyl Methacrylate		0.2789	0.3644	0.4264	0.4444	0.4969	0.4320	0.4072	19	AVG
1,1,2-Trichloroethane		0.3367	0.3446	0.3540	0.3317	0.3546	0.3125	0.3390	5	AVG
Tetrachloroethene		0.4761	0.4461	0.4571	0.4325	0.4683	0.4159	0.4493	5	AVG
1,3-Dichloropropane		0.5483	0.5619	0.5821	0.5509	0.5938	0.5261	0.5605	4	AVG
2-Hexanone		0.1372	0.1981	0.2001	0.2817	0.2921		0.2218	29	1STDEG
Dibromochloromethane		0.3425	0.3603	0.4008	0.3973	0.4431	0.4138	0.3930	9	AVG
1,2-Dibromoethane		0.3214	0.3410	0.3528	0.3412	0.3740	0.3355	0.3443	5	AVG
1-Chlorohexane		0.5419	0.5250	0.5359	0.5217	0.5564	0.4280	0.5182	9	AVG
Chlorobenzene	#	1.3121	1.2236	1.2592	1.1682	1.2137	1.0377	1.2024	8	AVG #
1,1,1,2-Tetrachloroethane		0.3864	0.3921	0.4171	0.4039	0.4282	0.3635	0.3985	6	AVG
Ethylbenzene	*	1.9712	1.9142	1.9716	1.8800	1.9909	1.5759	1.8840	8	AVG *
m+p-Xylene		0.8082	0.7839	0.8093	0.7679	0.8052	0.6327	0.7678	9	AVG
o-Xylene		0.7369	0.7450	0.7803	0.7516	0.7925	0.6456	0.7420	7	AVG
Styrene		1.0465	1.1401	1.2440	1.2065	1.2732	1.0530	1.1605	8	AVG
Bromoform	#	0.1906	0.2205	0.2345	0.2375	0.2706	0.2524	0.2343	12	AVG #
Isopropylbenzene		1.8860	1.8957	1.9781	1.8995	2.0275	1.5945	1.8802	8	AVG
Cyclohexanone		0.6078	0.6454	0.6754	0.6454	0.7341	0.8009	0.6848	10	AVG
1,1,2,2-Tetrachloroethane	#	0.8218	0.9224	0.9237	0.8348	0.8892	0.7127	0.8508	9	AVG #
Bromobenzene		1.0813	1.0059	1.0294	0.9603	0.9956	0.8314	0.9840	9	AVG
trans-1,4-Dichloro-2-butene		0.1862	0.2457	0.2422	0.2286	0.2457	0.2038	0.2254	11	AVG
1,2,3-Trichloropropane		0.2533	0.2870	0.2830	0.2562	0.2719	0.2308	0.2637	8	AVG
n-Propylbenzene		4.7131	4.4191	4.5444	4.2861	4.4580	3.3304	4.2918	11	AVG
2-Chlorotoluene		1.0279	0.9672	0.9975	0.9374	0.9787	0.8341	0.9571	7	AVG
1,3,5-Trimethylbenzene		3.2925	3.2596	3.3603	3.2146	3.3694	2.6110	3.1846	9	AVG
4-Chlorotoluene		1.0817	1.0200	1.0347	0.9692	1.0125	0.8542	0.9954	8	AVG
tert-Butylbenzene		0.7092	0.7009	0.7253	0.6929	0.7489	0.5758	0.6922	9	AVG
Pentachloroethane		0.5403	0.6439	0.6065	0.5114	0.6263	0.5159	0.5740	10	AVG
1,2,4-Trimethylbenzene		3.4009	3.3616	3.4649	3.3043	3.4867	2.5712	3.2649	11	AVG
sec-Butylbenzene		4.2340	4.1335	4.2369	4.1031	4.1816	2.9663	3.9759	13	AVG
1,3-Dichlorobenzene		2.0929	1.9406	1.9678	1.8472	1.8770	1.4531	1.8631	12	AVG
p-Isopropyltoluene		3.6427	3.6484	3.7423	3.6319	3.7149	2.5525	3.4888	13	AVG
1,4-Dichlorobenzene		2.1176	1.9799	1.9602	1.8476	1.8785	1.3947	1.8631	13	AVG
1,2,3-Trimethylbenzene		3.5482	3.9956	3.6913	3.0907	3.6203	2.7206	3.4444	13	AVG
Benzyl Chloride		0.2522	0.3280	0.3620	0.3747	0.4234	0.3866	0.3545	17	1STDEG
1,3-Diethylbenzene		2.1029	2.5030	2.3433	2.0101	2.3695	1.9054	2.2057	11	AVG
1,4-Diethylbenzene		2.1805	2.5638	2.3948	2.0590	2.4153	1.8761	2.2482	11	AVG
n-Butylbenzene		1.7978	1.7880	1.7702	1.7207	1.7922	1.2452	1.6857	13	AVG
1,2-Dichlorobenzene		1.9344	1.8599	1.8711	1.7386	1.7987	1.4420	1.7741	10	AVG
1,2-Diethylbenzene		1.8985	2.1592	1.9659	1.6789	1.9634	1.5641	1.8717	12	AVG
1,2-Dibromo-3-chloropropane		0.1212	0.1477	0.1526	0.1519	0.1716	0.1538	0.1498	11	AVG
1,3,5-Trichlorobenzene		1.3702	1.3620	1.3583	1.3182	1.4111	1.0814	1.3168	9	AVG
1,2,4-Trichlorobenzene		1.0626	1.1312	1.1272	1.1607	1.2792	0.9989	1.1266	8	AVG
Hexachlorobutadiene		0.6188	0.5790	0.5326	0.5785	0.5948		0.5807	5	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

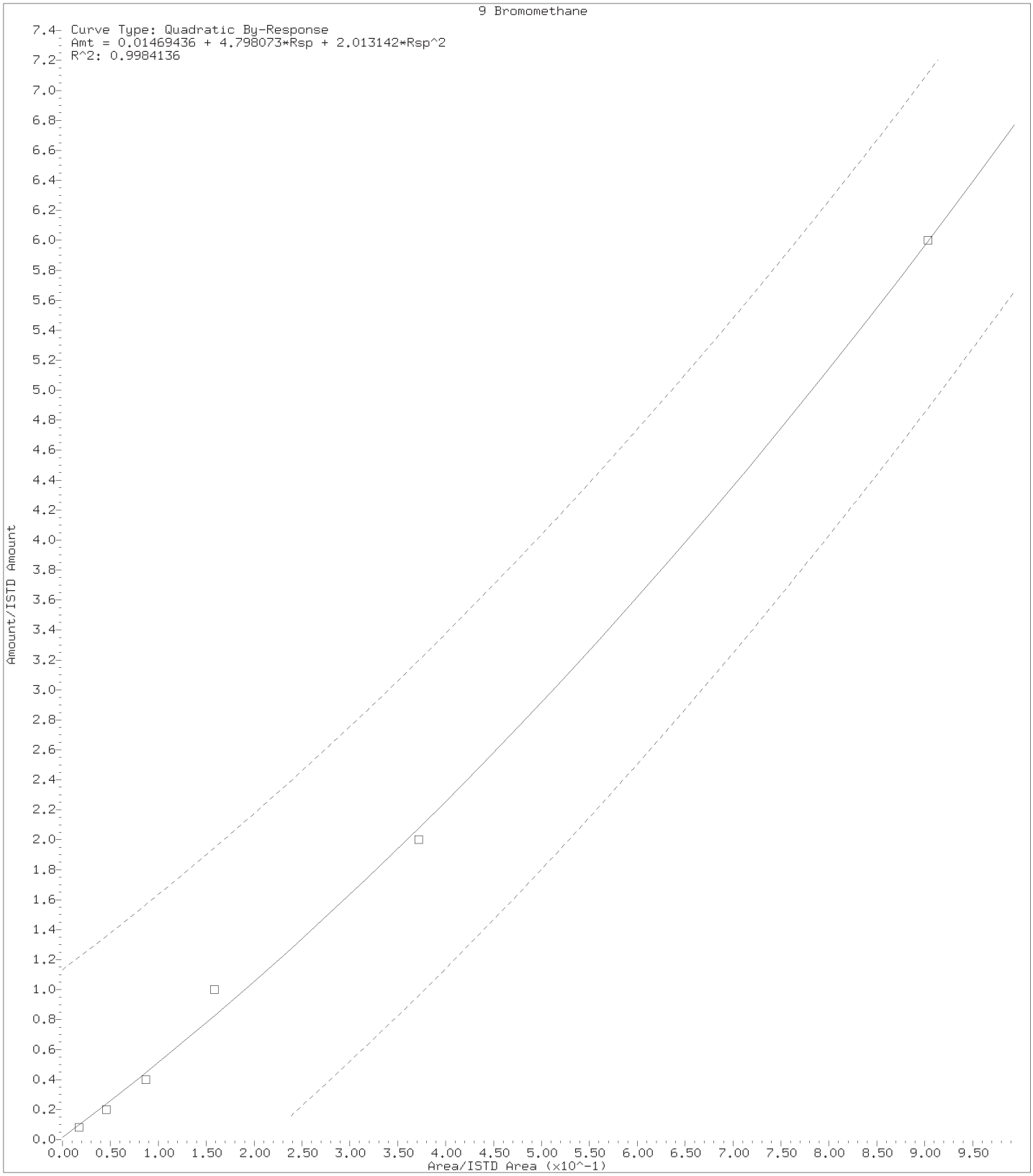
LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene		1.9624	2.5889	2.6715	2.8125	3.1292	2.5002	2.6108	15	AVG
1,2,3-Trichlorobenzene		1.0142	1.0765	1.0590	1.0634	1.1626	0.9178	1.0489	8	AVG
2-Methylnaphthalene		0.3946	0.8331	0.9373	1.2004	1.6786	1.4457	1.0816	43	1STDEG
Dibromofluoromethane		0.2376	0.2397	0.2397	0.2422	0.2441	0.2465	0.2416	1	AVG
Dibromofluoromethane(2)		0.2426	0.2458	0.2458	0.2460	0.2498	0.2510	0.2468	1	AVG
1,2-Dichloroethane-d4		0.0527	0.0554	0.0536	0.0546	0.0543	0.0523	0.0538	2	AVG
1,2-Dichloroethane-d4(2)		0.2391	0.2511	0.2519	0.2472	0.2475	0.2458	0.2471	2	AVG
1,2-Dichloroethane-d4(3)		0.0333	0.0343	0.0343	0.0343	0.0343	0.0338	0.0340	1	AVG
Toluene-d8		1.3473	1.3376	1.3379	1.3375	1.3558	1.3813	1.3496	1	AVG
Toluene-d8(2)		0.8781	0.8733	0.8729	0.8774	0.8880	0.9141	0.8840	2	AVG
4-Bromofluorobenzene		0.4799	0.4821	0.4778	0.4842	0.4936	0.5088	0.4877	2	AVG
4-Bromofluorobenzene(2)		0.3957	0.3966	0.3963	0.3978	0.4047	0.4179	0.4015	2	AVG

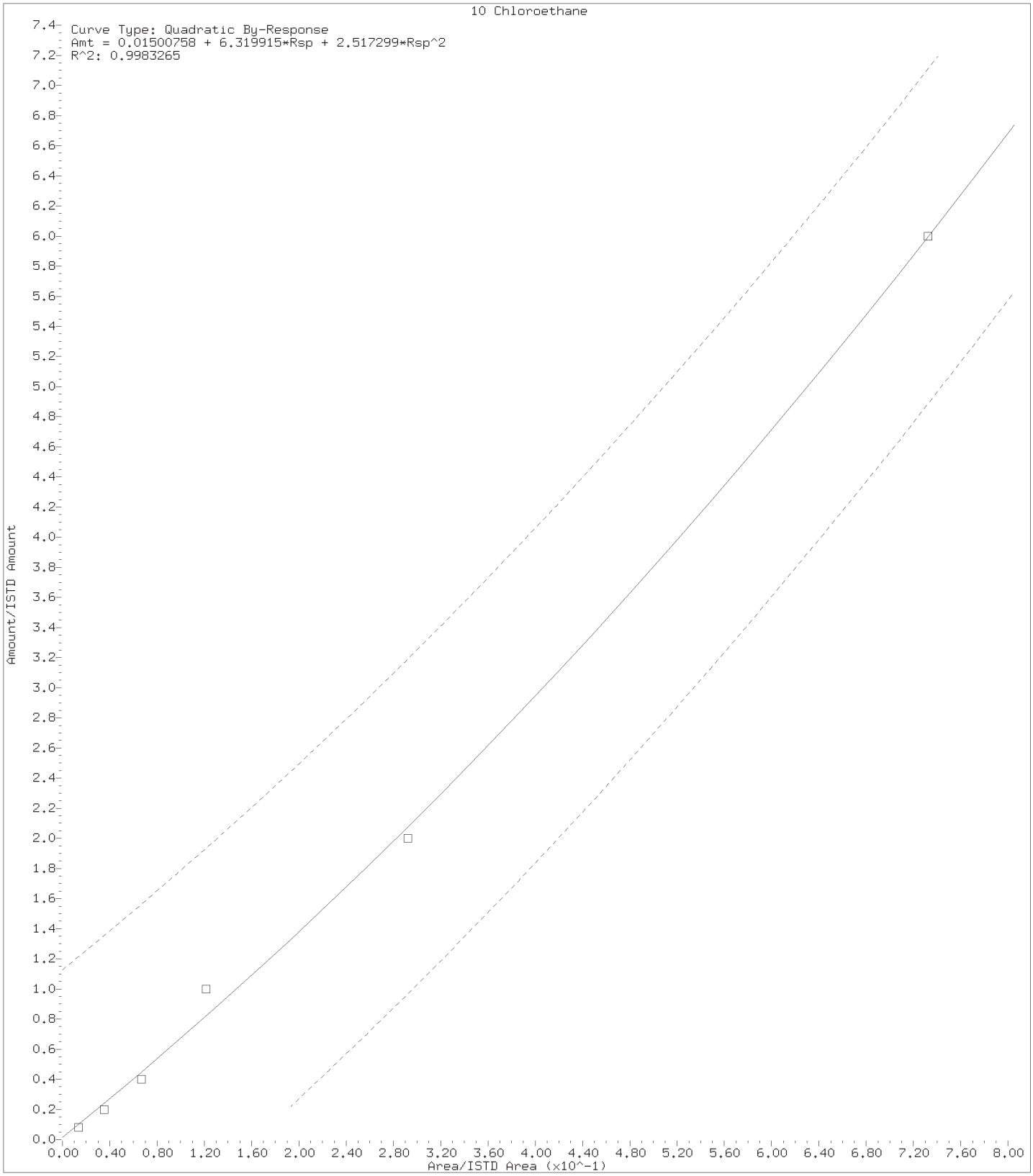
Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

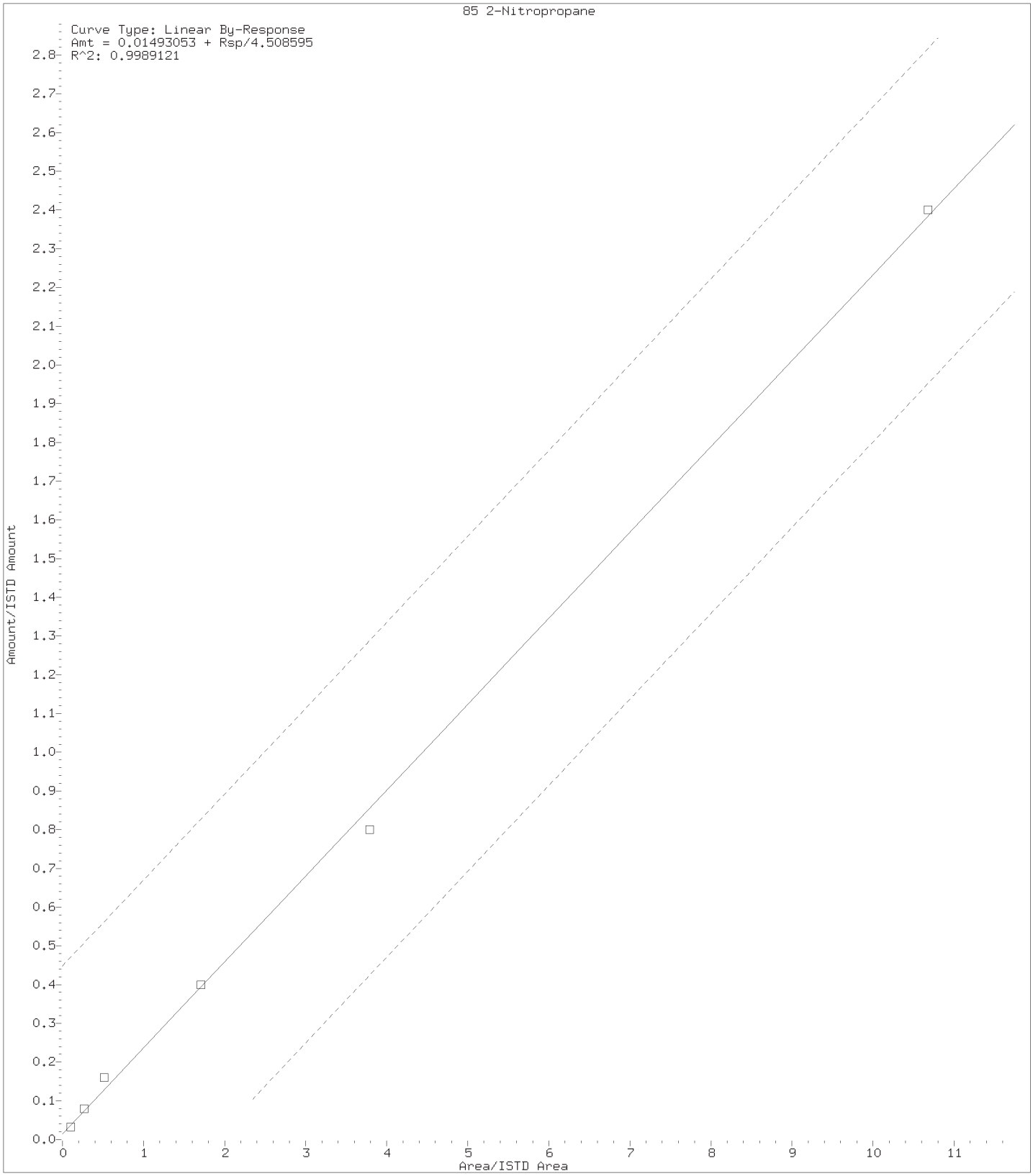
FORM VI VOA



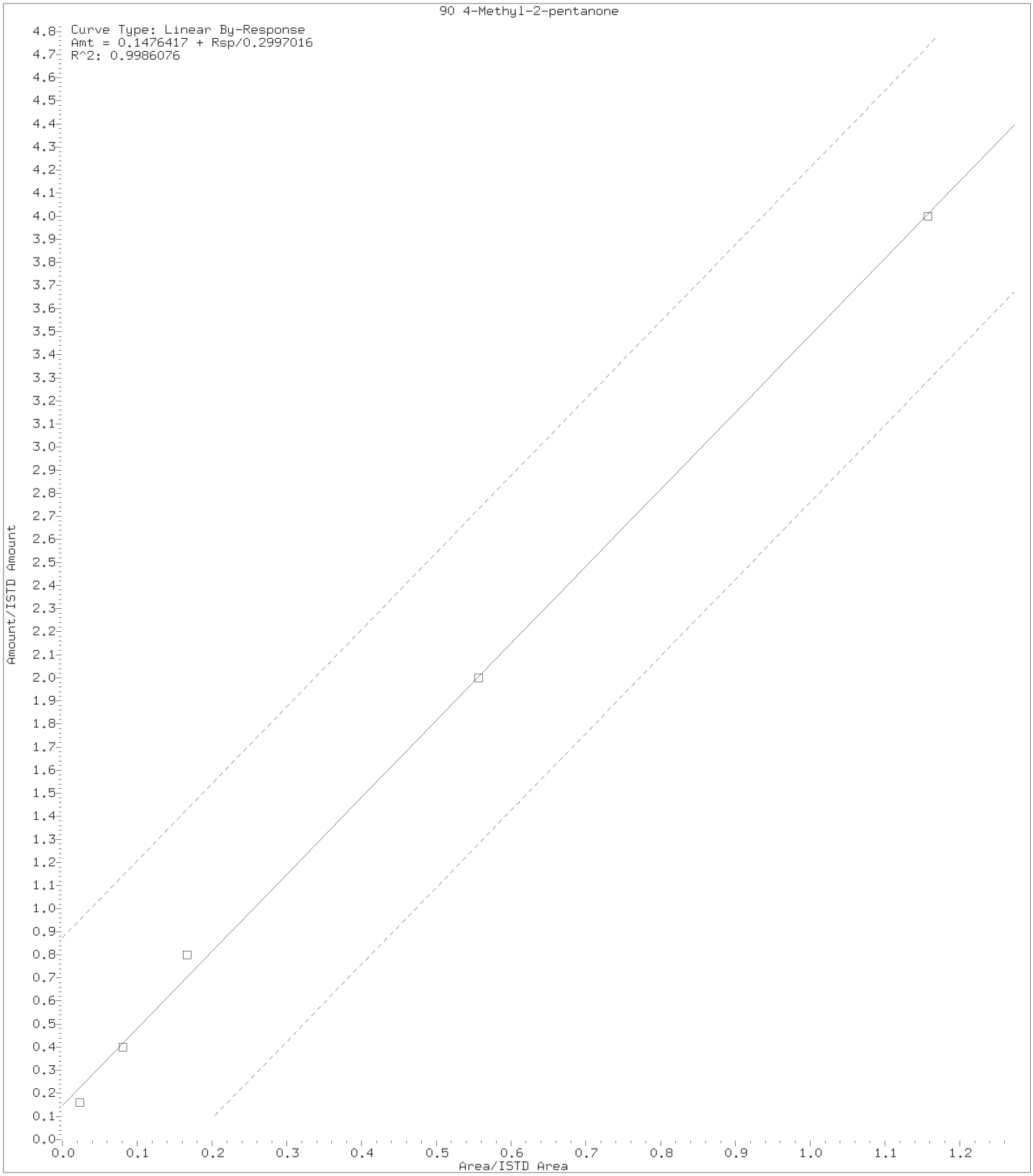
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



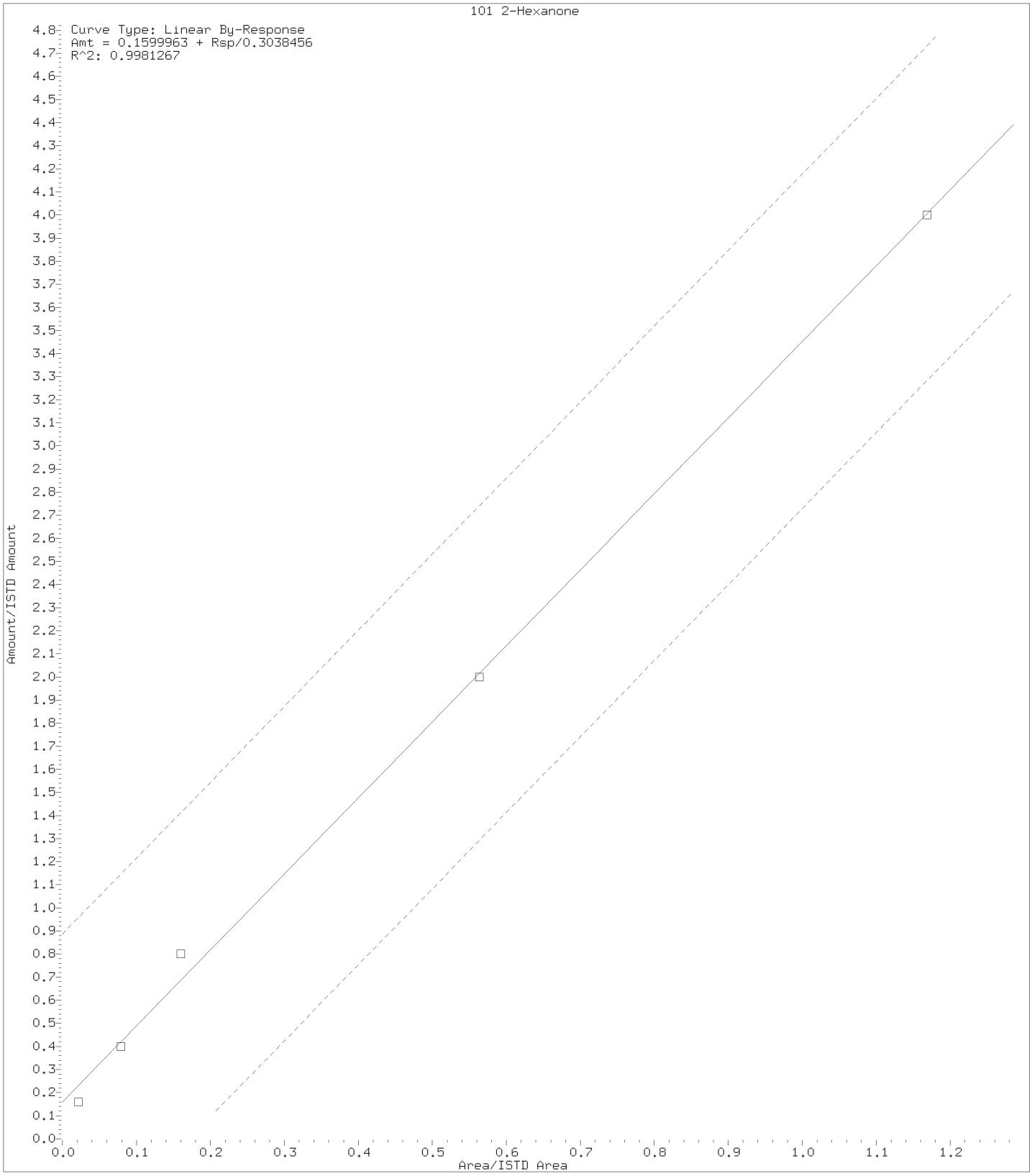
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



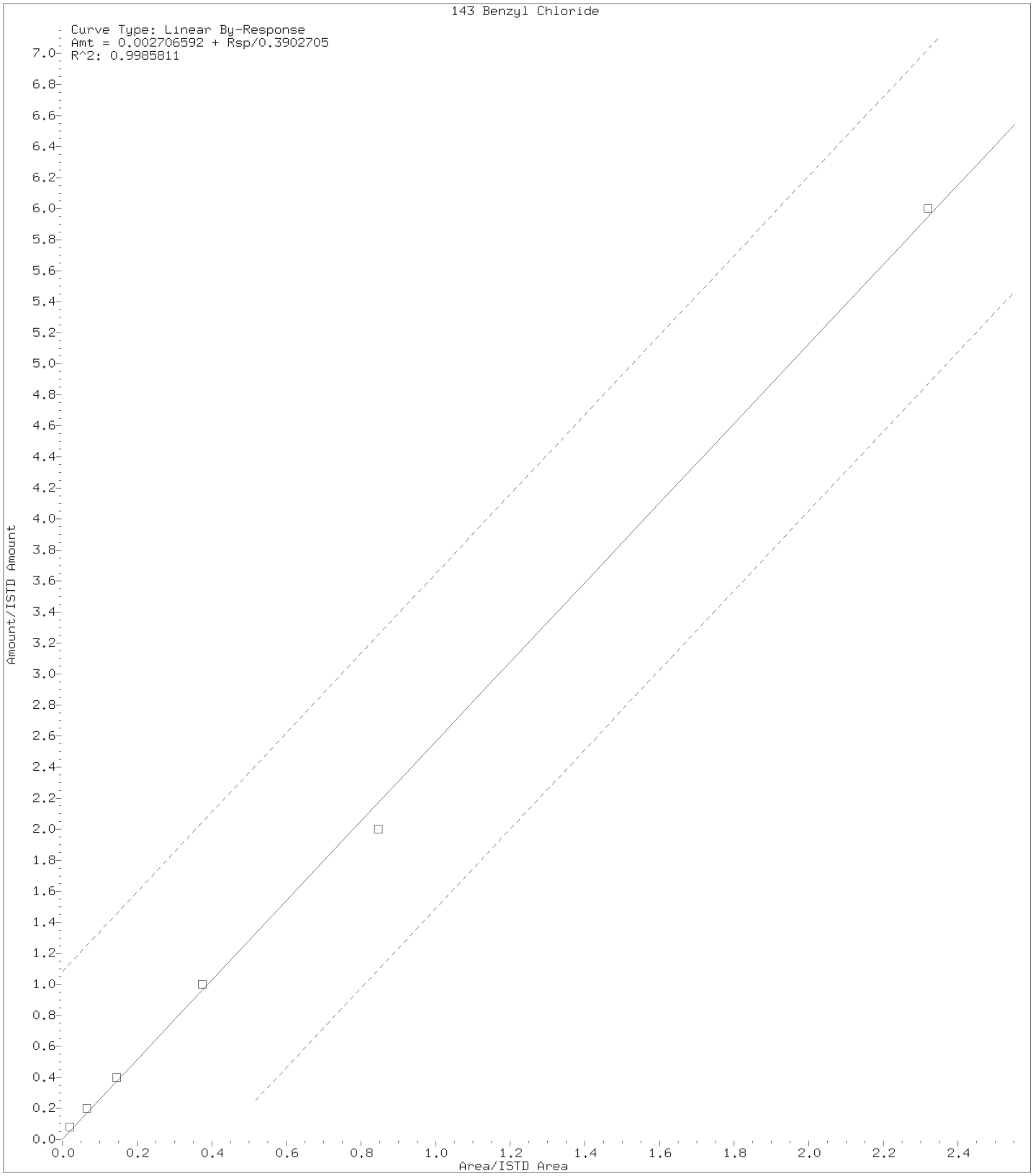
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



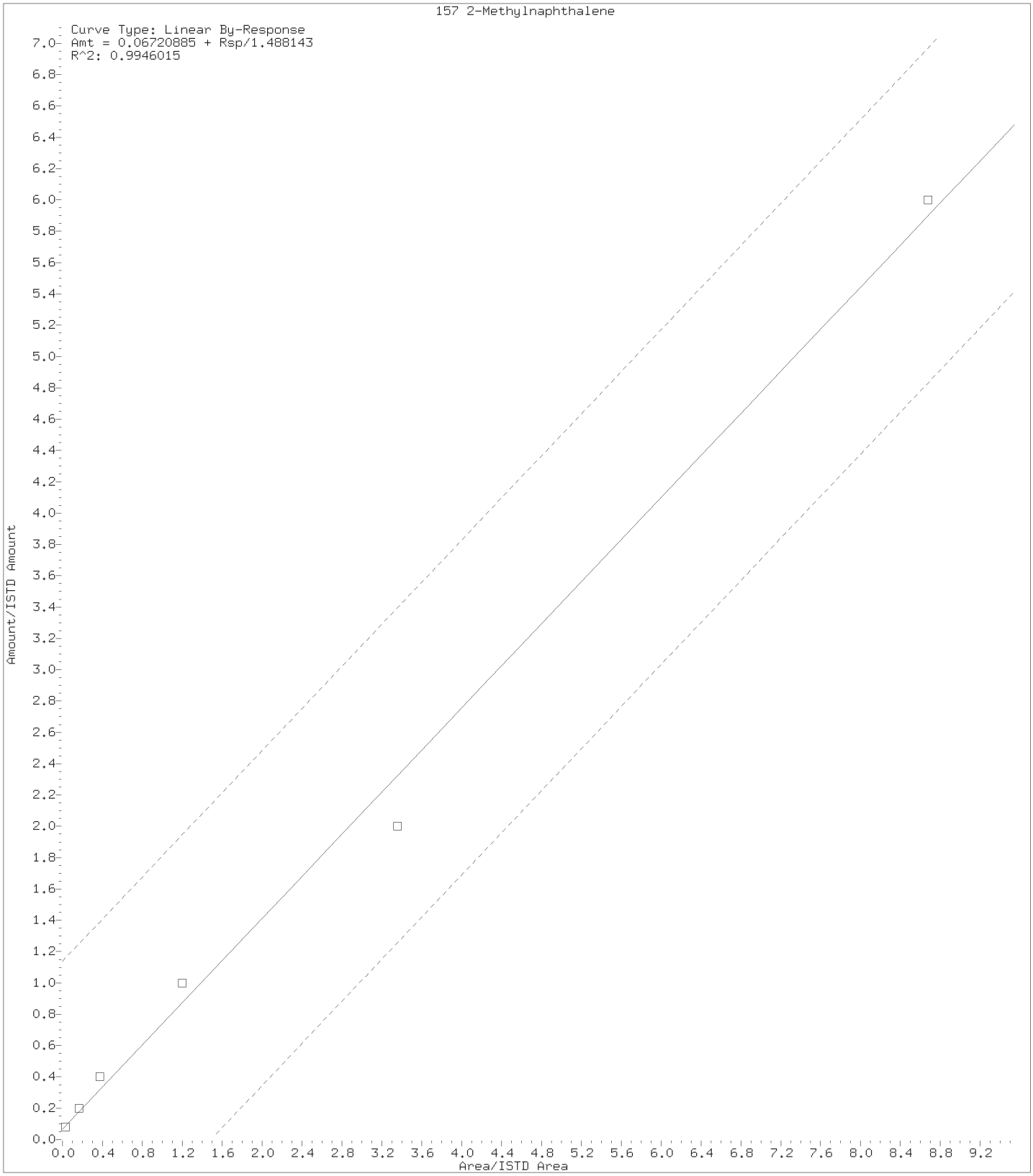
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/15oct08a.b/ac08i01.d	VSTD300
/chem2/HP09685.i/15oct08a.b/ac08i02.d	VSTD100
/chem2/HP09685.i/15oct08a.b/ac08i03.d	VSTD050
/chem2/HP09685.i/15oct08a.b/ac08i07.d	VSTD020
/chem2/HP09685.i/15oct08a.b/ac08i05.d	VSTD010
/chem2/HP09685.i/15oct08a.b/ac08i06.d	VSTD004

Area Summary

File ID:
==========

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	107368	132111	134640	132515	128801	98110	122258	13	Yes
Fluorobenzene	1523541	1610311	1615131	1600991	1608372	1559575	1586320	2	Yes
Chlorobenzene-d5	1112636	1189320	1200791	1190748	1188032	1145867	1171232	3	Yes
1,4-Dichlorobenzene-d4	594568	634667	625879	612087	616048	581685	610822	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. RT
t-Butyl alcohol-d10	3.970	3.958	3.976	3.970	3.976	3.964	3.969
Fluorobenzene	7.462	7.462	7.462	7.456	7.462	7.462	7.461
Chlorobenzene-d5	11.015	11.015	11.015	11.014	11.014	11.015	11.015
1,4-Dichlorobenzene-d4	12.919	12.919	12.919	12.919	12.919	12.919	12.919

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 10/08/2015 at 16:42.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4202	0.4031	19.19	20	-4
# Chloromethane	0.3118	0.3029	19.43	20	-3 #
* Vinyl Chloride	0.2819	0.2811	19.95	20	0 *
Bromomethane	0.1928	0.1325	13.73	20	-31
Chloroethane	0.1504	0.1143	15.47	20	-23
Dichlorofluoromethane	0.3769	0.3725	19.76	20	-1
Trichlorofluoromethane	0.4142	0.4004	19.34	20	-3
Ethanol	0.2030	0.2128	1048.30	1000	5
Freon 123a	0.3155	0.3183	20.18	20	1
Acrolein	2.9175	2.6819	137.89	150	-8
* 1,1-Dichloroethene	0.2444	0.2530	20.71	20	4 *
Acetone	0.0228	0.0214	140.77	150	-6
Freon 113	0.2530	0.2665	21.07	20	5
2-Propanol	1.1037	1.0162	138.10	150	-8
Methyl Iodide	0.4663	0.4825	20.70	20	3
Carbon Disulfide	0.7990	0.7889	19.75	20	-1
Methyl Acetate	0.1560	0.1643	21.06	20	5
Allyl Chloride	0.3450	0.3566	20.67	20	3
Methylene Chloride	0.2815	0.2827	20.08	20	0
t-Butyl alcohol	1.5121	1.4548	192.42	200	-4
Acrylonitrile	0.0821	0.0815	99.31	100	-1
Methyl Tertiary Butyl Ether	0.6178	0.6377	20.64	20	3
trans-1,2-Dichloroethene	0.2795	0.2934	20.99	20	5
n-Hexane	0.3381	0.3696	21.86	20	9
# 1,1-Dichloroethane	0.4859	0.4750	19.55	20	-2 #
di-Isopropyl ether	0.7452	0.7746	20.79	20	4
2-Chloro-1,3-butadiene	0.3503	0.3236	18.48	20	-8
Ethyl t-butyl ether	0.4754	0.5000	21.04	20	5
2-Butanone	0.1017	0.1037	152.87	150	2
cis-1,2-Dichloroethene	0.3078	0.3118	20.26	20	1
2,2-Dichloropropane	0.3952	0.3851	19.49	20	-3
Propionitrile	2.0451	1.9443	142.61	150	-5
Methacrylonitrile	0.0928	0.1006	162.63	150	8
Bromochloromethane	0.1566	0.1571	20.07	20	0
Tetrahydrofuran	1.9502	1.7895	91.76	100	-8
* Chloroform	0.4847	0.4833	19.94	20	0 *

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4872	0.4761	19.55	20	-2
Cyclohexane	0.4157	0.4328	20.82	20	4
1,1-Dichloropropene	0.3913	0.3718	19.00	20	-5
Carbon Tetrachloride	0.3889	0.3884	19.98	20	0
Isobutyl Alcohol	0.5823	0.5226	448.71	500	-10
Benzene	1.1241	1.1237	19.99	20	0
1,2-Dichloroethane	0.3502	0.3456	19.73	20	-1
t-Amyl methyl ether	0.3952	0.4285	21.69	20	8
n-Heptane	0.3771	0.3674	19.48	20	-3
n-Butanol	0.4854	0.4366	899.59	1000	-10
Trichloroethene	0.3097	0.3061	19.76	20	-1
Methylcyclohexane	0.4864	0.5093	20.94	20	5
* 1,2-Dichloropropane	0.2783	0.2824	20.30	20	1 *
Methyl Methacrylate	0.1673	0.1663	19.88	20	-1
1,4-Dioxane	0.2089	0.1877	449.34	500	-10
Dibromomethane	0.1699	0.1687	19.86	20	-1
Bromodichloromethane	0.3558	0.3396	19.09	20	-5
2-Nitropropane	3.8604	3.0206	17.13	20	-14
cis-1,3-Dichloropropene	0.4277	0.4154	19.42	20	-3
4-Methyl-2-pentanone	0.2247	0.2255	82.61	100	-17
* Toluene	1.0072	1.0124	20.10	20	1 *
trans-1,3-Dichloropropene	0.5220	0.5155	19.75	20	-1
Ethyl Methacrylate	0.4072	0.4070	19.99	20	0
1,1,2-Trichloroethane	0.3390	0.3300	19.47	20	-3
Tetrachloroethene	0.4493	0.4554	20.27	20	1
1,3-Dichloropropane	0.5605	0.5461	19.48	20	-3
2-Hexanone	0.2218	0.2188	80.02	100	-20
Dibromochloromethane	0.3930	0.3648	18.57	20	-7
1,2-Dibromoethane	0.3443	0.3445	20.01	20	0
1-Chlorohexane	0.5182	0.5396	20.83	20	4
# Chlorobenzene	1.2024	1.1968	19.91	20	0 #
1,1,1,2-Tetrachloroethane	0.3985	0.3897	19.56	20	-2
* Ethylbenzene	1.8840	1.9314	20.50	20	3 *
m+p-Xylene	0.7678	0.7920	41.26	40	3
o-Xylene	0.7420	0.7521	20.27	20	1
Styrene	1.1605	1.1881	20.48	20	2

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2343	0.2115	18.05	20	-10 #
Isopropylbenzene	1.8802	1.9758	21.02	20	5
Cyclohexanone	0.6848	0.4800	350.48	500	-30
# 1,1,2,2-Tetrachloroethane	0.8508	0.8261	19.42	20	-3 #
Bromobenzene	0.9840	0.9607	19.53	20	-2
trans-1,4-Dichloro-2-butene	0.2254	0.2264	100.47	100	0
1,2,3-Trichloropropane	0.2637	0.2642	20.04	20	0
n-Propylbenzene	4.2918	4.3778	20.40	20	2
2-Chlorotoluene	0.9571	0.9449	19.75	20	-1
1,3,5-Trimethylbenzene	3.1846	3.2713	20.54	20	3
4-Chlorotoluene	0.9954	0.9867	19.83	20	-1
tert-Butylbenzene	0.6922	0.7113	20.55	20	3
Pentachloroethane	0.5740	0.5624	19.59	20	-2
1,2,4-Trimethylbenzene	3.2649	3.3255	20.37	20	2
sec-Butylbenzene	3.9759	4.1472	20.86	20	4
1,3-Dichlorobenzene	1.8631	1.8802	20.18	20	1
p-Isopropyltoluene	3.4888	3.6504	20.93	20	5
1,4-Dichlorobenzene	1.8631	1.9087	20.49	20	2
1,2,3-Trimethylbenzene	3.4444	3.4003	19.74	20	-1
Benzyl Chloride	0.3545	0.3301	17.05	20	-15
1,3-Diethylbenzene	2.2057	2.1987	19.94	20	0
1,4-Diethylbenzene	2.2482	2.3171	20.61	20	3
n-Butylbenzene	1.6857	1.7512	20.78	20	4
1,2-Dichlorobenzene	1.7741	1.7589	19.83	20	-1
1,2-Diethylbenzene	1.8717	1.8817	20.11	20	1
1,2-Dibromo-3-chloropropane	0.1498	0.1381	18.44	20	-8
1,3,5-Trichlorobenzene	1.3168	1.3304	20.21	20	1
1,2,4-Trichlorobenzene	1.1266	1.1318	20.09	20	0
Hexachlorobutadiene	0.5807	0.5593	19.26	20	-4
Naphthalene	2.6108	2.6046	19.95	20	0
1,2,3-Trichlorobenzene	1.0489	1.0383	19.80	20	-1
2-Methylnaphthalene	1.0816	0.8859	15.27	20	-24

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.3412	0.3803	0.3767	0.3590	0.4019	0.3659		0.3708	6	AVG	
Chloromethane	#0.4465	0.4585	0.4591	0.4253	0.4817	0.4280		0.4498	5	AVG	#
Vinyl Chloride	*0.3816	0.4054	0.4110	0.3755	0.4343	0.3914		0.3999	5	AVG	*
Bromomethane	4.6448	4.2513	4.6143	3.5357	3.7838	3.1134		3.9905	15	AVG	
Chloroethane	3.7472	3.6945	3.8475	2.6814	2.9176	2.4107		3.2165	19	2NDDEG	
Dichlorofluoromethane	0.4896	0.4501	0.4076	0.3724	0.4071	0.3402		0.4112	13	AVG	
Trichlorofluoromethane	0.3887	0.4070	0.4177	0.3618	0.4182	0.3891		0.3971	5	AVG	
Ethanol	0.2018	0.1823	0.1693	0.1601	0.1710	0.1502		0.1724	10	AVG	
Freon 123a	0.3601	0.3570	0.3248	0.3086	0.3372	0.3104		0.3330	7	AVG	
Acrolein	3.0170	3.7870	3.2962	3.0355	3.1656	2.5365		3.1397	13	AVG	
1,1-Dichloroethene	*0.2585	0.2646	0.2621	0.2579	0.2717	0.2415		0.2594	4	AVG	*
1,1-Dichloroethene(2)	*0.1447	0.1414	0.1425	0.1384	0.1434	0.1292		0.1399	4	AVG	*
Acetone	0.0245	0.0309	0.0306	0.0323	0.0335	0.0277		0.0299	11	AVG	
Freon 113	0.2452	0.2506	0.2474	0.2545	0.2657	0.2315		0.2491	5	AVG	
2-Propanol	0.8449	0.8635	0.8147	0.7981	0.8847	0.7501		0.8260	6	AVG	
Methyl Iodide	0.4885	0.4937	0.4999	0.4887	0.5185	0.4619		0.4918	4	AVG	
Carbon Disulfide	0.8575	0.8805	0.8696	0.8656	0.9244	0.8436		0.8735	3	AVG	
Methyl Acetate	0.2398	0.2278	0.2368	0.2358	0.2488	0.2268		0.2359	3	AVG	
Allyl Chloride	0.5249	0.5001	0.4890	0.4860	0.5094	0.4604		0.4950	4	AVG	
Methylene Chloride	0.3099	0.3045	0.3187	0.3039	0.3239	0.2832		0.3073	5	AVG	
t-Butyl alcohol	1.2282	1.2713	1.3191	1.2962	1.2968	1.1890		1.2668	4	AVG	
Acrylonitrile	0.1020	0.1269	0.1333	0.1404	0.1422	0.1235		0.1280	11	AVG	
Methyl Tertiary Butyl Ether	0.8603	0.8954	0.9368	0.8843	0.9526	0.8382		0.8946	5	AVG	
trans-1,2-Dichloroethene	0.2848	0.2884	0.2962	0.2835	0.3051	0.2708		0.2881	4	AVG	
n-Hexane	0.3263	0.3288	0.3306	0.3327	0.3595	0.3009		0.3298	6	AVG	
1,1-Dichloroethane	#0.5469	0.5634	0.5774	0.5387	0.5836	0.4921		0.5503	6	AVG	#
di-Isopropyl ether	1.0708	1.1000	1.1568	1.0672	1.1521	1.0135		1.0934	5	AVG	
2-Chloro-1,3-butadiene	0.4726	0.4913	0.4969	0.4719	0.5051	0.4503		0.4814	4	AVG	
Ethyl t-butyl ether	0.9618	1.0016	1.0703	0.9906	1.0550	0.9087		0.9980	6	AVG	
2-Butanone	0.1241	0.1440	0.1567	0.1784	0.1769	0.1430		0.1539	14	AVG	
2-Butanone(2)	0.0241	0.0342	0.0390	0.0441	0.0448	0.0366		0.0371	21	AVG	
cis-1,2-Dichloroethene	0.3126	0.3062	0.3272	0.3126	0.3325	0.2959		0.3145	4	AVG	
2,2-Dichloropropane	0.4251	0.4247	0.4492	0.4189	0.4533	0.4026		0.4290	4	AVG	
Propionitrile	0.0395	0.0401	0.0466	0.0460	0.0502	0.0447		0.0445	9	AVG	
Methacrylonitrile	0.1248	0.1283	0.1358	0.1324	0.1416	0.1269		0.1317	5	AVG	
Bromochloromethane	0.1557	0.1549	0.1618	0.1553	0.1664	0.1499		0.1573	4	AVG	
Tetrahydrofuran	1.5830	1.6581	1.7044	1.7235	1.6461	1.3526		1.6113	8	AVG	
Chloroform	*0.4839	0.4957	0.5127	0.4917	0.5187	0.4507		0.4922	5	AVG	*
1,1,1-Trichloroethane	0.4876	0.4489	0.4751	0.4325	0.4662	0.4058		0.4527	7	AVG	
Cyclohexane	0.4794	0.4765	0.4929	0.4757	0.4989	0.4330		0.4760	5	AVG	
Cyclohexane(2)	0.3639	0.3748	0.3834	0.3719	0.3910	0.3425		0.3713	5	AVG	
Cyclohexane(3)	0.1299	0.1392	0.1437	0.1393	0.1480	0.1289		0.1382	5	AVG	
1,1-Dichloropropene	0.3917	0.3933	0.4067	0.3791	0.4037	0.3625		0.3895	4	AVG	
Carbon Tetrachloride	0.3327	0.3526	0.3675	0.3600	0.3828	0.3433		0.3565	5	AVG	
Isobutyl Alcohol	0.3916	0.3985	0.4286	0.4175	0.4295	0.4037		0.4116	4	AVG	
Benzene	1.1570	1.1625	1.2328	1.1523	1.2248	1.1150		1.1741	4	AVG	
1,2-Dichloroethane	0.3861	0.3982	0.4216	0.4034	0.4194	0.3770		0.4010	4	AVG	
1,2-Dichloroethane(2)	0.0346	0.0367	0.0379	0.0375	0.0398	0.0372		0.0373	5	AVG	
t-Amyl methyl ether	0.8911	0.8991	0.9543	0.9165	0.9443	0.8578		0.9105	4	AVG	
n-Heptane	0.3424	0.3262	0.3269	0.3109	0.3226	0.2679		0.3161	8	AVG	
n-Butanol	0.2709	0.2978	0.3372	0.3570	0.3605	0.3505		0.3290	11	AVG	
Trichloroethene	0.3001	0.2898	0.3028	0.2888	0.3015	0.2783		0.2936	3	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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Methylcyclohexane	0.3610	0.3661	0.3643	0.3736	0.3711	0.3506		0.3644	2	AVG	
1,2-Dichloropropane	*0.3281	0.3220	0.3518	0.3374	0.3461	0.3156		0.3335	4	AVG	*
Methyl Methacrylate	0.2002	0.2042	0.2363	0.2321	0.2400	0.2232		0.2227	8	AVG	
1,4-Dioxane	0.1145	0.1205	0.1306	0.1315	0.1405	0.1294		0.1278	7	AVG	
Dibromomethane	0.1748	0.1801	0.2023	0.1918	0.1987	0.1799		0.1879	6	AVG	
Bromodichloromethane	0.3566	0.3656	0.4011	0.3886	0.4194	0.3712		0.3838	6	AVG	
2-Nitropropane	3.5494	3.7406	3.9170	4.3521	4.2226	3.2066		3.8314	11	AVG	
2-Chloroethyl Vinyl Ether	0.1804	0.2003	0.2209	0.2205	0.2326	0.2167		0.2119	9	AVG	
cis-1,3-Dichloropropene	0.4561	0.4832	0.5216	0.5200	0.5463	0.4789		0.5010	7	AVG	
4-Methyl-2-pentanone	0.2628	0.3316	0.3699	0.4318	0.4218			0.3636	19	1STDEG	
Toluene	*0.9868	0.9724	1.0392	0.9551	1.0141	0.9300		0.9829	4	AVG	*
trans-1,3-Dichloropropene	0.5657	0.5756	0.6414	0.6099	0.6474	0.6040		0.6073	5	AVG	
Ethyl Methacrylate	0.5508	0.5559	0.6044	0.5987	0.5999	0.5654		0.5792	4	AVG	
1,1,2-Trichloroethane	0.3524	0.3523	0.3812	0.3611	0.3654	0.3489		0.3602	3	AVG	
Tetrachloroethene	0.4190	0.4021	0.4276	0.3992	0.4183	0.4005		0.4111	3	AVG	
1,3-Dichloropropane	0.6512	0.6333	0.6846	0.6355	0.6547	0.6131		0.6454	4	AVG	
2-Hexanone	0.2710	0.3355	0.3849	0.4274	0.4085	0.2993		0.3544	18	2NDDEG	
Dibromochloromethane	0.3767	0.3743	0.4275	0.4101	0.4355	0.4157		0.4066	6	AVG	
1,2-Dibromoethane	0.3562	0.3566	0.4020	0.3747	0.3842	0.3591		0.3722	5	AVG	
Chlorobenzene	#1.1179	1.0689	1.1369	1.0827	1.1170	1.0093		1.0888	4	AVG	#
1,1,1,2-Tetrachloroethane	0.3632	0.3661	0.3965	0.3737	0.4040	0.3779		0.3802	4	AVG	
Ethylbenzene	*1.7526	1.7021	1.8449	1.6993	1.8080	1.6241		1.7385	5	AVG	*
m+p-Xylene	0.7007	0.6850	0.7331	0.6830	0.7274	0.6373		0.6944	5	AVG	
o-Xylene	0.6918	0.6676	0.7300	0.6689	0.7024	0.6552		0.6860	4	AVG	
Styrene	1.1789	1.1527	1.2477	1.1803	1.2283	1.1375		1.1876	4	AVG	
Bromoform	#0.2496	0.2642	0.2912	0.2962	0.3118	0.3068		0.2866	9	AVG	#
Isopropylbenzene	1.6329	1.5599	1.6540	1.5398	1.6450	1.4730		1.5841	5	AVG	
Cyclohexanone	0.3767	0.3642	0.4175	0.4090	0.4476	0.3920		0.4012	7	AVG	
1,1,2,2-Tetrachloroethane	#0.9749	0.9950	1.0557	0.9997	0.9910	0.8651		0.9802	6	AVG	#
Bromobenzene	0.9750	0.9445	1.0242	0.9364	0.9956	0.8842		0.9600	5	AVG	
trans-1,4-Dichloro-2-butene	0.2825	0.2865	0.3126	0.3008	0.3052	0.2567		0.2907	7	AVG	
1,2,3-Trichloropropane	0.2837	0.2903	0.3075	0.2892	0.2933	0.2575		0.2869	6	AVG	
n-Propylbenzene	3.6947	3.5302	3.8285	3.4887	3.6474	2.9827		3.5287	8	AVG	
2-Chlorotoluene	0.8116	0.7788	0.8280	0.7625	0.8044	0.6928		0.7797	6	AVG	
1,3,5-Trimethylbenzene	2.7175	2.6048	2.8461	2.5820	2.7069	2.2955		2.6254	7	AVG	
4-Chlorotoluene	0.8775	0.8094	0.8928	0.8226	0.8613	0.7491		0.8354	6	AVG	
tert-Butylbenzene	0.6136	0.5665	0.6258	0.5630	0.5983	0.5130		0.5800	7	AVG	
Pentachloroethane	0.5792	0.5415	0.5953	0.5758	0.6128	0.5613		0.5776	4	AVG	
1,2,4-Trimethylbenzene	2.8296	2.7242	2.9352	2.6880	2.8467	2.4043		2.7380	7	AVG	
sec-Butylbenzene	3.0584	2.9211	3.1523	2.8404	2.9578	2.4330		2.8938	9	AVG	
1,3-Dichlorobenzene	1.6307	1.5311	1.6679	1.5311	1.6163	1.4306		1.5679	6	AVG	
p-Isopropyltoluene	2.7972	2.6484	2.8797	2.6030	2.7288	2.2947		2.6586	8	AVG	
1,4-Dichlorobenzene	1.8009	1.7030	1.8060	1.6389	1.6983	1.4953		1.6904	7	AVG	
1,2,3-Trimethylbenzene	3.1934	2.8684	3.0268	2.7919	2.8783	2.5477		2.8844	8	AVG	
Benzyl Chloride	0.3891	0.4187	0.4669	0.4483	0.4726	0.4167		0.4354	7	AVG	
1,3-Diethylbenzene	1.7337	1.5878	1.6676	1.5318	1.6047	1.4258		1.5919	7	AVG	
1,4-Diethylbenzene	1.7839	1.6119	1.6776	1.5380	1.5984	1.4112		1.6035	8	AVG	
n-Butylbenzene	1.3416	1.2475	1.3475	1.2018	1.2449	1.0340		1.2362	9	AVG	
1,2-Dichlorobenzene	1.6512	1.5552	1.6788	1.5393	1.6077	1.4101		1.5737	6	AVG	
1,2-Diethylbenzene	1.4651	1.3149	1.3779	1.2530	1.3329	1.1584		1.3170	8	AVG	
1,2-Dibromo-3-chloropropane	0.1796	0.1892	0.1989	0.1871	0.1892	0.1654		0.1849	6	AVG	
1,3,5-Trichlorobenzene	1.2478	1.1580	1.2303	1.0768	1.1290	0.9215		1.1273	11	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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

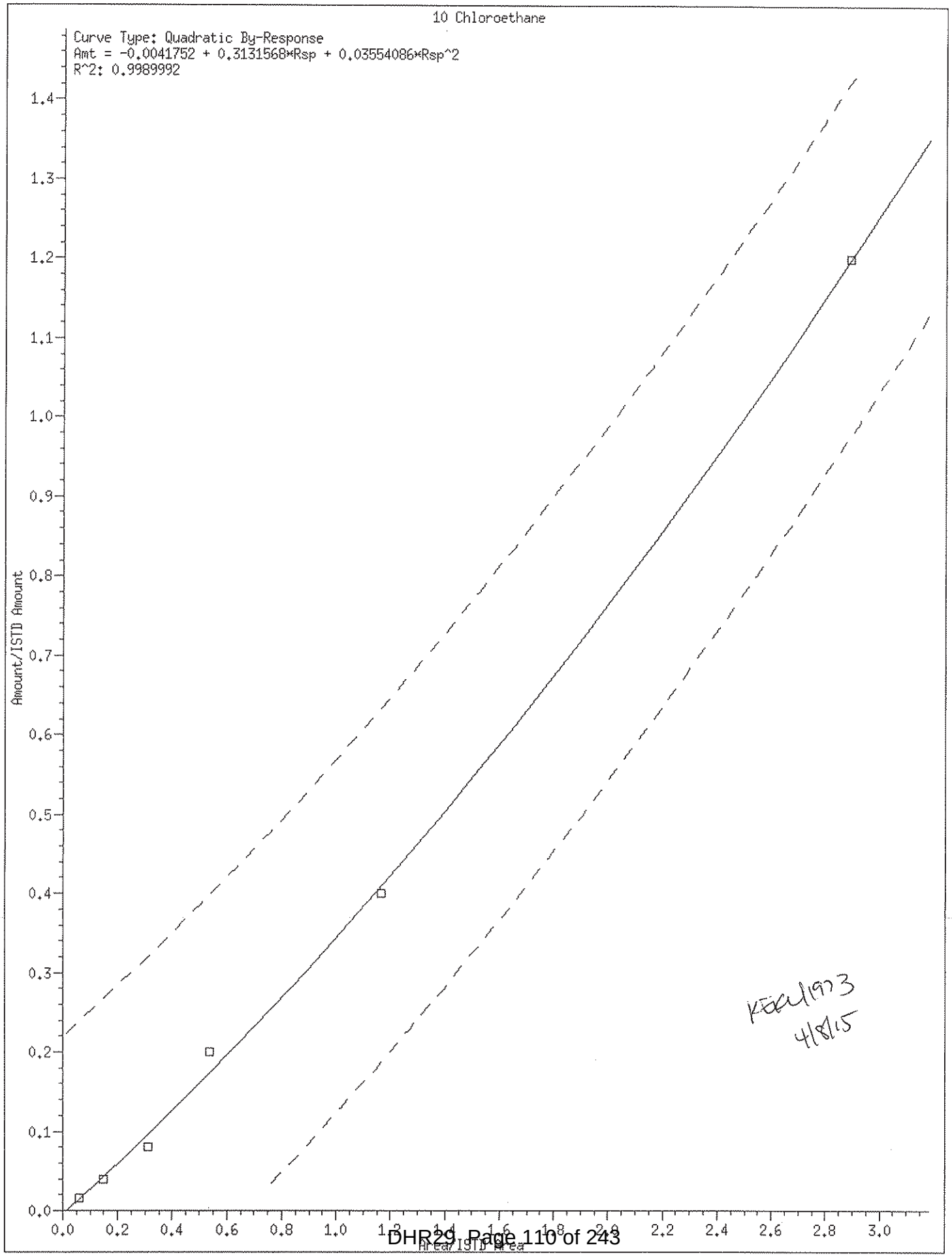
Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

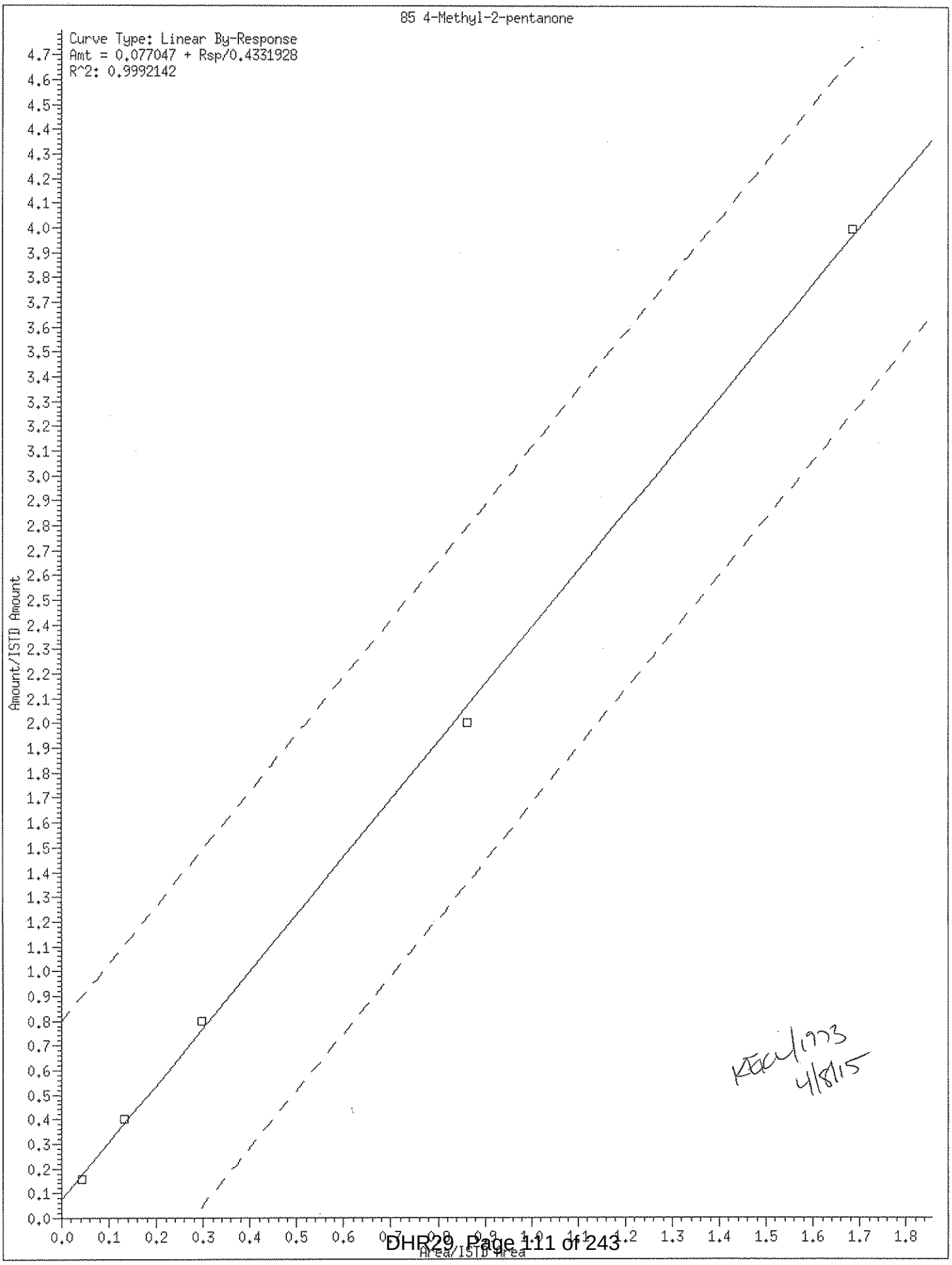
LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

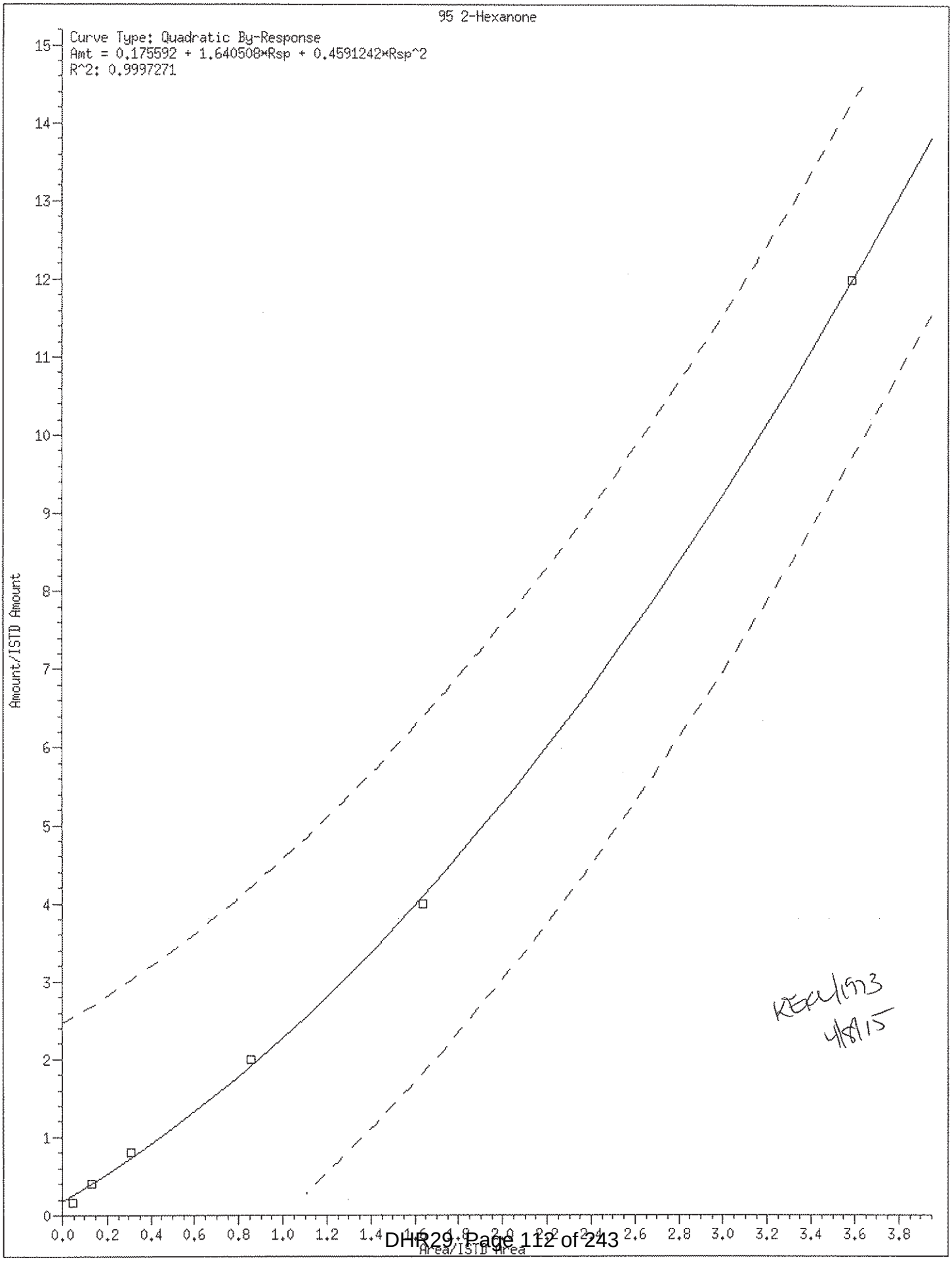
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
1,2,4-Trichlorobenzene	1.2518	1.1431	1.2098	1.0395	1.0931	0.8642		1.1003	13	AVG
Hexachlorobutadiene	0.8613	0.7005	0.6935	0.5515	0.5510	0.3875		0.6242	26	2NDDEG
Naphthalene	3.0359	2.8844	3.0282	2.7630	2.8872	2.3135		2.8187	9	AVG
1,2,3-Trichlorobenzene	1.2313	1.0943	1.1481	0.9858	1.0408	0.7722		1.0454	15	AVG
2-Methylnaphthalene	2.1770	1.8228	1.8629	1.5618	1.6793			1.8207	13	AVG
Dibromofluoromethane	0.2413	0.2784	0.2437	0.2579	0.2797	0.2373		0.2564	7	AVG
Dibromofluoromethane(2)	0.2351	0.2955	0.2500	0.2615	0.2851	0.2446		0.2620	9	AVG
1,2-Dichloroethane-d4	0.0611	0.0745	0.0634	0.0673	0.0715	0.0648		0.0671	8	AVG
1,2-Dichloroethane-d4(2)	0.2978	0.3542	0.3022	0.3169	0.3298	0.2933		0.3157	7	AVG
1,2-Dichloroethane-d4(3)	0.0364	0.0489	0.0402	0.0432	0.0458	0.0417		0.0427	10	AVG
Toluene-d8	1.3821	1.5431	1.3696	1.3776	1.4321	1.3323		1.4061	5	AVG
Toluene-d8(2)	0.8908	1.0242	0.9028	0.9023	0.9433	0.8749		0.9230	6	AVG
4-Bromofluorobenzene	0.4584	0.5080	0.4705	0.5036	0.5790	0.4756		0.4992	9	AVG
4-Bromofluorobenzene(2)	0.3948	0.4404	0.4153	0.4447	0.5187	0.4422		0.4427	9	AVG

Average %RSD 7

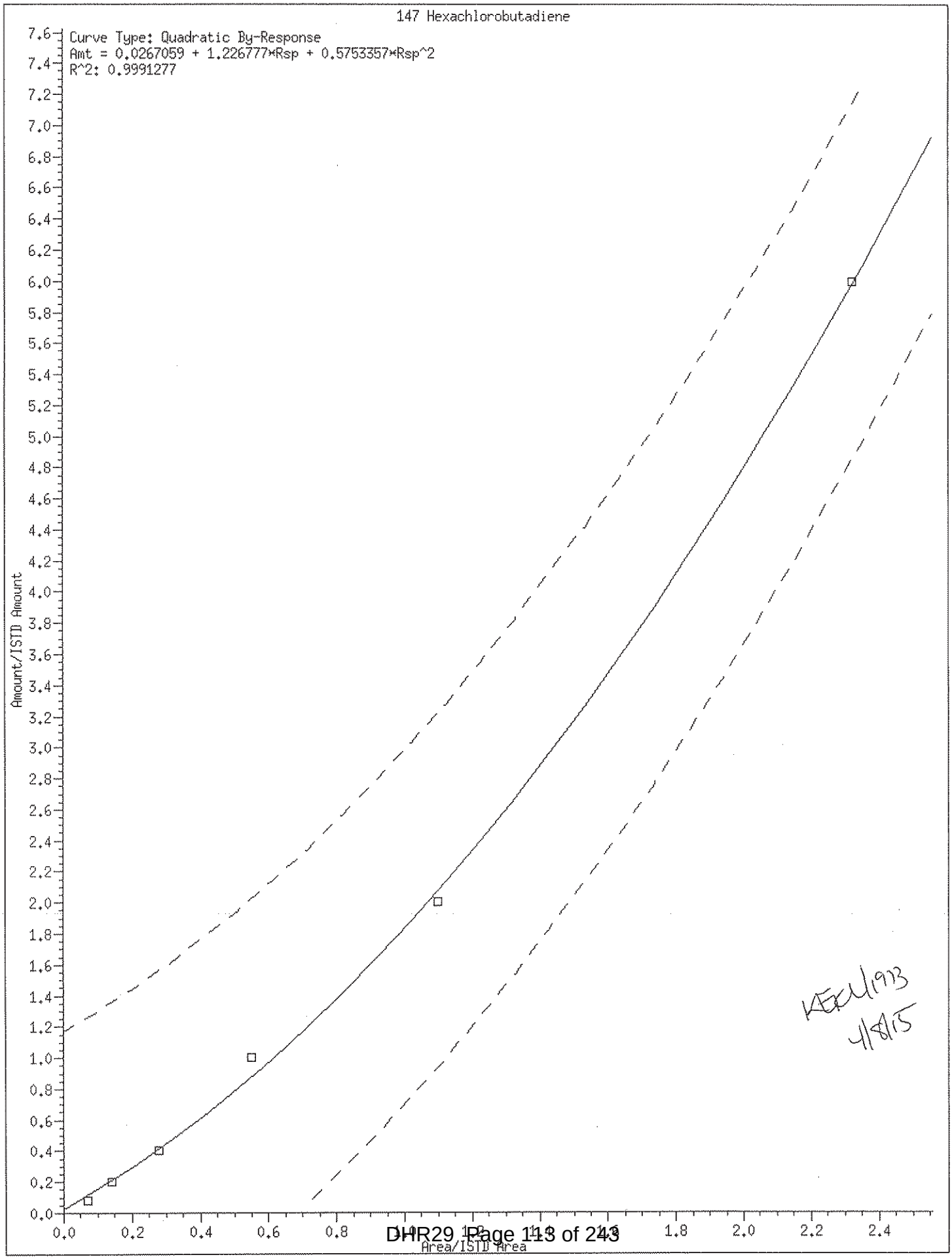
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%


10 Chloroethane
Curve Type: Quadratic By-Response
Amt = -0.0041752 + 0.3131568*Rsp + 0.03554086*Rsp^2
R^2: 0.9989992
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
KEC/1973
4/8/15


85 4-Methyl-2-pentanone
Curve Type: Linear By-Response
Amt = 0.077047 + Rsp/0.4331928
R^2: 0.9992142
Amount/ISTD Amount
Area/ISTD Area
KEC/1973
4/8/15



KEX/1573
4/8/15


147 Hexachlorobutadiene
Curve Type: Quadratic By-Response
Amt = 0.0267059 + 1.226777*Rsp + 0.5753357*Rsp^2
R^2: 0.9991277
Amount/ISTD Amount
Area/ISTD Area
KEC 4/93
4/8/15

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07536.i/15apr07a.b/qa07i01.d	VSTD300
/chem/HP07536.i/15apr07a.b/qa07i02.d	VSTD100
/chem/HP07536.i/15apr07a.b/qa07i03.d	VSTD050
/chem/HP07536.i/15apr07a.b/qa07i04.d	VSTD020
/chem/HP07536.i/15apr07a.b/qa07i05.d	VSTD010
/chem/HP07536.i/15apr07a.b/qa07i06.d	VSTD004
/chem/HP07536.i/15apr07a.b/qa07i07.d	VSTD002

Area Summary

File ID:

Internal Standard Name	qa07i01.d	qa07i02.d	qa07i03.d	qa07i04.d	qa07i05.d	qa07i06.d	qa07i07.d	Avg. Area	%RS
t-Butyl alcohol-d10	163678	144918	156050	136482	145143	137319	138256	145978	7
Fluorobenzene	1227552	1101034	1206707	1155320	1212210	1233186	1272068	1201154	5
Chlorobenzene-d5	889568	839074	912537	844318	898931	881249	901532	881030	3
1,4-Dichlorobenzene-d4	489169	420048	448564	404701	434782	432256	431082	437229	6

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	qa07i01.d	qa07i02.d	qa07i03.d	qa07i04.d	qa07i05.d	qa07i06.d	qa07i07.d	Avg. RT
t-Butyl alcohol-d10	3.939	3.949	3.955	3.944	3.939	3.926	3.938	3.941
Fluorobenzene	7.379	7.382	7.382	7.381	7.382	7.382	7.384	7.382
Chlorobenzene-d5	10.921	10.922	10.921	10.920	10.921	10.922	10.923	10.921
1,4-Dichlorobenzene-d4	12.808	12.808	12.811	12.810	12.811	12.812	12.810	12.810

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 04/08/2015 at 15:04.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3708	0.3526	19.02	20	-5	
#	Chloromethane	0.4498	0.4191	18.63	20	-7	#
*	Vinyl Chloride	0.3999	0.3829	19.15	20	-4	*
	Bromomethane	3.9905	4.8456	24.29	20	21	
	Chloroethane	3.2165	4.5379	28.55	20	43	
	Dichlorofluoromethane	0.4112	0.4502	21.90	20	9	
	Trichlorofluoromethane	0.3971	0.4162	20.96	20	5	
	Ethanol	0.1724	0.1471	853.40	1000	-15	
	Freon 123a	0.3330	0.3348	20.11	20	1	
	Acrolein	3.1397	3.1871	152.27	150	2	
*	1,1-Dichloroethene	0.2594	0.2502	19.29	20	-4	*
	Acetone	0.0299	0.0249	124.58	150	-17	
	Freon 113	0.2491	0.2254	18.10	20	-10	
	2-Propanol	0.8260	0.8145	147.91	150	-1	
	Methyl Iodide	0.4918	0.4376	17.80	20	-11	
	Carbon Disulfide	0.8735	0.7362	16.86	20	-16	
	Methyl Acetate	0.2359	0.2548	21.59	20	8	
	Allyl Chloride	0.4950	0.5203	21.02	20	5	
	Methylene Chloride	0.3073	0.2913	18.96	20	-5	
	t-Butyl alcohol	1.2668	1.2750	201.31	200	1	
	Acrylonitrile	0.1280	0.1133	88.48	100	-12	
	Methyl Tertiary Butyl Ether	0.8946	0.8278	18.51	20	-7	
	trans-1,2-Dichloroethene	0.2881	0.2762	19.18	20	-4	
	n-Hexane	0.3298	0.3156	19.14	20	-4	
#	1,1-Dichloroethane	0.5503	0.5297	19.25	20	-4	#
	di-Isopropyl ether	1.0934	1.0708	19.59	20	-2	
	2-Chloro-1,3-butadiene	0.4814	0.4439	18.44	20	-8	
	Ethyl t-butyl ether	0.9980	0.9637	19.31	20	-3	
	2-Butanone	0.1539	0.1413	137.80	150	-8	
	cis-1,2-Dichloroethene	0.3145	0.3032	19.28	20	-4	
	2,2-Dichloropropane	0.4290	0.4167	19.43	20	-3	
	Propionitrile	0.0445	0.0430	144.72	150	-4	
	Methacrylonitrile	0.1317	0.1300	148.14	150	-1	
	Bromochloromethane	0.1573	0.1579	20.07	20	0	
	Tetrahydrofuran	1.6113	1.7868	110.90	100	11	
*	Chloroform	0.4922	0.4918	19.98	20	0	*

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: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4527	0.4143	18.31	20	-8
Cyclohexane	0.4760	0.4707	19.77	20	-1
1,1-Dichloropropene	0.3895	0.4047	20.78	20	4
Carbon Tetrachloride	0.3565	0.3590	20.14	20	1
Isobutyl Alcohol	0.4116	0.4160	505.32	500	1
Benzene	1.1741	1.1579	19.72	20	-1
1,2-Dichloroethane	0.4010	0.3950	19.70	20	-1
t-Amyl methyl ether	0.9105	0.8803	19.34	20	-3
n-Heptane	0.3161	0.3026	19.14	20	-4
n-Butanol	0.3290	0.2949	896.23	1000	-10
Trichloroethene	0.2936	0.2916	19.87	20	-1
Methylcyclohexane	0.3644	0.3681	20.20	20	1
* 1,2-Dichloropropane	0.3335	0.3287	19.71	20	-1 *
Methyl Methacrylate	0.2227	0.2129	19.13	20	-4
1,4-Dioxane	0.1278	0.0978	382.31	500	-24
Dibromomethane	0.1879	0.1847	19.66	20	-2
Bromodichloromethane	0.3838	0.3684	19.20	20	-4
2-Nitropropane	3.8314	3.7051	19.34	20	-3
2-Chloroethyl Vinyl Ether	0.2119	0.2106	19.87	20	-1
cis-1,3-Dichloropropene	0.5010	0.4935	19.70	20	-2
4-Methyl-2-pentanone	0.3636	0.3137	76.26	100	-24
* Toluene	0.9829	0.9861	20.06	20	0 *
trans-1,3-Dichloropropene	0.6073	0.6204	20.43	20	2
Ethyl Methacrylate	0.5792	0.5810	20.06	20	0
1,1,2-Trichloroethane	0.3602	0.3558	19.76	20	-1
Tetrachloroethene	0.4111	0.4017	19.54	20	-2
1,3-Dichloropropane	0.6454	0.6435	19.94	20	0
2-Hexanone	0.3544	0.2994	66.13	100	-34
Dibromochloromethane	0.4066	0.3947	19.41	20	-3
1,2-Dibromoethane	0.3722	0.3772	20.27	20	1
# Chlorobenzene	1.0888	1.0773	19.79	20	-1 #
1,1,1,2-Tetrachloroethane	0.3802	0.3739	19.67	20	-2
* Ethylbenzene	1.7385	1.7170	19.75	20	-1 *
m+p-Xylene	0.6944	0.6821	39.29	40	-2
o-Xylene	0.6860	0.6729	19.62	20	-2
Styrene	1.1876	1.1601	19.54	20	-2

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: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2866	0.2579	18.00	20	-10 #
Isopropylbenzene	1.5841	1.5474	19.54	20	-2
Cyclohexanone	0.4012	0.3242	404.12	500	-19
# 1,1,2,2-Tetrachloroethane	0.9802	0.9597	19.58	20	-2 #
Bromobenzene	0.9600	0.9566	19.93	20	0
trans-1,4-Dichloro-2-butene	0.2907	0.3161	108.72	100	9
1,2,3-Trichloropropane	0.2869	0.2924	20.39	20	2
n-Propylbenzene	3.5287	3.5403	20.07	20	0
2-Chlorotoluene	0.7797	0.7616	19.54	20	-2
1,3,5-Trimethylbenzene	2.6254	2.6032	19.83	20	-1
4-Chlorotoluene	0.8354	0.8252	19.76	20	-1
tert-Butylbenzene	0.5800	0.5688	19.61	20	-2
Pentachloroethane	0.5776	0.5569	19.28	20	-4
1,2,4-Trimethylbenzene	2.7380	2.7273	19.92	20	0
sec-Butylbenzene	2.8938	2.8381	19.61	20	-2
1,3-Dichlorobenzene	1.5679	1.5175	19.36	20	-3
p-Isopropyltoluene	2.6586	2.4939	18.76	20	-6
1,4-Dichlorobenzene	1.6904	1.6251	19.23	20	-4
1,2,3-Trimethylbenzene	2.8844	2.8290	19.62	20	-2
Benzyl Chloride	0.4354	0.4191	19.25	20	-4
1,3-Diethylbenzene	1.5919	1.4993	18.84	20	-6
1,4-Diethylbenzene	1.6035	1.5640	19.51	20	-2
n-Butylbenzene	1.2362	1.1554	18.69	20	-7
1,2-Dichlorobenzene	1.5737	1.5343	19.50	20	-3
1,2-Diethylbenzene	1.3170	1.2936	19.64	20	-2
1,2-Dibromo-3-chloropropane	0.1849	0.1825	19.74	20	-1
1,3,5-Trichlorobenzene	1.1273	1.0163	18.03	20	-10
1,2,4-Trichlorobenzene	1.1003	0.9509	17.29	20	-14
Hexachlorobutadiene	0.6242	0.4495	13.29	20	-34
Naphthalene	2.8187	2.6226	18.61	20	-7
1,2,3-Trichlorobenzene	1.0454	0.8528	16.31	20	-18
2-Methylnaphthalene	1.8207	1.1932	13.11	20	-34

Average %Drift 6

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: HP07566 Calibration Date(s): 07/31/15 08/01/15

Heated Purge: (Y/N) N Calibration Times: 23:42 01:36

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = rl131i06.d RRF 10= rl131i05.d RRF 20= rl131i04.d
RRF 50= rl131i03.d RRF100= rl131i02.d RRF300= rl131i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	RRF	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.3500	0.3348	0.3299	0.3600	0.2732	0.3082		0.3260	10	AVG	
Chloromethane	#0.4623	0.4398	0.4096	0.4232	0.3967	0.4004		0.4220	6	AVG	#
Vinyl Chloride	*0.3621	0.3734	0.3407	0.3443	0.3239	0.3292		0.3456	6	AVG	*
Bromomethane	3.4878	3.4582	2.9326	3.0279	2.7167	2.7280		3.0585	11	AVG	
Chloroethane	3.1218	2.9125	2.7017	2.7374	2.5035	2.3959		2.7288	10	AVG	
Dichlorofluoromethane	0.3576	0.3378	0.3400	0.3033	0.3024	0.3131		0.3257	7	AVG	
Trichlorofluoromethane	0.3539	0.3652	0.3435	0.3303	0.3117	0.3344		0.3399	6	AVG	
Ethanol	0.1668	0.1532	0.1357	0.1336	0.1392	0.1348		0.1439	9	AVG	
Freon 123a	0.3361	0.3365	0.3269	0.3172	0.2992	0.3268		0.3238	4	AVG	
Acrolein	2.5921	3.0371	2.7001	3.0575	2.9476	2.8380		2.8621	7	AVG	
1,1-Dichloroethene	*0.2224	0.2305	0.2190	0.2249	0.2123	0.2374		0.2244	4	AVG	*
1,1-Dichloroethene(2)	*0.1236	0.1273	0.1254	0.1241	0.1162	0.1307		0.1245	4	AVG	*
Acetone	0.0313	0.0376	0.0355	0.0340	0.0334	0.0357		0.0346	6	AVG	
Freon 113	0.1765	0.1698	0.1698	0.1888	0.1501	0.1827		0.1729	8	AVG	
2-Propanol	0.8297	0.9358	0.7761	0.8682	0.8659	0.8832		0.8598	6	AVG	
Methyl Iodide	0.3833	0.4160	0.3960	0.4104	0.3968	0.4410		0.4072	5	AVG	
Carbon Disulfide	0.6919	0.7583	0.7256	0.7507	0.7296	0.8088		0.7442	5	AVG	
Methyl Acetate	0.2916	0.2946	0.2743	0.2868	0.2908	0.3161		0.2924	5	AVG	
Allyl Chloride	0.5473	0.5580	0.5199	0.5319	0.5357	0.5758		0.5448	4	AVG	
Methylene Chloride	0.2635	0.2787	0.2686	0.2682	0.2658	0.2889		0.2723	4	AVG	
t-Butyl alcohol	1.1298	1.3520	1.1326	1.2094	1.2259	1.1905		1.2067	7	AVG	
Acrylonitrile	0.1391	0.1463	0.1432	0.1423	0.1451	0.1568		0.1455	4	AVG	
Methyl Tertiary Butyl Ether	0.8393	0.8891	0.8503	0.8484	0.8579	0.9348		0.8699	4	AVG	
trans-1,2-Dichloroethene	0.2463	0.2582	0.2554	0.2528	0.2490	0.2759		0.2563	4	AVG	
n-Hexane	0.2009	0.1738	0.1756	0.2081	0.1608	0.2116		0.1885	11	AVG	
1,1-Dichloroethane	#0.4964	0.5367	0.5083	0.5144	0.4931	0.5601		0.5181	5	AVG	#
di-Isopropyl ether	1.0488	1.1112	1.0750	1.0781	1.0579	1.1708		1.0903	4	AVG	
2-Chloro-1,3-butadiene	0.3933	0.4124	0.4024	0.4133	0.4035	0.4623		0.4145	6	AVG	
Ethyl t-butyl ether	0.9045	0.9656	0.9442	0.9476	0.9314	1.0289		0.9537	4	AVG	
2-Butanone	0.1816	0.1879	0.1744	0.1863	0.1875	0.2018		0.1866	5	AVG	
2-Butanone(2)	0.0305	0.0379	0.0382	0.0406	0.0414	0.0444		0.0388	12	AVG	
cis-1,2-Dichloroethene	0.2780	0.2867	0.2840	0.2826	0.2776	0.3068		0.2859	4	AVG	
2,2-Dichloropropane	0.3957	0.4120	0.4099	0.4023	0.3944	0.4366		0.4085	4	AVG	
Propionitrile	0.0447	0.0490	0.0471	0.0482	0.0487	0.0524		0.0483	5	AVG	
Methacrylonitrile	0.1177	0.1295	0.1288	0.1294	0.1310	0.1437		0.1300	6	AVG	
Bromochloromethane	0.1349	0.1406	0.1411	0.1419	0.1460	0.1559		0.1434	5	AVG	
Tetrahydrofuran	1.5184	1.5293	1.4172	1.4146	1.4272	1.5261		1.4721	4	AVG	
Chloroform	*0.4511	0.4679	0.4602	0.4530	0.4529	0.5020		0.4645	4	AVG	*
1,1,1-Trichloroethane	0.3967	0.3976	0.3881	0.3851	0.3773	0.4207		0.3943	4	AVG	
Cyclohexane	0.3335	0.3217	0.3155	0.3269	0.2798	0.3304		0.3180	6	AVG	
Cyclohexane(2)	0.2513	0.2433	0.2367	0.2456	0.2133	0.2519		0.2403	6	AVG	
Cyclohexane(3)	0.0948	0.0941	0.0908	0.0952	0.0816	0.0966		0.0922	6	AVG	
1,1-Dichloropropene	0.3476	0.3585	0.3477	0.3475	0.3399	0.3768		0.3530	4	AVG	
Carbon Tetrachloride	0.3017	0.3135	0.3137	0.3165	0.3085	0.3520		0.3177	6	AVG	
Isobutyl Alcohol	0.4202	0.5092	0.4036	0.4468	0.4547	0.4462		0.4468	8	AVG	
Benzene	1.0614	1.1181	1.0772	1.0730	1.0476	1.1506		1.0880	4	AVG	
1,2-Dichloroethane	0.3978	0.4155	0.4045	0.3989	0.3974	0.4352		0.4082	4	AVG	
1,2-Dichloroethane(2)	0.0307	0.0364	0.0342	0.0339	0.0337	0.0382		0.0345	7	AVG	
t-Amyl methyl ether	0.8005	0.8537	0.8442	0.8388	0.8416	0.9249		0.8506	5	AVG	
n-Heptane	0.2865	0.2279	0.2339	0.2381	0.2002	0.2391		0.2376	12	AVG	
n-Butanol	0.2850	0.3493	0.2992	0.3451	0.3591	0.3419		0.3299	9	AVG	
Trichloroethene	0.2552	0.2583	0.2580	0.2586	0.2521	0.2808		0.2605	4	AVG	

@RRF for Level 1 std. taken from rl131i07.
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

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: HP07566 Calibration Date(s): 07/31/15 08/01/15

Heated Purge: (Y/N) N Calibration Times: 23:42 01:36

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = rl131i06.d RRF 10= rl131i05.d RRF 20= rl131i04.d
RRF 50= rl131i03.d RRF100= rl131i02.d RRF300= rl131i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	RRF	% RSD	CAL. METHOD
Methylcyclohexane	0.2399	0.2360	0.2404	0.2488	0.2126	0.2498		0.2379	6	AVG
1,2-Dichloropropane	*0.2882	0.2994	0.2947	0.2964	0.2925	0.3209		0.2987	4	AVG *
Methyl Methacrylate	0.1731	0.2161	0.2060	0.2299	0.2313	0.2558		0.2187	13	AVG
1,4-Dioxane	0.0998	0.1199	0.1067	0.1183	0.1240	0.1133		0.1137	8	AVG
Dibromomethane	0.1654	0.1738	0.1703	0.1767	0.1728	0.1912		0.1750	5	AVG
Bromodichloromethane	0.3131	0.3418	0.3409	0.3562	0.3551	0.3983		0.3509	8	AVG
2-Nitropropane	2.6267	2.6194	2.4661	3.0591	3.0790	3.6699		2.9200	15	AVG
2-Chloroethyl Vinyl Ether	0.1925	0.2153	0.2078	0.2201	0.2201	0.2452		0.2168	8	AVG
cis-1,3-Dichloropropene	0.4246	0.4579	0.4384	0.4633	0.4683	0.5179		0.4617	7	AVG
4-Methyl-2-pentanone	0.3197	0.3784	0.3579	0.4673	0.4481	0.4297		0.4001	14	AVG
Toluene	*0.7726	0.8310	0.8178	0.7883	0.7854	0.8285		0.8039	3	AVG *
trans-1,3-Dichloropropene	0.4936	0.5906	0.5454	0.5605	0.5637	0.6185		0.5621	8	AVG
Ethyl Methacrylate	0.4068	0.5556	0.5059	0.5437	0.5590	0.5908		0.5270	12	AVG
1,1,2-Trichloroethane	0.2994	0.3503	0.3120	0.3152	0.3165	0.3323		0.3209	6	AVG
Tetrachloroethene	0.2788	0.2926	0.2876	0.2782	0.2750	0.3024		0.2858	4	AVG
1,3-Dichloropropane	0.5439	0.6236	0.5723	0.5649	0.5726	0.5993		0.5794	5	AVG
2-Hexanone	0.2807	0.3762	0.3366	0.4633	0.4487	0.3974		0.3838	18	2NDDEG
Dibromochloromethane	0.2762	0.3664	0.3294	0.3574	0.3719	0.3977		0.3498	12	AVG
1,2-Dibromoethane	0.2926	0.3511	0.3341	0.3371	0.3395	0.3610		0.3359	7	AVG
1-Chlorohexane	0.3327	0.3197	0.3075	0.3029	0.2965	0.3266		0.3143	5	AVG
Chlorobenzene	#0.8510	0.9438	0.8659	0.8729	0.8718	0.9234		0.8881	4	AVG #
1,1,1,2-Tetrachloroethane	0.2927	0.3463	0.3149	0.3289	0.3366	0.3485		0.3280	6	AVG
Ethylbenzene	*1.3399	1.4532	1.3710	1.3730	1.3831	1.4147		1.3891	3	AVG *
m+p-Xylene	0.4924	0.5476	0.5194	0.5195	0.5267	0.5408		0.5244	4	AVG
o-Xylene	0.4942	0.5616	0.5307	0.5340	0.5394	0.5380		0.5330	4	AVG
Styrene	0.7498	0.9550	0.8776	0.9443	0.9760	0.9678		0.9118	10	AVG
Bromoform	#0.1792	0.2669	0.2247	0.2631	0.2805	0.2879		0.2504	16	2NDDEG #
Isopropylbenzene	1.0548	1.1971	1.1158	1.1164	1.1566	1.1517		1.1321	4	AVG
Cyclohexanone	0.3152	0.3329	0.3239	0.3465	0.3698	0.3911		0.3466	8	AVG
1,1,2,2-Tetrachloroethane	#0.9418	1.3460	1.0222	1.0619	1.0824	0.9953		1.0749	13	AVG #
Bromobenzene	0.8455	0.9552	0.8627	0.8723	0.8652	0.8109		0.8686	6	AVG
trans-1,4-Dichloro-2-butene	0.3501	0.4123	0.3737	0.3813	0.3779	0.3286		0.3706	8	AVG
1,2,3-Trichloropropane	0.2974	0.3922	0.3209	0.3239	0.3165	0.2924		0.3239	11	AVG
n-Propylbenzene	3.0220	3.1699	3.0989	3.0479	2.9683	2.9406		3.0413	3	AVG
2-Chlorotoluene	0.6567	0.7438	0.6703	0.6811	0.6854	0.6732		0.6851	4	AVG
1,3,5-Trimethylbenzene	2.1707	2.3492	2.2173	2.2752	2.3040	2.1834		2.2500	3	AVG
4-Chlorotoluene	0.6969	0.7846	0.7084	0.7408	0.7451	0.7368		0.7354	4	AVG
tert-Butylbenzene	0.4363	0.4806	0.4491	0.4548	0.4626	0.4465		0.4550	3	AVG
Pentachloroethane	0.4101	0.5154	0.4560	0.5051	0.5211	0.5183		0.4877	9	AVG
1,2,4-Trimethylbenzene	2.2008	2.4865	2.3353	2.4068	2.4174	2.2724		2.3532	4	AVG
sec-Butylbenzene	2.5704	2.6774	2.5933	2.5511	2.5884	2.4051		2.5643	3	AVG
1,3-Dichlorobenzene	1.2955	1.5075	1.3335	1.3645	1.3745	1.3034		1.3631	6	AVG
p-Isopropyltoluene	2.1766	2.3655	2.2872	2.2884	2.3059	2.1276		2.2585	4	AVG
1,4-Dichlorobenzene	1.4181	1.6224	1.3965	1.4512	1.4491	1.3340		1.4452	7	AVG
1,2,3-Trimethylbenzene	2.4843	2.6696	2.5026	2.5422	2.5125	2.3771		2.5147	4	AVG
Benzyl Chloride	0.3771	0.5418	0.4461	0.4914	0.5102	0.4907		0.4762	12	AVG
1,3-Diethylbenzene	1.3821	1.4161	1.3692	1.3532	1.3780	1.2880		1.3644	3	AVG
1,4-Diethylbenzene	1.4284	1.4487	1.4229	1.3761	1.4008	1.3073		1.3973	4	AVG
n-Butylbenzene	1.1819	1.2045	1.1894	1.1291	1.1548	1.0342		1.1490	5	AVG
1,2-Dichlorobenzene	1.3354	1.5706	1.3498	1.3844	1.4205	1.3385		1.3999	6	AVG
1,2-Diethylbenzene	1.1696	1.2379	1.1824	1.1530	1.1883	1.1101		1.1735	4	AVG
1,2-Dibromo-3-chloropropane	0.1703	0.2385	0.1940	0.2065	0.2158	0.2139		0.2065	11	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: HP07566 Calibration Date(s): 07/31/15 08/01/15

Heated Purge: (Y/N) N Calibration Times: 23:42 01:36

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

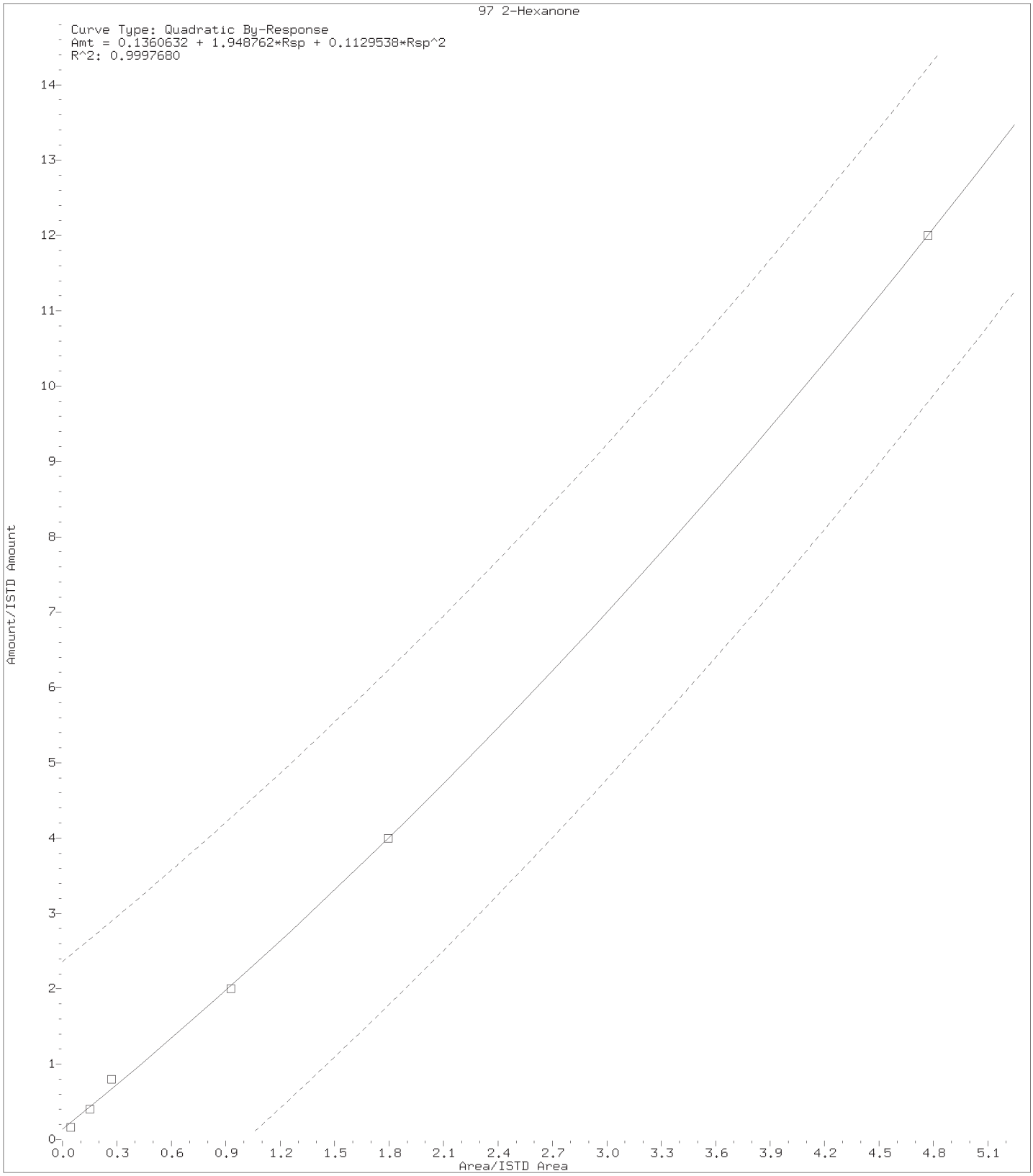
LAB FILE ID: RRF 4 = rl31i06.d RRF 10= rl31i05.d RRF 20= rl31i04.d
RRF 50= rl31i03.d RRF100= rl31i02.d RRF300= rl31i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	RRF	% RSD	CAL. METHOD
1,3,5-Trichlorobenzene	1.0262	1.0710	1.0013	0.9951	0.9868	0.8633		0.9906	7	AVG
1,2,4-Trichlorobenzene	1.0281	1.0893	0.9708	0.9768	0.9865	0.8427		0.9824	8	AVG
Hexachlorobutadiene	0.7995	0.6443	0.5500	0.4745	0.4366	0.3961		0.5502	27	AVG *
Naphthalene	2.6861	3.1775	2.6837	2.7814	2.8794	2.5311		2.7898	8	AVG
1,2,3-Trichlorobenzene	1.0505	1.0816	0.9488	0.9247	0.9402	0.7817		0.9546	11	AVG
2-Methylnaphthalene	1.9315	1.8079	1.7098	1.5821	1.6833			1.7429	8	AVG
Dibromofluoromethane	0.2522	0.2733	0.2595	0.2575	0.2662	0.2781		0.2645	4	AVG
Dibromofluoromethane(2)	0.2638	0.2820	0.2664	0.2649	0.2731	0.2861		0.2727	3	AVG
1,2-Dichloroethane-d4	0.0654	0.0703	0.0659	0.0658	0.0668	0.0695		0.0673	3	AVG
1,2-Dichloroethane-d4(2)	0.3634	0.3751	0.3457	0.3423	0.3495	0.3615		0.3562	4	AVG
1,2-Dichloroethane-d4(3)	0.0403	0.0451	0.0430	0.0426	0.0430	0.0452		0.0432	4	AVG
Toluene-d8	1.2669	1.3672	1.2728	1.2353	1.2505	1.2552		1.2746	4	AVG
Toluene-d8(2)	0.8192	0.8825	0.8263	0.8024	0.8152	0.8225		0.8280	3	AVG
4-Bromofluorobenzene	0.4240	0.4634	0.4340	0.4310	0.4407	0.4484		0.4402	3	AVG
4-Bromofluorobenzene(2)	0.3534	0.3845	0.3622	0.3599	0.3679	0.3717		0.3666	3	AVG

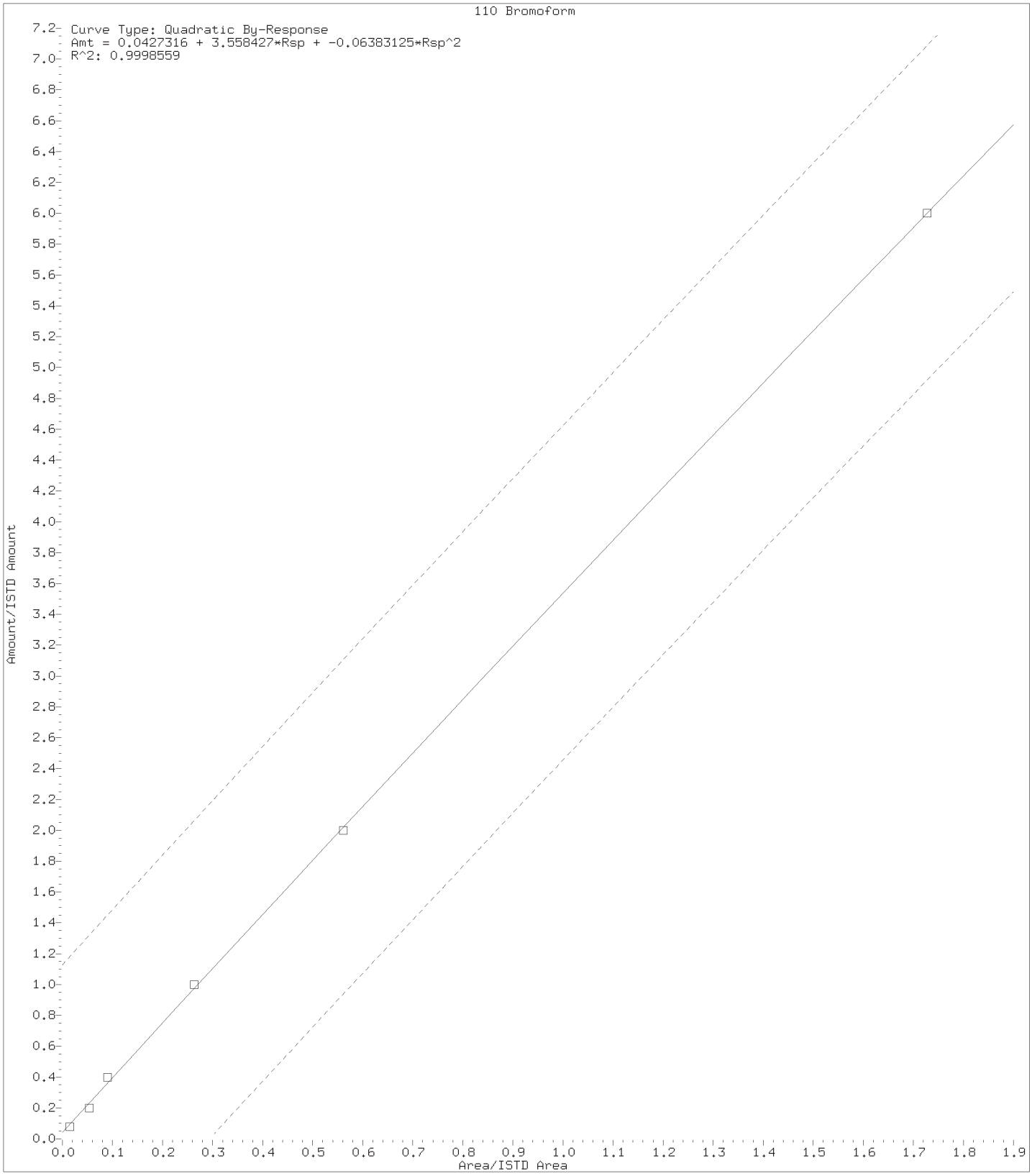
Average %RSD 6

*- Average RRF used due to poor curve fit.

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



Digitally signed by Stephanie A. Selis on 08/01/2015 at 04:48.
Target 3.5 esignature user ID: sas00403



Digitally signed by Stephanie A. Selis on 08/01/2015 at 04:48.
Target 3.5 esignature user ID: sas00403

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07566.i/15jul31b.b/rl31i01.d	VSTD300
/chem/HP07566.i/15jul31b.b/rl31i02.d	VSTD100
/chem/HP07566.i/15jul31b.b/rl31i03.d	VSTD050
/chem/HP07566.i/15jul31b.b/rl31i04.d	VSTD020
/chem/HP07566.i/15jul31b.b/rl31i05.d	VSTD010
/chem/HP07566.i/15jul31b.b/rl31i06.d	VSTD004
/chem/HP07566.i/15jul31b.b/rl31i07.d	VSTD002

Area Summary

File ID:
==========

Internal Standard Name	rl31i01.d	rl31i02.d	rl31i03.d	rl31i04.d	rl31i05.d	rl31i06.d	rl31i07.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	141242	154435	151826	150760	148539	146312	149396	148930	3	Yes
Fluorobenzene	955966	1048162	1063442	1052006	1050212	1044099	1095393	1044183	4	Yes
Chlorobenzene-d5	761024	836461	846074	799379	802665	827534	832660	815114	4	Yes
1,4-Dichlorobenzene-d4	337113	370801	365563	342525	350237	343187	342198	350232	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	rl31i01.d	rl31i02.d	rl31i03.d	rl31i04.d	rl31i05.d	rl31i06.d	rl31i07.d	Avg. RT
t-Butyl alcohol-d10	4.090	4.078	4.071	4.067	4.073	4.073	4.068	4.074
Fluorobenzene	7.578	7.575	7.575	7.577	7.574	7.574	7.578	7.576
Chlorobenzene-d5	11.098	11.095	11.095	11.097	11.097	11.098	11.098	11.097
1,4-Dichlorobenzene-d4	12.997	12.998	12.998	12.997	12.997	12.997	12.998	12.997

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/01/2015 at 04:48.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 ICV Date: 08/01/15 Time: 02:44

Lab File ID: rl31v01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.3260	0.2829	17.35	20	-13
# Chloromethane	0.4220	0.4012	19.01	20	-5 #
* Vinyl Chloride	0.3456	0.3300	19.10	20	-5 *
Bromomethane	3.0585	3.1781	20.78	20	4
Chloroethane	2.7288	2.8325	20.76	20	4
Dichlorofluoromethane	0.3257	0.3602	22.12	20	11
Trichlorofluoromethane	0.3399	0.3228	19.00	20	-5
Ethanol	0.1439	0.1752	1217.86	1000	22
Freon 123a	0.3238	0.3635	22.46	20	12
Acrolein	2.8621	2.5671	134.54	150	-10
* 1,1-Dichloroethene	0.2244	0.2346	20.91	20	5 *
Acetone	0.0346	0.0326	141.38	150	-6
Freon 113	0.1729	0.1880	21.75	20	9
2-Propanol	0.8598	0.8952	156.18	150	4
Methyl Iodide	0.4072	0.4248	20.86	20	4
Carbon Disulfide	0.7442	0.7001	18.81	20	-6
Methyl Acetate	0.2924	0.3064	20.96	20	5
Allyl Chloride	0.5448	0.5785	21.24	20	6
Methylene Chloride	0.2723	0.2966	21.79	20	9
t-Butyl alcohol	1.2067	1.3566	224.85	200	12
Acrylonitrile	0.1455	0.1431	98.34	100	-2
Methyl Tertiary Butyl Ether	0.8699	0.9253	21.27	20	6
trans-1,2-Dichloroethene	0.2563	0.2796	21.82	20	9
n-Hexane	0.1885	0.2070	21.96	20	10
# 1,1-Dichloroethane	0.5181	0.5405	20.86	20	4 #
di-Isopropyl ether	1.0903	1.2201	22.38	20	12
2-Chloro-1,3-butadiene	0.4145	0.4000	19.30	20	-3
Ethyl t-butyl ether	0.9537	1.0303	21.61	20	8
2-Butanone	0.1866	0.1903	153.00	150	2
cis-1,2-Dichloroethene	0.2859	0.3186	22.29	20	11
2,2-Dichloropropane	0.4085	0.4380	21.44	20	7
Propionitrile	0.0483	0.0555	172.26	150	15
Methacrylonitrile	0.1300	0.1558	179.73	150	20
Bromochloromethane	0.1434	0.1556	21.70	20	9
Tetrahydrofuran	1.4721	1.5493	105.24	100	5
* Chloroform	0.4645	0.5099	21.96	20	10 *

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: HP07566 ICV Date: 08/01/15 Time: 02:44

Lab File ID: rl31v01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.3943	0.4342	22.03	20	10
Cyclohexane	0.3180	0.3310	20.82	20	4
1,1-Dichloropropene	0.3530	0.3580	20.29	20	1
Carbon Tetrachloride	0.3177	0.3386	21.32	20	7
Isobutyl Alcohol	0.4468	0.4698	525.77	500	5
Benzene	1.0880	1.1799	21.69	20	8
1,2-Dichloroethane	0.4082	0.4576	22.42	20	12
t-Amyl methyl ether	0.8506	0.9359	22.00	20	10
n-Heptane	0.2376	0.2289	19.27	20	-4
n-Butanol	0.3299	0.3391	1027.88	1000	3
Trichloroethene	0.2605	0.2890	22.19	20	11
Methylcyclohexane	0.2379	0.2535	21.31	20	7
* 1,2-Dichloropropane	0.2987	0.3370	22.57	20	13 *
Methyl Methacrylate	0.2187	0.2396	21.91	20	10
1,4-Dioxane	0.1137	0.1130	497.10	500	-1
Dibromomethane	0.1750	0.1923	21.97	20	10
Bromodichloromethane	0.3509	0.3804	21.68	20	8
2-Nitropropane	2.9200	2.9917	20.49	20	2
2-Chloroethyl Vinyl Ether	0.2168	0.2217	20.45	20	2
cis-1,3-Dichloropropene	0.4617	0.5102	22.10	20	11
4-Methyl-2-pentanone	0.4001	0.4043	101.03	100	1
* Toluene	0.8039	0.9144	22.75	20	14 *
trans-1,3-Dichloropropene	0.5621	0.6590	23.45	20	17
Ethyl Methacrylate	0.5270	0.5894	22.37	20	12
1,1,2-Trichloroethane	0.3209	0.3690	23.00	20	15
Tetrachloroethene	0.2858	0.3165	22.15	20	11
1,3-Dichloropropane	0.5794	0.6528	22.53	20	13
2-Hexanone	0.3838	0.3737	82.79	100	-17
Dibromochloromethane	0.3498	0.3801	21.73	20	9
1,2-Dibromoethane	0.3359	0.3879	23.09	20	15
1-Chlorohexane	0.3143	0.3407	21.68	20	8
# Chlorobenzene	0.8881	0.9973	22.46	20	12 #
1,1,1,2-Tetrachloroethane	0.3280	0.3622	22.09	20	10
* Ethylbenzene	1.3891	1.5698	22.60	20	13 *
m+p-Xylene	0.5244	0.6024	45.95	40	15
o-Xylene	0.5330	0.6019	22.59	20	13

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: HP07566 ICV Date: 08/01/15 Time: 02:44

Lab File ID: rl31v01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
Styrene	0.9118	1.0536	23.11	20	16	
# Bromoform	0.2504	0.2577	20.45	20	2	#
Isopropylbenzene	1.1321	1.2983	22.94	20	15	
Cyclohexanone	0.3466	0.3516	507.27	500	1	
# 1,1,2,2-Tetrachloroethane	1.0749	1.1466	21.33	20	7	#
Bromobenzene	0.8686	0.9838	22.65	20	13	
trans-1,4-Dichloro-2-butene	0.3706	0.4298	115.97	100	16	
1,2,3-Trichloropropane	0.3239	0.3747	23.14	20	16	
n-Propylbenzene	3.0413	3.4319	22.57	20	13	
2-Chlorotoluene	0.6851	0.7630	22.27	20	11	
1,3,5-Trimethylbenzene	2.2500	2.4900	22.13	20	11	
4-Chlorotoluene	0.7354	0.8070	21.95	20	10	
tert-Butylbenzene	0.4550	0.4934	21.69	20	8	
Pentachloroethane	0.4877	0.5380	22.07	20	10	
1,2,4-Trimethylbenzene	2.3532	2.6444	22.48	20	12	
sec-Butylbenzene	2.5643	2.7540	21.48	20	7	
1,3-Dichlorobenzene	1.3631	1.4762	21.66	20	8	
p-Isopropyltoluene	2.2585	2.3539	20.84	20	4	
1,4-Dichlorobenzene	1.4452	1.5866	21.96	20	10	
1,2,3-Trimethylbenzene	2.5147	2.7853	22.15	20	11	
Benzyl Chloride	0.4762	0.4922	20.67	20	3	
1,3-Diethylbenzene	1.3644	1.4155	20.75	20	4	
1,4-Diethylbenzene	1.3973	1.4654	20.97	20	5	
n-Butylbenzene	1.1490	1.1467	19.96	20	0	
1,2-Dichlorobenzene	1.3999	1.4989	21.41	20	7	
1,2-Diethylbenzene	1.1735	1.2190	20.77	20	4	
1,2-Dibromo-3-chloropropane	0.2065	0.2076	20.11	20	1	
1,3,5-Trichlorobenzene	0.9906	0.9558	19.30	20	-4	
1,2,4-Trichlorobenzene	0.9824	0.9114	18.55	20	-7	
Hexachlorobutadiene	0.5502	0.4260	15.49	20	-23	
Naphthalene	2.7898	2.7311	19.58	20	-2	
1,2,3-Trichlorobenzene	0.9546	0.8425	17.65	20	-12	
2-Methylnaphthalene	1.7429	1.1751	13.48	20	-33	

Average %Drift 9

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: SH08363 Calibration Date(s): 09/22/15 09/22/15

Heated Purge: (Y/N) Y Calibration Times: 12:16 14:37

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = ts22i07.d RRF 4 = ts22i06.d RRF 10= ts22i05.d
RRF 20= ts22i04.d RRF 50= ts22i03.d RRF100= ts22i02.d RRF300= ts22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.2703	0.3521	0.4078	0.3730	0.3601	0.2842	0.3630	0.3443	14	AVG
Chloromethane	#0.8183	0.7640	0.9007	0.8193	0.7652	0.6325	0.7325	0.7761	11	AVG #
Vinyl Chloride	*0.5382	0.5341	0.5970	0.5543	0.5090	0.4238	0.4965	0.5218	10	AVG *
Bromomethane	0.3080	0.3034	0.3426	0.3155	0.2925	0.2393	0.2773	0.2969	11	AVG
Chloroethane	0.3789	0.3079	0.3307	0.2981	0.2701	0.2210	0.2654	0.2960	17	1STDEG
Dichlorofluoromethane	0.6835	0.6349	0.7148	0.6566	0.6224	0.5328	0.6405	0.6408	9	AVG
Trichlorofluoromethane	0.3061	0.3550	0.4177	0.3875	0.3693	0.2895	0.3655	0.3558	13	AVG
Ethyl ether		0.3152	0.3814	0.3502	0.3566	0.3107	0.3477	0.3436	8	AVG
Freon 123a		0.4306	0.5086	0.4598	0.4486	0.3873	0.4676	0.4504	9	AVG
Acrolein	2.4823	2.4267	3.0243	2.7075	3.2943	3.0450	2.7691	2.8213	11	AVG
1,1-Dichloroethene	*0.2334	0.2385	0.2528	0.2703	0.2725	0.2569	0.2710	0.2565	6	AVG *
1,1-Dichloroethene(2)	*0.1482	0.1587	0.1674	0.1781	0.1776	0.1668	0.1770	0.1677	7	AVG *
Acetone	1.0121	1.1126	1.2892	1.1208	1.3490	1.1763	1.1359	1.1708	10	AVG
Freon 113		0.2286	0.2381	0.2527	0.2580	0.2410	0.2547	0.2455	5	AVG
2-Propanol	1.0003	0.9442	1.3424	1.1794	1.1166	1.0716	1.0272	1.0974	12	AVG
Methyl Iodide	0.4504	0.4811	0.5120	0.5454	0.5568	0.5341	0.5556	0.5193	8	AVG
Carbon Disulfide		0.9432	0.9737	1.0717	1.1034	1.0593	1.0926	1.0406	6	AVG
Allyl Chloride		0.9100	1.0792	1.0270	1.0534	1.0071	1.1069	1.0306	7	AVG
Methyl Acetate		0.6989	0.8888	0.8087	0.9043	0.8636	0.8946	0.8432	9	AVG
Methylene Chloride	0.2869	0.3013	0.3240	0.3403	0.3388	0.3282	0.3331	0.3218	6	AVG
t-Butyl alcohol	1.2514	1.2582	1.7948	1.5676	1.4511	1.3542	1.2543	1.4188	14	AVG
Acrylonitrile		0.2771	0.3234	0.3010	0.3622	0.3294	0.3213	0.3191	9	AVG
trans-1,2-Dichloroethene	0.2720	0.2700	0.2867	0.3081	0.3066	0.2934	0.3044	0.2916	5	AVG
Methyl Tertiary Butyl Ether	0.8300	0.8697	0.9481	0.9680	0.9773	0.9508	0.9651	0.9299	6	AVG
n-Hexane		0.4865	0.5001	0.5113	0.4848	0.4565	0.4813	0.4867	4	AVG
1,1-Dichloroethane	#0.6297	0.6769	0.6986	0.7325	0.7357	0.7094	0.7331	0.7023	6	AVG #
di-Isopropyl ether	1.7722	1.8774	1.9792	2.0606	2.0552	2.0175	2.0259	1.9697	5	AVG
2-Chloro-1,3-butadiene		0.5019	0.5182	0.5550	0.5677	0.5342	0.5576	0.5391	5	AVG
Ethyl t-butyl ether	1.2111	1.2570	1.3397	1.3935	1.3684	1.3266	1.3211	1.3168	5	AVG
cis-1,2-Dichloroethene	0.2819	0.3032	0.3241	0.3410	0.3471	0.3314	0.3403	0.3241	7	AVG
2-Butanone	0.6310	0.5580	0.6662	0.6001	0.7845	0.6766	0.6744	0.6558	11	AVG
2,2-Dichloropropane	0.3419	0.3308	0.3477	0.3753	0.3795	0.3621	0.3716	0.3584	5	AVG
Propionitrile	1.5133	1.5328	2.0980	1.9101	1.9339	1.8772	1.7451	1.8015	12	AVG
Methacrylonitrile	0.2093	0.2187	0.2785	0.2648	0.2667	0.2590	0.2601	0.2510	10	AVG
Bromochloromethane		0.1371	0.1728	0.1620	0.1668	0.1583	0.1671	0.1607	8	AVG
Tetrahydrofuran	1.1416	1.1730	1.4161	1.2995	1.6787	1.5500	1.4519	1.3873	14	AVG
Chloroform	*0.4723	0.4658	0.4934	0.5167	0.5149	0.4989	0.5074	0.4956	4	AVG *
1,1,1-Trichloroethane	0.3715	0.3837	0.3732	0.3948	0.3768	0.3646	0.3737	0.3769	3	AVG
Cyclohexane		0.6066	0.6288	0.6517	0.6574	0.6098	0.6288	0.6305	3	AVG
Cyclohexane(2)		0.3199	0.3430	0.3560	0.3620	0.3374	0.3448	0.3438	4	AVG
Cyclohexane(3)		0.1563	0.1542	0.1601	0.1655	0.1549	0.1612	0.1587	3	AVG
1,1-Dichloropropene	0.3772	0.3848	0.4133	0.4243	0.4358	0.4153	0.4216	0.4103	5	AVG
Carbon Tetrachloride	0.2258	0.2476	0.2628	0.2768	0.2859	0.2736	0.2842	0.2652	8	AVG
Isobutyl Alcohol	0.6828	0.6846	1.0176	0.8955	0.8548	0.8240	0.7712	0.8186	15	AVG
Benzene	1.1194	1.0890	1.1411	1.2032	1.2082	1.1678	1.1631	1.1560	4	AVG
1,2-Dichloroethane	0.4876	0.4552	0.4754	0.4797	0.4737	0.4562	0.4741	0.4717	3	AVG
1,2-Dichloroethane(2)	0.0176	0.0372	0.0412	0.0414	0.0412	0.0397	0.0406	0.0370	23	AVG
t-Amyl methyl ether	0.8974	0.9296	1.0078	1.0611	1.0280	0.9985	0.9921	0.9878	6	AVG
n-Heptane		0.5708	0.5776	0.5985	0.5820	0.5659	0.6047	0.5832	3	AVG
n-Butanol	0.3723	0.3694	0.5723	0.5169	0.4970	0.4747	0.4385	0.4630	16	2NDDEG
Trichloroethene	0.2809	0.2780	0.2807	0.3044	0.3004	0.2900	0.2931	0.2896	4	AVG
Methylcyclohexane		0.3266	0.3854	0.3564	0.3665	0.3270	0.3406	0.3504	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: SH08363 Calibration Date(s): 09/22/15 09/22/15

Heated Purge: (Y/N) Y Calibration Times: 12:16 14:37

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = ts22i07.d RRF 4 = ts22i06.d RRF 10= ts22i05.d
RRF 20= ts22i04.d RRF 50= ts22i03.d RRF100= ts22i02.d RRF300= ts22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methylcyclohexane(2)		0.1450	0.1692	0.1577	0.1594	0.1437	0.1514	0.1544	6	AVG
1,2-Dichloropropane	*0.3685	0.3995	0.4166	0.4418	0.4309	0.4187	0.4224	0.4141	6	AVG *
Dibromomethane	0.2116	0.2236	0.2444	0.2605	0.2517	0.2467	0.2456	0.2406	7	AVG
1,4-Dioxane	0.0534	0.0588	0.0822	0.0748	0.0777	0.0752	0.0680	0.0700	15	AVG
Methyl Methacrylate		0.3645	0.4028	0.4281	0.4065	0.3974	0.4016	0.4002	5	AVG
Bromodichloromethane	0.3195	0.3463	0.3711	0.4090	0.4036	0.3943	0.4012	0.3778	9	AVG
2-Nitropropane	0.2563	0.2233	0.2736	0.2433	0.3359	0.2805	0.2854	0.2712	13	AVG
2-Chloroethyl Vinyl Ether		0.3457	0.4699	0.4113	0.4166	0.3872	0.4055	0.4060	10	AVG
cis-1,3-Dichloropropene	0.4524	0.4833	0.5345	0.5886	0.5756	0.5616	0.5752	0.5387	10	AVG
4-Methyl-2-pentanone	1.1677	1.1458	1.4842	1.2490	1.7161	1.3534		1.3527	16	2NDDEG
Toluene	*0.9154	0.9645	0.9831	1.0739	1.0299	0.9998	0.9736	0.9915	5	AVG *
trans-1,3-Dichloropropene	0.5882	0.6780	0.7257	0.8123	0.7715	0.7730	0.7650	0.7305	10	AVG
Ethyl Methacrylate		0.8829	0.9730	1.0247	1.0004	0.9824	0.9659	0.9715	5	AVG
1,1,2-Trichloroethane	0.4432	0.4465	0.4746	0.5127	0.4752	0.4597	0.4470	0.4655	5	AVG
Tetrachloroethene	0.3753	0.3817	0.3712	0.4025	0.4029	0.3853	0.3970	0.3880	3	AVG
1,3-Dichloropropane	0.7219	0.7653	0.8313	0.9021	0.8541	0.8298	0.8167	0.8173	7	AVG
2-Hexanone	1.3132	1.3441	1.8447	1.5408	2.0656	1.6236		1.6220	18	2NDDEG
Dibromochloromethane	0.3625	0.4085	0.4627	0.5191	0.5134	0.5064	0.5138	0.4695	13	AVG
1,2-Dibromoethane	0.4739	0.5070	0.5452	0.5913	0.5606	0.5530	0.5591	0.5414	7	AVG
Chlorobenzene	#0.9597	0.9992	1.0448	1.1574	1.1042	1.0620	1.0683	1.0565	6	AVG #
1,1,1,2-Tetrachloroethane	0.2823	0.3224	0.3351	0.3861	0.3715	0.3570	0.3502	0.3435	10	AVG
Ethylbenzene	*1.6725	1.7409	1.8115	1.9761	1.8913	1.7929	1.4749	1.7658	9	AVG *
m+p-Xylene	0.6055	0.6350	0.6630	0.7416	0.6933	0.6653	0.6470	0.6644	7	AVG
o-Xylene	0.5976	0.6349	0.6631	0.7383	0.7001	0.6667	0.6428	0.6634	7	AVG
Styrene		1.0806	1.1554	1.3348	1.2588	1.2047	1.1502	1.1974	8	AVG
Bromoform	#0.2836	0.3127	0.3568	0.4135	0.4159	0.4102	0.4324	0.3750	15	AVG #
Isopropylbenzene		1.4588	1.5236	1.7195	1.6191	1.5207	1.3761	1.5363	8	AVG
Cyclohexanone	0.3490	0.3601	0.3986	0.3839	0.4177	0.4364	0.4271	0.3961	8	AVG
Bromobenzene		0.9273	0.9657	1.0504	1.0153	0.9445	0.9317	0.9725	5	AVG
1,1,2,2-Tetrachloroethane	#1.7983	1.8084	1.9641	2.0328	1.8398	1.7489	1.6610	1.8362	7	AVG #
1,2,3-Trichloropropane		0.4065	0.4516	0.4655	0.4339	0.4109	0.4061	0.4291	6	AVG
trans-1,4-Dichloro-2-butene		0.5549	0.7961	0.7254	0.6580	0.6230	0.5838	0.6569	14	AVG
n-Propylbenzene		4.1215	4.2255	4.6105	4.2951	3.9578	3.0449	4.0426	13	AVG
2-Chlorotoluene		0.7612	0.7984	0.8768	0.8139	0.7545	0.7600	0.7941	6	AVG
4-Chlorotoluene		0.8058	0.8577	0.9383	0.8594	0.8150	0.8162	0.8487	6	AVG
1,3,5-Trimethylbenzene		2.6995	2.7336	3.0018	2.8279	2.6486	2.4299	2.7235	7	AVG
tert-Butylbenzene		0.4730	0.4560	0.5149	0.4861	0.4517	0.4353	0.4695	6	AVG
Pentachloroethane		0.4115	0.5944	0.5268	0.5239	0.4914	0.4819	0.5050	12	AVG
1,2,4-Trimethylbenzene		2.7119	2.8377	3.1294	2.9440	2.7563	2.4715	2.8085	8	AVG
sec-Butylbenzene		3.0477	3.0854	3.3759	3.2006	2.8977	2.6153	3.0371	9	AVG
1,3-Dichlorobenzene		1.4739	1.5750	1.7011	1.6159	1.5217	1.4864	1.5623	6	AVG
p-Isopropyltoluene		2.2949	2.3158	2.6120	2.4846	2.2780	2.1286	2.3523	7	AVG
1,4-Dichlorobenzene		1.6800	1.7097	1.8134	1.7263	1.5966	1.5251	1.6752	6	AVG
1,2,3-Trimethylbenzene		2.9398	3.4849	3.0074	2.9574	2.6982	2.4306	2.9197	12	AVG
Benzyl Chloride		2.0354	2.5790	2.8754	2.7932	2.7026	2.4440	2.5716	12	AVG
1,3-Diethylbenzene		1.3201	1.6515	1.3889	1.3889	1.2776	1.2520	1.3798	10	AVG
1,4-Diethylbenzene		1.3369	1.6903	1.4726	1.4271	1.2880	1.2811	1.4160	11	AVG
1,2-Dichlorobenzene		1.5493	1.5803	1.7009	1.6193	1.5093	1.4596	1.5698	5	AVG
n-Butylbenzene		1.4744	1.4996	1.5243	1.4635	1.3317	1.2514	1.4241	8	AVG
1,2-Diethylbenzene		1.2775	1.4685	1.2178	1.2109	1.0730	1.0432	1.2151	13	AVG
1,2-Dibromo-3-chloropropane	0.2652	0.2942	0.3347	0.3460	0.3304	0.3137	0.3014	0.3122	9	AVG
1,3,5-Trichlorobenzene		0.8175	0.8742	0.9806	0.9372	0.8607	0.8551	0.8876	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: SH08363 Calibration Date(s): 09/22/15 09/22/15

Heated Purge: (Y/N) Y Calibration Times: 12:16 14:37

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

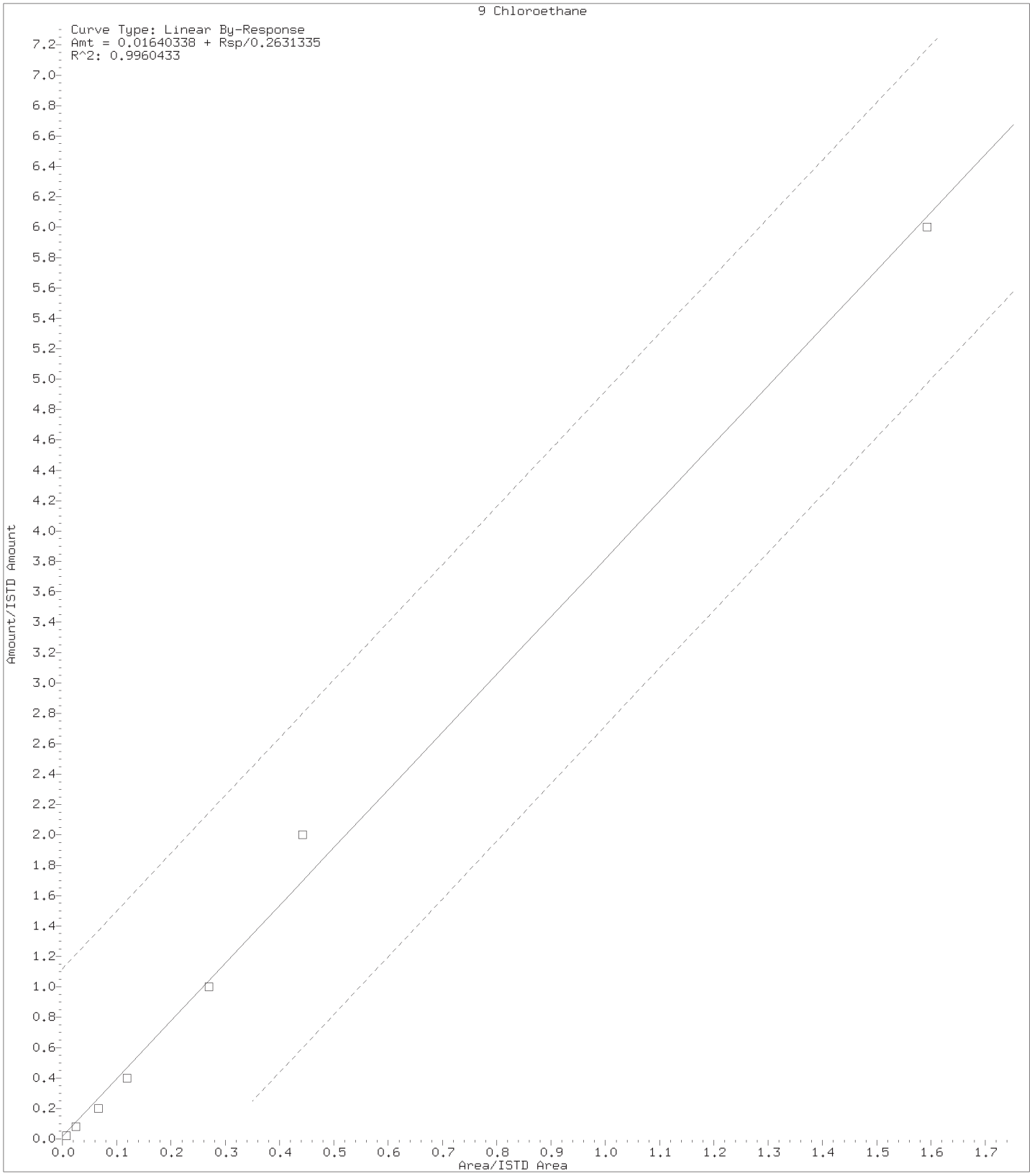
LAB FILE ID: RRF 1 = ts22i07.d RRF 4 = ts22i06.d RRF 10= ts22i05.d
RRF 20= ts22i04.d RRF 50= ts22i03.d RRF100= ts22i02.d RRF300= ts22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
1,2,4-Trichlorobenzene		0.8043	0.8610	0.9513	0.8936	0.8496	0.8244	0.8640	6	AVG
Hexachlorobutadiene		0.3102	0.2964	0.3346	0.3112	0.3010	0.2950	0.3081	5	AVG
Naphthalene		3.0099	3.3035	3.3537	3.1813	2.9784	2.6601	3.0812	8	AVG
1,2,3-Trichlorobenzene		0.8231	0.8556	0.8881	0.8487	0.8059	0.7523	0.8289	6	AVG
Dibromofluoromethane	0.2788	0.2770	0.2793	0.2774	0.2817	0.2800	0.2874	0.2802	1	AVG
Dibromofluoromethane(2)	0.2802	0.2784	0.2803	0.2795	0.2821	0.2822	0.2899	0.2818	1	AVG
1,2-Dichloroethane-d4	0.0693	0.0685	0.0687	0.0692	0.0681	0.0683	0.0688	0.0687	1	AVG
1,2-Dichloroethane-d4(2)	0.3465	0.3427	0.3437	0.3334	0.3369	0.3316	0.3391	0.3391	2	AVG
1,2-Dichloroethane-d4(3)	0.0427	0.0429	0.0438	0.0436	0.0443	0.0440	0.0445	0.0437	2	AVG
Toluene-d8	1.3683	1.3621	1.3599	1.3541	1.3751	1.3707	1.3447	1.3621	1	AVG
Toluene-d8(2)	0.9305	0.9394	0.9241	0.9332	0.9340	0.9309	0.9464	0.9341	1	AVG
4-Bromofluorobenzene	0.5416	0.5462	0.5375	0.5516	0.5500	0.5599	0.5686	0.5508	2	AVG
4-Bromofluorobenzene(2)	0.3993	0.4060	0.4066	0.4156	0.4154	0.4242	0.4300	0.4139	3	AVG

Average %RSD 8

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

FORM VI VOA



Digitally signed by Angela D. Sneeringer on 09/23/2015 at 11:16.
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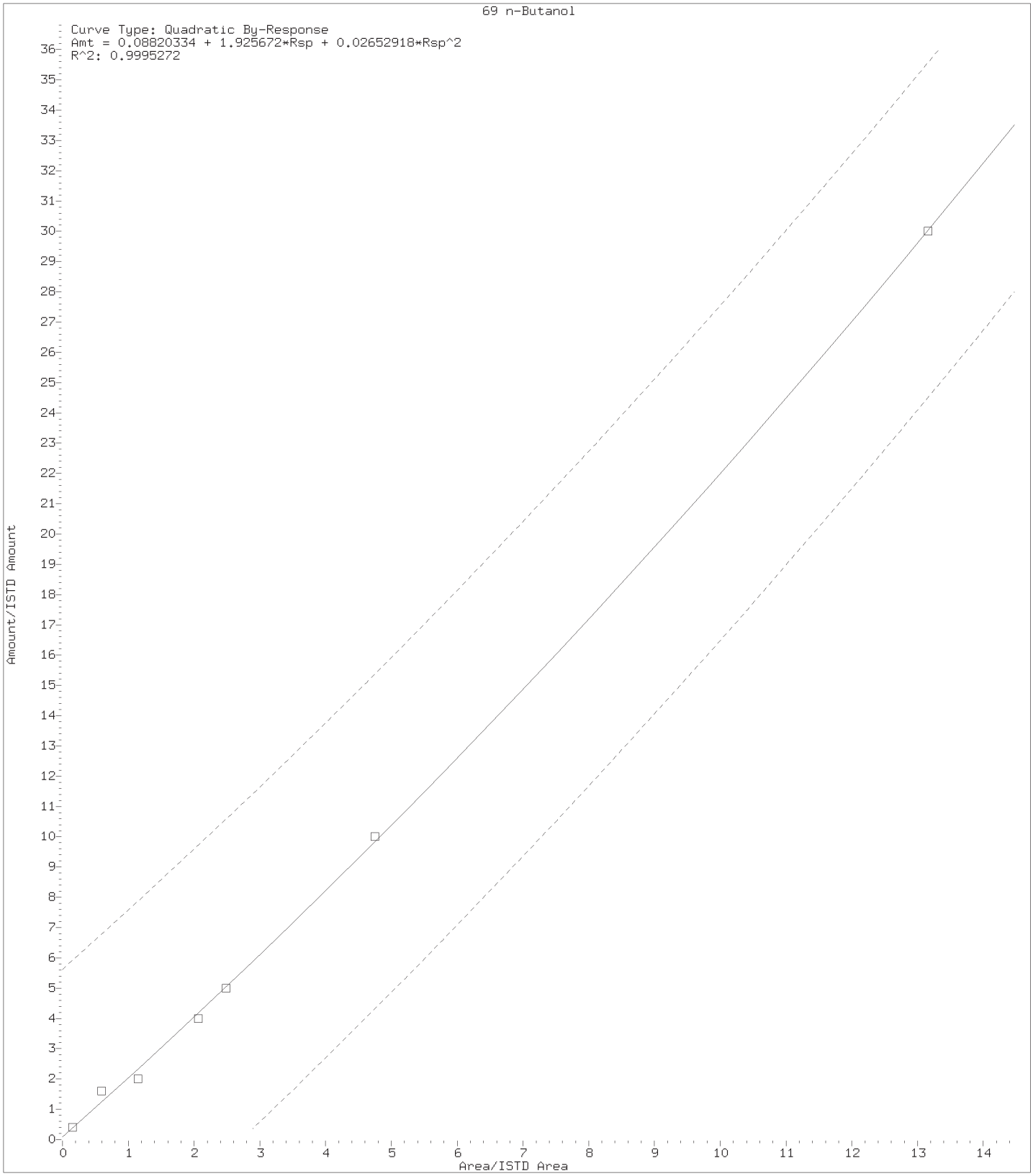
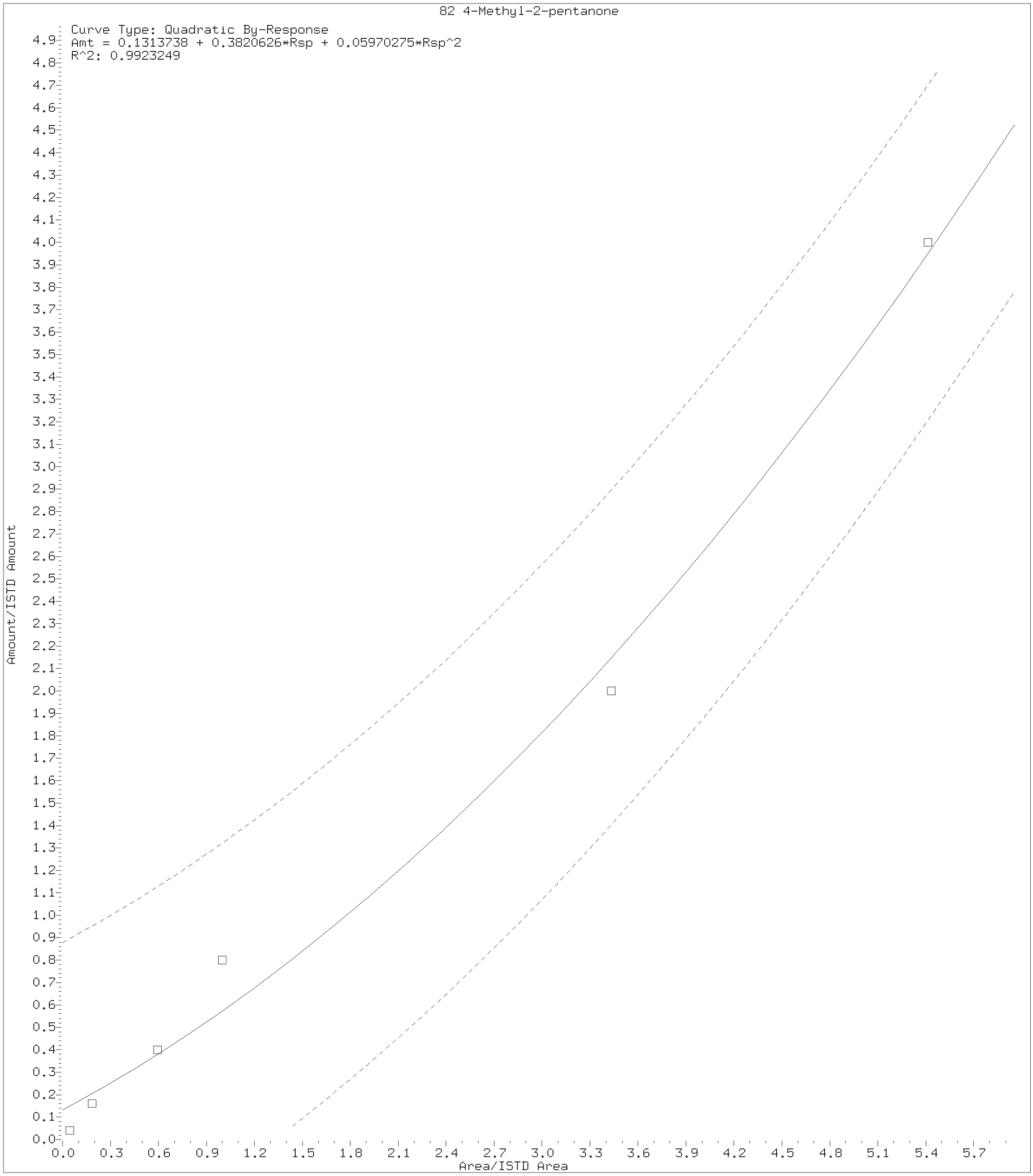
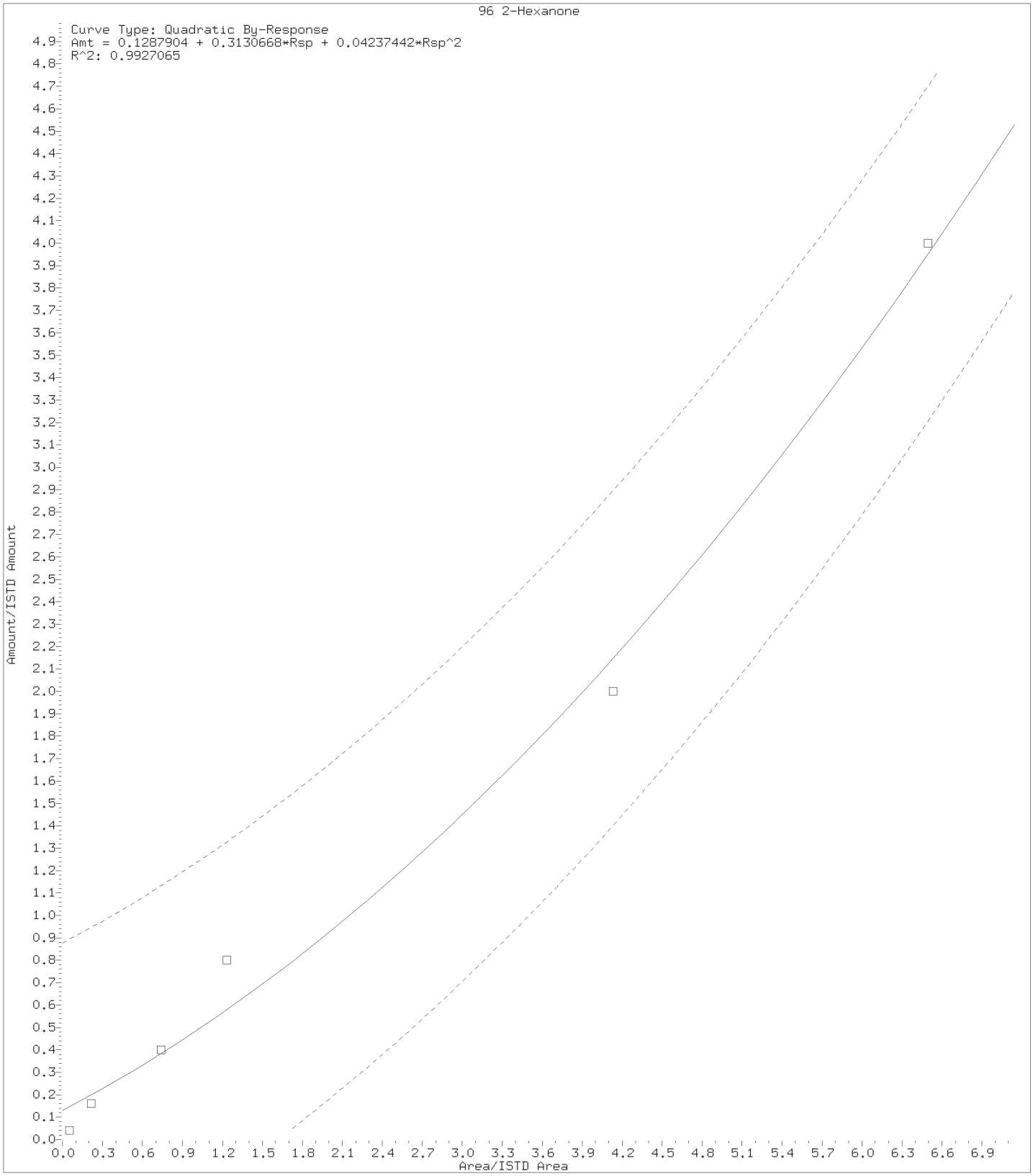


Digitally signed by Angela D. Sneeringer on 09/23/2015 at 11:16.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 09/23/2015 at 11:16.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 09/23/2015 at 11:16.
Target 3.5 esignature user ID: ads01731

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/SH08363.i/15sep22a.b/ts22i01.d	VSTD300
/chem/SH08363.i/15sep22a.b/ts22i02.d	VSTD100
/chem/SH08363.i/15sep22a.b/ts22i03.d	VSTD050
/chem/SH08363.i/15sep22a.b/ts22i04.d	VSTD020
/chem/SH08363.i/15sep22a.b/ts22i05.d	VSTD010
/chem/SH08363.i/15sep22a.b/ts22i06.d	VSTD004
/chem/SH08363.i/15sep22a.b/ts22i07.d	VSTD001

Area Summary

File ID:

Internal Standard Name	ts22i01.d	ts22i02.d	ts22i03.d	ts22i04.d	ts22i05.d	ts22i06.d	ts22i07.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	242507	255829	266584	286464	279149	287422	271220	269882	6	Yes
Fluorobenzene	753107	826087	827436	852961	830031	816665	779128	812202	4	Yes
Chlorobenzene-d5	521644	559817	565478	576359	565673	549438	528073	552355	4	Yes
1,4-Dichlorobenzene-d4	254829	273825	270266	275460	261899	255260	244115	262236	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ts22i01.d	ts22i02.d	ts22i03.d	ts22i04.d	ts22i05.d	ts22i06.d	ts22i07.d	Avg. RT
t-Butyl alcohol-d10	4.108	4.123	4.108	4.101	4.108	4.108	4.108	4.109
Fluorobenzene	7.540	7.540	7.540	7.533	7.540	7.540	7.540	7.539
Chlorobenzene-d5	11.038	11.031	11.038	11.031	11.038	11.038	11.038	11.036
1,4-Dichlorobenzene-d4	12.937	12.930	12.930	12.930	12.930	12.937	12.937	12.933

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 09/23/2015 at 09:06.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: SH08363 ICV Date: 09/22/15 Time: 15:33

Lab File ID: ts22v01.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.3443	0.3089	17.94	20	-10
# Chloromethane	0.7761	0.7336	18.90	20	-5 #
* Vinyl Chloride	0.5218	0.5064	19.41	20	-3 *
Bromomethane	0.2969	0.2802	18.87	20	-6
Chloroethane	0.2960	0.2561	20.29	20	1
Dichlorofluoromethane	0.6408	0.6902	21.54	20	8
Trichlorofluoromethane	0.3558	0.3481	19.57	20	-2
Ethyl ether	0.3436	0.2970	17.28	20	-14
Freon 123a	0.4504	0.4940	21.94	20	10
Acrolein	2.8213	2.8802	153.13	150	2
* 1,1-Dichloroethene	0.2565	0.2440	19.03	20	-5 *
Acetone	1.1708	1.1794	151.10	150	1
Freon 113	0.2455	0.2329	18.97	20	-5
2-Propanol	1.0974	0.9844	134.56	150	-10
Methyl Iodide	0.5193	0.5083	19.57	20	-2
Carbon Disulfide	1.0406	0.8746	16.81	20	-16
Allyl Chloride	1.0306	1.0435	20.25	20	1
Methyl Acetate	0.8432	0.8146	19.32	20	-3
Methylene Chloride	0.3218	0.3248	20.19	20	1
t-Butyl alcohol	1.4188	1.3464	189.79	200	-5
Acrylonitrile	0.3191	0.3050	95.60	100	-4
trans-1,2-Dichloroethene	0.2916	0.2997	20.55	20	3
Methyl Tertiary Butyl Ether	0.9299	0.9305	20.01	20	0
n-Hexane	0.4867	0.4586	18.84	20	-6
# 1,1-Dichloroethane	0.7023	0.7028	20.01	20	0 #
di-Isopropyl ether	1.9697	2.0639	20.96	20	5
2-Chloro-1,3-butadiene	0.5391	0.5015	18.60	20	-7
Ethyl t-butyl ether	1.3168	1.3572	20.61	20	3
cis-1,2-Dichloroethene	0.3241	0.3414	21.07	20	5
2-Butanone	0.6558	0.6031	137.94	150	-8
2,2-Dichloropropane	0.3584	0.3547	19.79	20	-1
Propionitrile	1.8015	2.0315	169.16	150	13
Methacrylonitrile	0.2510	0.2649	158.31	150	6
Bromochloromethane	0.1607	0.1646	20.48	20	2
Tetrahydrofuran	1.3873	1.5239	109.85	100	10
* Chloroform	0.4956	0.5099	20.58	20	3 *

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: SH08363 ICV Date: 09/22/15 Time: 15:33

Lab File ID: ts22v01.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
1,1,1-Trichloroethane	0.3769	0.3613	19.17	20	-4	
Cyclohexane	0.6305	0.6061	19.23	20	-4	
1,1-Dichloropropene	0.4103	0.3984	19.42	20	-3	
Carbon Tetrachloride	0.2652	0.2773	20.91	20	5	
Isobutyl Alcohol	0.8186	0.7965	486.50	500	-3	
Benzene	1.1560	1.1742	20.32	20	2	
1,2-Dichloroethane	0.4717	0.4852	20.57	20	3	
t-Amyl methyl ether	0.9878	0.9855	19.95	20	0	
n-Heptane	0.5832	0.5336	18.30	20	-9	
n-Butanol	0.4630	0.4379	885.75	1000	-11	
Trichloroethene	0.2896	0.3018	20.84	20	4	
Methylcyclohexane	0.3504	0.3476	19.84	20	-1	
* 1,2-Dichloropropane	0.4141	0.4289	20.72	20	4	*
Dibromomethane	0.2406	0.2427	20.18	20	1	
1,4-Dioxane	0.0700	0.0662	472.62	500	-5	
Methyl Methacrylate	0.4002	0.3723	18.61	20	-7	
Bromodichloromethane	0.3778	0.3741	19.80	20	-1	
2-Nitropropane	0.2712	0.2279	16.81	20	-16	
2-Chloroethyl Vinyl Ether	0.4060	0.3935	19.38	20	-3	
cis-1,3-Dichloropropene	0.5387	0.5408	20.08	20	0	
4-Methyl-2-pentanone	1.3527	1.1711	67.69	100	-32	
* Toluene	0.9915	1.0389	20.96	20	5	*
trans-1,3-Dichloropropene	0.7305	0.7531	20.62	20	3	
Ethyl Methacrylate	0.9715	0.9242	19.03	20	-5	
1,1,2-Trichloroethane	0.4655	0.4595	19.74	20	-1	
Tetrachloroethene	0.3880	0.3830	19.74	20	-1	
1,3-Dichloropropane	0.8173	0.8118	19.86	20	-1	
2-Hexanone	1.6220	1.3632	64.87	100	-35	
Dibromochloromethane	0.4695	0.4568	19.46	20	-3	
1,2-Dibromoethane	0.5414	0.5573	20.59	20	3	
# Chlorobenzene	1.0565	1.0876	20.59	20	3	#
1,1,1,2-Tetrachloroethane	0.3435	0.3540	20.61	20	3	
* Ethylbenzene	1.7658	1.8713	21.20	20	6	*
m+p-Xylene	0.6644	0.6888	41.47	40	4	
o-Xylene	0.6634	0.6660	20.08	20	0	
Styrene	1.1974	1.2022	20.08	20	0	

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: SH08363 ICV Date: 09/22/15 Time: 15:33

Lab File ID: ts22v01.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
# Bromoform	0.3750	0.3314	17.67	20	-12	#
Isopropylbenzene	1.5363	1.6039	20.88	20	4	
Cyclohexanone	0.3961	0.3891	491.12	500	-2	
Bromobenzene	0.9725	0.9270	19.07	20	-5	
# 1,1,2,2-Tetrachloroethane	1.8362	1.6827	18.33	20	-8	#
1,2,3-Trichloropropane	0.4291	0.4169	19.43	20	-3	
trans-1,4-Dichloro-2-butene	0.6569	0.6327	96.33	100	-4	
n-Propylbenzene	4.0426	4.1869	20.71	20	4	
2-Chlorotoluene	0.7941	0.7798	19.64	20	-2	
4-Chlorotoluene	0.8487	0.8411	19.82	20	-1	
1,3,5-Trimethylbenzene	2.7235	2.7516	20.21	20	1	
tert-Butylbenzene	0.4695	0.4739	20.19	20	1	
Pentachloroethane	0.5050	0.4927	19.51	20	-2	
1,2,4-Trimethylbenzene	2.8085	2.8270	20.13	20	1	
sec-Butylbenzene	3.0371	3.0250	19.92	20	0	
1,3-Dichlorobenzene	1.5623	1.5119	19.35	20	-3	
p-Isopropyltoluene	2.3523	2.3267	19.78	20	-1	
1,4-Dichlorobenzene	1.6752	1.6464	19.66	20	-2	
1,2,3-Trimethylbenzene	2.9197	2.8540	19.55	20	-2	
Benzyl Chloride	2.5716	2.4550	19.09	20	-5	
1,3-Diethylbenzene	1.3798	1.3481	19.54	20	-2	
1,4-Diethylbenzene	1.4160	1.4078	19.88	20	-1	
1,2-Dichlorobenzene	1.5698	1.5070	19.20	20	-4	
n-Butylbenzene	1.4241	1.3703	19.24	20	-4	
1,2-Diethylbenzene	1.2151	1.1629	19.14	20	-4	
1,2-Dibromo-3-chloropropane	0.3122	0.2748	17.60	20	-12	
1,3,5-Trichlorobenzene	0.8876	0.8266	18.63	20	-7	
1,2,4-Trichlorobenzene	0.8640	0.7866	18.21	20	-9	
Hexachlorobutadiene	0.3081	0.2632	17.09	20	-15	
Naphthalene	3.0812	2.7709	17.99	20	-10	
1,2,3-Trichlorobenzene	0.8289	0.7241	17.47	20	-13	

Average %Drift 5

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/15oct08a.b/ac08i06.d
/chem2/HP09685.i/15oct08a.b/ac08i05.d
/chem2/HP09685.i/15oct08a.b/ac08i07.d
/chem2/HP09685.i/15oct08a.b/ac08i03.d
/chem2/HP09685.i/15oct08a.b/ac08i02.d
/chem2/HP09685.i/15oct08a.b/ac08i01.d

File /chem2/HP09685.i/15oct08a.b/ac08i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/15oct10b.b/ac10c05.d

RT Summary

Internal Standard Name	File ID: ac10c05.d	ICAL RT	In Spec
t-Butyl alcohol-d10	3.964	3.976	Yes
Fluorobenzene	7.462	7.462	Yes
Chlorobenzene-d5	11.015	11.015	Yes
1,4-Dichlorobenzene-d4	12.925	12.919	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ac10c05.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	74395	134640	67320	269280	Yes
Fluorobenzene	1293343	1615131	807566	3230262	Yes
Chlorobenzene-d5	968643	1200791	600396	2401582	Yes
1,4-Dichlorobenzene-d4	511989	625879	312940	1251758	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/10/2015 at 18:29

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 10/10/15 Time: 18:05

Lab File ID: ac10c05.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4202	0.3590	42.72	50	-15
# Chloromethane	0.3118	0.2965	47.56	50	-5 #
* Vinyl Chloride	0.2819	0.2780	49.31	50	-1 *
Bromomethane	0.1928	0.1975	52.03	50	4
Chloroethane	0.1504	0.1475	50.11	50	0
Dichlorofluoromethane	0.3769	0.3737	49.57	50	-1
Trichlorofluoromethane	0.4142	0.4192	50.61	50	1
Ethanol	0.2030	0.2523	3107.30	2500	24
Freon 123a	0.3155	0.3134	49.66	50	-1
Acrolein	2.9175	3.5471	607.91	500	22
* 1,1-Dichloroethene	0.2444	0.2537	51.92	50	4 *
Acetone	0.0228	0.0204	89.37	100	-11
Freon 113	0.2530	0.2374	46.92	50	-6
2-Propanol	1.1037	1.0661	241.47	250	-3
Methyl Iodide	0.4663	0.4893	52.47	50	5
Carbon Disulfide	0.7990	0.8235	51.53	50	3
Methyl Acetate	0.1560	0.1405	45.03	50	-10
Allyl Chloride	0.3450	0.3353	48.59	50	-3
Methylene Chloride	0.2815	0.2828	50.22	50	0
t-Butyl alcohol	1.5121	1.4653	242.26	250	-3
Acrylonitrile	0.0821	0.0777	47.31	50	-5
Methyl Tertiary Butyl Ether	0.6178	0.5882	47.60	50	-5
trans-1,2-Dichloroethene	0.2795	0.2947	52.70	50	5
n-Hexane	0.3381	0.2913	43.08	50	-14
# 1,1-Dichloroethane	0.4859	0.4929	50.72	50	1 #
di-Isopropyl ether	0.7452	0.7381	49.53	50	-1
2-Chloro-1,3-butadiene	0.3503	0.3680	52.52	50	5
Ethyl t-butyl ether	0.4754	0.4545	47.80	50	-4
2-Butanone	0.1017	0.0903	88.78	100	-11
cis-1,2-Dichloroethene	0.3078	0.3224	52.37	50	5
2,2-Dichloropropane	0.3952	0.3913	49.51	50	-1
Propionitrile	2.0451	2.3986	293.22	250	17
Methacrylonitrile	0.0928	0.0864	116.46	125	-7
Bromochloromethane	0.1566	0.1613	51.51	50	3
Tetrahydrofuran	1.9502	2.3772	121.89	100	22
* Chloroform	0.4847	0.5049	52.09	50	4 *

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: 10/10/15 Time: 18:05

Lab File ID: ac10c05.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4872	0.4664	47.86	50	-4
Cyclohexane	0.4157	0.4030	48.47	50	-3
Cyclohexane(2)	0.3909	0.3854	49.29	50	-1
Cyclohexane(3)	0.1336	0.1300	48.65	50	-3
1,1-Dichloropropene	0.3913	0.4027	51.46	50	3
Carbon Tetrachloride	0.3889	0.4122	53.00	50	6
Isobutyl Alcohol	0.5823	0.6010	645.06	625	3
Benzene	1.1241	1.1564	51.44	50	3
1,2-Dichloroethane	0.3502	0.3473	49.58	50	-1
1,2-Dichloroethane(2)	0.0341	0.0338	49.54	50	-1
t-Amyl methyl ether	0.3952	0.3738	47.28	50	-5
n-Heptane	0.3771	0.3007	39.87	50	-20
n-Butanol	0.4854	0.4551	1172.09	1250	-6
Trichloroethene	0.3097	0.3195	51.59	50	3
Methylcyclohexane	0.4864	0.4718	48.49	50	-3
* 1,2-Dichloropropane	0.2783	0.2801	50.33	50	1 *
Methyl Methacrylate	0.1673	0.1572	47.00	50	-6
1,4-Dioxane	0.2089	0.2296	687.18	625	10
Dibromomethane	0.1699	0.1721	50.65	50	1
Bromodichloromethane	0.3558	0.3679	51.70	50	3
2-Nitropropane	3.8604	4.5926	105.60	100	6
cis-1,3-Dichloropropene	0.4277	0.4365	51.03	50	2
4-Methyl-2-pentanone	0.2247	0.1999	74.10	100	-26
* Toluene	1.0072	1.0384	51.55	50	3 *
trans-1,3-Dichloropropene	0.5220	0.5102	48.87	50	-2
Ethyl Methacrylate	0.4072	0.3973	48.79	50	-2
1,1,2-Trichloroethane	0.3390	0.3283	48.43	50	-3
Tetrachloroethene	0.4493	0.5190	57.75	50	15
1,3-Dichloropropane	0.5605	0.5420	48.35	50	-3
2-Hexanone	0.2218	0.1913	70.95	100	-29
Dibromochloromethane	0.3930	0.3934	50.05	50	0
1,2-Dibromoethane	0.3443	0.3340	48.50	50	-3
1-Chlorohexane	0.5182	0.5430	52.39	50	5
# Chlorobenzene	1.2024	1.2302	51.15	50	2 #
1,1,1,2-Tetrachloroethane	0.3985	0.4158	52.16	50	4
* Ethylbenzene	1.8840	2.0022	53.14	50	6 *

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: 10/10/15 Time: 18:05

Lab File ID: ac10c05.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7678	0.8219	107.04	100	7	
	o-Xylene	0.7420	0.7962	53.65	50	7	
	Styrene	1.1605	1.2496	53.84	50	8	
#	Bromoform	0.2343	0.2228	47.53	50	-5	#
	Isopropylbenzene	1.8802	2.0387	54.21	50	8	
	Cyclohexanone	0.6848	0.7397	675.05	625	8	
#	1,1,2,2-Tetrachloroethane	0.8508	0.7668	45.06	50	-10	#
	Bromobenzene	0.9840	0.9758	49.58	50	-1	
	trans-1,4-Dichloro-2-butene	0.2254	0.1951	108.21	125	-13	
	1,2,3-Trichloropropane	0.2637	0.2423	45.93	50	-8	
	n-Propylbenzene	4.2918	4.4988	52.41	50	5	
	2-Chlorotoluene	0.9571	0.9764	51.01	50	2	
	1,3,5-Trimethylbenzene	3.1846	3.4034	53.44	50	7	
	4-Chlorotoluene	0.9954	1.0132	50.90	50	2	
	tert-Butylbenzene	0.6922	0.7343	53.04	50	6	
	Pentachloroethane	0.5740	0.4887	42.57	50	-15	
	1,2,4-Trimethylbenzene	3.2649	3.4879	53.41	50	7	
	sec-Butylbenzene	3.9759	4.3330	54.49	50	9	
	1,3-Dichlorobenzene	1.8631	1.9134	51.35	50	3	
	p-Isopropyltoluene	3.4888	3.9051	55.97	50	12	
	1,4-Dichlorobenzene	1.8631	1.9032	51.08	50	2	
	1,2,3-Trimethylbenzene	3.4444	3.5199	51.10	50	2	
	Benzyl Chloride	0.3545	0.3106	39.93	50	-20	
	1,3-Diethylbenzene	2.2057	2.3048	52.25	50	4	
	1,4-Diethylbenzene	2.2482	2.3259	51.73	50	3	
	n-Butylbenzene	1.6857	1.7842	52.92	50	6	
	1,2-Dichlorobenzene	1.7741	1.7904	50.46	50	1	
	1,2-Diethylbenzene	1.8717	1.9301	51.56	50	3	
	1,2-Dibromo-3-chloropropane	0.1498	0.1319	44.03	50	-12	
	1,3,5-Trichlorobenzene	1.3168	1.3650	51.83	50	4	
	1,2,4-Trichlorobenzene	1.1266	1.1553	51.27	50	3	
	Hexachlorobutadiene	0.5807	0.6027	51.89	50	4	
	Naphthalene	2.6108	2.6872	51.46	50	3	
	1,2,3-Trichlorobenzene	1.0489	1.0701	51.01	50	2	
	2-Methylnaphthalene	1.0816	1.0765	39.53	50	-21	
	Dibromofluoromethane	0.2416	0.2442	50.53	50	1	

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: 10/10/15 Time: 18:05

Lab File ID: ac10c05.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2468	0.2483	50.29	50	1
1,2-Dichloroethane-d4	0.0538	0.0529	49.08	50	-2
1,2-Dichloroethane-d4(2)	0.2471	0.2407	48.70	50	-3
1,2-Dichloroethane-d4(3)	0.0340	0.0339	49.80	50	0
Toluene-d8	1.3496	1.3414	49.69	50	-1
Toluene-d8(2)	0.8840	0.8735	49.41	50	-1
4-Bromofluorobenzene	0.4877	0.4787	49.07	50	-2
4-Bromofluorobenzene(2)	0.4015	0.3924	48.87	50	-2

Average %Drift 6

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:

/chem/HP07536.i/15apr07a.b/qa07i06.d
/chem/HP07536.i/15apr07a.b/qa07i05.d
/chem/HP07536.i/15apr07a.b/qa07i04.d
/chem/HP07536.i/15apr07a.b/qa07i03.d
/chem/HP07536.i/15apr07a.b/qa07i02.d
/chem/HP07536.i/15apr07a.b/qa07i01.d

File /chem/HP07536.i/15apr07a.b/qa07i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07536.i/15oct13a.b/qc13c01.d

RT Summary

Internal Standard Name	File ID: qc13c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	3.919	3.955	Yes
Fluorobenzene	7.375	7.382	Yes
Chlorobenzene-d5	10.917	10.921	Yes
1,4-Dichlorobenzene-d4	12.807	12.811	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: qc13c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	185989	156050	78025	312100	Yes
Fluorobenzene	1354782	1206707	603354	2413414	Yes
Chlorobenzene-d5	998955	912537	456268	1825074	Yes
1,4-Dichlorobenzene-d4	464082	448564	224282	897128	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/13/2015 at 07:44

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07536 Calibration Date: 10/13/15 Time: 06:38

Lab File ID: qc13c01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3708	0.3524	47.52	50	-5	
#	Chloromethane	0.4498	0.4279	47.56	50	-5	#
*	Vinyl Chloride	0.3999	0.3794	47.44	50	-5	*
	Bromomethane	3.9905	6.4859	81.27	50	63	
	Chloroethane	3.2165	5.6546	98.86	50	98	
	Dichlorofluoromethane	0.4112	0.3615	43.95	50	-12	
	Trichlorofluoromethane	0.3971	0.3638	45.81	50	-8	
	Ethanol	0.1724	0.1478	2142.61	2500	-14	
	Freon 123a	0.3330	0.2894	43.46	50	-13	
	Acrolein	3.1397	3.1472	501.21	500	0	
*	1,1-Dichloroethene	0.2594	0.2531	48.79	50	-2	*
*	1,1-Dichloroethene(2)	0.1399	0.1401	50.06	50	0	*
	Acetone	0.0299	0.0343	114.56	100	15	
	Freon 113	0.2491	0.2131	42.77	50	-14	
	2-Propanol	0.8260	0.8713	263.73	250	5	
	Methyl Iodide	0.4918	0.4819	48.98	50	-2	
	Carbon Disulfide	0.8735	0.7820	44.76	50	-10	
	Methyl Acetate	0.2359	0.2833	60.03	50	20	
	Allyl Chloride	0.4950	0.5243	52.96	50	6	
	Methylene Chloride	0.3073	0.3176	51.67	50	3	
	t-Butyl alcohol	1.2668	1.3234	261.17	250	4	
	Acrylonitrile	0.1280	0.1561	60.95	50	22	
	Methyl Tertiary Butyl Ether	0.8946	1.0441	58.35	50	17	
	trans-1,2-Dichloroethene	0.2881	0.2958	51.34	50	3	
	n-Hexane	0.3298	0.2548	38.63	50	-23	
#	1,1-Dichloroethane	0.5503	0.5934	53.91	50	8	#
	di-Isopropyl ether	1.0934	1.2507	57.19	50	14	
	2-Chloro-1,3-butadiene	0.4814	0.4592	47.69	50	-5	
	Ethyl t-butyl ether	0.9980	1.1327	56.75	50	13	
	2-Butanone	0.1539	0.1762	114.50	100	15	
	2-Butanone(2)	0.0371	0.0417	112.39	100	12	
	cis-1,2-Dichloroethene	0.3145	0.3389	53.88	50	8	
	2,2-Dichloropropane	0.4290	0.4571	53.28	50	7	
	Propionitrile	0.0445	0.0616	345.86	250	38	
	Methacrylonitrile	0.1317	0.1683	159.80	125	28	
	Bromochloromethane	0.1573	0.1595	50.70	50	1	

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: HP07536 Calibration Date: 10/13/15 Time: 06:38

Lab File ID: qc13c01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Tetrahydrofuran	1.6113	1.5935	98.89	100	-1	
*	Chloroform	0.4922	0.5605	56.94	50	14	*
	1,1,1-Trichloroethane	0.4527	0.4284	47.32	50	-5	
	Cyclohexane	0.4760	0.3827	40.20	50	-20	
	Cyclohexane(2)	0.3713	0.2947	39.69	50	-21	
	Cyclohexane(3)	0.1382	0.1100	39.81	50	-20	
	1,1-Dichloropropene	0.3895	0.4159	53.38	50	7	
	Carbon Tetrachloride	0.3565	0.3530	49.51	50	-1	
	Isobutyl Alcohol	0.4116	0.5026	763.23	625	22	
	Benzene	1.1741	1.2666	53.94	50	8	
	1,2-Dichloroethane	0.4010	0.4906	61.18	50	22	
	1,2-Dichloroethane(2)	0.0373	0.0447	59.91	50	20	
	t-Amyl methyl ether	0.9105	1.0641	58.44	50	17	
	n-Heptane	0.3161	0.2593	41.01	50	-18	
	n-Butanol	0.3290	0.3857	1465.27	1250	17	
	Trichloroethene	0.2936	0.3162	53.86	50	8	
	Methylcyclohexane	0.3644	0.2716	37.26	50	-25	
*	1,2-Dichloropropane	0.3335	0.3792	56.85	50	14	*
	Methyl Methacrylate	0.2227	0.2921	65.61	50	31	
	1,4-Dioxane	0.1278	0.1634	798.90	625	28	
	Dibromomethane	0.1879	0.2215	58.94	50	18	
	Bromodichloromethane	0.3838	0.4397	57.29	50	15	
	2-Nitropropane	3.8314	3.6064	94.13	100	-6	
	2-Chloroethyl Vinyl Ether	0.2119	0.2671	63.02	50	26	
	cis-1,3-Dichloropropene	0.5010	0.6011	59.99	50	20	
	4-Methyl-2-pentanone	0.3636	0.3664	88.44	100	-12	
*	Toluene	0.9829	1.0714	54.50	50	9	*
	trans-1,3-Dichloropropene	0.6073	0.7607	62.63	50	25	
	Ethyl Methacrylate	0.5792	0.7111	61.38	50	23	
	1,1,2-Trichloroethane	0.3602	0.4395	61.01	50	22	
	Tetrachloroethene	0.4111	0.4145	50.41	50	1	
	1,3-Dichloropropane	0.6454	0.7835	60.69	50	21	
	2-Hexanone	0.3544	0.3622	80.24	100	-20	
	Dibromochloromethane	0.4066	0.4953	60.90	50	22	
	1,2-Dibromoethane	0.3722	0.4626	62.15	50	24	
#	Chlorobenzene	1.0888	1.1901	54.65	50	9	#

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: HP07536 Calibration Date: 10/13/15 Time: 06:38

Lab File ID: qc13c01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	1,1,1,2-Tetrachloroethane	0.3802	0.4292	56.45	50	13	
*	Ethylbenzene	1.7385	1.8372	52.84	50	6	*
	m+p-Xylene	0.6944	0.7238	104.24	100	4	
	o-Xylene	0.6860	0.7191	52.41	50	5	
	Styrene	1.1876	1.2684	53.40	50	7	
#	Bromoform	0.2866	0.3391	59.15	50	18	#
	Isopropylbenzene	1.5841	1.5348	48.44	50	-3	
	Cyclohexanone	0.4012	0.3714	578.63	625	-7	
#	1,1,2,2-Tetrachloroethane	0.9802	1.2213	62.30	50	25	#
	Bromobenzene	0.9600	1.0958	57.07	50	14	
	trans-1,4-Dichloro-2-butene	0.2907	0.4158	178.77	125	43	
	1,2,3-Trichloropropane	0.2869	0.3628	63.22	50	26	
	n-Propylbenzene	3.5287	3.6574	51.82	50	4	
	2-Chlorotoluene	0.7797	0.8423	54.01	50	8	
	1,3,5-Trimethylbenzene	2.6254	2.7419	52.22	50	4	
	4-Chlorotoluene	0.8354	0.9179	54.93	50	10	
	tert-Butylbenzene	0.5800	0.5765	49.70	50	-1	
	Pentachloroethane	0.5776	0.5451	47.18	50	-6	
	1,2,4-Trimethylbenzene	2.7380	2.8642	52.31	50	5	
	sec-Butylbenzene	2.8938	2.8980	50.07	50	0	
	1,3-Dichlorobenzene	1.5679	1.6658	53.12	50	6	
	p-Isopropyltoluene	2.6586	2.6454	49.75	50	0	
	1,4-Dichlorobenzene	1.6904	1.7798	52.65	50	5	
	1,2,3-Trimethylbenzene	2.8844	2.6254	45.51	50	-9	
	Benzyl Chloride	0.4354	0.5528	63.48	50	27	
	1,3-Diethylbenzene	1.5919	1.3495	42.39	50	-15	
	1,4-Diethylbenzene	1.6035	1.3731	42.81	50	-14	
	n-Butylbenzene	1.2362	1.2094	48.91	50	-2	
	1,2-Dichlorobenzene	1.5737	1.6893	53.67	50	7	
	1,2-Diethylbenzene	1.3170	1.1529	43.77	50	-12	
	1,2-Dibromo-3-chloropropane	0.1849	0.2192	59.26	50	19	
	1,3,5-Trichlorobenzene	1.1273	1.0515	46.64	50	-7	
	1,2,4-Trichlorobenzene	1.1003	1.0012	45.50	50	-9	
	Hexachlorobutadiene	0.6242	0.4840	37.76	50	-24	
	Naphthalene	2.8187	2.9090	51.60	50	3	
	1,2,3-Trichlorobenzene	1.0454	0.9207	44.04	50	-12	

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: HP07536 Calibration Date: 10/13/15 Time: 06:38

Lab File ID: qc13c01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
2-Methylnaphthalene	1.8207	1.1641	31.97	50	-36
Dibromofluoromethane	0.2564	0.2731	53.25	50	7
Dibromofluoromethane(2)	0.2620	0.2781	53.09	50	6
1,2-Dichloroethane-d4	0.0671	0.0715	53.26	50	7
1,2-Dichloroethane-d4(2)	0.3157	0.3559	56.37	50	13
1,2-Dichloroethane-d4(3)	0.0427	0.0464	54.28	50	9
Toluene-d8	1.4061	1.4304	50.86	50	2
Toluene-d8(2)	0.9230	0.9421	51.03	50	2
4-Bromofluorobenzene	0.4992	0.4883	48.91	50	-2
4-Bromofluorobenzene(2)	0.4427	0.4349	49.13	50	-2

Average %Drift 13

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:

/chem/HP07566.i/15jul31b.b/rl31i06.d
/chem/HP07566.i/15jul31b.b/rl31i05.d
/chem/HP07566.i/15jul31b.b/rl31i04.d
/chem/HP07566.i/15jul31b.b/rl31i03.d
/chem/HP07566.i/15jul31b.b/rl31i02.d
/chem/HP07566.i/15jul31b.b/rl31i01.d

File /chem/HP07566.i/15jul31b.b/rl31i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07566.i/15oct12a.b/rc12c01.d

RT Summary

Internal Standard Name	File ID: rc12c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.087	4.071	Yes
Fluorobenzene	7.569	7.575	Yes
Chlorobenzene-d5	11.092	11.095	Yes
1,4-Dichlorobenzene-d4	12.995	12.998	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: rc12c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	115360	151826	75913	303652	Yes
Fluorobenzene	864875	1063442	531721	2126884	Yes
Chlorobenzene-d5	679934	846074	423037	1692148	Yes
1,4-Dichlorobenzene-d4	315995	365563	182782	731126	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/12/2015 at 08:07

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date: 10/12/15 Time: 07:29

Lab File ID: rc12c01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3260	0.2833	43.45	50	-13	
#	Chloromethane	0.4220	0.3660	43.36	50	-13	#
*	Vinyl Chloride	0.3456	0.3184	46.07	50	-8	*
	Bromomethane	3.0585	3.3590	54.91	50	10	
	Chloroethane	2.7288	3.1486	57.69	50	15	
	Dichlorofluoromethane	0.3257	0.3442	52.84	50	6	
	Trichlorofluoromethane	0.3399	0.3823	56.24	50	12	
	Ethanol	0.1439	0.1598	2776.19	2500	11	
	Freon 123a	0.3238	0.2877	44.43	50	-11	
	Acrolein	2.8621	3.2503	567.82	500	14	
*	1,1-Dichloroethene	0.2244	0.2333	51.99	50	4	*
*	1,1-Dichloroethene(2)	0.1245	0.1218	48.91	50	-2	*
	Acetone	0.0346	0.0334	96.45	100	-4	
	Freon 113	0.1729	0.1943	56.17	50	12	
	2-Propanol	0.8598	0.8811	256.17	250	2	
	Methyl Iodide	0.4072	0.4521	55.50	50	11	
	Carbon Disulfide	0.7442	0.7895	53.04	50	6	
	Methyl Acetate	0.2924	0.2881	49.27	50	-1	
	Allyl Chloride	0.5448	0.4983	45.73	50	-9	
	Methylene Chloride	0.2723	0.2814	51.67	50	3	
	t-Butyl alcohol	1.2067	1.1454	237.30	250	-5	
	Acrylonitrile	0.1455	0.1458	50.11	50	0	
	Methyl Tertiary Butyl Ether	0.8699	0.8287	47.63	50	-5	
	trans-1,2-Dichloroethene	0.2563	0.2665	51.99	50	4	
	n-Hexane	0.1885	0.2075	55.06	50	10	
#	1,1-Dichloroethane	0.5181	0.5334	51.48	50	3	#
	di-Isopropyl ether	1.0903	1.0669	48.93	50	-2	
	2-Chloro-1,3-butadiene	0.4145	0.4107	49.54	50	-1	
	Ethyl t-butyl ether	0.9537	0.9056	47.48	50	-5	
	2-Butanone	0.1866	0.1776	95.17	100	-5	
	2-Butanone(2)	0.0388	0.0420	108.16	100	8	
	cis-1,2-Dichloroethene	0.2859	0.3001	52.48	50	5	
	2,2-Dichloropropane	0.4085	0.4095	50.12	50	0	
	Propionitrile	0.0483	0.0497	257.03	250	3	
	Methacrylonitrile	0.1300	0.1374	132.11	125	6	
	Bromochloromethane	0.1434	0.1567	54.65	50	9	

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: HP07566 Calibration Date: 10/12/15 Time: 07:29

Lab File ID: rc12c01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Tetrahydrofuran	1.4721	1.5939	108.27	100	8
* Chloroform	0.4645	0.4810	51.78	50	4 *
1,1,1-Trichloroethane	0.3943	0.3921	49.73	50	-1
Cyclohexane	0.3180	0.3177	49.95	50	0
Cyclohexane(2)	0.2403	0.2543	52.91	50	6
Cyclohexane(3)	0.0922	0.0936	50.76	50	2
1,1-Dichloropropene	0.3530	0.3587	50.81	50	2
Carbon Tetrachloride	0.3177	0.3325	52.34	50	5
Isobutyl Alcohol	0.4468	0.4334	606.33	625	-3
Benzene	1.0880	1.1202	51.48	50	3
1,2-Dichloroethane	0.4082	0.4105	50.28	50	1
1,2-Dichloroethane(2)	0.0345	0.0371	53.82	50	8
t-Amyl methyl ether	0.8506	0.8255	48.52	50	-3
n-Heptane	0.2376	0.2095	44.08	50	-12
n-Butanol	0.3299	0.3136	1188.17	1250	-5
Trichloroethene	0.2605	0.2687	51.56	50	3
Methylcyclohexane	0.2379	0.2400	50.43	50	1
* 1,2-Dichloropropane	0.2987	0.3070	51.39	50	3 *
Methyl Methacrylate	0.2187	0.2284	52.22	50	4
1,4-Dioxane	0.1137	0.1229	675.96	625	8
Dibromomethane	0.1750	0.1885	53.83	50	8
Bromodichloromethane	0.3509	0.3718	52.98	50	6
2-Nitropropane	2.9200	3.9004	133.57	100	34
2-Chloroethyl Vinyl Ether	0.2168	0.2104	48.51	50	-3
cis-1,3-Dichloropropene	0.4617	0.4892	52.98	50	6
4-Methyl-2-pentanone	0.4001	0.3769	94.18	100	-6
* Toluene	0.8039	0.8357	51.97	50	4 *
trans-1,3-Dichloropropene	0.5621	0.5846	52.00	50	4
Ethyl Methacrylate	0.5270	0.5269	50.00	50	0
1,1,2-Trichloroethane	0.3209	0.3405	53.04	50	6
Tetrachloroethene	0.2858	0.3051	53.38	50	7
1,3-Dichloropropane	0.5794	0.6000	51.77	50	4
2-Hexanone	0.3838	0.3485	77.46	100	-23
Dibromochloromethane	0.3498	0.3915	55.95	50	12
1,2-Dibromoethane	0.3359	0.3724	55.43	50	11
1-Chlorohexane	0.3143	0.3028	48.17	50	-4

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: HP07566 Calibration Date: 10/12/15 Time: 07:29

Lab File ID: rcl2c01.d Init. Calib. Date(s): 07/31/15 08/01/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
#	Chlorobenzene	0.8881	0.9334	52.55	50	5	#
	1,1,1,2-Tetrachloroethane	0.3280	0.3426	52.23	50	4	
*	Ethylbenzene	1.3891	1.4272	51.37	50	3	*
	m+p-Xylene	0.5244	0.5668	108.09	100	8	
	o-Xylene	0.5330	0.5499	51.58	50	3	
	Styrene	0.9118	0.9681	53.09	50	6	
#	Bromoform	0.2504	0.2793	51.58	50	3	#
	Isopropylbenzene	1.1321	1.1435	50.50	50	1	
	Cyclohexanone	0.3466	0.3700	667.19	625	7	
#	1,1,2,2-Tetrachloroethane	1.0749	0.9669	44.97	50	-10	#
	Bromobenzene	0.8686	0.8607	49.54	50	-1	
	trans-1,4-Dichloro-2-butene	0.3706	0.3362	113.38	125	-9	
	1,2,3-Trichloropropane	0.3239	0.3037	46.88	50	-6	
	n-Propylbenzene	3.0413	2.8416	46.72	50	-7	
	2-Chlorotoluene	0.6851	0.6619	48.31	50	-3	
	1,3,5-Trimethylbenzene	2.2500	2.0956	46.57	50	-7	
	4-Chlorotoluene	0.7354	0.7272	49.44	50	-1	
	tert-Butylbenzene	0.4550	0.4205	46.21	50	-8	
	Pentachloroethane	0.4877	0.4892	50.15	50	0	
	1,2,4-Trimethylbenzene	2.3532	2.2383	47.56	50	-5	
	sec-Butylbenzene	2.5643	2.2832	44.52	50	-11	
	1,3-Dichlorobenzene	1.3631	1.3151	48.24	50	-4	
	p-Isopropyltoluene	2.2585	2.0389	45.14	50	-10	
	1,4-Dichlorobenzene	1.4452	1.3968	48.33	50	-3	
	1,2,3-Trimethylbenzene	2.5147	2.4388	48.49	50	-3	
	Benzyl Chloride	0.4762	0.4801	50.41	50	1	
	1,3-Diethylbenzene	1.3644	1.2245	44.87	50	-10	
	1,4-Diethylbenzene	1.3973	1.2347	44.18	50	-12	
	n-Butylbenzene	1.1490	0.9658	42.03	50	-16	
	1,2-Dichlorobenzene	1.3999	1.3463	48.09	50	-4	
	1,2-Diethylbenzene	1.1735	1.0547	44.94	50	-10	
	1,2-Dibromo-3-chloropropane	0.2065	0.1672	40.47	50	-19	
	1,3,5-Trichlorobenzene	0.9906	0.7999	40.37	50	-19	
	1,2,4-Trichlorobenzene	0.9824	0.7445	37.89	50	-24	
	Hexachlorobutadiene	0.5502	0.3181	28.91	50	-42	
	Naphthalene	2.7898	2.2245	39.87	50	-20	

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: HP07566 Calibration Date: 10/12/15 Time: 07:29

Lab File ID: rc12c01.d Init. Calib. Date(s): 07/31/15 08/01/15

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	0.9546	0.6574	34.43	50	-31
2-Methylnaphthalene	1.7429	0.7583	21.75	50	-56
Dibromofluoromethane	0.2645	0.2820	53.32	50	7
Dibromofluoromethane(2)	0.2727	0.2878	52.76	50	6
1,2-Dichloroethane-d4	0.0673	0.0725	53.90	50	8
1,2-Dichloroethane-d4(2)	0.3562	0.3552	49.85	50	0
1,2-Dichloroethane-d4(3)	0.0432	0.0462	53.46	50	7
Toluene-d8	1.2746	1.3433	52.70	50	5
Toluene-d8(2)	0.8280	0.8792	53.09	50	6
4-Bromofluorobenzene	0.4402	0.4623	52.51	50	5
4-Bromofluorobenzene(2)	0.3666	0.4006	54.63	50	9

Average %Drift 8

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:

/chem/SH08363.i/15sep22a.b/ts22i07.d
/chem/SH08363.i/15sep22a.b/ts22i06.d
/chem/SH08363.i/15sep22a.b/ts22i05.d
/chem/SH08363.i/15sep22a.b/ts22i04.d
/chem/SH08363.i/15sep22a.b/ts22i03.d
/chem/SH08363.i/15sep22a.b/ts22i02.d
/chem/SH08363.i/15sep22a.b/ts22i01.d

File /chem/SH08363.i/15sep22a.b/ts22i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/SH08363.i/15oct15b.b/tc15c51.d

RT Summary

File ID:

Internal Standard Name	tc15c51.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.152	4.108	Yes
Fluorobenzene	7.577	7.540	Yes
Chlorobenzene-d5	11.060	11.038	Yes
1,4-Dichlorobenzene-d4	12.952	12.930	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	tc15c51.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	270191	266584	133292	533168	Yes
Fluorobenzene	956557	827436	413718	1654872	Yes
Chlorobenzene-d5	652859	565478	282739	1130956	Yes
1,4-Dichlorobenzene-d4	324607	270266	135133	540532	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/15/2015 at 21:41

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: SH08363 Calibration Date: 10/15/15 Time: 20:58

Lab File ID: tc15c51.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3443	0.3510	50.97	50	2	
#	Chloromethane	0.7761	0.7907	50.94	50	2	#
*	Vinyl Chloride	0.5218	0.4610	44.17	50	-12	*
	Bromomethane	0.2969	0.3124	52.61	50	5	
	Chloroethane	0.2960	0.2725	52.60	50	5	
	Trichlorofluoromethane	0.3558	0.3779	53.10	50	6	
	Ethyl ether	0.3436	0.3726	54.22	50	8	
	Acrolein	2.8213	3.3316	590.44	500	18	
*	1,1-Dichloroethene	0.2565	0.2359	45.99	50	-8	*
*	1,1-Dichloroethene(2)	0.1677	0.1468	43.78	50	-12	*
	Acetone	1.1708	1.3539	115.63	100	16	
	Freon 113	0.2455	0.2404	48.97	50	-2	
	2-Propanol	1.0974	1.0758	245.08	250	-2	
	Methyl Iodide	0.5193	0.4734	45.57	50	-9	
	Carbon Disulfide	1.0406	0.9650	46.37	50	-7	
	Allyl Chloride	1.0306	0.8791	42.65	50	-15	
	Methyl Acetate	0.8432	0.8049	47.73	50	-5	
	Methylene Chloride	0.3218	0.3149	48.94	50	-2	
	t-Butyl alcohol	1.4188	1.2576	221.59	250	-11	
	Acrylonitrile	0.3191	0.3340	52.33	50	5	
	trans-1,2-Dichloroethene	0.2916	0.2743	47.03	50	-6	
	Methyl Tertiary Butyl Ether	0.9299	0.8032	43.19	50	-14	
	n-Hexane	0.4867	0.4235	43.51	50	-13	
#	1,1-Dichloroethane	0.7023	0.6117	43.55	50	-13	#
	di-Isopropyl ether	1.9697	1.8396	46.70	50	-7	
	2-Chloro-1,3-butadiene	0.5391	0.5196	48.19	50	-4	
	Ethyl t-butyl ether	1.3168	1.0140	38.50	50	-23	
	cis-1,2-Dichloroethene	0.3241	0.3031	46.75	50	-6	
	2-Butanone	0.6558	0.6752	102.95	100	3	
	2,2-Dichloropropane	0.3584	0.3360	46.87	50	-6	
	Propionitrile	1.8015	2.0702	287.29	250	15	
	Methacrylonitrile	0.2510	0.2178	108.45	125	-13	
	Bromochloromethane	0.1607	0.1612	50.17	50	0	
	Tetrahydrofuran	1.3873	1.6192	116.72	100	17	
*	Chloroform	0.4956	0.5099	51.45	50	3	*
	1,1,1-Trichloroethane	0.3769	0.3394	45.03	50	-10	

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: SH08363 Calibration Date: 10/15/15 Time: 20:58

Lab File ID: tc15c51.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.6305	0.5459	43.29	50	-13	
	Cyclohexane(2)	0.3438	0.3868	56.24	50	12	
	Cyclohexane(3)	0.1587	0.1317	41.49	50	-17	
	1,1-Dichloropropene	0.4103	0.4008	48.84	50	-2	
	Carbon Tetrachloride	0.2652	0.2666	50.26	50	1	
	Isobutyl Alcohol	0.8186	0.7649	583.95	625	-7	
	Benzene	1.1560	1.1335	49.03	50	-2	
	1,2-Dichloroethane	0.4717	0.4172	44.23	50	-12	
	1,2-Dichloroethane(2)	0.0370	0.0388	52.46	50	5	
	t-Amyl methyl ether	0.9878	0.7986	40.42	50	-19	
	n-Heptane	0.5832	0.6111	52.38	50	5	
	n-Butanol	0.4630	0.4412	1116.30	1250	-11	
	Trichloroethene	0.2896	0.2758	47.60	50	-5	
	Methylcyclohexane	0.3504	0.3410	48.65	50	-3	
	Methylcyclohexane(2)	0.1544	0.1488	48.18	50	-4	
*	1,2-Dichloropropane	0.4141	0.3607	43.56	50	-13	*
	Dibromomethane	0.2406	0.2383	49.53	50	-1	
	1,4-Dioxane	0.0700	0.0840	749.76	625	20	
	Methyl Methacrylate	0.4002	0.3241	40.50	50	-19	
	Bromodichloromethane	0.3778	0.3926	51.95	50	4	
	2-Nitropropane	0.2712	0.2127	78.44	100	-22	
	2-Chloroethyl Vinyl Ether	0.4060	0.3416	42.06	50	-16	
	cis-1,3-Dichloropropene	0.5387	0.5082	47.17	50	-6	
	4-Methyl-2-pentanone	1.3527	1.3326	78.69	100	-21	
*	Toluene	0.9915	0.9432	47.57	50	-5	*
	trans-1,3-Dichloropropene	0.7305	0.6792	46.48	50	-7	
	Ethyl Methacrylate	0.9715	0.7876	40.53	50	-19	
	1,1,2-Trichloroethane	0.4655	0.4398	47.24	50	-6	
	Tetrachloroethene	0.3880	0.3979	51.27	50	3	
	1,3-Dichloropropane	0.8173	0.8078	49.42	50	-1	
	2-Hexanone	1.6220	1.5526	75.47	100	-25	
	Dibromochloromethane	0.4695	0.4754	50.63	50	1	
	1,2-Dibromoethane	0.5414	0.5152	47.57	50	-5	
#	Chlorobenzene	1.0565	1.0049	47.56	50	-5	#
	1,1,1,2-Tetrachloroethane	0.3435	0.3477	50.62	50	1	
*	Ethylbenzene	1.7658	1.7236	48.81	50	-2	*

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: SH08363 Calibration Date: 10/15/15 Time: 20:58

Lab File ID: tc15c51.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.6644	0.6191	93.19	100	-7	
	o-Xylene	0.6634	0.6028	45.43	50	-9	
	Styrene	1.1974	1.0791	45.06	50	-10	
#	Bromoform	0.3750	0.3865	51.53	50	3	#
	Isopropylbenzene	1.5363	1.3808	44.94	50	-10	
	Cyclohexanone	0.3961	0.4447	701.64	625	12	
	Bromobenzene	0.9725	0.9246	47.54	50	-5	
#	1,1,2,2-Tetrachloroethane	1.8362	1.7432	47.47	50	-5	#
	1,2,3-Trichloropropane	0.4291	0.3841	44.76	50	-10	
	trans-1,4-Dichloro-2-butene	0.6569	0.5744	109.31	125	-13	
	n-Propylbenzene	4.0426	3.7510	46.39	50	-7	
	2-Chlorotoluene	0.7941	0.7097	44.69	50	-11	
	4-Chlorotoluene	0.8487	0.7485	44.10	50	-12	
	1,3,5-Trimethylbenzene	2.7235	2.3077	42.37	50	-15	
	tert-Butylbenzene	0.4695	0.4352	46.35	50	-7	
	Pentachloroethane	0.5050	0.4757	47.10	50	-6	
	1,2,4-Trimethylbenzene	2.8085	2.3399	41.66	50	-17	
	sec-Butylbenzene	3.0371	2.6787	44.10	50	-12	
	1,3-Dichlorobenzene	1.5623	1.4371	45.99	50	-8	
	p-Isopropyltoluene	2.3523	2.1349	45.38	50	-9	
	1,4-Dichlorobenzene	1.6752	1.5133	45.17	50	-10	
	1,2,3-Trimethylbenzene	2.9197	2.3743	40.66	50	-19	
	Benzyl Chloride	2.5716	2.1817	42.42	50	-15	
	1,3-Diethylbenzene	1.3798	1.2006	43.50	50	-13	
	1,4-Diethylbenzene	1.4160	1.2189	43.04	50	-14	
	1,2-Dichlorobenzene	1.5698	1.4179	45.16	50	-10	
	n-Butylbenzene	1.4241	1.3125	46.08	50	-8	
	1,2-Diethylbenzene	1.2151	1.0307	42.41	50	-15	
	1,2-Dibromo-3-chloropropane	0.3122	0.2620	41.95	50	-16	
	1,3,5-Trichlorobenzene	0.8876	0.8498	47.87	50	-4	
	1,2,4-Trichlorobenzene	0.8640	0.8077	46.74	50	-7	
	Hexachlorobutadiene	0.3081	0.3314	53.78	50	8	
	Naphthalene	3.0812	2.6132	42.41	50	-15	
	1,2,3-Trichlorobenzene	0.8289	0.7693	46.40	50	-7	
	Dibromofluoromethane	0.2802	0.2919	52.09	50	4	

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: SH08363 Calibration Date: 10/15/15 Time: 20:58

Lab File ID: tc15c51.d Init. Calib. Date(s): 09/22/15 09/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2818	0.2955	52.42	50	5
1,2-Dichloroethane-d4	0.0687	0.0721	52.44	50	5
1,2-Dichloroethane-d4(2)	0.3391	0.3256	48.01	50	-4
1,2-Dichloroethane-d4(3)	0.0437	0.0457	52.33	50	5
Toluene-d8	1.3621	1.3282	48.76	50	-2
Toluene-d8(2)	0.9341	0.9101	48.72	50	-3
4-Bromofluorobenzene	0.5508	0.5146	46.71	50	-7
4-Bromofluorobenzene(2)	0.4139	0.4335	52.37	50	5

Average %Drift 9

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR29

Lab File ID (Standard): ac10c05.d Date Analyzed: 10/10/15

Instrument ID: HP09685 Time Analyzed: 18:05

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	74395	3.964	1293343	7.462	968643	11.014	511989	12.925
	UPPER LIMIT	148790	4.464	2586686	7.962	1937286	11.514	1023978	13.425
	LOWER LIMIT	37198	3.464	646672	6.962	484322	10.514	255994	12.425
	LAB SAMPLE ID								
01	LCSA70	70516	3.970	1320452	7.462	983091	11.014	509925	12.919
02	LCDA70	71409	3.970	1316548	7.462	986628	11.014	506944	12.919
03	VBLKA70	84164	3.976	1322667	7.468	987380	11.014	484548	12.925
04	8076191	61882	3.970	1319624	7.462	971132	11.015	473402	12.925
05	8076192	71072	3.982	1277294	7.462	934090	11.015	437356	12.925
06	8077351	62966	3.964	1274118	7.462	940242	11.015	433981	12.925
07	8079093	60480	3.976	1264867	7.462	923836	11.015	404090	12.925
08	8079094MS	66732	3.964	1316125	7.462	961835	11.015	461871	12.919
09	8079095MSD	55301	3.976	1313049	7.462	948079	11.014	430439	12.919
10	8079086	64064	3.970	1291447	7.462	950811	11.014	466232	12.919
11	8079087	55971	3.976	1288858	7.462	957474	11.015	464133	12.925
12	8079088	72007	3.958	1297532	7.462	964212	11.015	465748	12.919
13	8079089	56087	3.958	1260026	7.462	904517	11.015	388263	12.925
14	8079090	59794	3.988	1213189	7.468	886005	11.014	412770	12.925
15	8079091	58029	3.964	1221163	7.462	830499	11.014	293975	12.925
16	8079092	56720	3.970	1220651	7.462	896454	11.014	419032	12.925
17	8079096	52190	3.970	1150036	7.462	830331	11.015	374338	12.925
18	8079097	58112	3.976	1157073	7.468	847030	11.015	385268	12.925
19	8079098	49517	3.976	1156273	7.462	847503	11.015	389006	12.925
20	8079099	55659	3.976	1245014	7.468	927819	11.014	436408	12.925
21	8079103	54819	3.964	1193767	7.462	888781	11.015	418071	12.925
22	8076193	63645	3.976	1153924	7.468	798605	11.014	313748	12.925

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR29

Lab File ID (Standard): ac10c05.d Date Analyzed: 10/10/15

Instrument ID: HP09685 Time Analyzed: 18:05

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	74395	3.964	1293343	7.462	968643	11.014	511989	12.925
	UPPER LIMIT	148790	4.464	2586686	7.962	1937286	11.514	1023978	13.425
	LOWER LIMIT	37198	3.464	646672	6.962	484322	10.514	255994	12.425
	LAB SAMPLE ID								
23	8076194	67198	3.976	1139970	7.468	802180	11.014	303340	12.925
24	8076195	63786	3.976	1156025	7.462	853754	11.015	388501	12.925
25	8076196	60085	3.976	1207374	7.462	892385	11.014	444491	12.925

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR29

Lab File ID (Standard): qc13c01.d Date Analyzed: 10/13/15

Instrument ID: HP07536 Time Analyzed: 06:38

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	185989	3.919	1354782	7.375	998955	10.917	464082	12.807
	UPPER LIMIT	371978	4.419	2709564	7.875	1997910	11.417	928164	13.307
	LOWER LIMIT	92994	3.419	677391	6.875	499478	10.417	232041	12.307
	LAB SAMPLE ID								
01	VBLKQ71	170831	3.933	1277589	7.380	923635	10.922	425053	12.809
02	LCSQ71	164919	3.936	1221156	7.379	896518	10.921	412932	12.808
03	LCDQ71	174591	3.945	1321031	7.378	962846	10.921	450995	12.807
04	8081560DL	143830	3.920	1304585	7.382	973887	10.922	470582	12.808
05	8079944	176345	3.926	1287440	7.378	960794	10.921	444113	12.808
06	8081563DL	158001	3.922	1164133	7.382	863249	10.921	401948	12.808
07	8081569DL	174789	3.932	1296201	7.379	968757	10.918	512536	12.808
08	8079941	99328	3.926	1168172	7.375	879763	10.918	478920	12.808
09	8081573DL	173717	3.926	1309800	7.382	997416	10.922	462458	12.808
10	8079946	156424	3.960	1326072	7.384	1003964	10.920	577146	12.810
11	8079942MS	184867	3.991	1320137	7.376	1016872	10.919	531104	12.809
12	8079943MSD	111710	3.982	1247094	7.380	922817	10.922	465166	12.809
13	8079941DL	149858	4.000	1339022	7.382	1009767	10.921	480001	12.808
14	8079100	149795	3.923	1179566	7.382	891066	10.921	404652	12.808
15	8079101	165035	3.919	1294403	7.378	957982	10.921	437816	12.811
16	8079084DL	153502	3.932	1170570	7.385	863185	10.921	395078	12.811
17	8079085DL	162893	3.924	1280619	7.380	955372	10.919	434775	12.809
18	8076185	164949	3.936	1296980	7.385	974746	10.922	465023	12.808
19	8076186	135434	3.934	1164511	7.380	886543	10.919	413215	12.809
20	8077302DL	173154	3.926	1290719	7.379	976254	10.921	450572	12.808
21	8077811DL	157919	3.929	1198900	7.382	892300	10.921	411523	12.811
22	8079946DL	130040	3.916	1260339	7.382	952575	10.921	445780	12.808

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 1 of 1

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.: DHR29

Lab File ID (Standard): rc12c01.d Date Analyzed: 10/12/15

Instrument ID: HP07566 Time Analyzed: 07:29

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	115360	4.087	864875	7.569	679934	11.092	315995	12.995
	UPPER LIMIT	230720	4.587	1729750	8.069	1359868	11.592	631990	13.495
	LOWER LIMIT	57680	3.587	432438	7.069	339967	10.592	157998	12.495
	LAB SAMPLE ID								
01	VBLKR64	104200	4.089	819669	7.570	619198	11.090	265207	12.993
02	LCSR64	117500	4.084	887845	7.568	693992	11.092	311719	12.994
03	LCDR64	117697	4.094	937211	7.569	709625	11.092	317305	12.995
04	8076380	115968	4.099	911535	7.571	724313	11.091	344471	12.994
05	8075463DL	123153	4.089	977406	7.567	750602	11.094	325836	12.993
06	8077353	116154	4.080	899337	7.568	688650	11.092	298438	12.994
07	8079083	123015	4.080	918131	7.568	726378	11.091	314729	12.994
08	8079084	118615	4.080	920778	7.568	698740	11.092	318695	12.994
09	8079085	113889	4.077	867394	7.572	671561	11.092	289811	12.994
10	8077349	123291	4.077	953892	7.564	713153	11.091	317454	12.994
11	8076185DL	133704	4.084	1003581	7.571	775752	11.092	346622	12.994
12	8076186DL	128442	4.086	912718	7.571	716726	11.094	322894	12.994
13	8077302	143861	4.082	1011141	7.570	811980	11.090	370795	12.993
14	8079102	135086	4.075	980635	7.569	741818	11.092	317885	12.995
15	8081560	139574	4.078	1001993	7.569	826748	11.095	372910	12.995
16	8081563	133399	4.090	967424	7.568	781519	11.095	350309	12.994
17	8081569	151305	4.092	1095144	7.570	856012	11.093	385737	12.996
18	8081570	149930	4.093	1090554	7.571	858885	11.094	384541	12.994
19	8081573	151896	4.095	989004	7.570	796008	11.094	366700	12.996
20	8055945	138335	4.083	990552	7.571	769501	11.091	316627	12.994
21	8055946	149034	4.097	1071105	7.572	828866	11.092	349924	12.995
22	8055941	140153	4.090	1024645	7.568	787343	11.092	337863	12.994

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 1 of 1

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.: DHR29

Lab File ID (Standard): tc15c51.d Date Analyzed: 10/15/15

Instrument ID: SH08363 Time Analyzed: 20:58

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	270191	4.152	956557	7.577	652859	11.060	324607	12.952
	UPPER LIMIT	540382	4.652	1913114	8.077	1305718	11.560	649214	13.452
	LOWER LIMIT	135096	3.652	478278	7.077	326430	10.560	162304	12.452
	LAB SAMPLE ID								
01	VBLKT12	284647	4.137	931245	7.569	624516	11.060	288677	12.952
02	LCST12	284470	4.130	952776	7.569	656982	11.053	329892	12.952
03	8081649	297889	4.152	985392	7.577	663945	11.060	300444	12.952
04	8081650	269902	4.130	915010	7.569	606745	11.053	289209	12.945
05	8079104	262936	4.137	909043	7.569	614522	11.053	278735	12.945
06	8079105	252416	4.130	883487	7.569	593930	11.053	274566	12.945
07	8087717	248478	4.137	856361	7.569	587741	11.060	268312	12.952
08	8087718MS	244168	4.130	896265	7.569	613064	11.053	310161	12.945
09	8087719MSD	222052	4.137	805230	7.569	539321	11.053	271673	12.945
10	8087722	273628	4.152	960089	7.569	634135	11.060	291567	12.952
11	8084346	298206	4.145	905663	7.577	608155	11.060	283301	12.952
12	8084347	243470	4.152	724896	7.577	487271	11.060	224983	12.952
13	8084350	299499	4.145	893082	7.577	600182	11.060	279830	12.952
14	8084351	270519	4.152	860199	7.577	580404	11.060	264966	12.952
15	8084352	227291	4.137	688446	7.577	471817	11.060	217754	12.952
16	8084353	286922	4.159	860316	7.577	577086	11.060	261016	12.952
17	8081651	229572	4.145	818519	7.569	551818	11.060	253316	12.952
18	8081652	184386	4.137	681731	7.569	464358	11.053	212695	12.952
19	8081653	213755	4.145	822125	7.577	564694	11.060	253685	12.952
20	8081654	201464	4.137	828124	7.569	562767	11.060	250735	12.952
21	8087720	206673	4.137	677647	7.569	460465	11.060	209891	12.952
22	8087721	210970	4.137	798628	7.569	543805	11.060	263277	12.952

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR29

Lab File ID (Standard): tc15c51.d Date Analyzed: 10/15/15

Instrument ID: SH08363 Time Analyzed: 20:58

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	270191	4.152	956557	7.577	652859	11.060	324607	12.952
	UPPER LIMIT	540382	4.652	1913114	8.077	1305718	11.560	649214	13.452
	LOWER LIMIT	135096	3.652	478278	7.077	326430	10.560	162304	12.452
	LAB SAMPLE ID								
23	8087723	235636	4.152	823221	7.569	548654	11.060	252524	12.952

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15OCT08A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	AC08T01.D	BFBAUG28-15	10/08/2015	11:07		
ADS01731	AC08X01.D	CBLK	10/08/2015	11:32		
ADS01731	AC08I01.D	VSTD300	10/08/2015	11:55		
ADS01731	AC08I02.D	VSTD100	10/08/2015	12:22		
ADS01731	AC08I03.D	VSTD050	10/08/2015	12:48		
ADS01731	AC08I04.D	VSTD020	10/08/2015	13:43		
ADS01731	AC08I05.D	VSTD010	10/08/2015	14:16		
ADS01731	AC08I06.D	VSTD004	10/08/2015	14:38		
ADS01731	AC08M01.D	VSTD001	10/08/2015	15:01		
ADS01731	AC08I07.D	VSTD020	10/08/2015	15:46		
ADS01731	AL06V01.D	LCSAICV	10/08/2015	16:40		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15oct10b\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	AC10T05.D	50NGBFB	10/10/2015	17:30	A152832AA	
amd00492	AC10X05.D	VBLKA70	10/10/2015	17:42	A152832AA	
amd00492	AC10C05.D	VSTD050	10/10/2015	18:05	A152832AA	
amd00492	AC10L41.D	LCSA70	10/10/2015	18:28	A152832AA	
amd00492	AC10L42.D	LCDA70	10/10/2015	18:50	A152832AA	
amd00492	AC10B05.D	VBLKA70	10/10/2015	19:13	A152832AA	
amd00492	AC10S41.D	8076191	10/10/2015	19:51	A152832AA	
amd00492	AC10S42.D	8076192	10/10/2015	20:14	A152832AA	
amd00492	AC10S43.D	8077351	10/10/2015	20:36	A152832AA	
amd00492	AC10S44.D	8079093	10/10/2015	20:59	A152832AA	
amd00492	AC10S45.D	8079094MS	10/10/2015	21:21	A152832AA	
amd00492	AC10S46.D	8079095MSD	10/10/2015	21:44	A152832AA	
amd00492	AC10S47.D	8079086	10/10/2015	22:06	A152832AA	
amd00492	AC10S48.D	8079087	10/10/2015	22:29	A152832AA	
amd00492	AC10S49.D	8079088	10/10/2015	22:52	A152832AA	
amd00492	AC10S50.D	8079089	10/10/2015	23:14	A152832AA	
amd00492	AC10S51.D	8079090	10/10/2015	23:37	A152832AA	
amd00492	AC10S52.D	8079091	10/10/2015	23:59	A152832AA	
amd00492	AC10S53.D	8079092	10/11/2015	00:22	A152832AA	
amd00492	AC10S54.D	8079096	10/11/2015	00:44	A152832AA	
amd00492	AC10S55.D	8079097	10/11/2015	01:07	A152832AA	
amd00492	AC10S56.D	8079098	10/11/2015	01:30	A152832AA	
amd00492	AC10S57.D	8079099	10/11/2015	01:52	A152832AA	
amd00492	AC10S58.D	8079103	10/11/2015	02:15	A152832AA	
amd00492	AC10S59.D	8076193	10/11/2015	02:37	A152832AA	
amd00492	AC10S60.D	8076194	10/11/2015	03:00	A152832AA	
amd00492	AC10S61.D	8076195	10/11/2015	03:22	A152832AA	
amd00492	AC10S62.D	8076196	10/11/2015	03:45	A152832AA	

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07536 **HP #14**

Data Directory Path is - d:\data\15APR07A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	QA07T01.D	50ng BFB	04/07/2015	14:00		
KEL01973	QA07X05.D	CBLK	04/07/2015	14:30		
KEL01973	QA07I01.D	VSTD300	04/07/2015	14:54		
KEL01973	QA07I02.D	VSTD100	04/07/2015	15:17		
KEL01973	QA07I03.D	VSTD050	04/07/2015	15:41		
KEL01973	QA07I04.D	VSTD020	04/07/2015	16:04		
KEL01973	QA07I05.D	VSTD010	04/07/2015	16:27		
KEL01973	QA07I06.D	VSTD004	04/07/2015	16:50		
KEL01973	QA07I07.D	VSTD002	04/07/2015	17:14		
KEL01973	QA07M01.D	1PPB MDL	04/07/2015	17:37		
KEL01973	QA07V01.D	ICVLG	04/07/2015	18:00		

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07536 **HP #14**

Data Directory Path is - D:\DATA\15oct13a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	QC13T01.D	50NGBFB	10/13/2015	06:05	Q152861AA	
amd00492	QC13X00.D	VBLKQ71	10/13/2015	06:15	Q152861AA	50
amd00492	QC13C01.D	VSTD050	10/13/2015	06:38	Q152861AA	
amd00492	QC13B00.D	VBLKQ71	10/13/2015	07:01	Q152861AA	50
amd00492	QC13B01.D	VBLKQ71	10/13/2015	07:24	Q152861AA	50
amd00492	QC13L01.D	LCSQ71	10/13/2015	07:47	Q152861AA	50
amd00492	QC13L02.D	LCDQ71	10/13/2015	08:10	Q152861AA	50
amd00492	QC13S01.D	8081560DL	10/13/2015	08:39	Q152861AA	5000
amd00492	QC13S02.D	8079944	10/13/2015	09:01	Q152861AA	50
amd00492	QC13S03.D	8081563DL	10/13/2015	09:24	Q152861AA	5000
amd00492	QC13S04.D	8081569DL	10/13/2015	10:02	Q152861AA	5000
amd00492	QC13S05.D	8079941	10/13/2015	10:25	Q152861AA	500
amd00492	QC13S06.D	8081573DL	10/13/2015	10:48	Q152861AA	1000
amd00492	QC13S07.D	8079933	10/13/2015	11:11	Q152861AA	500
amd00492	QC13S08.D	8079946	10/13/2015	11:34	Q152861AA	500
amd00492	QC13S09.D	8079937	10/13/2015	11:57	Q152861AA	500
amd00492	QC13S10.D	8079942MS	10/13/2015	12:19	Q152861AA	500
amd00492	QC13S11.D	8079943MSD	10/13/2015	12:43	Q152861AA	500
amd00492	QC13S12.D	8079941DL	10/13/2015	13:06	Q152861AA	5000
amd00492	QC13S13.D	8079100	10/13/2015	13:29	Q152861AA	50
amd00492	QC13S14.D	8079101	10/13/2015	13:52	Q152861AA	50
amd00492	QC13S15.D	8079084DL	10/13/2015	14:15	Q152861AA	500
amd00492	QC13S16.D	8079085DL	10/13/2015	14:39	Q152861AA	500
amd00492	QC13S17.D	8076183	10/13/2015	15:02	Q152861AA	50
amd00492	QC13S18.D	8076185	10/13/2015	15:25	Q152861AA	200
amd00492	QC13S19.D	8076186	10/13/2015	15:47	Q152861AA	50
amd00492	QC13S20.D	8077302DL	10/13/2015	16:10	Q152861AA	5000
amd00492	QC13S21.D	8077811	10/13/2015	16:33	Q152861AA	100
amd00492	QC13S22.D	8079933DL	10/13/2015	16:56	Q152861AA	5000
amd00492	QC13S23.D	8079937	10/13/2015	17:20	Q152861AA	50
amd00492	QC13S24.D	8079946DL	10/13/2015	17:43	Q152861AA	5000
amd00492	QC13X02.D	8079937DL	10/13/2015	18:05	Q152861AA	5000
amd00492	QC13X03.D	VBLKQ71	10/13/2015	18:28	Q152861AA	50

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07566 **HP #15**

Data Directory Path is - D:\DATA\15JUL31B\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
SAS00403	RL31T01.D	50NGBFB	07/31/2015	22:51		
SAS00403	RL31X01.D	CBLK	07/31/2015	23:19	R152031AA	50
SAS00403	RL31I01.D	VSTD300	07/31/2015	23:42		50
SAS00403	RL31I02.D	VSTD100	08/01/2015	00:04		50
SAS00403	RL31I03.D	VSTD050	08/01/2015	00:27		50
SAS00403	RL31I04.D	VSTD020	08/01/2015	00:50		50
SAS00403	RL31I05.D	VSTD010	08/01/2015	01:13		50
SAS00403	RL31I06.D	VSTD004	08/01/2015	01:36		50
SAS00403	RL31I07.D	VSTD002	08/01/2015	01:58		50
SAS00403	RL31M01.D	MDL001	08/01/2015	02:21		50
SAS00403	RL31V01.D	RICV	08/01/2015	02:44		50
SAS00403	RL31B01.D	VBLKR68	08/01/2015	03:07	R152121AA	50
SAS00403	RL31L01.D	LCSR68	08/01/2015	03:36	R152121AA	50
SAS00403	RL31L02.D	LCDR68	08/01/2015	03:59	R152121AA	50
SAS00403	RL31S01.D	7983410	08/01/2015	04:31	R152121AA	50
SAS00403	RL31S02.D	7983412	08/01/2015	04:54	R152121AA	50
SAS00403	RL31EC1.D	SECC050	08/01/2015	05:19	R152121AA	
SAS00403	RL31M01.D	LODV008	08/01/2015	05:41	R152121AA	
SAS00403	RL31M02.D	LODV004	08/01/2015	06:04	R152121AA	
SAS00403	RL31M03.D	LODV002	08/01/2015	06:27	R152121AA	
SAS00403	RL31M04.D	LODSPEC	08/01/2015	06:50	R152121AA	
SAS00403	RL31M05.D	LODVSS	08/01/2015	07:13	R152121AA	
SAS00403	RL31S03.D	7983412RE	08/01/2015	07:53	R152121AA	50
SAS00403	RL31EC2.D	SECC050	08/01/2015	08:16	R152121AA	

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07566 **HP #15**

Data Directory Path is - d:\data\15oct12a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	RC12T01.D	50NGBFB	10/12/2015	06:54	R152851AA	
amd00492	RC12X00.D	VBLKR64	10/12/2015	07:06	R152851AA	50
amd00492	RC12C01.D	VSTD050	10/12/2015	07:29	R152851AA	
amd00492	RC12B00.D	VBLKR64	10/12/2015	07:52	R152851AA	50
amd00492	RC12B01.D	VBLKR64	10/12/2015	08:14	R152851AA	50
amd00492	RC12L01.D	LCSR64	10/12/2015	08:37	R152851AA	50
amd00492	RC12L02.D	LCDR64	10/12/2015	09:00	R152851AA	50
amd00492	RC12S01.D	8076380RE	10/12/2015	09:26	R152851AA	100
amd00492	RC12S02.D	8075463DL	10/12/2015	09:48	R152851AA	50
amd00492	RC12S03.D	8077352	10/12/2015	10:16	R152851AA	50
amd00492	RC12S04.D	8077353	10/12/2015	10:39	R152851AA	50
amd00492	RC12S05.D	8079083	10/12/2015	11:02	R152851AA	50
amd00492	RC12S06.D	8079084	10/12/2015	11:25	R152851AA	50
amd00492	RC12S07.D	8079085	10/12/2015	11:48	R152851AA	50
amd00492	RC12S08.D	8077349	10/12/2015	12:16	R152851AA	50
amd00492	RC12S09.D	8076183	10/12/2015	12:39	R152851AA	500
amd00492	RC12S10.D	8076185	10/12/2015	13:02	R152851AA	500
amd00492	RC12S11.D	8076186	10/12/2015	13:25	R152851AA	100
amd00492	RC12S12.D	8077302	10/12/2015	13:48	R152851AA	500
amd00492	RC12S13.D	8079100	10/12/2015	14:11	R152851AA	500
amd00492	RC12S14.D	8079101	10/12/2015	14:34	R152851AA	500
amd00492	RC12S15.D	8079102	10/12/2015	14:57	R152851AA	50
amd00492	RC12S16.D	8081560	10/12/2015	15:19	R152851AA	250
amd00492	RC12S17.D	8081563	10/12/2015	15:42	R152851AA	250
amd00492	RC12S18.D	8081569	10/12/2015	16:05	R152851AA	250
amd00492	RC12S19.D	8081570	10/12/2015	16:28	R152851AA	50
amd00492	RC12S20.D	8081573	10/12/2015	16:51	R152851AA	100
amd00492	RC12S21.D	8055938	10/12/2015	17:13	R152851AA	50
amd00492	RC12S22.D	8055939	10/12/2015	17:36	R152851AA	50
amd00492	RC12S23.D	8055945	10/12/2015	17:59	R152851AA	50
amd00492	RC12S24.D	8055946	10/12/2015	18:22	R152851AA	50
amd00492	RC12S25.D	8055941	10/12/2015	18:45	R152851AA	50

Lancaster Laboratories
Volatiles
Runlog for Shimadzu GC/MS System SH08363 **SH #02**

Data Directory Path is - D:\Data\15SEP22A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	TS22T01.D	BFB AUG28-15	09/22/2015	11:20		
ADS01731	TS22I01.D	VSTD300	09/22/2015	12:16		
ADS01731	TS22I02.D	VSTD100	09/22/2015	12:40		
ADS01731	TS22I03.D	VSTD050	09/22/2015	13:03		
ADS01731	TS22I04.D	VSTD020	09/22/2015	13:27		
ADS01731	TS22I05.D	VSTD010	09/22/2015	13:50		
ADS01731	TS22I06.D	VSTD004	09/22/2015	14:14		
ADS01731	TS22I07.D	VSTD001	09/22/2015	14:37		
ADS01731	TS22M01.D	MDL0.5	09/22/2015	15:10		
ADS01731	TS22V01.D	LGTICV	09/22/2015	15:33	T151831AA	
	TS22I01.D	VSTD300	09/22/2015	12:16		
	TS22I02.D	VSTD100	09/22/2015	12:40		
	TS22I03.D	VSTD050	09/22/2015	13:03		
	TS22I04.D	VSTD020	09/22/2015	13:27		
	TS22I05.D	VSTD010	09/22/2015	13:50		
	TS22I06.D	VSTD004	09/22/2015	14:14		
	TS22I07.D	VSTD001	09/22/2015	14:37		
	TS22M01.D	MDL0.5	09/22/2015	15:10		
	TS22V01.D	LGTICV	09/22/2015	15:33	T151831AA	

Lancaster Laboratories
Volatiles
Runlog for Shimadzu GC/MS System SH08363 **SH #02**

Data Directory Path is - D:\Data\15oct15b\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
sej02002	TC15T05.D	BFB AUG28-15	10/15/2015	20:30		
sej02002	TC15C51.D	VSTD050	10/15/2015	20:58	T152882AA	
sej02002	TC15B51.D	VBLKT12	10/15/2015	21:22	T152882AA	
sej02002	TC15S51.D	LCST12	10/15/2015	21:45	T152882AA	
sej02002	TC15S52.D	8081649	10/15/2015	22:35	T152882AA	
sej02002	TC15S53.D	8081650	10/15/2015	22:59	T152882AA	
sej02002	TC15S54.D	8079104	10/15/2015	23:22	T152882AA	
sej02002	TC15S55.D	8079105	10/15/2015	23:46	T152882AA	
sej02002	TC15S56.D	8087717	10/16/2015	00:09	T152882AA	5
sej02002	TC15S57.D	8087718MS	10/16/2015	00:33	T152882AA	5
sej02002	TC15S58.D	8087719MSD	10/16/2015	00:56	T152882AA	5
sej02002	TC15S59.D	8087722	10/16/2015	01:19	T152882AA	
sej02002	TC15S60.D	8084346	10/16/2015	01:43	T152882AA	
sej02002	TC15S61.D	8084347	10/16/2015	02:06	T152882AA	
sej02002	TC15S62.D	8084350	10/16/2015	02:30	T152882AA	
sej02002	TC15S63.D	8084351	10/16/2015	02:53	T152882AA	
sej02002	TC15S64.D	8084352	10/16/2015	03:17	T152882AA	
sej02002	TC15S65.D	8084353	10/16/2015	03:40	T152882AA	
sej02002	TC15S66.D	8084372	10/16/2015	04:04	T152882AA	2000
sej02002	TC15S67.D	8081651	10/16/2015	04:27	T152882AA	
sej02002	TC15S68.D	8081652	10/16/2015	04:51	T152882AA	
sej02002	TC15S69.D	8081653	10/16/2015	05:14	T152882AA	
sej02002	TC15S70.D	8081654	10/16/2015	05:38	T152882AA	
sej02002	TC15S71.D	8087720	10/16/2015	06:01	T152882AA	5
sej02002	TC15S72.D	8087721	10/16/2015	06:25	T152882AA	5
sej02002	TC15S73.D	8087723	10/16/2015	06:48	T152882AA	5
sej02002	TC15S74.D	blank	10/16/2015	15:51	T152882AA	
sej02002	TC15S75.D	blank	10/16/2015	16:15	T152882AA	

Semivolatiles by GC/MS Data

Case Narrative/Conformance Summary

Semivolatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR29

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8079083	S01-SS12-0002-100615		X	1	
8079084	S01-SS12-0305-100615		X	1	
8079085	S01-SS12-0506-100615		X	1	
8079086	S01-SS12-0810-100615		X	1	
8079087	S01-SS12-2324-100615		X	1	
8079088	S01-SS12-2729-100615		X	1	
8079089	HGR-100615-FD01		X	1	Field Duplicate Sample
8079090	S01-SS13-0002-100615		X	1	
8079091	S01-SS13-0506-100615		X	1	
8079092	S01-SS13-0810-100615		X	1	
8079093	S01-SS13-2628-100615		X	1	Unspiked
8079094	S01-SS13-2628-100615-MS		X	1	Matrix Spike
8079095	S01-SS13-2628-100615-MSD		X	1	Matrix Spike Duplicate
8079096	S01-SS11-0002-100615		X	1	
8079097	S01-SS11-0304-100615		X	1	
8079098	S01-SS11-0810-100615		X	1	
8079099	S01-SS11-2829-100615		X	1	
8079100	S01-SS10-0002-100615		X	20; 1	
8079101	S01-SS10-0305-100615		X	40; 1	
8079102	S01-SS10-0809-100615		X	1	
8079103	S01-SS10-2728-100615		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.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR29

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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

Quality Control and Calibration Summary Forms

Semivolatiles by GC/MS

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR29

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	15288SLA026	SBLKLA288	10/16/2015 09:21:00
		288LALCS	10/16/2015 10:26:00
		8079083	10/16/2015 11:30:00
		8079084	10/16/2015 11:52:00
		8079085	10/16/2015 12:13:00
		8079086	10/16/2015 12:35:00
		8079087	10/16/2015 12:57:00
		8079088	10/16/2015 13:18:00
		8079089	10/16/2015 13:40:00
		8079090	10/16/2015 14:01:00
		8079091	10/16/2015 14:23:00
		8079092	10/16/2015 14:44:00
		8079093 UNSPK	10/16/2015 15:06:00
		8079094 MS	10/16/2015 15:28:00
		8079095 MSD	10/16/2015 15:49:00
		8079096	10/16/2015 16:11:00
		8079097	10/16/2015 16:32:00
		8079098	10/16/2015 16:54:00
		8079099	10/16/2015 17:16:00
		8079100	10/16/2015 17:37:00
		8079100DL	10/16/2015 23:46:00
		8079101	10/16/2015 17:59:00
		8079101DL	10/17/2015 11:49:00
		8079102	10/16/2015 18:21:00
		8079103	10/16/2015 18:42:00

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR29

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) **Analyte Name**	**Default MDL**	**Default LOQ**	**Units**
Nitrobenzene	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
1,1'-Biphenyl	17	33	ug/kg
Dibenzofuran	17	33	ug/kg
Pentachlorophenol	33	170	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Benzo(b)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

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR29
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15288SLA026 / SBLKLA288 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Benzo(a)anthracene	10/16/15	N.D.	ug/kg	3	17
Benzo(a)pyrene	10/16/15	N.D.	ug/kg	3	17
Benzo(b)fluoranthene	10/16/15	N.D.	ug/kg	3	17
1,1'-Biphenyl	10/16/15	N.D.	ug/kg	17	33
Dibenz(a,h)anthracene	10/16/15	N.D.	ug/kg	3	17
Dibenzofuran	10/16/15	N.D.	ug/kg	17	33
Indeno(1,2,3-cd)pyrene	10/16/15	N.D.	ug/kg	3	17
2-Methylnaphthalene	10/16/15	N.D.	ug/kg	3	17
Nitrobenzene	10/16/15	N.D.	ug/kg	17	33
Pentachlorophenol	10/16/15	N.D.	ug/kg	33	170

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR29
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15288SLA026	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
SBLKLA288	80	58 - 122	81	49 - 134	90	36 - 142	81	54 - 123	81	63 - 117	68	59 - 129
288LALCS	98	58 - 122	98	49 - 134	100	36 - 142	97	54 - 123	99	63 - 117	79	59 - 129
8079083	88	58 - 122	88	49 - 134	92	36 - 142	83	54 - 123	91	63 - 117	73	59 - 129
8079084	90	58 - 122	92	49 - 134	95	36 - 142	86	54 - 123	88	63 - 117	73	59 - 129
8079085	78	58 - 122	82	49 - 134	76	36 - 142	78	54 - 123	85	63 - 117	66	59 - 129
8079086	92	58 - 122	94	49 - 134	90	36 - 142	93	54 - 123	97	63 - 117	78	59 - 129
8079087	93	58 - 122	94	49 - 134	103	36 - 142	93	54 - 123	99	63 - 117	79	59 - 129
8079088	93	58 - 122	95	49 - 134	96	36 - 142	92	54 - 123	98	63 - 117	78	59 - 129
8079089	92	58 - 122	92	49 - 134	90	36 - 142	92	54 - 123	99	63 - 117	78	59 - 129
8079090	90	58 - 122	91	49 - 134	88	36 - 142	89	54 - 123	95	63 - 117	76	59 - 129
8079091	85	58 - 122	87	49 - 134	90	36 - 142	86	54 - 123	90	63 - 117	75	59 - 129
8079092	92	58 - 122	92	49 - 134	94	36 - 142	88	54 - 123	90	63 - 117	76	59 - 129
8079093 US	92	58 - 122	93	49 - 134	99	36 - 142	92	54 - 123	98	63 - 117	79	59 - 129
8079094 MS	91	58 - 122	93	49 - 134	97	36 - 142	90	54 - 123	96	63 - 117	79	59 - 129
8079095 MSD	88	58 - 122	90	49 - 134	92	36 - 142	89	54 - 123	93	63 - 117	76	59 - 129
8079096	84	58 - 122	86	49 - 134	84	36 - 142	84	54 - 123	88	63 - 117	72	59 - 129
8079097	81	58 - 122	81	49 - 134	84	36 - 142	86	54 - 123	88	63 - 117	70	59 - 129
8079098	87	58 - 122	88	49 - 134	91	36 - 142	85	54 - 123	89	63 - 117	74	59 - 129
8079099	90	58 - 122	90	49 - 134	97	36 - 142	89	54 - 123	95	63 - 117	80	59 - 129
8079100	82	58 - 122	83	49 - 134	85	36 - 142	81	54 - 123	85	63 - 117	72	59 - 129
8079100DL	73	58 - 122	74	49 - 134	78	36 - 142	73	54 - 123	81	63 - 117	65	59 - 129
8079101	86	58 - 122	86	49 - 134	92	36 - 142	88	54 - 123	91	63 - 117	74	59 - 129
8079101DL	72	58 - 122	74	49 - 134	78	36 - 142	75	54 - 123	80	63 - 117	64	59 - 129
8079102	87	58 - 122	90	49 - 134	91	36 - 142	87	54 - 123	95	63 - 117	76	59 - 129
8079103	89	58 - 122	89	49 - 134	92	36 - 142	91	54 - 123	93	63 - 117	79	59 - 129

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR29
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 8079093 MS: 8079094 MSD: 8079095 **Analyte**	Batch: **15288SLA026** (Sample number(s): 8079083-8079103)								
	Spike Added ug/kg MS/MSD	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1'-Biphenyl	1657.28 / 1653.99	N.D.	1511.21	1482.12	91	90	80-116	2	30
2-Methylnaphthalene	1657.28 / 1653.99	5.78	1546.28	1536.09	93	93	83-109	1	30
Benzo(a)anthracene	1657.28 / 1653.99	101.62	1635.11	1610.42	93	91	76-119	2	30
Benzo(a)pyrene	1657.28 / 1653.99	67.79	1591.18	1593.84	92	92	85-117	0	30
Benzo(b)fluoranthene	1657.28 / 1653.99	105.43	1725.86	1751.74	98	100	78-129	1	30
Dibenz(a,h)anthracene	1657.28 / 1653.99	15.18	1727.18	1705.7	103	102	81-123	1	30
Dibenzofuran	1657.28 / 1653.99	26.45	1594.92	1583.73	95	94	85-115	1	30
Indeno(1,2,3-cd)pyrene	1657.28 / 1653.99	43.38	1655.29	1664.74	97	98	81-118	1	30
Nitrobenzene	1657.28 / 1653.99	N.D.	1522.66	1501.36	92	91	70-122	1	30
Pentachlorophenol	1657.28 / 1653.99	N.D.	1443.02	1363.11	87	82	57-126	6	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR29
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 288LALCS	Batch: **15288SLA026** (Sample number(s): 8079083-8079103)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1'-Biphenyl	1666.67	1584.54	NA	95	NA	80-116	NA	NA
2-Methylnaphthalene	1666.67	1651.87	NA	99	NA	83-109	NA	NA
Benzo(a)anthracene	1666.67	1733.71	NA	104	NA	76-119	NA	NA
Benzo(a)pyrene	1666.67	1617.75	NA	97	NA	85-117	NA	NA
Benzo(b)fluoranthene	1666.67	1757.12	NA	105	NA	78-129	NA	NA
Dibenz(a,h)anthracene	1666.67	1734.68	NA	104	NA	81-123	NA	NA
Dibenzofuran	1666.67	1639.78	NA	98	NA	85-115	NA	NA
Indeno(1,2,3-cd)pyrene	1666.67	1650.2	NA	99	NA	81-118	NA	NA
Nitrobenzene	1666.67	1637.28	NA	98	NA	70-122	NA	NA
Pentachlorophenol	1666.67	1304.98	NA	78	NA	57-126	NA	NA

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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	STD2735 - SSTD30	bj0601.d	10/12/15	19:56
02	STD2735 - SSTD.5	bj0602.d	10/12/15	20:26
03	STD2735 - SSTD120	bj0603.d	10/12/15	20:48
04	STD2735 - SSTD80	bj0604.d	10/12/15	21:10
05	STD2735 - SSTD50	bj0605.d	10/12/15	21:32
06	STD2735 - SSTD15	bj0606.d	10/12/15	21:54
07	STD2735 - SSTD5	bj0607.d	10/12/15	22:15
08	STD2735 - SSTD1	bj0608.d	10/12/15	22:37
09	8270MDL2735 - SSTD0.5	bj0609.d	10/12/15	22:59
10	PAHMDL2735 - SSTD0.1	bj0610.d	10/12/15	23:21
11	ICV2465 - SSTD050	bj0611.d	10/12/15	23:42
12	BAS2735 - SSTD50	bj0612.d	10/13/15	00:04
13	BAS2735 - SSTD120	bj0613.d	10/13/15	00:26
14	BAS2735 - SSTD80	bj0614.d	10/13/15	00:48
15	BAS2735 - SSTD30	bj0615.d	10/13/15	01:10
16	BAS2735 - SSTD15	bj0616.d	10/13/15	01:32
17	BAS2735 - SSTD5	bj0617.d	10/13/15	01:54
18	BAS2735 - SSTD001	bj0618.d	10/13/15	02:15

FORM V SV

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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
19	BASICV2475 - SSTD050	bj0619.d	10/13/15	02:37

FORM V SV

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0810.d DFTPP Injection Date: 10/16/15

Instrument ID: HP18444 DFTPP Injection Time: 08:12

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.8
68	Less than 2.0% of mass 69	0.83 (1.79)1
69	Mass 69 relative abundance	46.7
70	Less than 2.0% of mass 69	0.34 (0.72)1
127	40.0 - 60.0% of mass 198	46.5
197	Less than 1.0% of mass 198	0.17
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.89
275	10.0 - 30.0% of mass 198	24.1
365	Greater than 1.00% of mass 198	2.25
441	Present, and less than mass 443	8.25
442	Greater than 40.0 % of mass 198	53.6
443	17.0 - 23.0% of mass 442	10.1 (18.8)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	STD2735 - SSTD30	bj0811.d	10/16/15	08:25
02	BAS2735 - SSTD50	bj0812.d	10/16/15	08:46
03	SBLKLA288	bj0813.d	10/16/15	09:21
04	288LALCS	bj0814a.d	10/16/15	10:26
05	8084381DL	bj0816.d	10/16/15	10:47
06	8073057RE	bj0817.d	10/16/15	11:08
07	8079083	bj0818.d	10/16/15	11:30
08	8079084	bj0819.d	10/16/15	11:52
09	8079085	bj0820.d	10/16/15	12:13
10	8079086	bj0821.d	10/16/15	12:35
11	8079087	bj0822.d	10/16/15	12:57
12	8079088	bj0823.d	10/16/15	13:18
13	8079089	bj0824.d	10/16/15	13:40
14	8079090	bj0825.d	10/16/15	14:01
15	8079091	bj0826.d	10/16/15	14:23
16	8079092	bj0827.d	10/16/15	14:44
17	8079093	bj0828.d	10/16/15	15:06
18	8079094MS	bj0829.d	10/16/15	15:28

FORM V SV

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0810.d DFTPP Injection Date: 10/16/15

Instrument ID: HP18444 DFTPP Injection Time: 08:12

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.8
68	Less than 2.0% of mass 69	0.83 (1.79)1
69	Mass 69 relative abundance	46.7
70	Less than 2.0% of mass 69	0.34 (0.72)1
127	40.0 - 60.0% of mass 198	46.5
197	Less than 1.0% of mass 198	0.17
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.89
275	10.0 - 30.0% of mass 198	24.1
365	Greater than 1.00% of mass 198	2.25
441	Present, and less than mass 443	8.25
442	Greater than 40.0 % of mass 198	53.6
443	17.0 - 23.0% of mass 442	10.1 (18.8)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	8079095MSD	bj0830.d	10/16/15	15:49
20	8079096	bj0831.d	10/16/15	16:11
21	8079097	bj0832.d	10/16/15	16:32
22	8079098	bj0833.d	10/16/15	16:54
23	8079099	bj0834.d	10/16/15	17:16
24	8079100	bj0835.d	10/16/15	17:37
25	8079101	bj0836.d	10/16/15	17:59
26	8079102	bj0837.d	10/16/15	18:21
27	8079103	bj0838.d	10/16/15	18:42

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: bj0850w.d DFTPP Injection Date: 10/16/15

Instrument ID: HP18444 DFTPP Injection Time: 21:09

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.2
68	Less than 2.0% of mass 69	0.79 (1.62)1
69	Mass 69 relative abundance	48.9
70	Less than 2.0% of mass 69	0.32 (0.65)1
127	40.0 - 60.0% of mass 198	47.2
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	6.71
275	10.0 - 30.0% of mass 198	24.6
365	Greater than 1.00% of mass 198	2.28
441	Present, and less than mass 443	9.06
442	Greater than 40.0 % of mass 198	60.2
443	17.0 - 23.0% of mass 442	11.4 (19.0)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	STD2735 - SSTD30	bj0851.d	10/16/15	21:23
02	BAS2735 - SSTD50	bj0852.d	10/16/15	21:45
03	SBLKLB288	bj0853.d	10/16/15	22:19
04	288LBLCS	bj0854.d	10/16/15	22:41
05	SBLKWL288	bj0855.d	10/16/15	23:03
06	288WLLCS	bj0856.d	10/16/15	23:24
07	8079100DL	bj0857.d	10/16/15	23:46
08	8083958	bj0859.d	10/17/15	00:30
09	8083959MS	bj0860.d	10/17/15	00:52
10	8083960MSD	bj0861.d	10/17/15	01:13
11	8083947	bj0862.d	10/17/15	01:35
12	8083953	bj0863.d	10/17/15	01:57
13	8083956	bj0864.d	10/17/15	02:19
14	8083962	bj0865.d	10/17/15	02:41
15	STD2735	bj0866.d	10/17/15	03:03
16	BAS2735	bj0867.d	10/17/15	03:24
17	8077908	bj0868.d	10/17/15	03:46
18	8077908	bj0869.d	10/17/15	04:08

FORM V SV

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: bj0850w.d DFTPP Injection Date: 10/16/15

Instrument ID: HP18444 DFTPP Injection Time: 21:09

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	44.2
68	Less than 2.0% of mass 69	0.79 (1.62)1
69	Mass 69 relative abundance	48.9
70	Less than 2.0% of mass 69	0.32 (0.65)1
127	40.0 - 60.0% of mass 198	47.2
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	6.71
275	10.0 - 30.0% of mass 198	24.6
365	Greater than 1.00% of mass 198	2.28
441	Present, and less than mass 443	9.06
442	Greater than 40.0 % of mass 198	60.2
443	17.0 - 23.0% of mass 442	11.4 (19.0)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	8076628MSD	bj0870.d	10/17/15	04:30
20	8076628	bj0871.d	10/17/15	04:51
21	8076628MS	bj0872.d	10/17/15	05:13
22	8076631	bj0873.d	10/17/15	05:34
23	8076634	bj0874.d	10/17/15	05:56
24	8076637	bj0875.d	10/17/15	06:17
25	8076637	bj0876.d	10/17/15	06:39
26	8076640	bj0877.d	10/17/15	07:01
27	8077673	bj0878.d	10/17/15	07:22
28	8077676	bj0879.d	10/17/15	07:44
29	8077854	bj0880.d	10/17/15	08:05

FORM V SV

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: bj0890y.d DFTPP Injection Date: 10/17/15

Instrument ID: HP18444 DFTPP Injection Time: 10:00

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.5
68	Less than 2.0% of mass 69	0.82 (1.97)1
69	Mass 69 relative abundance	41.9
70	Less than 2.0% of mass 69	0.24 (0.58)1
127	40.0 - 60.0% of mass 198	41.8
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	7.09
275	10.0 - 30.0% of mass 198	29.3
365	Greater than 1.00% of mass 198	3.12
441	Present, and less than mass 443	10.8
442	Greater than 40.0 % of mass 198	70.9
443	17.0 - 23.0% of mass 442	13.4 (19.0)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	STD2735 - SSTD30	bj0891.d	10/17/15	10:13
02	BAS2735 - SSTD50	bj0892.d	10/17/15	10:44
03	SBLKLC289	bj0893.d	10/17/15	11:06
04	289LCLCS	bj0894.d	10/17/15	11:27
05	8079101DL	bj0895.d	10/17/15	11:49
06	8077905	bj0896.d	10/17/15	12:11
07	8080729	bj0897.d	10/17/15	12:32
08	8080729	bj0898.d	10/17/15	12:54
09	8082037	bj0899.d	10/17/15	13:15
10	8082037	bj0900.d	10/17/15	13:37
11	8087351	bj0901.d	10/17/15	13:59
12	8088010	bj0902.d	10/17/15	14:20
13	8088011	bj0903.d	10/17/15	14:42
14	8081736	bj0904.d	10/17/15	15:04
15	8081737	bj0905.d	10/17/15	15:25
16	8081738	bj0906.d	10/17/15	15:47
17	8081739	bj0907.d	10/17/15	16:09
18	8081739MS	bj0908.d	10/17/15	16:31

FORM V SV

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: bj0890y.d DFTPP Injection Date: 10/17/15

Instrument ID: HP18444 DFTPP Injection Time: 10:00

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	38.5
68	Less than 2.0% of mass 69	0.82 (1.97)1
69	Mass 69 relative abundance	41.9
70	Less than 2.0% of mass 69	0.24 (0.58)1
127	40.0 - 60.0% of mass 198	41.8
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	7.09
275	10.0 - 30.0% of mass 198	29.3
365	Greater than 1.00% of mass 198	3.12
441	Present, and less than mass 443	10.8
442	Greater than 40.0 % of mass 198	70.9
443	17.0 - 23.0% of mass 442	13.4 (19.0)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	8081739MSD	bj0909.d	10/17/15	16:52
20	8081740	bj0910.d	10/17/15	17:14
21	8081741	bj0911.d	10/17/15	17:35
22	8081742	bj0912.d	10/17/15	17:57
23	8081743	bj0913.d	10/17/15	18:18
24	8081744	bj0914.d	10/17/15	18:40
25	8081745	bj0915.d	10/17/15	19:01
26	8054935	bj0916.d	10/17/15	19:23
27	8054936	bj0917.d	10/17/15	19:44
28	8081051	bj0918.d	10/17/15	20:05

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane			0.731	0.702	0.704	0.729	0.667	0.669	0.700	4	AVG
N-Nitrosodimethylamine			1.025	1.113	1.240	1.222	1.173	1.174	1.158	7	AVG
Pyridine			1.900	1.958	1.914	2.083	1.922	1.859	1.939	4	AVG
2-Picoline			1.890	1.900	1.980	2.020	1.905	1.867	1.927	3	AVG
N-Nitrosomethylethylamine			0.968	0.842	0.900	0.906	0.857	0.846	0.886	5	AVG
Methyl methanesulfonate			0.962	0.972	1.044	1.000	0.960	0.950	0.981	4	AVG
N-Nitrosodiethylamine		0.876	0.808	0.810	0.874	0.845	0.799	0.802	0.831	4	AVG
Ethyl methanesulfonate		0.821	0.797	0.829	0.852	0.859	0.783	0.782	0.818	4	AVG
Phenol *		2.231	2.344	2.394	2.494	2.532	2.337	2.300	2.376	4	AVG *
Aniline		2.753	2.780	2.742	2.884	2.872	2.682	2.645	2.765	3	AVG
a-methylstyrene			1.723	1.547	1.618	1.625	1.509	1.498	1.587	5	AVG
bis(2-Chloroethyl)ether		1.801	1.774	1.759	1.808	1.785	1.698	1.686	1.759	3	AVG
2-Chlorophenol		1.558	1.446	1.443	1.481	1.516	1.425	1.404	1.468	4	AVG
1,3-Dichlorobenzene		1.689	1.603	1.582	1.580	1.603	1.472	1.451	1.569	5	AVG
1,4-Dichlorobenzene *		1.620	1.585	1.587	1.615	1.639	1.497	1.480	1.575	4	AVG *
Benzyl alcohol			1.189	1.122	1.163	1.162	1.092	1.098	1.138	3	AVG
1,2-Dichlorobenzene		1.583	1.479	1.476	1.515	1.547	1.412	1.394	1.487	5	AVG
Indene			2.956	2.741	2.852	2.838	2.669	2.649	2.784	4	AVG
2-Methylphenol		1.474	1.471	1.482	1.532	1.559	1.461	1.441	1.488	3	AVG
2,2'-oxybis(1-Chloropropane)		2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
bis(2-Chloroisopropyl)ether		2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
N-Nitrosopyrrolidine		0.957	0.877	0.910	0.968	0.942	0.913	0.912	0.926	3	AVG
Acetophenone		3.036	2.813	2.522	2.599	2.470	2.363	2.356	2.594	10	AVG
4-Methylphenol		1.618	1.561	1.610	1.822	1.674	1.738	1.686	1.673	5	AVG
Total Cresols		1.546	1.516	1.546	1.677	1.617	1.600	1.563	1.581	3	AVG
N-Nitroso-di-n-propylamine #		1.625	1.476	1.445	1.508	1.475	1.426	1.415	1.481	5	AVG #
N-Nitrosomorpholine			1.258	1.267	1.318	1.270	1.198	1.180	1.249	4	AVG
o-Toluidine		2.824	2.705	2.709	2.755	2.746	2.525	2.511	2.682	4	AVG
Hexachloroethane			0.615	0.604	0.636	0.635	0.595	0.597	0.614	3	AVG
Nitrobenzene		0.533	0.507	0.501	0.521	0.514	0.493	0.486	0.508	3	AVG
N-Nitrosopiperidine		0.214	0.195	0.208	0.214	0.211	0.201	0.199	0.206	4	AVG
Isophorone		1.003	0.926	0.936	0.982	0.956	0.930	0.915	0.950	3	AVG
2-Nitrophenol *		0.188	0.183	0.191	0.204	0.205	0.197	0.194	0.195	4	AVG *
2,4-Dimethylphenol		0.397	0.416	0.422	0.442	0.434	0.422	0.413	0.421	4	AVG
O,O,O-Triethylphosphorothioate			0.206	0.195	0.203	0.202	0.197	0.191	0.199	3	AVG
bis(2-Chloroethoxy)methane		0.544	0.503	0.527	0.563	0.563	0.541	0.511	0.536	4	AVG
Benzoic acid			0.350	0.404	0.442	0.435	0.437	0.437	0.418	9	AVG
1,2,3,4-Tetrahydronaphthalene			0.655	0.607	0.634	0.624	0.593	0.593	0.618	4	AVG
2,4-Dichlorophenol *		0.306	0.296	0.310	0.324	0.319	0.314	0.304	0.310	3	AVG *
1,2,4-Trichlorobenzene			0.343	0.342	0.354	0.346	0.346	0.336	0.344	2	AVG
Naphthalene	1.114	1.112	1.072	1.080	1.098	1.104	1.056	1.014	1.081	3	AVG
4-Chloroaniline		0.487	0.475	0.471	0.493	0.481	0.455	0.458	0.474	3	AVG
2,6-Dichlorophenol		0.295	0.296	0.303	0.315	0.311	0.306	0.301	0.304	2	AVG
Hexachloropropene			0.199	0.215	0.222	0.229	0.220	0.217	0.217	5	AVG
Hexachlorobutadiene *		0.198	0.196	0.191	0.203	0.203	0.202	0.196	0.199	2	AVG *
Quinoline			0.747	0.739	0.757	0.747	0.720	0.698	0.734	3	AVG
Caprolactam			0.155	0.148	0.145	0.144	0.139	0.135	0.144	5	AVG
N-Nitrosodi-n-butylamine		0.390	0.332	0.438	0.455	0.451	0.432	0.343	0.406	13	AVG
4-Chloro-3-methylphenol *		0.411	0.363	0.370	0.393	0.383	0.376	0.369	0.381	4	AVG *
Safrole			0.281	0.281	0.305	0.293	0.293	0.289	0.290	3	AVG
2-Methylnaphthalene	0.754	0.762	0.705	0.725	0.744	0.739	0.724	0.708	0.733	3	AVG
1-Methylnaphthalene	0.655	0.658	0.655	0.659	0.686	0.671	0.658	0.650	0.661	2	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
Hexachlorocyclopentadiene	#			0.311	0.331	0.370	0.365	0.359	0.354	0.348	7	AVG	#
1,2,4,5-Tetrachlorobenzene			0.588	0.589	0.580	0.587	0.601	0.574	0.554	0.582	3	AVG	
cis-Isosafrole				0.519	0.485	0.504	0.515	0.505	0.505	0.505	2	AVG	
2,4,6-Trichlorophenol	*		0.374	0.377	0.400	0.407	0.414	0.399	0.379	0.393	4	AVG	*
2,4,5-Trichlorophenol			0.385	0.407	0.439	0.434	0.442	0.422	0.409	0.420	5	AVG	
trans-Isosafrole				0.538	0.554	0.577	0.569	0.562	0.560	0.560	2	AVG	
Isosafrole				0.535	0.542	0.564	0.560	0.552	0.551	0.551	2	AVG	
1,1'-Biphenyl			1.809	1.738	1.533	1.556	1.507	1.459	1.406	1.573	9	AVG	
2-Chloronaphthalene			1.111	1.081	1.032	1.235	1.152	1.330	1.076	1.146	9	AVG	
1-Chloronaphthalene			1.143	1.170	1.283	1.047	1.113	1.058	1.077	1.127	7	AVG	
Diphenyl ether			0.877	0.800	0.812	0.813	0.816	0.811	0.782	0.816	4	AVG	
2-Nitroaniline			0.378	0.380	0.394	0.406	0.417	0.410	0.392	0.397	4	AVG	
1,4-Naphthoquinone				0.501	0.508	0.531	0.538	0.526	0.494	0.516	3	AVG	
1,4-Dinitrobenzene				0.191	0.210	0.208	0.229	0.226	0.215	0.213	6	AVG	
Dimethylphthalate				1.417	1.402	1.401	1.418	1.384	1.310	1.389	3	AVG	
1,3-Dinitrobenzene				0.213	0.226	0.236	0.254	0.250	0.238	0.236	6	AVG	
2,6-Dinitrotoluene			0.276	0.297	0.321	0.329	0.334	0.335	0.324	0.317	7	AVG	
Acenaphthylene		1.898	1.861	1.739	1.798	1.861	1.889	1.816	1.770	1.829	3	AVG	
3-Nitroaniline			0.315	0.334	0.349	0.363	0.369	0.361	0.346	0.348	5	AVG	
Acenaphthene	*	1.260	1.294	1.220	1.227	1.223	1.253	1.220	1.168	1.233	3	AVG	*
2,4-Dinitrophenol	#			0.184	0.209	0.219	0.229	0.229	0.223	0.216	8	AVG	#
4-Nitrophenol	#			0.203	0.213	0.210	0.218	0.208	0.200	0.209	3	AVG	#
Pentachlorobenzene			0.599	0.522	0.547	0.533	0.558	0.545	0.523	0.547	5	AVG	
2,4-Dinitrotoluene				0.403	0.433	0.450	0.463	0.456	0.436	0.440	5	AVG	
2,4_2,6-Dinitrotoluenes				0.350	0.377	0.389	0.398	0.396	0.380	0.382	5	AVG	
Dibenzofuran			1.869	1.729	1.728	1.695	1.748	1.687	1.585	1.720	5	AVG	
1-Naphthylamine				1.263	1.284	1.278	1.345	1.285	1.208	1.277	3	AVG	
2,3,4,6-Tetrachlorophenol			0.367	0.348	0.375	0.379	0.387	0.383	0.375	0.373	3	AVG	
2-Naphthylamine				1.264	1.312	1.289	1.330	1.264	1.160	1.270	5	AVG	
Diethylphthalate				1.360	1.366	1.387	1.373	1.340	1.308	1.356	2	AVG	
Thionazin				0.270	0.243	0.261	0.252	0.253	0.286	0.261	6	AVG	
Fluorene		1.414	1.503	1.387	1.412	1.408	1.443	1.365	1.297	1.404	4	AVG	
4-Chlorophenyl-phenylether			0.731	0.713	0.693	0.692	0.695	0.675	0.650	0.693	4	AVG	
5-Nitro-o-toluidine			0.476	0.390	0.411	0.416	0.421	0.401	0.388	0.415	7	AVG	
4-Nitroaniline			0.389	0.370	0.396	0.391	0.401	0.387	0.346	0.383	5	AVG	
4,6-Dinitro-2-methylphenol				0.125	0.125	0.138	0.144	0.143	0.139	0.136	6	AVG	
N-Nitrosodiphenylamine (1)	*		0.556	0.564	0.564	0.604	0.585	0.550	0.569	0.571	3	AVG	*
NDPA as diphenylamine				0.564	0.564	0.604	0.585	0.550	0.569	0.573	3	AVG	
1,2-Diphenylhydrazine			0.817	0.836	0.828	0.901	0.864	0.841	0.846	0.848	3	AVG	
Tetraethyldithiopyrophosphate				0.123	0.124	0.141	0.133	0.132	0.136	0.132	5	AVG	
1,3,5-Trinitrobenzene				0.064	0.077	0.082	0.093	0.090	0.086	0.082	13	AVG	
Diallate (peak 1)				0.365	0.377	0.410	0.394	0.390	0.398	0.389	4	AVG	
Phorate			0.496	0.497	0.526	0.586	0.565	0.556	0.572	0.543	7	AVG	
Phenacetin			0.379	0.380	0.392	0.407	0.410	0.392	0.388	0.393	3	AVG	
4-Bromophenyl-phenylether				0.196	0.192	0.203	0.202	0.192	0.190	0.196	3	AVG	
Diallate (peak 2)				0.349	0.387	0.393	0.375	0.386	0.391	0.380	4	AVG	
Diallate trans/cis				0.362	0.378	0.407	0.391	0.389	0.397	0.387	4	AVG	
Hexachlorobenzene		0.234	0.216	0.207	0.201	0.214	0.205	0.199	0.205	0.210	5	AVG	
Dimethoate				0.335	0.348	0.362	0.360	0.338	0.323	0.344	4	AVG	
Pentachlorophenol	*			0.138	0.139	0.155	0.150	0.142	0.143	0.145	5	AVG	*
4-Aminobiphenyl			0.650	0.648	0.649	0.645	0.599	0.515		0.618	9	AVG	
Pentachloronitrobenzene				0.088	0.088	0.096	0.095	0.092	0.094	0.092	4	AVG	

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Pronamide		0.286	0.285	0.310	0.324	0.333	0.326	0.322	0.312	6	AVG
Dinoseb			0.153	0.179	0.210	0.211	0.212	0.216	0.197	13	AVG
Phenanthrene	1.111	1.091	1.023	1.014	1.032	1.037	0.982	0.954	1.031	5	AVG
Anthracene	1.030	1.011	1.005	1.019	1.047	1.054	1.005	0.963	1.017	3	AVG
Carbazole		1.002	0.945	0.947	0.983	0.990	0.922	0.912	0.957	4	AVG
Methyl parathion			0.216	0.247	0.264	0.269	0.255	0.243	0.249	8	AVG
Di-n-butylphthalate			1.035	1.096	1.175	1.161	1.109	1.083	1.110	5	AVG
Parathion			0.122	0.139	0.154	0.159	0.156	0.153	0.147	10	AVG
4-Nitroquinoline-1-oxide				0.093	0.098	0.119	0.114	0.110	0.107	10	AVG
Octachlorostyrene			0.089	0.083	0.082	0.084	0.079	0.079	0.083	4	AVG
Isodrin		0.115	0.120	0.122	0.124	0.126	0.121	0.122	0.122	3	AVG
Fluoranthene	* 1.236	1.122	1.132	1.162	1.150	1.190	1.101	1.071	1.145	5	AVG *
Benzidine			0.573	0.630	0.636	0.632	0.535	0.482	0.581	11	AVG
Pyrene	1.158	1.134	1.051	1.061	1.064	1.059	0.998	0.963	1.061	6	AVG
p-Dimethylaminoazobenzene		0.183	0.190	0.202	0.206	0.216	0.212	0.202	0.202	6	AVG
Chlorobenzilate		0.258	0.274	0.292	0.307	0.306	0.297	0.285	0.289	6	AVG
3,3'-Dimethylbenzidine			0.549	0.593	0.610	0.619	0.553	0.520	0.574	7	AVG
Butylbenzylphthalate			0.407	0.441	0.456	0.469	0.441	0.419	0.439	5	AVG
2-Acetylaminofluorene			0.355	0.402	0.401	0.436	0.400	0.369	0.394	7	AVG
3,3'-Dichlorobenzidine			0.345	0.375	0.376	0.391	0.361	0.342	0.365	5	AVG
4,4'-Methylenebis(2-chloroanil			0.184	0.198	0.204	0.211	0.191	0.179	0.195	6	AVG
Benzo(a)anthracene	0.908	0.921	0.930	0.985	0.959	1.011	0.940	0.840	0.937	6	AVG
Chrysene	0.908	0.955	0.927	0.965	0.894	0.954	0.862	0.781	0.906	7	AVG
bis(2-Ethylhexyl)phthalate			0.567	0.618	0.636	0.657	0.627	0.599	0.617	5	AVG
6-Methylchrysene			0.623	0.663	0.644	0.677	0.625	0.603	0.639	4	AVG
Di-n-octylphthalate	*		1.139	1.302	1.478	1.467	1.488	1.401	1.379	10	AVG *
Benzo(b)fluoranthene	1.206	1.180	1.256	1.249	1.307	1.280	1.277	1.235	1.249	3	AVG
7,12-Dimethylbenz[a]anthracene		0.526	0.514	0.577	0.606	0.615	0.588	0.564	0.570	7	AVG
Benzo(k)fluoranthene	1.183	1.285	1.181	1.254	1.239	1.313	1.249	1.155	1.232	4	AVG
Benzo(a)pyrene	* 1.227	1.090	1.116	1.161	1.192	1.226	1.186	1.128	1.166	4	AVG *
3-Methylcholanthrene		0.521	0.516	0.553	0.555	0.581	0.563	0.519	0.544	5	AVG
Dibenz(a,h)acridine			0.803	0.879	0.912	0.928	0.904	0.899	0.888	5	AVG
Dibenz(a,j)acridine			0.912	0.950	0.956	0.972	0.957	0.923	0.945	2	AVG
Indeno(1,2,3-cd)pyrene	1.241	1.239	1.216	1.275	1.293	1.317	1.252	1.213	1.256	3	AVG
Dibenz(a,h)anthracene	0.967	0.999	1.007	1.071	1.061	1.095	1.044	0.960	1.025	5	AVG
Benzo(g,h,i)perylene	1.022	0.966	1.019	1.054	1.056	1.076	1.039	1.005	1.030	3	AVG
Total PAHs	0.941	0.911	0.890	0.889	1.004	0.955	0.980	0.948	0.940	4	AVG
2-Fluorophenol			1.487	1.467	1.536	1.519	1.427	1.420	1.476	3	AVG
Phenol-d6			2.067	2.077	2.177	2.152	1.997	1.988	2.076	4	AVG
Nitrobenzene-d5			0.486	0.493	0.518	0.507	0.486	0.473	0.494	3	AVG
2-Fluorobiphenyl			1.375	1.368	1.400	1.377	1.328	1.257	1.351	4	AVG
2,4,6-Tribromophenol			0.190	0.198	0.190	0.200	0.192	0.179	0.192	4	AVG
Terphenyl-d14			0.697	0.700	0.737	0.710	0.670	0.644	0.693	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 and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d SSTD030
/chem/HP18444.i/15oct12a.b/bj0602.d SSTD0.5
/chem/HP18444.i/15oct12a.b/bj0603.d SSTD120
/chem/HP18444.i/15oct12a.b/bj0604.d SSTD080
/chem/HP18444.i/15oct12a.b/bj0605.d SSTD050
/chem/HP18444.i/15oct12a.b/bj0606.d SSTD015
/chem/HP18444.i/15oct12a.b/bj0607.d SSTD005
/chem/HP18444.i/15oct12a.b/bj0608.d SSTD001

Area Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	198560	177577	197363	186165	169174	156895	156087	140449	172784	12
Naphthalene-d8	799113	692251	787344	731353	678498	633266	635273	580853	692244	11
Acenaphthene-d10	498506	421976	480824	446481	411488	390070	392148	373146	426830	11
Phenanthrene-d10	983616	877740	946298	918441	843644	815462	813504	819423	877266	7
Pyrene-d10	1112950	1048500	1076847	1030998	982436	959534	949803	960310	1015172	6
Perylene-d12	792924	781837	745690	721722	747844	767704	735876	722121	751965	4

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d
1,4-Dichlorobenzene-d4	5.718	5.712	5.718	5.718	5.718	5.718	5.718	5.718
Naphthalene-d8	6.948	6.948	6.954	6.948	6.948	6.948	6.948	6.948
Acenaphthene-d10	8.661	8.662	8.667	8.662	8.662	8.661	8.662	8.662
Phenanthrene-d10	10.113	10.113	10.119	10.119	10.113	10.113	10.113	10.113
Pyrene-d10	11.506	11.500	11.506	11.506	11.506	11.500	11.500	11.500
Perylene-d12	14.175	14.175	14.175	14.175	14.175	14.170	14.170	14.170

Comments: _____

Report generated on 10/13/2015 at 08:42

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	47.39	-5	20	YES
N-Nitrosodimethylamine	50.00	48.09	-4	20	YES
Pyridine	50.00	48.22	-4	20	YES
2-Picoline	50.00	48.68	-3	20	YES
N-Nitrosomethylethylamine	50.00	46.71	-7	20	YES
Methyl methanesulfonate	50.00	49.27	-1	20	YES
N-Nitrosodiethylamine	50.00	48.14	-4	20	YES
Ethyl methanesulfonate	50.00	49.66	-1	20	YES
Phenol	50.00	50.34	1	20	YES
Aniline	50.00	49.28	-1	20	YES
bis(2-Chloroethyl)ether	50.00	48.92	-2	20	YES
2-Chlorophenol	50.00	48.99	-2	20	YES
1,3-Dichlorobenzene	50.00	50.75	2	20	YES
1,4-Dichlorobenzene	50.00	50.93	2	20	YES
Benzyl alcohol	50.00	48.12	-4	20	YES
1,2-Dichlorobenzene	50.00	51.74	3	20	YES
Indene	50.00	48.66	-3	20	YES
2-Methylphenol	50.00	51.54	3	20	YES
2,2'-oxybis(1-Chloropropane	50.00	50.67	1	20	YES
bis(2-Chloroisopropyl)ether	50.00	50.67	1	20	YES
N-Nitrosopyrrolidine	50.00	48.01	-4	20	YES
Acetophenone	50.00	44.96	-10	20	YES
4-Methylphenol	50.00	48.23	-4	20	YES
N-Nitroso-di-n-propylamine	50.00	48.58	-3	20	YES
N-Nitrosomorpholine	50.00	47.46	-5	20	YES
o-Toluidine	50.00	49.44	-1	20	YES
Total Cresols	100.00	99.77	0	20	YES
Hexachloroethane	50.00	51.04	2	20	YES
Nitrobenzene	50.00	47.91	-4	20	YES
N-Nitrosopiperidine	50.00	47.24	-6	20	YES
Isophorone	50.00	49.98	0	20	YES
2-Nitrophenol	50.00	51.15	2	20	YES
2,4-Dimethylphenol	50.00	48.08	-4	20	YES
bis(2-Chloroethoxy)methane	50.00	52.85	6	20	YES
Benzoic acid	100.00	89.68	-10	20	YES
O,O,O-Triethylphosphorothio	50.00	50.03	0	20	YES
2,4-Dichlorophenol	50.00	50.65	1	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	50.00	50.29	1	20	YES
Naphthalene	50.00	50.55	1	20	YES
4-Chloroaniline	50.00	49.60	-1	20	YES
2,6-Dichlorophenol	50.00	50.28	1	20	YES
Hexachloropropene	50.00	52.14	4	20	YES
Hexachlorobutadiene	50.00	51.31	3	20	YES
Quinoline	50.00	50.11	0	20	YES
N-Nitrosodi-n-butylamine	50.00	40.82	-18	20	YES
4-Chloro-3-methylphenol	50.00	49.45	-1	20	YES
Safrole	50.00	49.58	-1	20	YES
2-Methylnaphthalene	50.00	48.15	-4	20	YES
1-Methylnaphthalene	50.00	50.63	1	20	YES
Hexachlorocyclopentadiene	100.00	97.34	-3	20	YES
1,2,4,5-Tetrachlorobenzene	50.00	50.08	0	20	YES
cis-Isosafrole	6.00	6.21	3	20	YES
2,4,6-Trichlorophenol	50.00	49.53	-1	20	YES
2,4,5-Trichlorophenol	50.00	50.84	2	20	YES
trans-Isosafrole	44.00	45.47	3	20	YES
1,1'-Biphenyl	50.00	46.10	-8	20	YES
2-Chloronaphthalene	50.00	50.49	1	20	YES
Isosafrole	50.00	51.68	3	20	YES
1-Chloronaphthalene	50.00	46.81	-6	20	YES
Diphenyl ether	50.00	47.79	-4	20	YES
2-Nitroaniline	50.00	49.97	0	20	YES
1,4-Naphthoquinone	62.50	61.10	-2	20	YES
1,4-Dinitrobenzene	50.00	48.97	-2	20	YES
Dimethylphthalate	50.00	49.62	-1	20	YES
1,3-Dinitrobenzene	50.00	50.08	0	20	YES
2,6-Dinitrotoluene	50.00	51.39	3	20	YES
Acenaphthylene	50.00	49.92	0	20	YES
3-Nitroaniline	50.00	51.24	2	20	YES
Acenaphthene	50.00	50.37	1	20	YES
2,4-Dinitrophenol	100.00	101.26	1	20	YES
4-Nitrophenol	50.00	50.37	1	20	YES
Pentachlorobenzene	50.00	48.54	-3	20	YES
2,4-Dinitrotoluene	50.00	50.58	1	20	YES
Dibenzofuran	50.00	48.81	-2	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	100.00	101.97	2	20	YES
1-Naphthylamine	100.00	97.04	-3	20	YES
2,3,4,6-Tetrachlorophenol	50.00	50.37	1	20	YES
2-Naphthylamine	100.00	96.00	-4	20	YES
Diethylphthalate	50.00	50.58	1	20	YES
Thionazin	50.00	48.34	-3	20	YES
Fluorene	50.00	50.83	2	20	YES
4-Chlorophenyl-phenylether	50.00	50.18	0	20	YES
5-Nitro-o-toluidine	50.00	49.81	0	20	YES
4-Nitroaniline	50.00	50.11	0	20	YES
4,6-Dinitro-2-methylphenol	50.00	50.26	1	20	YES
N-Nitrosodiphenylamine	50.00	49.80	0	20	YES
NDPA as diphenylamine	50.00	49.59	-1	20	YES
1,2-Diphenylhydrazine	50.00	50.99	2	20	YES
Tetraethyldithiopyrophospha	50.00	48.34	-3	20	YES
1,3,5-Trinitrobenzene	50.00	48.56	-3	20	YES
Diallate (peak 1)	37.50	34.32	-8	20	YES
Phorate	50.00	50.26	1	20	YES
Phenacetin	50.00	48.92	-2	20	YES
4-Bromophenyl-phenylether	50.00	51.59	3	20	YES
Diallate (peak 2)	12.50	11.56	-7	20	YES
Hexachlorobenzene	50.00	48.32	-3	20	YES
Diallate trans/cis	50.00	45.89	-8	20	YES
Dimethoate	50.00	46.06	-8	20	YES
Pentachlorophenol	50.00	53.94	8	20	YES
4-Aminobiphenyl	50.00	60.03	20	20	YES
Pentachloronitrobenzene	50.00	49.78	0	20	YES
Pronamide	50.00	50.54	1	20	YES
Dinoseb	50.00	52.95	6	20	YES
Phenanthrene	50.00	48.60	-3	20	YES
Anthracene	50.00	51.27	3	20	YES
Carbazole	50.00	48.96	-2	20	YES
Methyl parathion	50.00	46.81	-6	20	YES
Di-n-butylphthalate	50.00	52.94	6	20	YES
Parathion	50.00	51.74	3	20	YES
4-Nitroquinoline-1-oxide	600.00	739.65	23	20	NO *
Isodrin	50.00	48.68	-3	20	YES

NC = Could not calculate

Comments:

* non-CCC, OK if greater than 20% D

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	49.16	-2	20	YES
Benzidine	250.00	251.86	1	20	YES
Pyrene	50.00	48.89	-2	20	YES
p-Dimethylaminoazobenzene	50.00	56.48	13	20	YES
Chlorobenzilate	50.00	51.83	4	20	YES
3,3'-Dimethylbenzidine	100.00	101.19	1	20	YES
Butylbenzylphthalate	50.00	53.20	6	20	YES
2-Acetylaminofluorene	50.00	50.48	1	20	YES
3,3'-Dichlorobenzidine	50.00	47.50	-5	20	YES
Benzo(a)anthracene	50.00	52.14	4	20	YES
Chrysene	50.00	52.77	6	20	YES
4,4'-Methylenebis(2-chloroa	50.00	48.13	-4	20	YES
bis(2-Ethylhexyl)phthalate	50.00	54.31	9	20	YES
6-Methylchrysene	50.00	50.28	1	20	YES
Di-n-octylphthalate	50.00	55.44	11	20	YES
Benzo(b)fluoranthene	50.00	51.32	3	20	YES
7,12-Dimethylbenz[a]anthrac	50.00	51.43	3	20	YES
Benzo(k)fluoranthene	50.00	53.09	6	20	YES
Benzo(a)pyrene	50.00	49.72	-1	20	YES
3-Methylcholanthrene	50.00	56.83	14	20	YES
Dibenz(a,h)acridine	50.00	49.63	-1	20	YES
Dibenz(a,j)acridine	50.00	48.01	-4	20	YES
Indeno(1,2,3-cd)pyrene	50.00	50.66	1	20	YES
Dibenz(a,h)anthracene	50.00	52.50	5	20	YES
Benzo(g,h,i)perylene	50.00	51.88	4	20	YES
Total PAHs	900.00	808.05	-10	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0619.d

ICV SAMPLE ID: BASICV2475 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	53.60	7	20	YES
Caprolactam	50.00	47.59	-5	20	YES
Atrazine	50.00	52.08	4	20	YES

NC = Could not calculate

Comments:

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/16/15 Time: 08:25

Lab File ID: bj0811.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.700	0.664	28.440	30.0	-5
N-Nitrosodimethylamine	1.158	1.128	29.230	30.0	-3
Pyridine	1.939	1.887	29.190	30.0	-3
2-Picoline	1.927	1.922	29.920	30.0	0
N-Nitrosomethylethylamine	0.886	0.893	30.230	30.0	1
Methyl methanesulfonate	0.981	0.920	28.140	30.0	-6
N-Nitrosodiethylamine	0.831	0.838	30.270	30.0	1
Ethyl methanesulfonate	0.818	0.834	30.590	30.0	2
* Phenol	2.376	2.415	30.490	30.0	2*
Aniline	2.765	2.799	30.370	30.0	1
a-methylstyrene	1.587	1.544	29.200	30.0	-3
bis(2-Chloroethyl)ether	1.759	1.689	28.810	30.0	-4
2-Chlorophenol	1.467	1.436	29.360	30.0	-2
1,3-Dichlorobenzene	1.569	1.577	30.150	30.0	1
* 1,4-Dichlorobenzene	1.575	1.621	30.890	30.0	3*
Benzyl alcohol	1.138	1.133	29.890	30.0	0
1,2-Dichlorobenzene	1.487	1.484	29.960	30.0	0
Indene	2.784	2.764	29.790	30.0	-1
2-Methylphenol	1.488	1.516	30.550	30.0	2
2,2'-oxybis(1-Chloropropane)	2.620	2.460	28.170	30.0	-6
bis(2-Chloroisopropyl)ether	2.620	2.460	28.170	30.0	-6
N-Nitrosopyrrolidine	0.926	0.936	30.350	30.0	1
Acetophenone	2.594	2.408	27.840	30.0	-7
4-Methylphenol	1.673	1.749	31.360	30.0	5
Total Cresols	1.581	1.632	61.910	60.0	3
# N-Nitroso-di-n-propylamine	1.482	1.393	28.220	30.0	-6#
N-Nitrosomorpholine	1.249	1.175	28.220	30.0	-6
o-Toluidine	2.682	2.670	29.860	30.0	0
Hexachloroethane	0.614	0.609	29.770	30.0	-1
Nitrobenzene	0.508	0.519	30.630	30.0	2
N-Nitrosopiperidine	0.206	0.224	32.590	30.0	9
Isophorone	0.950	0.984	31.080	30.0	4
* 2-Nitrophenol	0.195	0.218	33.550	30.0	12*
2,4-Dimethylphenol	0.421	0.446	31.780	30.0	6
O,O,O-Triethylphosphorothioate	0.199	0.218	32.880	30.0	10
bis(2-Chloroethoxy)methane	0.536	0.570	31.920	30.0	6

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: HP18444 Calibration Date: 10/16/15 Time: 08:25

Lab File ID: bj0811.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.418	0.364	34.880	40.0	-13
1,2,3,4-Tetrahydronaphthalene	0.618	0.642	31.180	30.0	4
* 2,4-Dichlorophenol	0.310	0.344	33.300	30.0	11*
1,2,4-Trichlorobenzene	0.344	0.355	30.940	30.0	3
Naphthalene	1.081	1.109	30.780	30.0	3
4-Chloroaniline	0.474	0.493	31.190	30.0	4
2,6-Dichlorophenol	0.304	0.327	32.240	30.0	7
Hexachloropropene	0.217	0.237	32.700	30.0	9
* Hexachlorobutadiene	0.199	0.209	31.570	30.0	5*
Quinoline	0.734	0.771	31.500	30.0	5
Caprolactam	0.144	0.152	31.640	30.0	5
N-Nitrosodi-n-butylamine	0.406	0.454	33.520	30.0	12
* 4-Chloro-3-methylphenol	0.381	0.402	31.650	30.0	5*
Safrole	0.290	0.311	32.190	30.0	7
2-Methylnaphthalene	0.733	0.765	31.330	30.0	4
1-Methylnaphthalene	0.661	0.705	31.980	30.0	7
# Hexachlorocyclopentadiene	0.348	0.321	27.620	30.0	-8#
1,2,4,5-Tetrachlorobenzene	0.582	0.582	30.000	30.0	0
cis-Isosafrole	0.505	0.511	5.150	5.1	1
* 2,4,6-Trichlorophenol	0.393	0.400	30.530	30.0	2*
2,4,5-Trichlorophenol	0.420	0.444	31.750	30.0	6
trans-Isosafrole	0.560	0.570	25.340	24.9	2
Isosafrole	0.551	0.560	30.490	30.0	2
1,1'-Biphenyl	1.573	1.539	29.360	30.0	-2
2-Chloronaphthalene	1.145	1.202	31.480	30.0	5
1-Chloronaphthalene	1.127	1.042	27.730	30.0	-8
Diphenyl ether	0.816	0.808	29.720	30.0	-1
2-Nitroaniline	0.397	0.422	31.920	30.0	6
1,4-Naphthoquinone	0.516	0.513	29.830	30.0	-1
1,4-Dinitrobenzene	0.213	0.227	31.980	30.0	7
Dimethylphthalate	1.388	1.396	30.150	30.0	1
1,3-Dinitrobenzene	0.236	0.245	31.050	30.0	3
2,6-Dinitrotoluene	0.317	0.342	32.460	30.0	8
Acenaphthylene	1.829	1.879	30.820	30.0	3
3-Nitroaniline	0.348	0.363	31.310	30.0	4
* Acenaphthene	1.233	1.220	29.670	30.0	-1*

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: HP18444 Calibration Date: 10/16/15 Time: 08:25

Lab File ID: bj0811.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
# 2,4-Dinitrophenol	0.216	0.207	38.320	40.0	-4#
# 4-Nitrophenol	0.209	0.224	32.160	30.0	7#
Pentachlorobenzene	0.547	0.558	30.620	30.0	2
2,4-Dinitrotoluene	0.440	0.453	30.880	30.0	3
2,4_2,6-Dinitrotoluenes	0.382	0.398	63.340	60.0	6
Dibenzofuran	1.720	1.739	30.320	30.0	1
1-Naphthylamine	1.277	1.312	30.820	30.0	3
2,3,4,6-Tetrachlorophenol	0.373	0.381	30.570	30.0	2
2-Naphthylamine	1.270	1.303	30.790	30.0	3
Diethylphthalate	1.356	1.383	30.590	30.0	2
Thionazin	0.261	0.255	29.360	30.0	-2
Fluorene	1.404	1.433	30.630	30.0	2
4-Chlorophenyl-phenylether	0.693	0.706	30.570	30.0	2
5-Nitro-o-toluidine	0.415	0.435	31.440	30.0	5
4-Nitroaniline	0.383	0.397	31.080	30.0	4
4,6-Dinitro-2-methylphenol	0.136	0.138	30.430	30.0	1
* N-Nitrosodiphenylamine (1)	0.571	0.609	32.020	30.0	7*
NDPA as diphenylamine	0.573	0.609	31.890	30.0	6
1,2-Diphenylhydrazine	0.848	0.852	30.140	30.0	0
Tetraethyldithiopyrophosphate	0.132	0.132	30.170	30.0	1
1,3,5-Trinitrobenzene	0.082	0.093	33.950	30.0	13
Diallate (peak 1)	0.389	0.396	25.340	24.9	2
Phorate	0.543	0.559	30.920	30.0	3
Phenacetin	0.393	0.414	31.620	30.0	5
4-Bromophenyl-phenylether	0.196	0.210	32.220	30.0	7
Diallate (peak 2)	0.380	0.382	5.120	5.1	0
Diallate trans/cis	0.387	0.393	30.460	30.0	2
Hexachlorobenzene	0.210	0.224	32.030	30.0	7
Dimethoate	0.344	0.369	32.140	30.0	7
* Pentachlorophenol	0.145	0.134	27.810	30.0	-7*
4-Aminobiphenyl	0.618	0.657	31.930	30.0	6
Pentachloronitrobenzene	0.092	0.100	32.570	30.0	9
Pronamide	0.312	0.347	33.360	30.0	11
Dinoseb	0.197	0.201	30.670	30.0	2
Phenanthrene	1.031	1.042	30.330	30.0	1
Anthracene	1.017	1.056	31.150	30.0	4

(1) Cannot be Separated from Diphenylamine

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: HP18444 Calibration Date: 10/16/15 Time: 08:25

Lab File ID: bj0811.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.957	0.983	30.800	30.0	3
Methyl parathion	0.249	0.266	32.100	30.0	7
Di-n-butylphthalate	1.110	1.183	31.960	30.0	7
Parathion	0.147	0.164	33.300	30.0	11
4-Nitroquinoline-1-oxide	0.107	0.105	29.580	30.0	-1
Octachlorostyrene	0.083	0.091	33.020	30.0	10
Isodrin	0.122	0.130	31.970	30.0	7
* Fluoranthene	1.145	1.237	32.410	30.0	8*
Benzidine	0.581	0.618	95.750	90.0	6
Pyrene	1.061	1.033	29.220	30.0	-3
p-Dimethylaminoazobenzene	0.202	0.210	31.290	30.0	4
Chlorobenzilate	0.289	0.297	30.890	30.0	3
3,3'-Dimethylbenzidine	0.574	0.629	32.900	30.0	10
Butylbenzylphthalate	0.439	0.447	30.540	30.0	2
2-Acetylaminofluorene	0.394	0.429	32.690	30.0	9
3,3'-Dichlorobenzidine	0.365	0.396	32.570	30.0	9
4,4'-Methylenebis(2-chloroanil	0.195	0.216	33.300	30.0	11
Benzo(a)anthracene	0.937	0.981	31.410	30.0	5
Chrysene	0.906	0.908	30.090	30.0	0
bis(2-Ethylhexyl)phthalate	0.617	0.638	31.030	30.0	3
6-Methylchrysene	0.639	0.673	31.590	30.0	5
* Di-n-octylphthalate	1.379	1.487	32.340	30.0	8*
Benzo(b)fluoranthene	1.249	1.239	29.770	30.0	-1
7,12-Dimethylbenz[a]anthracene	0.570	0.601	31.640	30.0	5
Benzo(k)fluoranthene	1.232	1.320	32.130	30.0	7
* Benzo(a)pyrene	1.166	1.166	30.000	30.0	0*
3-Methylcholanthrene	0.544	0.580	31.960	30.0	7
Dibenz(a,h)acridine	0.888	0.980	33.130	30.0	10
Dibenz(a,j)acridine	0.945	0.971	30.820	30.0	3
Indeno(1,2,3-cd)pyrene	1.256	1.333	31.840	30.0	6
Dibenz(a,h)anthracene	1.025	1.106	32.370	30.0	8
Benzo(g,h,i)perylene	1.030	1.107	32.250	30.0	8
Total PAHs	0.940	0.941	496.280	540.0	-8
2-Fluorophenol	1.476	1.455	59.150	60.0	-1
Phenol-d6	2.076	2.139	61.820	60.0	3

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: HP18444 Calibration Date: 10/16/15 Time: 08:25

Lab File ID: bj0811.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.511	62.050	60.0	3
2-Fluorobiphenyl	1.351	1.373	60.960	60.0	2
2,4,6-Tribromophenol	0.192	0.208	65.210	60.0	9
Terphenyl-d14	0.693	0.703	60.850	60.0	1
			Average	%Drift:	5

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d **
/chem/HP18444.i/15oct12a.b/bj0602.d
/chem/HP18444.i/15oct12a.b/bj0603.d
/chem/HP18444.i/15oct12a.b/bj0604.d
/chem/HP18444.i/15oct12a.b/bj0605.d
/chem/HP18444.i/15oct12a.b/bj0606.d
/chem/HP18444.i/15oct12a.b/bj0607.d
/chem/HP18444.i/15oct12a.b/bj0608.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/15oct16.b/bj0811.d

Area Summary

File ID:

Internal Standard Name	bj0811.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	202366	198560	99280	397120	Yes
Naphthalene-d8	778657	799113	399556	1598226	Yes
Acenaphthene-d10	519666	498506	249253	997012	Yes
Phenanthrene-d10	1030502	983616	491808	1967232	Yes
Pyrene-d10	1263331	1112950	556475	2225900	Yes
Perylene-d12	940073	792924	396462	1585848	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	bj0811.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.578	5.718	Yes
Naphthalene-d8	6.808	6.948	Yes
Acenaphthene-d10	8.522	8.661	Yes
Phenanthrene-d10	9.967	10.113	Yes
Pyrene-d10	11.354	11.506	Yes
Perylene-d12	14.001	14.175	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/16/2015 at 09:19

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/16/15 Time: 21:23

Lab File ID: bj0851.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.700	0.680	29.120	30.0	-3
N-Nitrosodimethylamine	1.158	1.173	30.400	30.0	1
Pyridine	1.939	1.946	30.100	30.0	0
2-Picoline	1.927	1.946	30.300	30.0	1
N-Nitrosomethylethylamine	0.886	0.885	29.950	30.0	0
Methyl methanesulfonate	0.981	0.944	28.850	30.0	-4
N-Nitrosodiethylamine	0.831	0.839	30.290	30.0	1
Ethyl methanesulfonate	0.818	0.820	30.070	30.0	0
* Phenol	2.376	2.418	30.530	30.0	2*
Aniline	2.765	2.806	30.440	30.0	1
a-methylstyrene	1.587	1.588	30.020	30.0	0
bis(2-Chloroethyl)ether	1.759	1.744	29.740	30.0	-1
2-Chlorophenol	1.467	1.475	30.150	30.0	1
1,3-Dichlorobenzene	1.569	1.591	30.430	30.0	1
* 1,4-Dichlorobenzene	1.575	1.616	30.790	30.0	3*
Benzyl alcohol	1.138	1.142	30.110	30.0	0
1,2-Dichlorobenzene	1.487	1.531	30.890	30.0	3
Indene	2.784	2.778	29.940	30.0	0
2-Methylphenol	1.488	1.536	30.960	30.0	3
2,2'-oxybis(1-Chloropropane)	2.620	2.474	28.330	30.0	-6
bis(2-Chloroisopropyl)ether	2.620	2.474	28.330	30.0	-6
N-Nitrosopyrrolidine	0.926	0.936	30.350	30.0	1
Acetophenone	2.594	2.485	28.740	30.0	-4
4-Methylphenol	1.673	1.779	31.910	30.0	6
Total Cresols	1.581	1.658	62.870	60.0	5
# N-Nitroso-di-n-propylamine	1.482	1.439	29.150	30.0	-3#
N-Nitrosomorpholine	1.249	1.176	28.260	30.0	-6
o-Toluidine	2.682	2.722	30.440	30.0	1
Hexachloroethane	0.614	0.614	30.010	30.0	0
Nitrobenzene	0.508	0.488	28.830	30.0	-4
N-Nitrosopiperidine	0.206	0.214	31.180	30.0	4
Isophorone	0.950	0.952	30.060	30.0	0
* 2-Nitrophenol	0.195	0.211	32.510	30.0	8*
2,4-Dimethylphenol	0.421	0.434	30.910	30.0	3
O,O,O-Triethylphosphorothioate	0.199	0.214	32.240	30.0	7
bis(2-Chloroethoxy)methane	0.536	0.559	31.280	30.0	4

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: HP18444 Calibration Date: 10/16/15 Time: 21:23

Lab File ID: bj0851.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.418	0.355	34.050	40.0	-15
1,2,3,4-Tetrahydronaphthalene	0.618	0.610	29.660	30.0	-1
* 2,4-Dichlorophenol	0.310	0.327	31.580	30.0	5*
1,2,4-Trichlorobenzene	0.344	0.351	30.580	30.0	2
Naphthalene	1.081	1.086	30.140	30.0	0
4-Chloroaniline	0.474	0.489	30.950	30.0	3
2,6-Dichlorophenol	0.304	0.320	31.630	30.0	5
Hexachloropropene	0.217	0.229	31.690	30.0	6
* Hexachlorobutadiene	0.199	0.206	31.080	30.0	4*
Quinoline	0.734	0.757	30.920	30.0	3
Caprolactam	0.144	0.145	30.150	30.0	0
N-Nitrosodi-n-butylamine	0.406	0.449	33.160	30.0	11
* 4-Chloro-3-methylphenol	0.381	0.385	30.300	30.0	1*
Safrole	0.290	0.309	31.900	30.0	6
2-Methylnaphthalene	0.733	0.763	31.220	30.0	4
1-Methylnaphthalene	0.661	0.691	31.350	30.0	5
# Hexachlorocyclopentadiene	0.348	0.326	28.060	30.0	-6#
1,2,4,5-Tetrachlorobenzene	0.582	0.610	31.460	30.0	5
cis-Isosafrole	0.505	0.511	5.160	5.1	1
* 2,4,6-Trichlorophenol	0.393	0.401	30.650	30.0	2*
2,4,5-Trichlorophenol	0.420	0.436	31.170	30.0	4
trans-Isosafrole	0.560	0.574	25.550	24.9	3
Isosafrole	0.551	0.564	30.710	30.0	2
1,1'-Biphenyl	1.573	1.529	29.160	30.0	-3
2-Chloronaphthalene	1.145	1.355	35.480	30.0	18
1-Chloronaphthalene	1.127	1.084	28.860	30.0	-4
Diphenyl ether	0.816	0.811	29.820	30.0	-1
2-Nitroaniline	0.397	0.406	30.720	30.0	2
1,4-Naphthoquinone	0.516	0.509	29.590	30.0	-1
1,4-Dinitrobenzene	0.213	0.220	31.000	30.0	3
Dimethylphthalate	1.388	1.400	30.240	30.0	1
1,3-Dinitrobenzene	0.236	0.241	30.540	30.0	2
2,6-Dinitrotoluene	0.317	0.329	31.180	30.0	4
Acenaphthylene	1.829	1.846	30.270	30.0	1
3-Nitroaniline	0.348	0.350	30.150	30.0	1
* Acenaphthene	1.233	1.212	29.480	30.0	-2*

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: HP18444 Calibration Date: 10/16/15 Time: 21:23

Lab File ID: bj0851.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
# 2,4-Dinitrophenol	0.216	0.199	36.830	40.0	-8#
# 4-Nitrophenol	0.209	0.204	29.290	30.0	-2#
Pentachlorobenzene	0.547	0.558	30.610	30.0	2
2,4-Dinitrotoluene	0.440	0.443	30.230	30.0	1
2,4_2,6-Dinitrotoluenes	0.382	0.386	61.400	60.0	2
Dibenzofuran	1.720	1.712	29.860	30.0	0
1-Naphthylamine	1.277	1.274	29.930	30.0	0
2,3,4,6-Tetrachlorophenol	0.373	0.378	30.330	30.0	1
2-Naphthylamine	1.270	1.267	29.930	30.0	0
Diethylphthalate	1.356	1.368	30.260	30.0	1
Thionazin	0.261	0.251	28.870	30.0	-4
Fluorene	1.404	1.402	29.960	30.0	0
4-Chlorophenyl-phenylether	0.693	0.701	30.340	30.0	1
5-Nitro-o-toluidine	0.415	0.409	29.610	30.0	-1
4-Nitroaniline	0.383	0.370	29.000	30.0	-3
4,6-Dinitro-2-methylphenol	0.136	0.134	29.680	30.0	-1
* N-Nitrosodiphenylamine (1)	0.571	0.597	31.380	30.0	5*
NDPA as diphenylamine	0.573	0.597	31.250	30.0	4
1,2-Diphenylhydrazine	0.848	0.831	29.410	30.0	-2
Tetraethyldithiopyrophosphate	0.132	0.136	30.950	30.0	3
1,3,5-Trinitrobenzene	0.082	0.085	31.130	30.0	4
Diallate (peak 1)	0.389	0.396	25.390	24.9	2
Phorate	0.543	0.557	30.830	30.0	3
Phenacetin	0.393	0.379	29.000	30.0	-3
4-Bromophenyl-phenylether	0.196	0.215	32.910	30.0	10
Diallate (peak 2)	0.380	0.386	5.180	5.1	2
Diallate trans/cis	0.387	0.395	30.570	30.0	2
Hexachlorobenzene	0.210	0.224	31.920	30.0	6
Dimethoate	0.344	0.343	29.920	30.0	0
* Pentachlorophenol	0.145	0.133	27.530	30.0	-8*
4-Aminobiphenyl	0.618	0.636	30.880	30.0	3
Pentachloronitrobenzene	0.092	0.096	31.090	30.0	4
Pronamide	0.312	0.330	31.740	30.0	6
Dinoseb	0.197	0.203	30.940	30.0	3
Phenanthrene	1.031	1.035	30.140	30.0	0
Anthracene	1.017	1.042	30.760	30.0	3

(1) Cannot be Separated from Diphenylamine

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: HP18444 Calibration Date: 10/16/15 Time: 21:23

Lab File ID: bj0851.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.957	0.957	29.990	30.0	0
Methyl parathion	0.249	0.258	31.160	30.0	4
Di-n-butylphthalate	1.110	1.162	31.420	30.0	5
Parathion	0.147	0.152	30.900	30.0	3
4-Nitroquinoline-1-oxide	0.107	0.092	25.770	30.0	-14
Octachlorostyrene	0.083	0.089	32.500	30.0	8
Isodrin	0.122	0.125	30.810	30.0	3
* Fluoranthene	1.145	1.153	30.210	30.0	1*
Benzidine	0.581	0.601	92.970	90.0	3
Pyrene	1.061	1.059	29.940	30.0	0
p-Dimethylaminoazobenzene	0.202	0.211	31.410	30.0	5
Chlorobenzilate	0.289	0.300	31.140	30.0	4
3,3'-Dimethylbenzidine	0.574	0.601	31.400	30.0	5
Butylbenzylphthalate	0.439	0.445	30.410	30.0	1
2-Acetylaminofluorene	0.394	0.391	29.820	30.0	-1
3,3'-Dichlorobenzidine	0.365	0.368	30.250	30.0	1
4,4'-Methylenebis(2-chloroanil	0.195	0.202	31.130	30.0	4
Benzo(a)anthracene	0.937	0.964	30.870	30.0	3
Chrysene	0.906	0.873	28.920	30.0	-4
bis(2-Ethylhexyl)phthalate	0.617	0.625	30.380	30.0	1
6-Methylchrysene	0.639	0.625	29.320	30.0	-2
* Di-n-octylphthalate	1.379	1.491	32.430	30.0	8*
Benzo(b)fluoranthene	1.249	1.332	31.990	30.0	7
7,12-Dimethylbenz[a]anthracene	0.570	0.614	32.320	30.0	8
Benzo(k)fluoranthene	1.232	1.227	29.880	30.0	0
* Benzo(a)pyrene	1.166	1.184	30.480	30.0	2*
3-Methylcholanthrene	0.544	0.558	30.750	30.0	2
Dibenz(a,h)acridine	0.888	0.909	30.710	30.0	2
Dibenz(a,j)acridine	0.945	0.907	28.810	30.0	-4
Indeno(1,2,3-cd)pyrene	1.256	1.250	29.870	30.0	0
Dibenz(a,h)anthracene	1.025	1.016	29.720	30.0	-1
Benzo(g,h,i)perylene	1.030	1.032	30.070	30.0	0
Total PAHs	0.940	1.040	483.400	540.0	-10
2-Fluorophenol	1.476	1.484	60.330	60.0	1
Phenol-d6	2.076	2.125	61.410	60.0	2

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: HP18444 Calibration Date: 10/16/15 Time: 21:23

Lab File ID: bj0851.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.486	59.090	60.0	-2
2-Fluorobiphenyl	1.351	1.373	60.960	60.0	2
2,4,6-Tribromophenol	0.192	0.213	66.770	60.0	11
Terphenyl-d14	0.693	0.752	65.100	60.0	9
			Average %Drift:		3

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d **
/chem/HP18444.i/15oct12a.b/bj0602.d
/chem/HP18444.i/15oct12a.b/bj0603.d
/chem/HP18444.i/15oct12a.b/bj0604.d
/chem/HP18444.i/15oct12a.b/bj0605.d
/chem/HP18444.i/15oct12a.b/bj0606.d
/chem/HP18444.i/15oct12a.b/bj0607.d
/chem/HP18444.i/15oct12a.b/bj0608.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/15oct16a.b/bj0851.d

Area Summary

File ID:

Internal Standard Name	bj0851.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	301239	198560	99280	397120	Yes
Naphthalene-d8	1211965	799113	399556	1598226	Yes
Acenaphthene-d10	777730	498506	249253	997012	Yes
Phenanthrene-d10	1551558	983616	491808	1967232	Yes
Pyrene-d10	1713060	1112950	556475	2225900	Yes
Perylene-d12	1160576	792924	396462	1585848	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	bj0851.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.555	5.718	Yes
Naphthalene-d8	6.785	6.948	Yes
Acenaphthene-d10	8.492	8.661	Yes
Phenanthrene-d10	9.944	10.113	Yes
Pyrene-d10	11.331	11.506	Yes
Perylene-d12	13.977	14.175	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/16/2015 at 21:55

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/17/15 Time: 10:13

Lab File ID: bj0891.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.700	0.669	28.680	30.0	-4
N-Nitrosodimethylamine	1.158	1.141	29.560	30.0	-1
Pyridine	1.939	1.972	30.500	30.0	2
2-Picoline	1.927	1.891	29.440	30.0	-2
N-Nitrosomethylethylamine	0.886	0.868	29.370	30.0	-2
Methyl methanesulfonate	0.981	0.920	28.130	30.0	-6
N-Nitrosodiethylamine	0.831	0.821	29.670	30.0	-1
Ethyl methanesulfonate	0.818	0.805	29.540	30.0	-2
* Phenol	2.376	2.357	29.750	30.0	-1*
Aniline	2.765	2.738	29.700	30.0	-1
a-methylstyrene	1.587	1.580	29.870	30.0	0
bis(2-Chloroethyl)ether	1.759	1.702	29.040	30.0	-3
2-Chlorophenol	1.467	1.432	29.270	30.0	-2
1,3-Dichlorobenzene	1.569	1.581	30.240	30.0	1
* 1,4-Dichlorobenzene	1.575	1.614	30.750	30.0	2*
Benzyl alcohol	1.138	1.111	29.300	30.0	-2
1,2-Dichlorobenzene	1.487	1.532	30.910	30.0	3
Indene	2.784	2.728	29.390	30.0	-2
2-Methylphenol	1.488	1.494	30.110	30.0	0
2,2'-oxybis(1-Chloropropane)	2.620	2.417	27.680	30.0	-8
bis(2-Chloroisopropyl)ether	2.620	2.417	27.680	30.0	-8
N-Nitrosopyrrolidine	0.926	0.902	29.240	30.0	-3
Acetophenone	2.594	2.406	27.830	30.0	-7
4-Methylphenol	1.673	1.720	30.840	30.0	3
Total Cresols	1.581	1.607	60.950	60.0	2
# N-Nitroso-di-n-propylamine	1.482	1.387	28.080	30.0	-6#
N-Nitrosomorpholine	1.249	1.133	27.220	30.0	-9
o-Toluidine	2.682	2.658	29.730	30.0	-1
Hexachloroethane	0.614	0.615	30.060	30.0	0
Nitrobenzene	0.508	0.492	29.050	30.0	-3
N-Nitrosopiperidine	0.206	0.209	30.490	30.0	2
Isophorone	0.950	0.932	29.450	30.0	-2
* 2-Nitrophenol	0.195	0.206	31.770	30.0	6*
2,4-Dimethylphenol	0.421	0.429	30.560	30.0	2
O,O,O-Triethylphosphorothioate	0.199	0.207	31.220	30.0	4
bis(2-Chloroethoxy)methane	0.536	0.525	29.390	30.0	-2

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: HP18444 Calibration Date: 10/17/15 Time: 10:13

Lab File ID: bj0891.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.418	0.324	31.000	40.0	-22
1,2,3,4-Tetrahydronaphthalene	0.618	0.613	29.770	30.0	-1
* 2,4-Dichlorophenol	0.310	0.327	31.650	30.0	5*
1,2,4-Trichlorobenzene	0.344	0.351	30.550	30.0	2
Naphthalene	1.081	1.096	30.420	30.0	1
4-Chloroaniline	0.474	0.482	30.460	30.0	2
2,6-Dichlorophenol	0.304	0.324	31.950	30.0	6
Hexachloropropene	0.217	0.235	32.450	30.0	8
* Hexachlorobutadiene	0.199	0.208	31.440	30.0	5*
Quinoline	0.734	0.743	30.350	30.0	1
Caprolactam	0.144	0.140	29.030	30.0	-3
N-Nitrosodi-n-butylamine	0.406	0.444	32.810	30.0	9
* 4-Chloro-3-methylphenol	0.381	0.377	29.710	30.0	-1*
Safrole	0.290	0.299	30.890	30.0	3
2-Methylnaphthalene	0.733	0.750	30.710	30.0	2
1-Methylnaphthalene	0.661	0.684	31.020	30.0	3
# Hexachlorocyclopentadiene	0.348	0.330	28.400	30.0	-5#
1,2,4,5-Tetrachlorobenzene	0.582	0.615	31.710	30.0	6
cis-Isosafrole	0.505	0.517	5.220	5.1	2
* 2,4,6-Trichlorophenol	0.393	0.396	30.280	30.0	1*
2,4,5-Trichlorophenol	0.420	0.439	31.370	30.0	5
trans-Isosafrole	0.560	0.578	25.720	24.9	3
Isosafrole	0.551	0.568	30.940	30.0	3
1,1'-Biphenyl	1.573	1.568	29.910	30.0	0
2-Chloronaphthalene	1.145	1.194	31.260	30.0	4
1-Chloronaphthalene	1.127	1.052	27.990	30.0	-7
Diphenyl ether	0.816	0.820	30.150	30.0	1
2-Nitroaniline	0.397	0.414	31.330	30.0	4
1,4-Naphthoquinone	0.516	0.507	29.440	30.0	-2
1,4-Dinitrobenzene	0.213	0.219	30.800	30.0	3
Dimethylphthalate	1.388	1.379	29.800	30.0	-1
1,3-Dinitrobenzene	0.236	0.245	31.100	30.0	4
2,6-Dinitrotoluene	0.317	0.329	31.200	30.0	4
Acenaphthylene	1.829	1.875	30.750	30.0	2
3-Nitroaniline	0.348	0.350	30.160	30.0	1
* Acenaphthene	1.233	1.230	29.930	30.0	0*

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: HP18444 Calibration Date: 10/17/15 Time: 10:13

Lab File ID: bj0891.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
# 2,4-Dinitrophenol	0.216	0.190	35.330	40.0	-12#
# 4-Nitrophenol	0.209	0.207	29.790	30.0	-1#
Pentachlorobenzene	0.547	0.561	30.790	30.0	3
2,4-Dinitrotoluene	0.440	0.437	29.790	30.0	-1
2,4_2,6-Dinitrotoluenes	0.382	0.383	60.980	60.0	2
Dibenzofuran	1.720	1.724	30.070	30.0	0
1-Naphthylamine	1.277	1.277	30.000	30.0	0
2,3,4,6-Tetrachlorophenol	0.373	0.374	30.080	30.0	0
2-Naphthylamine	1.270	1.263	29.840	30.0	-1
Diethylphthalate	1.356	1.347	29.800	30.0	-1
Thionazin	0.261	0.245	28.150	30.0	-6
Fluorene	1.404	1.410	30.140	30.0	0
4-Chlorophenyl-phenylether	0.693	0.699	30.240	30.0	1
5-Nitro-o-toluidine	0.415	0.409	29.600	30.0	-1
4-Nitroaniline	0.383	0.377	29.540	30.0	-2
4,6-Dinitro-2-methylphenol	0.136	0.133	29.310	30.0	-2
* N-Nitrosodiphenylamine (1)	0.571	0.597	31.390	30.0	5*
NDPA as diphenylamine	0.573	0.597	31.260	30.0	4
1,2-Diphenylhydrazine	0.848	0.833	29.480	30.0	-2
Tetraethyldithiopyrophosphate	0.132	0.133	30.400	30.0	1
1,3,5-Trinitrobenzene	0.082	0.088	32.140	30.0	7
Diallate (peak 1)	0.389	0.395	25.330	24.9	2
Phorate	0.543	0.584	32.320	30.0	8
Phenacetin	0.393	0.390	29.820	30.0	-1
4-Bromophenyl-phenylether	0.196	0.210	32.100	30.0	7
Diallate (peak 2)	0.380	0.379	5.080	5.1	0
Diallate trans/cis	0.387	0.393	30.410	30.0	1
Hexachlorobenzene	0.210	0.223	31.850	30.0	6
Dimethoate	0.344	0.348	30.340	30.0	1
* Pentachlorophenol	0.145	0.130	26.950	30.0	-10*
4-Aminobiphenyl	0.618	0.630	30.600	30.0	2
Pentachloronitrobenzene	0.092	0.096	31.300	30.0	4
Pronamide	0.312	0.329	31.570	30.0	5
Dinoseb	0.197	0.203	30.940	30.0	3
Phenanthrene	1.031	1.047	30.480	30.0	2
Anthracene	1.017	1.051	31.000	30.0	3

(1) Cannot be Separated from Diphenylamine

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: HP18444 Calibration Date: 10/17/15 Time: 10:13

Lab File ID: bj0891.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.957	0.977	30.620	30.0	2
Methyl parathion	0.249	0.265	31.980	30.0	7
Di-n-butylphthalate	1.110	1.156	31.250	30.0	4
Parathion	0.147	0.151	30.790	30.0	3
4-Nitroquinoline-1-oxide	0.107	0.095	26.640	30.0	-11
Octachlorostyrene	0.083	0.090	32.600	30.0	9
Isodrin	0.122	0.124	30.530	30.0	2
* Fluoranthene	1.145	1.173	30.720	30.0	2*
Benzidine	0.581	0.619	95.890	90.0	7
Pyrene	1.061	1.060	29.980	30.0	0
p-Dimethylaminoazobenzene	0.202	0.208	30.950	30.0	3
Chlorobenzilate	0.289	0.292	30.380	30.0	1
3,3'-Dimethylbenzidine	0.574	0.617	32.250	30.0	8
Butylbenzylphthalate	0.439	0.444	30.370	30.0	1
2-Acetylaminofluorene	0.394	0.419	31.930	30.0	6
3,3'-Dichlorobenzidine	0.365	0.396	32.570	30.0	9
4,4'-Methylenebis(2-chloroanil	0.195	0.212	32.670	30.0	9
Benzo(a)anthracene	0.937	0.982	31.450	30.0	5
Chrysene	0.906	0.946	31.350	30.0	4
bis(2-Ethylhexyl)phthalate	0.617	0.635	30.880	30.0	3
6-Methylchrysene	0.639	0.674	31.640	30.0	5
* Di-n-octylphthalate	1.379	1.387	30.170	30.0	1*
Benzo(b)fluoranthene	1.249	1.242	29.840	30.0	-1
7,12-Dimethylbenz[a]anthracene	0.570	0.588	30.950	30.0	3
Benzo(k)fluoranthene	1.232	1.278	31.110	30.0	4
* Benzo(a)pyrene	1.166	1.184	30.460	30.0	2*
3-Methylcholanthrene	0.544	0.566	31.210	30.0	4
Dibenz(a,h)acridine	0.888	0.928	31.350	30.0	5
Dibenz(a,j)acridine	0.945	0.953	30.240	30.0	1
Indeno(1,2,3-cd)pyrene	1.256	1.305	31.180	30.0	4
Dibenz(a,h)anthracene	1.025	1.070	31.300	30.0	4
Benzo(g,h,i)perylene	1.030	1.091	31.780	30.0	6
Total PAHs	0.940	0.952	492.680	540.0	-9
2-Fluorophenol	1.476	1.475	59.960	60.0	0
Phenol-d6	2.076	2.038	58.890	60.0	-2

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: HP18444 Calibration Date: 10/17/15 Time: 10:13

Lab File ID: bj0891.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.485	58.920	60.0	-2
2-Fluorobiphenyl	1.351	1.402	62.280	60.0	4
2,4,6-Tribromophenol	0.192	0.210	65.650	60.0	9
Terphenyl-d14	0.693	0.734	63.600	60.0	6
			Average	%Drift:	3

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d **
/chem/HP18444.i/15oct12a.b/bj0602.d
/chem/HP18444.i/15oct12a.b/bj0603.d
/chem/HP18444.i/15oct12a.b/bj0604.d
/chem/HP18444.i/15oct12a.b/bj0605.d
/chem/HP18444.i/15oct12a.b/bj0606.d
/chem/HP18444.i/15oct12a.b/bj0607.d
/chem/HP18444.i/15oct12a.b/bj0608.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/15oct17.b/bj0891.d

Area Summary

File ID:

Internal Standard Name	bj0891.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	259781	198560	99280	397120	Yes
Naphthalene-d8	1015604	799113	399556	1598226	Yes
Acenaphthene-d10	628127	498506	249253	997012	Yes
Phenanthrene-d10	1239134	983616	491808	1967232	Yes
Pyrene-d10	1425009	1112950	556475	2225900	Yes
Perylene-d12	1098190	792924	396462	1585848	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	bj0891.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.526	5.718	Yes
Naphthalene-d8	6.756	6.948	Yes
Acenaphthene-d10	8.469	8.661	Yes
Phenanthrene-d10	9.915	10.113	Yes
Pyrene-d10	11.302	11.506	Yes
Perylene-d12	13.942	14.175	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/17/2015 at 10:32

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): bj0811.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 08:25

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	202366	5.578	778657	6.808	519666	8.522
	UPPER LIMIT	404732	6.078	1557314	7.308	1039332	9.022
	LOWER LIMIT	101183	5.078	389329	6.308	259833	8.022
	LLI SAMPLE NO.						
01	SBLKLA288	197839	5.578	764811	6.808	476432	8.516
02	288LALCS	168343	5.578	652427	6.808	407885	8.522
03	8084381DL	167684	5.578	671133	6.808	432602	8.516
04	8073057RE	240378	5.578	962443	6.808	557133	8.516
05	8079083	203816	5.578	811212	6.808	496171	8.516
06	8079084	192923	5.578	798991	6.808	492910	8.516
07	8079085	198992	5.578	771459	6.808	432498	8.516
08	8079086	217335	5.578	855348	6.808	503280	8.522
09	8079087	186181	5.578	723507	6.808	440924	8.522
10	8079088	189060	5.578	743862	6.808	446809	8.522
11	8079089	206992	5.578	814874	6.808	484634	8.522
12	8079090	218113	5.578	870377	6.808	511367	8.522
13	8079091	188672	5.578	745626	6.808	446747	8.522
14	8079092	178360	5.578	723009	6.808	446956	8.522
15	8079093	173405	5.578	685427	6.808	409595	8.522
16	8079094MS	170593	5.578	666058	6.814	398897	8.522
17	8079095MSD	199789	5.578	762184	6.814	462816	8.522

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0811.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 08:25

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1030502	9.967	1263331	11.354	940073	14.001
	UPPER LIMIT	2061004	10.467	2526662	11.854	1880146	14.501
	LOWER LIMIT	515251	9.467	631666	10.854	470037	13.501
	LLI SAMPLE NO.						
01	SBLKLA288	1029797	9.967	1209585	11.354	959520	14.001
02	288LALCS	828909	9.967	970228	11.354	728514	14.001
03	8084381DL	899700	9.967	1084818	11.354	869330	14.001
04	8073057RE	1031757	9.967	1083949	11.354	729025	14.000
05	8079083	965690	9.967	1011016	11.355	653757	14.001
06	8079084	989695	9.967	1054822	11.354	691571	14.000
07	8079085	801377	9.967	815455	11.354	596666	14.001
08	8079086	878179	9.973	882489	11.360	621923	14.006
09	8079087	861880	9.973	937170	11.360	665345	14.006
10	8079088	872526	9.973	939897	11.360	675014	14.006
11	8079089	877356	9.973	885256	11.360	609502	14.006
12	8079090	937756	9.973	932307	11.360	646858	14.012
13	8079091	874498	9.973	934938	11.360	669562	14.012
14	8079092	905609	9.973	957776	11.360	677844	14.006
15	8079093	797520	9.973	862474	11.360	620625	14.006
16	8079094MS	781349	9.973	848686	11.360	608706	14.006
17	8079095MSD	890222	9.973	948652	11.360	635866	14.012

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0811.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 08:25

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	202366	5.578	778657	6.808	519666	8.522
	UPPER LIMIT	404732	6.078	1557314	7.308	1039332	9.022
	LOWER LIMIT	101183	5.078	389329	6.308	259833	8.022
	LLI SAMPLE NO.						
18	8079096	231480	5.578	917195	6.808	558260	8.522
19	8079097	192197	5.578	739761	6.808	459479	8.522
20	8079098	182258	5.578	724768	6.808	442463	8.522
21	8079099	180789	5.578	704788	6.808	430372	8.522
22	8079100	175816	5.578	706504	6.808	444284	8.528
23	8079101	184084	5.578	718722	6.808	437408	8.528
24	8079102	208149	5.578	829532	6.808	485011	8.522
25	8079103	179043	5.578	696717	6.808	433130	8.522

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0811.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 08:25

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1030502	9.967	1263331	11.354	940073	14.001
	UPPER LIMIT	2061004	10.467	2526662	11.854	1880146	14.501
	LOWER LIMIT	515251	9.467	631666	10.854	470037	13.501
	LLI SAMPLE NO.						
18	8079096	1053675	9.973	1068829	11.360	743369	14.006
19	8079097	903751	9.967	971964	11.360	681624	14.006
20	8079098	867966	9.973	955205	11.360	685510	14.007
21	8079099	854960	9.973	930599	11.360	652389	14.006
22	8079100	869952	9.967	919645	11.360	663867	14.006
23	8079101	876114	9.967	940095	11.354	659855	14.006
24	8079102	902395	9.967	910192	11.354	614621	14.006
25	8079103	852812	9.967	910669	11.360	634086	14.006

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0851.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 21:23

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	301239	5.555	1211965	6.785	777730	8.492
	UPPER LIMIT	602478	6.055	2423930	7.285	1555460	8.992
	LOWER LIMIT	150620	5.055	605983	6.285	388865	7.992
	LLI SAMPLE NO.						
01	SBLKLB288	259357	5.555	1017552	6.785	646516	8.493
02	288LBLCS	237852	5.555	942653	6.785	611305	8.493
03	SBLKWL288	260594	5.555	1036682	6.785	648473	8.493
04	288WLLCS	239605	5.555	974851	6.785	639795	8.493
05	8079100DL	246812	5.555	977916	6.785	606258	8.492
06	8083958	253802	5.555	1035254	6.785	637179	8.493
07	8083959MS	276606	5.555	1098320	6.785	685211	8.498
08	8083960MSD	263846	5.555	1057138	6.785	668801	8.498
09	8083947	263677	5.555	1029495	6.785	620606	8.492
10	8083953	285652	5.555	1142793	6.785	686263	8.499
11	8083956	263662	5.555	1084722	6.785	674781	8.498
12	8083962	296476	5.555	1177024	6.785	675592	8.498
13	STD2735	363022	5.561	1392514	6.790	815399	8.498
14	BAS2735	325688	5.555	1296648	6.785	754718	8.498
15	8077908	289155	5.555	1130434	6.785	655970	8.498
16	8077908	303543	5.561	1195435	6.791	699571	8.498
17	8076628MSD	306106	5.555	1181509	6.791	681697	8.498

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0851.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 21:23

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1551558	9.944	1713060	11.331	1160576	13.977
	UPPER LIMIT	3103116	10.444	3426120	11.831	2321152	14.477
	LOWER LIMIT	775779	9.444	856530	10.831	580288	13.477
	LLI SAMPLE NO.						
01	SBLKLB288	1408104	9.938	1667663	11.331	1184893	13.972
02	288LBLCS	1291093	9.944	1469916	11.331	1019085	13.977
03	SBLKWL288	1356611	9.938	1548930	11.325	1066109	13.972
04	288WLLCS	1275560	9.944	1415346	11.331	946302	13.977
05	8079100DL	1273860	9.938	1494697	11.325	1044818	13.971
06	8083958	1281416	9.938	1376303	11.325	806939	13.972
07	8083959MS	1303278	9.944	1313036	11.331	783781	13.977
08	8083960MSD	1231464	9.944	1198984	11.331	732803	13.977
09	8083947	1119846	9.944	1093322	11.331	698035	13.977
10	8083953	1261627	9.944	1192056	11.337	760550	13.977
11	8083956	1219725	9.944	1135084	11.331	742984	13.977
12	8083962	1157655	9.944	1094973	11.331	712328	13.983
13	STD2735	1427222	9.950	1398033	11.337	1005712	13.983
14	BAS2735	1293691	9.944	1236385	11.337	861379	13.983
15	8077908	1110774	9.944	1087820	11.331	768744	13.983
16	8077908	1180745	9.950	1135936	11.337	780859	13.983
17	8076628MSD	1168671	9.950	1152368	11.337	792527	13.983

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0851.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 21:23

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	301239	5.555	1211965	6.785	777730	8.492
	UPPER LIMIT	602478	6.055	2423930	7.285	1555460	8.992
	LOWER LIMIT	150620	5.055	605983	6.285	388865	7.992
	LLI SAMPLE NO.						
18	8076628	305987	5.555	1207215	6.785	693448	8.498
19	8076628MS	306156	5.555	1205154	6.791	705229	8.498
20	8076631	269450	5.555	1071121	6.785	628501	8.498
21	8076634	295751	5.555	1138632	6.785	657885	8.498
22	8076637	279564	5.555	1089847	6.785	636851	8.493
23	8076637	274254	5.555	1058848	6.791	623732	8.498
24	8076640	288575	5.555	1137862	6.785	652885	8.498
25	8077673	285591	5.555	1143452	6.785	661819	8.493
26	8077676	292285	5.555	1151597	6.785	658616	8.498
27	8077854	281862	5.555	1124523	6.785	653255	8.493

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0851.d Date Analyzed: 10/16/15

Instrument ID: HP18444 Time Analyzed: 21:23

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1551558	9.944	1713060	11.331	1160576	13.977
	UPPER LIMIT	3103116	10.444	3426120	11.831	2321152	14.477
	LOWER LIMIT	775779	9.444	856530	10.831	580288	13.477
	LLI SAMPLE NO.						
18	8076628	1190404	9.944	1183363	11.331	824865	13.977
19	8076628MS	1216742	9.950	1170556	11.337	797731	13.983
20	8076631	1119918	9.944	1122693	11.331	779605	13.977
21	8076634	1178053	9.944	1178804	11.331	779627	13.977
22	8076637	1172797	9.944	1183390	11.331	803723	13.977
23	8076637	1117388	9.944	1095897	11.337	762829	13.977
24	8076640	1150620	9.944	1146317	11.331	769385	13.977
25	8077673	1178136	9.944	1170758	11.331	795333	13.977
26	8077676	1158471	9.944	1133593	11.331	768967	13.977
27	8077854	1152140	9.944	1126428	11.331	783919	13.977

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0891.d Date Analyzed: 10/17/15

Instrument ID: HP18444 Time Analyzed: 10:13

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	259781	5.526	1015604	6.756	628127	8.469
	UPPER LIMIT	519562	6.026	2031208	7.256	1256254	8.969
	LOWER LIMIT	129891	5.026	507802	6.256	314064	7.969
	LLI SAMPLE NO.						
01	SBLKLC289	264110	5.526	1029305	6.756	632755	8.463
02	289LCLCS	240555	5.526	941088	6.755	591291	8.469
03	8079101DL	237982	5.526	937083	6.756	578420	8.463
04	8077905	233908	5.526	956164	6.756	594964	8.469
05	8080729	281643	5.526	1091224	6.756	674271	8.463
06	8080729	303503	5.526	1200179	6.756	748214	8.469
07	8082037	220309	5.526	876439	6.755	560758	8.463
08	8082037	245216	5.526	964565	6.756	604872	8.469
09	8087351	221653	5.526	870230	6.756	552380	8.463
10	8088010	214050	5.526	830654	6.756	523924	8.463
11	8088011	220325	5.526	856752	6.755	521939	8.463
12	8081736	248337	5.526	972764	6.755	626469	8.463
13	8081737	266513	5.526	1019947	6.756	637979	8.463
14	8081738	280937	5.526	1097767	6.756	669670	8.464
15	8081739	265132	5.526	1034634	6.755	637892	8.463
16	8081739MS	271312	5.526	1066487	6.756	671968	8.469
17	8081739MSD	252998	5.526	1009684	6.756	641894	8.469

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0891.d Date Analyzed: 10/17/15

Instrument ID: HP18444 Time Analyzed: 10:13

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1239134	9.915	1425009	11.302	1098190	13.942
	UPPER LIMIT	2478268	10.415	2850018	11.802	2196380	14.442
	LOWER LIMIT	619567	9.415	712505	10.802	549095	13.442
	LLI SAMPLE NO.						
01	SBLKLC289	1316619	9.915	1474302	11.302	1071186	13.942
02	289LCLCS	1206849	9.915	1367835	11.302	983310	13.942
03	8079101DL	1191667	9.915	1350792	11.302	999427	13.942
04	8077905	1158538	9.915	1302388	11.302	965308	13.942
05	8080729	1349094	9.915	1514430	11.302	1081324	13.942
06	8080729	1445059	9.915	1581381	11.302	1137199	13.942
07	8082037	1125105	9.915	1259300	11.302	901380	13.936
08	8082037	1190555	9.915	1315912	11.302	894117	13.942
09	8087351	1142774	9.915	1289321	11.296	951511	13.942
10	8088010	1089331	9.915	1225589	11.302	897596	13.936
11	8088011	1095933	9.915	1252033	11.296	912027	13.942
12	8081736	1267883	9.915	1400705	11.302	917701	13.936
13	8081737	1337750	9.915	1525196	11.302	1027163	13.937
14	8081738	1353295	9.915	1520476	11.296	1025620	13.937
15	8081739	1324704	9.915	1470437	11.296	1005833	13.942
16	8081739MS	1337144	9.915	1445279	11.302	977407	13.942
17	8081739MSD	1317607	9.915	1452809	11.302	937191	13.942

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0891.d Date Analyzed: 10/17/15

Instrument ID: HP18444 Time Analyzed: 10:13

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	259781	5.526	1015604	6.756	628127	8.469
	UPPER LIMIT	519562	6.026	2031208	7.256	1256254	8.969
	LOWER LIMIT	129891	5.026	507802	6.256	314064	7.969
	LLI SAMPLE NO.						
18	8081740	282731	5.526	1106403	6.756	686490	8.463
19	8081741	264570	5.526	1041569	6.755	651985	8.463
20	8081742	260367	5.526	1061450	6.756	668218	8.463
21	8081743	249726	5.526	987629	6.755	620253	8.463
22	8081744	238016	5.526	945819	6.756	609413	8.463
23	8081745	273217	5.526	1060441	6.756	659643	8.463
24	8054935	245928	5.526	966296	6.756	600751	8.464
25	8054936	262667	5.526	1042886	6.756	646194	8.464
26	8081051	277504	5.526	1109674	6.756	672490	8.463

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj0891.d Date Analyzed: 10/17/15

Instrument ID: HP18444 Time Analyzed: 10:13

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1239134	9.915	1425009	11.302	1098190	13.942
	UPPER LIMIT	2478268	10.415	2850018	11.802	2196380	14.442
	LOWER LIMIT	619567	9.415	712505	10.802	549095	13.442
	LLI SAMPLE NO.						
18	8081740	1350235	9.915	1407115	11.302	884086	13.942
19	8081741	1320253	9.915	1447060	11.302	902633	13.942
20	8081742	1353644	9.915	1443870	11.296	860158	13.942
21	8081743	1264521	9.915	1345843	11.296	840835	13.942
22	8081744	1263564	9.915	1371109	11.296	848491	13.937
23	8081745	1336543	9.915	1459032	11.296	902538	13.942
24	8054935	1190418	9.915	1281485	11.296	791093	13.937
25	8054936	1289544	9.915	1380388	11.296	853050	13.937
26	8081051	1190619	9.915	1180748	11.302	801221	13.942

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

Preparation and Run Logs

Semivolatiles by GC/MS

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct12a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
whs02991	BJ0600.D	DFTPP2245	10/12/2015	19:32		
whs02991	BJ0601.D	STD2735	10/12/2015	19:56		
whs02991	BJ0602.D	STD2735	10/12/2015	20:26		
whs02991	BJ0603.D	STD2735	10/12/2015	20:48		
whs02991	BJ0604.D	STD2735	10/12/2015	21:10		
whs02991	BJ0605.D	STD2735	10/12/2015	21:32		
whs02991	BJ0606.D	STD2735	10/12/2015	21:54		
whs02991	BJ0607.D	STD2735	10/12/2015	22:15		
whs02991	BJ0608.D	STD2735	10/12/2015	22:37		
whs02991	BJ0609.D	8270MDL2735	10/12/2015	22:59		
whs02991	BJ0610.D	PAHMDL2735	10/12/2015	23:21		
whs02991	BJ0611.D	ICV2465	10/12/2015	23:42		
whs02991	BJ0612.D	BAS2735	10/13/2015	00:04		
whs02991	BJ0613.D	BAS2735	10/13/2015	00:26		
whs02991	BJ0614.D	BAS2735	10/13/2015	00:48		
whs02991	BJ0615.D	BAS2735	10/13/2015	01:10		
whs02991	BJ0616.D	BAS2735	10/13/2015	01:32		
whs02991	BJ0617.D	BAS2735	10/13/2015	01:54		
whs02991	BJ0618.D	BAS2735	10/13/2015	02:15		
whs02991	BJ0619.D	BASICV2475	10/13/2015	02:37		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct16\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BJ0810.D	DFTPP2245	10/16/2015	08:12		
lmh00956	BJ0811.D	STD2735	10/16/2015	08:25		
lmh00956	BJ0812.D	BAS2735	10/16/2015	08:46		
lmh00956	BJ0813.D	SBLKLA288	10/16/2015	09:21	15288SLA	
lmh00956	BJ0814.D	288LALCS	10/16/2015	09:42	15288SLA	
lmh00956	BJ0815.D	8084380	10/16/2015	10:04	15287WAC	
lmh00956	BJ0814a.D	288LALCS	10/16/2015	10:26	15288SLA	
lmh00956	BJ0816.D	8084381DL	10/16/2015	10:47	15287WAC	10
lmh00956	BJ0817.D	8073057RE	10/16/2015	11:08	15288SLA	
lmh00956	BJ0818.D	8079083	10/16/2015	11:30	15288SLA	
lmh00956	BJ0819.D	8079084	10/16/2015	11:52	15288SLA	
lmh00956	BJ0820.D	8079085	10/16/2015	12:13	15288SLA	
lmh00956	BJ0821.D	8079086	10/16/2015	12:35	15288SLA	
lmh00956	BJ0822.D	8079087	10/16/2015	12:57	15288SLA	
lmh00956	BJ0823.D	8079088	10/16/2015	13:18	15288SLA	
lmh00956	BJ0834.D	8079099	10/16/2015	17:16	15288SLA	
lmh00956	BJ0835.D	8079100	10/16/2015	17:37	15288SLA	
lmh00956	BJ0836.D	8079101	10/16/2015	17:59	15288SLA	
lmh00956	BJ0837.D	8079102	10/16/2015	18:21	15288SLA	
lmh00956	BJ0838.D	8079103	10/16/2015	18:42	15288SLA	

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct16a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
whs02991	BJ0850.D	DFTPP2245	10/16/2015	20:12		
whs02991	BJ0850z.D	DFTPP2245	10/16/2015	20:27		
whs02991	BJ0850y.D	DFTPP2245	10/16/2015	20:42		
whs02991	BJ0850x.D	DFTPP2245	10/16/2015	20:57		
whs02991	BJ0850w.D	DFTPP2245	10/16/2015	21:09		
whs02991	BJ0851.D	STD2735	10/16/2015	21:23		
whs02991	BJ0852.D	BAS2735	10/16/2015	21:45		
whs02991	BJ0842.D	SBLKLB288	10/16/2015	22:19	15288SLB	
whs02991	BJ0843.D	288LBLCS	10/16/2015	22:41	15288SLB	
whs02991	BJ0855.D	SBLKWL288	10/16/2015	23:03	15288WAL	
whs02991	BJ0856.D	288WLLCS	10/16/2015	23:24	15288WAL	
whs02991	BJ0857.D	8079100DL	10/16/2015	23:46	15288SLA	20
whs02991	BJ0858.D	8079101DL	10/17/2015	00:08	15288SLA	20
whs02991	BJ0859.D	8083958	10/17/2015	00:30	15288SLB	
whs02991	BJ0860.D	8083959	10/17/2015	00:52	15288SLB	
whs02991	BJ0861.D	8083960	10/17/2015	01:13	15288SLB	
whs02991	BJ0862.D	8083947	10/17/2015	01:35	15288SLB	
whs02991	BJ0863.D	8083953	10/17/2015	01:57	15288SLB	
whs02991	BJ0864.D	8083956	10/17/2015	02:19	15288SLB	
whs02991	BJ0865.D	8083962	10/17/2015	02:41	15288SLB	
whs02991	BJ0866.D	STD2735	10/17/2015	03:03		
whs02991	BJ0867.D	BAS2735	10/17/2015	03:24		
whs02991	BJ0868.D	8077908	10/17/2015	03:46	15288WAL	
whs02991	BJ0869.D	8077908	10/17/2015	04:08	15288WAL	
whs02991	BJ0870.D	8076628	10/17/2015	04:30	15288WAL	
whs02991	BJ0871.D	8076628	10/17/2015	04:51	15288WAL	
whs02991	BJ0872.D	8076628	10/17/2015	05:13	15288WAL	
whs02991	BJ0873.D	8076631	10/17/2015	05:34	15288WAL	
whs02991	BJ0874.D	8076634	10/17/2015	05:56	15288WAL	
whs02991	BJ0875.D	8076637	10/17/2015	06:17	15288WAL	
whs02991	BJ0876.D	8076637	10/17/2015	06:39	15288WAL	
whs02991	BJ0877.D	8076640	10/17/2015	07:01	15288WAL	
whs02991	BJ0878.D	8077673	10/17/2015	07:22	15288WAL	
whs02991	BJ0879.D	8077676	10/17/2015	07:44	15288WAL	
whs02991	BJ0880.D	8077854	10/17/2015	08:05	15288WAL	

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct17\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BJ0890.D	DFTPP2245	10/17/2015	09:37		
lmh00956	BJ0890z.D	DFTPP2245	10/17/2015	09:48		
lmh00956	BJ0890y.D	DFTPP2245	10/17/2015	10:00		
lmh00956	BJ0891.D	STD2735	10/17/2015	10:13		
lmh00956	BJ0892.D	BAS2735	10/17/2015	10:44		
lmh00956	BJ0893.D	SBLKLC289	10/17/2015	11:06	15289SLC	
lmh00956	BJ0894.D	289LCLCS	10/17/2015	11:27	15289SLC	
lmh00956	BJ0895.D	8079101DL	10/17/2015	11:49	15288SLA	40
lmh00956	BJ0896.D	8077905	10/17/2015	12:11	15288WAL	
lmh00956	BJ0897.D	8080729	10/17/2015	12:32	15288WAL	
lmh00956	BJ0898.D	8080729	10/17/2015	12:54	15288WAL	
lmh00956	BJ0899.D	8082037	10/17/2015	13:15	15288WAL	
lmh00956	BJ0900.D	8082037	10/17/2015	13:37	15288WAL	
lmh00956	BJ0901.D	8087351	10/17/2015	13:59	15288WAL	
lmh00956	BJ0902.D	8088010	10/17/2015	14:20	15288WAL	
lmh00956	BJ0903.D	8088011	10/17/2015	14:42	15288WAL	
lmh00956	BJ0904.D	8081736	10/17/2015	15:04	15289SLC	
lmh00956	BJ0905.D	8081737	10/17/2015	15:25	15289SLC	
lmh00956	BJ0906.D	8081738	10/17/2015	15:47	15289SLC	
lmh00956	BJ0907.D	8081739	10/17/2015	16:09	15289SLC	
lmh00956	BJ0908.D	8081739	10/17/2015	16:31	15289SLC	
lmh00956	BJ0909.D	8081739	10/17/2015	16:52	15289SLC	
lmh00956	BJ0910.D	8081740	10/17/2015	17:14	15289SLC	
lmh00956	BJ0911.D	8081741	10/17/2015	17:35	15289SLC	
lmh00956	BJ0912.D	8081742	10/17/2015	17:57	15289SLC	
lmh00956	BJ0913.D	8081743	10/17/2015	18:18	15289SLC	
lmh00956	BJ0914.D	8081744	10/17/2015	18:40	15289SLC	
lmh00956	BJ0915.D	8081745	10/17/2015	19:01	15289SLC	
lmh00956	BJ0916.D	8054935	10/17/2015	19:23	15288SLB	
lmh00956	BJ0917.D	8054936	10/17/2015	19:44	15288SLB	
lmh00956	BJ0918.D	8081051	10/17/2015	20:05	15288SLB	
lmh00956	BJ0919.D	blank	10/17/2015	20:27	15289SLC	
lmh00956	BJ0919a.D	blank	10/17/2015	20:48	15289SLC	
lmh00956	BJ0919b.D	blank	10/17/2015	21:10	15289SLC	
lmh00956	BJ0919c.D	blank	10/17/2015	21:31	15289SLC	

Organic Extraction Batchlog Assigned to: 2807 Nicholas Shroyer Reviewed by: 10/16/15 Start Date: 10-15-15 Start time: 17:45

15288SLA026

Tech 1: NS2807 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
8079094MS	SS136	30.17	SS1528526A	1.0	MS1527626A	1.0	1.0	Z	Z	301A	Soil gritty wet rocks brown
8079095MSD	SS136	30.23	SS1528526A	1.0	MS1527626A	1.0	1.0	Z	Z	301A	↓ ↓
BLANKA	SBLKLA288	30.0	SS1528526A	1.0	—	—	1.0	Z	Z	—	Na_2SO_4
LCSA	288LALCS	30.0	SS1528526A	1.0	MS1527626A	1.0	1.0	Z	Z	—	↓

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	~~185100001~~ (3) NS2807 185120158 10-5-15
Methylene Chloride	121877
Sodium Sulfate	15287A

Spike Solutions: Witness:

MS1527626A LCS SPIKE MIX

SS1528526A BNA SURROGATE STANDARD

Sample #		Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1	8073057 R	639J4	30.0	SS1528526A	1.0	1.0	Z	Z	34A	brown soil	10727	1847	10/13/2015	N
2	8079083	SS120	30.15	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/19/2015	N
3	8079084	SS123	30.22	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
4	8079085	SS125	30.17	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Rocks;Black;Brown	10727	14775	10/19/2015	N
5	8079086	SS128	30.21	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
6	8079087	SS124	30.22	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Rocks;Brown	10727	14775	10/19/2015	N
7	8079088	SS127	30.33	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Rocks;Brown	10727	14775	10/19/2015	N
8	8079089	SSFD1	30.26	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Rocks;Brown	10727	14775	10/19/2015	N
9	8079090	SS130	30.43	SS1528526A		1.0	Z	Z	301a	Clay;Brown	10727	14775	10/19/2015	N
10	8079091	SS135	30.36	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
11	8079092	SS138	30.47	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
12	8079093BKG	SS136	30.47	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Wet;Rocks;Brown	10727	14775	10/19/2015	N
13	8079096	SS110	30.22	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
14	8079097	SS113	30.39	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
15	8079098	SS118	30.50	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/19/2015	N
16	8079099	SS119	30.42	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Rocks;Brown	10727	14775	10/19/2015	N
17	8079100	SS100	30.38	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Brown	10727	14775	10/19/2015	N
18	8079101	SS103	30.40	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/19/2015	N
19	8079102	SS101	30.36	SS1528526A		1.0	Z	Z	301A	Clay;Soil;Wet;Sandy;Brown	10727	14775	10/19/2015	N
20	8079103	SS107	30.30	SS1528526A		1.0	Z	Z	301A	Soil;Gritty;Rocks;Brown	10727	14775	10/19/2015	N

Rack ID:	—	Work Station	Micro	Micro Temp 100?
Internal Standard	LC15691V	Balance #	13	✓

S-bath ID 13	89° C	S-bath ID	C	N-Evap	C	M-vap	C	15288SLA026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Moisture Data

eurofins | Lancaster Laboratories Environmental

CLIENT: **CH2M Hill, Inc.**
SDG: DHR29

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8079083	SS120
8079084	SS123
8079085	SS125
8079086	SS128
8079087	SS124
8079088	SS127
8079089	SSFD1FD
8079090	SS130
8079091	SS135
8079092	SS138
8079093	SS136BKG
8079094	SS136MS
8079095	SS136MSD
8079096	SS110
8079097	SS113
8079098	SS118
8079099	SS119
8079100	SS100
8079101	SS103
8079102	SS101
8079103	SS107

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 15286820002A	Sample number(s): 8079083-8079095				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		
Batch number: 15286820002B	Sample number(s): 8079096-8079103				
Moisture	100		99-101		

eurofins | Lancaster Laboratories Environmental

CLIENT: **CH2M Hill, Inc.**
SDG: DHR29

MOISTURE

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 15286820002A	Sample number(s):	8079083-8079095		
Moisture	4.9	4.8	2	5
Moisture	4.9	4.8	2	5
Moisture Duplicate	4.9	4.8	2	5
Batch number: 15286820002B	Sample number(s):	8079096-8079103		
Moisture	14.4	14.4	0	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: **15286820002**

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8079083	A	00111	1.0823	5.5324	5.6615	17.23	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079084	A	00111	1.0847	5.3776	5.5570	16.83	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079085	A	00111	1.0727	5.3051	5.6042	14.58	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079086	A	00111	1.0599	5.6410	5.8683	14.76	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079087	A	00111	1.0922	6.4547	7.2984	3.85	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079088	A	00111	1.0821	6.7932	7.6390	3.48	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079089FD	A	00111	1.0842	5.7624	6.6173	3.98	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079090	A	00111	1.0873	6.1668	6.1544	17.83	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079091	A	00111	1.0857	8.6436	8.1033	18.81	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079092	A	00111	1.0747	7.2954	6.8617	20.68	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079093BKG	A	00111	1.0719	6.6114	7.3594	4.90	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079094MS	A	00118				4.90	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079095MSD	A	00118				4.90	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079095MSD	A	00121	1.0812	5.7169	6.5242	4.79	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079096BKG	B	00111	1.0831	5.5819	5.8628	14.37	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079096DUP	B	00111	1.0736	5.2080	5.5325	14.38	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079097	B	00111	1.0982	6.0988	6.0833	18.26	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079098	B	00111	1.1033	7.7474	7.6412	15.61	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079099	B	00111	1.1083	6.1309	6.9276	5.08	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079100	B	00111	1.0862	6.8684	6.8635	15.89	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079101	B	00111	1.0782	5.7442	5.7676	18.36	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079102	B	00111	1.0832	5.7124	5.7332	18.60	10/13/15 (189/WCS)	10/14/15 (236/CW)
8079103	B	00111	1.1037	7.0585	7.8640	4.22	10/13/15 (189/WCS)	10/14/15 (236/CW)
LCS 89.5% Std.		00111	1.0961	5.0066	1.6228	89.48	10/13/15 (189/WCS)	10/14/15 (236/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
Soil and Water Samples
Collected on 10/07/15

SDG# DHR30

GROUP	SAMPLE NUMBERS
1599284	8081278-8081295

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:** **10/28/2015**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

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Sample Reference List for SDG Number DHR30
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
8081278	D3001	HGR-100715-EB01 Grab Water
8081279	D3002	HGR-100715-TB01 Water
8081280	D3003	HGR-100715-TB02 Water
8081281	D3004	S01-SS14-0102-100715 Grab Soil
8081282	D3005	S01-SS14-0304-100715 Grab Soil
8081283	D3006	S01-SS14-0809-100715 Grab Soil
8081284	D3007	S01-SS14-2728-100715 Grab Soil
8081285	D3008	HGR-100715-FD01 Grab Soil
8081286	D3009	S01-SS15-0102-100715 Grab Soil
8081287	D3010	S01-SS15-0405-100715 Grab Soil
8081288	D3011	S01-SS15-0809-100715 Grab Soil
8081289	D3012	S01-SS15-2728-100715 Grab Soil
8081290	D3012	S01-SS15-2728-100715MS Grab Soil
8081291	D3012	S01-SS15-2728-100715MSD Grab Soil
8081292	D3013	S01-SS16-0102-100715 Grab Soil
8081293	D3014	S01-SS16-0304-100715 Grab Soil
8081294	D3015	S01-SS16-0809-100715 Grab Soil
8081295	D3016	S01-SS16-2728-100715 Grab Soil

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Sample pH Log

SDG: DHR30

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8081278	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8081279	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8081280	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key
PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

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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.

10335 VOCs- 5ml Water by 8260B

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

10237 VOCs- Solid by 8260B

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

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 8270C Water

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-1997

07320 GC/MS - LL DIH2O 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 DI water. 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. DI vials are frozen after they are weighed to complete preservation step.

Reference: Test Methods for Evaluating Solid Wastes, SW-846, Method 5035A, Revision 1, July 2002.

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 5035A, Revision 1, July 2002.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

October 22, 2015

Project: Dow Hanging Rock, OH

Submittal Date: 10/08/2015
Group Number: 1599284
SDG: DHR30
PO Number: 10381-7-101541
Release Number: DHR30
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
HGR-100715-EB01 Grab Water	8081278
HGR-100715-TB01 Water	8081279
HGR-100715-TB02 Water	8081280
S01-SS14-0102-100715 Grab Soil	8081281
S01-SS14-0304-100715 Grab Soil	8081282
S01-SS14-0809-100715 Grab Soil	8081283
S01-SS14-2728-100715 Grab Soil	8081284
HGR-100715-FD01 Grab Soil	8081285
S01-SS15-0102-100715 Grab Soil	8081286
S01-SS15-0405-100715 Grab Soil	8081287
S01-SS15-0809-100715 Grab Soil	8081288
S01-SS15-2728-100715 Grab Soil	8081289
S01-SS15-2728-100715MS Grab Soil	8081290
S01-SS15-2728-100715MSD Grab Soil	8081291
S01-SS16-0102-100715 Grab Soil	8081292
S01-SS16-0304-100715 Grab Soil	8081293
S01-SS16-0809-100715 Grab Soil	8081294
S01-SS16-2728-100715 Grab Soil	8081295

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC CH2M Hill, Inc. Attn: Stephanie Aselage

COPY TO		
ELECTRONIC	CH2M Hill, Inc.	Attn: Rachel Grand
COPY TO		
ELECTRONIC	CH2M Hill, Inc.	Attn: Shane Lowe
COPY TO		

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: HGR-100715-EB01 Grab Water
Dow Hanging Rock, OH

LL Sample # WW 8081278
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 09:15 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3001 SDG#: DHR30-01EB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	1
GC/MS Semivolatiles	**SW-846 8270C**		ug/l		ug/l	ug/l	
04678	Benzo(a)anthracene	56-55-3	0.5	U	0.5	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.5	U	0.5	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.5	U	0.5	0.1	1
04678	1,1'-Biphenyl	92-52-4	1	U	1	0.5	1
04678	Dibenz(a,h)anthracene	53-70-3	0.5	U	0.5	0.1	1
04678	Dibenzofuran	132-64-9	1	U	1	0.5	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.5	U	0.5	0.1	1
04678	2-Methylnaphthalene	91-57-6	0.5	U	0.5	0.1	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	L152874AA	10/14/2015 21:39	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L152874AA	10/14/2015 21:39	Angela D Sneeringer	1
04678	TCL SW846 8270C Water	SW-846 8270C	1	15286WAB026	10/16/2015 02:22	Catherine E Bachman	1
00813	BNA Water Extraction	SW-846 3510C	1	15286WAB026	10/13/2015 17:00	Ryan A Schafran	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-100715-TB01 Water
Dow Hanging Rock, OH

LL Sample # WW 8081279
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3002 SDG#: DHR30-02TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	L152874AA	10/14/2015 22:01	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L152874AA	10/14/2015 22:01	Angela D Sneeringer	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-100715-TB02 Water
Dow Hanging Rock, OH

LL Sample # WW 8081280
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3003 SDG#: DHR30-03TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	ug/l	
10335	Acrylonitrile	107-13-1	20	U	20	4	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Naphthalene	91-20-3	5	U	5	1	1
10335	n-Propylbenzene	103-65-1	5	U	5	1	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1
10335	m+p-Xylene	179601-23-1	1	U	1	0.5	1
10335	o-Xylene	95-47-6	1	U	1	0.5	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
10335	VOCs- 5ml Water by 8260B	SW-846 8260B	1	L152874AA	10/14/2015 22:23	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L152874AA	10/14/2015 22:23	Angela D Sneeringer	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS14-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081281
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 10:50 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3004 SDG#: DHR30-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.84
10237	Benzene	71-43-2	5	U	5	0.5	0.84
10237	Bromoform	75-25-2	5	U	5	1	0.84
10237	Ethylbenzene	100-41-4	5	U	5	1	0.84
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.84
10237	Methylene Chloride	75-09-2	5	U	5	2	0.84
10237	Naphthalene	91-20-3	5	U	5	1	0.84
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.84
10237	Styrene	100-42-5	5	U	5	1	0.84
10237	Tetrachloroethene	127-18-4	3	J	5	1	0.84
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.84
10237	Trichloroethene	79-01-6	5	U	5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.84
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.84
10237	o-Xylene	95-47-6	5	U	5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	ug/kg	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	16.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 13:48	Angela D Sneeringer	0.84
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:25	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS14-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081281
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 10:50 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3004 SDG#: DHR30-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:06	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 13:48	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS14-0304-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081282
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 10:55 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3005 SDG#: DHR30-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.86
10237	Benzene	71-43-2	5	U	5	0.5	0.86
10237	Bromoform	75-25-2	5	U	5	1	0.86
10237	Ethylbenzene	100-41-4	5	U	5	1	0.86
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.86
10237	Methylene Chloride	75-09-2	5	U	5	2	0.86
10237	Naphthalene	91-20-3	5	U	5	1	0.86
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.86
10237	Styrene	100-42-5	5	U	5	1	0.86
10237	Tetrachloroethene	127-18-4	5		5	1	0.86
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.86
10237	Trichloroethene	79-01-6	5	U	5	1	0.86
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.86
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.86
10237	o-Xylene	95-47-6	5	U	5	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	18.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 14:11	Angela D Sneeringer	0.86
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:25	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:25	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS14-0304-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081282
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 10:55 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3005 SDG#: DHR30-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:07	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 14:10	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS14-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081283
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:00 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3006 SDG#: DHR30-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	23	U	23	5	0.91
10237	Benzene	71-43-2	6	U	6	0.6	0.91
10237	Bromoform	75-25-2	6	U	6	1	0.91
10237	Ethylbenzene	100-41-4	6	U	6	1	0.91
10237	Isopropylbenzene	98-82-8	6	U	6	1	0.91
10237	Methylene Chloride	75-09-2	6	U	6	2	0.91
10237	Naphthalene	91-20-3	6	U	6	1	0.91
10237	n-Propylbenzene	103-65-1	6	U	6	1	0.91
10237	Styrene	100-42-5	6	U	6	1	0.91
10237	Tetrachloroethene	127-18-4	12		6	1	0.91
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	0.91
10237	Trichloroethene	79-01-6	6	U	6	1	0.91
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	0.91
10237	m+p-Xylene	179601-23-1	6	U	6	1	0.91
10237	o-Xylene	95-47-6	6	U	6	1	0.91
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	42	U	42	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	42	U	42	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	42	U	42	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	42	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	20.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 14:33	Angela D Sneeringer	0.91
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS14-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081283
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:00 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3006 SDG#: DHR30-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:09	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 14:31	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS14-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081284
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:20 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3007 SDG#: DHR30-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.97
10237	Benzene	71-43-2	5	U	5	0.5	0.97
10237	Bromoform	75-25-2	5	U	5	1	0.97
10237	Ethylbenzene	100-41-4	5	U	5	1	0.97
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.97
10237	Methylene Chloride	75-09-2	5	U	5	2	0.97
10237	Naphthalene	91-20-3	5	U	5	1	0.97
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.97
10237	Styrene	100-42-5	5	U	5	1	0.97
10237	Tetrachloroethene	127-18-4	16		5	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.97
10237	Trichloroethene	79-01-6	5	U	5	1	0.97
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.97
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.97
10237	o-Xylene	95-47-6	5	U	5	1	0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	55	J	91	18	5
10727	Benzo(a)pyrene	50-32-8	68	J	91	18	5
10727	Benzo(b)fluoranthene	205-99-2	96		91	18	5
10727	1,1'-Biphenyl	92-52-4	180	U	180	90	5
10727	Dibenz(a,h)anthracene	53-70-3	19	J	91	18	5
10727	Dibenzofuran	132-64-9	180	U	180	90	5
10727	Indeno(1,2,3-cd)pyrene	193-39-5	48	J	91	18	5
10727	2-Methylnaphthalene	91-57-6	91	U	91	18	5
10727	Nitrobenzene	98-95-3	180	U	180	90	5
10727	Pentachlorophenol	87-86-5	910	U	910	180	5
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	7.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 14:56	Angela D Sneeringer	0.97
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS14-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081284
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:20 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3007 SDG#: DHR30-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:12	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 14:53	Linda M Hartenstine	5
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

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Analysis Report

Sample Description: HGR-100715-FD01 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081285
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:30 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3008 SDG#: DHR30-08FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	22	U	22	4	1.02
10237	Benzene	71-43-2	5	U	5	0.5	1.02
10237	Bromoform	75-25-2	5	U	5	1	1.02
10237	Ethylbenzene	100-41-4	5	U	5	1	1.02
10237	Isopropylbenzene	98-82-8	5	U	5	1	1.02
10237	Methylene Chloride	75-09-2	5	U	5	2	1.02
10237	Naphthalene	91-20-3	5	U	5	1	1.02
10237	n-Propylbenzene	103-65-1	5	U	5	1	1.02
10237	Styrene	100-42-5	5	U	5	1	1.02
10237	Tetrachloroethene	127-18-4	2	J	5	1	1.02
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1.02
10237	Trichloroethene	79-01-6	5	U	5	1	1.02
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	1.02
10237	m+p-Xylene	179601-23-1	5	U	5	1	1.02
10237	o-Xylene	95-47-6	5	U	5	1	1.02
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	33		18	4	1
10727	Benzo(a)pyrene	50-32-8	31		18	4	1
10727	Benzo(b)fluoranthene	205-99-2	44		18	4	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	18	1
10727	Dibenz(a,h)anthracene	53-70-3	8	J	18	4	1
10727	Dibenzofuran	132-64-9	35	U	35	18	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	19		18	4	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	4	1
10727	Nitrobenzene	98-95-3	35	U	35	18	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 15:19	Angela D Sneeringer	1.02
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: HGR-100715-FD01 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081285
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 11:30 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3008 SDG#: DHR30-08FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:14	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 15:14	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

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Analysis Report

Sample Description: S01-SS15-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081286
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:30 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3009 SDG#: DHR30-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	19	U	19	4	0.77
10237	Benzene	71-43-2	5	U	5	0.5	0.77
10237	Bromoform	75-25-2	5	U	5	1	0.77
10237	Ethylbenzene	100-41-4	5	U	5	1	0.77
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.77
10237	Methylene Chloride	75-09-2	5	U	5	2	0.77
10237	Naphthalene	91-20-3	5	U	5	1	0.77
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.77
10237	Styrene	100-42-5	5	U	5	1	0.77
10237	Tetrachloroethene	127-18-4	9		5	1	0.77
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.77
10237	Trichloroethene	79-01-6	5	U	5	1	0.77
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.77
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.77
10237	o-Xylene	95-47-6	5	U	5	1	0.77
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	41	U	41	20	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	41	U	41	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	41	U	41	20	1
10727	Pentachlorophenol	87-86-5	210	U	210	41	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 15:41	Angela D Sneeringer	0.77
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: S01-SS15-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081286
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:30 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3009 SDG#: DHR30-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:20	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 15:36	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS15-0405-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081287
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:35 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3010 SDG#: DHR30-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.84
10237	Benzene	71-43-2	5	U	5	0.5	0.84
10237	Bromoform	75-25-2	5	U	5	1	0.84
10237	Ethylbenzene	100-41-4	5	U	5	1	0.84
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.84
10237	Methylene Chloride	75-09-2	5	U	5	2	0.84
10237	Naphthalene	91-20-3	5	U	5	1	0.84
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.84
10237	Styrene	100-42-5	5	U	5	1	0.84
10237	Tetrachloroethene	127-18-4	22		5	1	0.84
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.84
10237	Trichloroethene	79-01-6	5	U	5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.84
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.84
10237	o-Xylene	95-47-6	5	U	5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	42	U	42	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	42	U	42	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	42	U	42	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	42	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.0		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 16:04	Angela D Sneeringer	0.84
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 17:26	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS15-0405-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081287
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:35 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3010 SDG#: DHR30-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 17:22	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 15:57	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS15-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081288
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:40 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3011 SDG#: DHR30-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	22	U	22	4	0.88
10237	Benzene	71-43-2	5	U	5	0.5	0.88
10237	Bromoform	75-25-2	5	U	5	1	0.88
10237	Ethylbenzene	100-41-4	5	U	5	1	0.88
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.88
10237	Methylene Chloride	75-09-2	5	U	5	2	0.88
10237	Naphthalene	91-20-3	5	U	5	1	0.88
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.88
10237	Styrene	100-42-5	5	U	5	1	0.88
10237	Tetrachloroethene	127-18-4	46		5	1	0.88
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.88
10237	Trichloroethene	79-01-6	3	J	5	1	0.88
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.88
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.88
10237	o-Xylene	95-47-6	5	U	5	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	21	U	21	4	1
10727	Benzo(a)pyrene	50-32-8	21	U	21	4	1
10727	Benzo(b)fluoranthene	205-99-2	21	U	21	4	1
10727	1,1'-Biphenyl	92-52-4	42	U	42	21	1
10727	Dibenz(a,h)anthracene	53-70-3	21	U	21	4	1
10727	Dibenzofuran	132-64-9	42	U	42	21	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	21	U	21	4	1
10727	2-Methylnaphthalene	91-57-6	21	U	21	4	1
10727	Nitrobenzene	98-95-3	42	U	42	21	1
10727	Pentachlorophenol	87-86-5	210	U	210	42	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.9		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 16:26	Angela D Sneeringer	0.88
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS15-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081288
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 13:40 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3011 SDG#: DHR30-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:14	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 16:19	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS15-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081289
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	1,200	U	1,200	240	58.14
10237	Benzene	71-43-2	300	U	300	30	58.14
10237	Bromoform	75-25-2	300	U	300	61	58.14
10237	Ethylbenzene	100-41-4	300	U	300	61	58.14
10237	Isopropylbenzene	98-82-8	300	U	300	61	58.14
10237	Methylene Chloride	75-09-2	300	U	300	120	58.14
10237	Naphthalene	91-20-3	300	U	300	61	58.14
10237	n-Propylbenzene	103-65-1	300	U	300	61	58.14
10237	Styrene	100-42-5	300	U	300	61	58.14
10237	Tetrachloroethene	127-18-4	880		300	61	58.14
10237	1,2,4-Trichlorobenzene	120-82-1	300	U	300	61	58.14
10237	Trichloroethene	79-01-6	300	U	300	61	58.14
10237	1,3,5-Trimethylbenzene	108-67-8	300	U	300	61	58.14
10237	m+p-Xylene	179601-23-1	300	U	300	61	58.14
10237	o-Xylene	95-47-6	300	U	300	61	58.14

Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

Reporting limits were raised due to interference from the sample matrix.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	10	J	18	3	1
10727	Benzo(a)pyrene	50-32-8	15	J	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	24		18	3	1
10727	1,1'-Biphenyl	92-52-4	35	U	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	4	J	18	3	1
10727	Dibenzofuran	132-64-9	35	U	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	12	J	18	3	1
10727	2-Methylnaphthalene	91-57-6	18	U	18	3	1
10727	Nitrobenzene	98-95-3	35	U	35	17	1
10727	Pentachlorophenol	87-86-5	180	U	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	4.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q152852AA	10/12/2015 16:14	Anita M Dale	58.14

*=This limit was used in the evaluation of the final result

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Analysis Report

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Sample Description: S01-SS15-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081289
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:16	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 16:41	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS15-2728-100715MS Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081290
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	5,100	1,100	220	52.19
10237	Benzene	71-43-2	970	270	27	52.19
10237	Bromoform	75-25-2	860	270	55	52.19
10237	Ethylbenzene	100-41-4	890	270	55	52.19
10237	Isopropylbenzene	98-82-8	840	270	55	52.19
10237	Methylene Chloride	75-09-2	1,000	270	110	52.19
10237	Naphthalene	91-20-3	890	270	55	52.19
10237	n-Propylbenzene	103-65-1	900	270	55	52.19
10237	Styrene	100-42-5	880	270	55	52.19
10237	Tetrachloroethene	127-18-4	980	270	55	52.19
10237	1,2,4-Trichlorobenzene	120-82-1	770	270	55	52.19
10237	Trichloroethene	79-01-6	970	270	55	52.19
10237	1,3,5-Trimethylbenzene	108-67-8	900	270	55	52.19
10237	m+p-Xylene	179601-23-1	1,800	270	55	52.19
10237	o-Xylene	95-47-6	880	270	55	52.19
	Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.					
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	1,600	18	3	1
10727	Benzo(a)pyrene	50-32-8	1,600	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	1,800	18	3	1
10727	1,1'-Biphenyl	92-52-4	1,500	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	1,700	18	3	1
10727	Dibenzofuran	132-64-9	1,600	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,700	18	3	1
10727	2-Methylnaphthalene	91-57-6	1,500	18	3	1
10727	Nitrobenzene	98-95-3	1,500	35	17	1
10727	Pentachlorophenol	87-86-5	1,400	180	35	1
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00118	Moisture	n.a.	4.4	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q152852AA	10/12/2015 15:05	Anita M Dale	52.19
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:18	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS15-2728-100715MS Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081290
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12MS

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 17:02	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00118	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS15-2728-100715MSD Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081291
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	ug/kg	
10237	Acrylonitrile	107-13-1	5,200	1,000	200	48.36
10237	Benzene	71-43-2	950	250	25	48.36
10237	Bromoform	75-25-2	870	250	51	48.36
10237	Ethylbenzene	100-41-4	880	250	51	48.36
10237	Isopropylbenzene	98-82-8	820	250	51	48.36
10237	Methylene Chloride	75-09-2	950	250	100	48.36
10237	Naphthalene	91-20-3	860	250	51	48.36
10237	n-Propylbenzene	103-65-1	880	250	51	48.36
10237	Styrene	100-42-5	850	250	51	48.36
10237	Tetrachloroethene	127-18-4	900	250	51	48.36
10237	1,2,4-Trichlorobenzene	120-82-1	780	250	51	48.36
10237	Trichloroethene	79-01-6	950	250	51	48.36
10237	1,3,5-Trimethylbenzene	108-67-8	870	250	51	48.36
10237	m+p-Xylene	179601-23-1	1,800	250	51	48.36
10237	o-Xylene	95-47-6	870	250	51	48.36
	Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.					
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	ug/kg	
10727	Benzo(a)anthracene	56-55-3	1,600	18	3	1
10727	Benzo(a)pyrene	50-32-8	1,600	18	3	1
10727	Benzo(b)fluoranthene	205-99-2	1,600	18	3	1
10727	1,1'-Biphenyl	92-52-4	1,500	35	17	1
10727	Dibenz(a,h)anthracene	53-70-3	1,700	18	3	1
10727	Dibenzofuran	132-64-9	1,600	35	17	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,700	18	3	1
10727	2-Methylnaphthalene	91-57-6	1,600	18	3	1
10727	Nitrobenzene	98-95-3	1,500	35	17	1
10727	Pentachlorophenol	87-86-5	1,400	180	35	1
Wet Chemistry	**SM 2540 G-1997**		%	%	%	
00118	Moisture	n.a.	4.4	0.50	0.50	1
00121	Moisture Duplicate	n.a.	4.3	0.50	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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q152852AA	10/12/2015 15:28	Anita M Dale	48.36
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS15-2728-100715MSD Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081291
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 14:05 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3012 SDG#: DHR30-12MSD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:20	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 17:24	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00118	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1
00121	Moisture Duplicate	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081292
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:10 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3013 SDG#: DHR30-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	19	U	19	4	0.79
10237	Benzene	71-43-2	5	U	5	0.5	0.79
10237	Bromoform	75-25-2	5	U	5	0.9	0.79
10237	Ethylbenzene	100-41-4	5	U	5	0.9	0.79
10237	Isopropylbenzene	98-82-8	5	U	5	0.9	0.79
10237	Methylene Chloride	75-09-2	5	U	5	2	0.79
10237	Naphthalene	91-20-3	5	U	5	0.9	0.79
10237	n-Propylbenzene	103-65-1	5	U	5	0.9	0.79
10237	Styrene	100-42-5	5	U	5	0.9	0.79
10237	Tetrachloroethene	127-18-4	18		5	0.9	0.79
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	0.9	0.79
10237	Trichloroethene	79-01-6	5	U	5	0.9	0.79
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	0.9	0.79
10237	m+p-Xylene	179601-23-1	5	U	5	0.9	0.79
10237	o-Xylene	95-47-6	5	U	5	0.9	0.79
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 16:49	Angela D Sneeringer	0.79
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.

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Analysis Report

Sample Description: S01-SS16-0102-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081292
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:10 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3013 SDG#: DHR30-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:22	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 17:46	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Sample Description: S01-SS16-0304-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081293
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:15 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3014 SDG#: DHR30-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	20	U	20	4	0.84
10237	Benzene	71-43-2	5	U	5	0.5	0.84
10237	Bromoform	75-25-2	5	U	5	1	0.84
10237	Ethylbenzene	100-41-4	5	U	5	1	0.84
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.84
10237	Methylene Chloride	75-09-2	5	U	5	2	0.84
10237	Naphthalene	91-20-3	5	U	5	1	0.84
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.84
10237	Styrene	100-42-5	5	U	5	1	0.84
10237	Tetrachloroethene	127-18-4	79		5	1	0.84
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.84
10237	Trichloroethene	79-01-6	3	J	5	1	0.84
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.84
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.84
10237	o-Xylene	95-47-6	5	U	5	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	16.7		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 17:12	Angela D Sneeringer	0.84
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-0304-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081293
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:15 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3014 SDG#: DHR30-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:25	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 18:07	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081294
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:20 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3015 SDG#: DHR30-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	21	U	21	4	0.86
10237	Benzene	71-43-2	5	U	5	0.5	0.86
10237	Bromoform	75-25-2	5	U	5	1	0.86
10237	Ethylbenzene	100-41-4	5	U	5	1	0.86
10237	Isopropylbenzene	98-82-8	5	U	5	1	0.86
10237	Methylene Chloride	75-09-2	5	U	5	2	0.86
10237	Naphthalene	91-20-3	5	U	5	1	0.86
10237	n-Propylbenzene	103-65-1	5	U	5	1	0.86
10237	Styrene	100-42-5	5	U	5	1	0.86
10237	Tetrachloroethene	127-18-4	60		5	1	0.86
10237	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	0.86
10237	Trichloroethene	79-01-6	4	J	5	1	0.86
10237	1,3,5-Trimethylbenzene	108-67-8	5	U	5	1	0.86
10237	m+p-Xylene	179601-23-1	5	U	5	1	0.86
10237	o-Xylene	95-47-6	5	U	5	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	20	U	20	4	1
10727	Benzo(a)pyrene	50-32-8	20	U	20	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	U	20	4	1
10727	1,1'-Biphenyl	92-52-4	40	U	40	20	1
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	4	1
10727	Dibenzofuran	132-64-9	40	U	40	20	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	U	20	4	1
10727	2-Methylnaphthalene	91-57-6	20	U	20	4	1
10727	Nitrobenzene	98-95-3	40	U	40	20	1
10727	Pentachlorophenol	87-86-5	200	U	200	40	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	17.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 17:34	Angela D Sneeringer	0.86
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:35	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-0809-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081294
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:20 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3015 SDG#: DHR30-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:31	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 18:29	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081295
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:35 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3016 SDG#: DHR30-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	**ug/kg**	
10237	Acrylonitrile	107-13-1	23	U	23	5	1.02
10237	Benzene	71-43-2	6	U	6	0.6	1.02
10237	Bromoform	75-25-2	6	U	6	1	1.02
10237	Ethylbenzene	100-41-4	6	U	6	1	1.02
10237	Isopropylbenzene	98-82-8	6	U	6	1	1.02
10237	Methylene Chloride	75-09-2	6	U	6	2	1.02
10237	Naphthalene	91-20-3	6	U	6	1	1.02
10237	n-Propylbenzene	103-65-1	6	U	6	1	1.02
10237	Styrene	100-42-5	6	U	6	1	1.02
10237	Tetrachloroethene	127-18-4	94		6	1	1.02
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	1.02
10237	Trichloroethene	79-01-6	4	J	6	1	1.02
10237	1,3,5-Trimethylbenzene	108-67-8	6	U	6	1	1.02
10237	m+p-Xylene	179601-23-1	6	U	6	1	1.02
10237	o-Xylene	95-47-6	6	U	6	1	1.02
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Benzo(a)anthracene	56-55-3	5	J	19	4	1
10727	Benzo(a)pyrene	50-32-8	4	J	19	4	1
10727	Benzo(b)fluoranthene	205-99-2	12	J	19	4	1
10727	1,1'-Biphenyl	92-52-4	38	U	38	19	1
10727	Dibenz(a,h)anthracene	53-70-3	19	U	19	4	1
10727	Dibenzofuran	132-64-9	22	J	38	19	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	5	J	19	4	1
10727	2-Methylnaphthalene	91-57-6	19	U	19	4	1
10727	Nitrobenzene	98-95-3	38	U	38	19	1
10727	Pentachlorophenol	87-86-5	190	U	190	38	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152851AA	10/12/2015 17:57	Angela D Sneeringer	1.02
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	1	201528139052	10/08/2015 18:36	Mitchell R Washel	n.a.
07320	GC/MS - LL DIH2O Encore Prep	SW-846 5035A	2	201528139052	10/08/2015 18:36	Mitchell R Washel	n.a.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-SS16-2728-100715 Grab Soil
Dow Hanging Rock, OH

LL Sample # SW 8081295
LL Group # 1599284
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/07/2015 15:35 by DR

Submitted: 10/08/2015 10:00
Reported: 10/22/2015 13:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

D3016 SDG#: DHR30-16

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07578	GC/MS-HL Encore Prep-NC	SW-846 5035A	1	201528139052	10/08/2015 18:34	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015 18:51	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015 18:35	Sally L Appleyard	1
00111	Moisture	SM 2540 G-1997	1	15287820002A	10/14/2015 11:57	William C Schwebel	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599284
Reported: 10/22/2015 13:25

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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A152851AA	Sample number(s): 8081281-8081288,8081292-8081295									
Acrylonitrile	20	U	20.	4	ug/kg	90	94	55-128	4	30
Benzene	5	U	5.	0.5	ug/kg	93	92	80-120	1	30
Bromoform	5	U	5.	1	ug/kg	84	85	64-120	0	30
Ethylbenzene	5	U	5.	1	ug/kg	94	92	80-120	1	30
Isopropylbenzene	5	U	5.	1	ug/kg	95	94	76-120	2	30
Methylene Chloride	5	U	5.	2	ug/kg	95	95	76-122	0	30
Naphthalene	5	U	5.	1	ug/kg	90	95	53-120	5	30
n-Propylbenzene	5	U	5.	1	ug/kg	94	94	67-124	1	30
Styrene	5	U	5.	1	ug/kg	95	93	76-120	2	30
Tetrachloroethene	5	U	5.	1	ug/kg	93	93	78-120	0	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	89	92	60-120	3	30
Trichloroethene	5	U	5.	1	ug/kg	93	90	80-120	2	30
1,3,5-Trimethylbenzene	5	U	5.	1	ug/kg	95	94	73-120	1	30
m+p-Xylene	5	U	5.	1	ug/kg	96	93	80-120	3	30
o-Xylene	5	U	5.	1	ug/kg	94	92	80-120	2	30
Batch number: L152874AA	Sample number(s): 8081278-8081280									
Acrylonitrile	20	U	20.	4	ug/l	79	87	55-127	10	30
Benzene	1	U	1.	0.5	ug/l	85	98	78-120	14	30
Bromoform	4	U	4.	0.5	ug/l	92	100	61-121	9	30
Ethylbenzene	1	U	1.	0.5	ug/l	85	95	78-120	11	30
Isopropylbenzene	5	U	5.	1	ug/l	82	92	80-120	12	30
Methylene Chloride	4	U	4.	2	ug/l	91	100	77-121	9	30
Naphthalene	5	U	5.	1	ug/l	74	84	59-120	12	30
n-Propylbenzene	5	U	5.	1	ug/l	90	96	75-130	7	30
Styrene	5	U	5.	1	ug/l	84	95	80-120	12	30
Tetrachloroethene	1	U	1.	0.5	ug/l	90	100	80-122	11	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/l	76	84	73-120	10	30
Trichloroethene	1	U	1.	0.5	ug/l	90	100	80-120	10	30
1,3,5-Trimethylbenzene	5	U	5.	1	ug/l	89	95	80-120	7	30
m+p-Xylene	1	U	1.	0.5	ug/l	86	97	80-120	13	30
o-Xylene	1	U	1.	0.5	ug/l	79	90	79-120	13	30
Batch number: Q152852AA	Sample number(s): 8081289-8081291									
Acrylonitrile	1,000 U		1,000.	200	ug/kg	110	100	55-128	10	30
Benzene	250 U		250.	25	ug/kg	107	96	80-120	10	30
Bromoform	250 U		250.	50	ug/kg	98	89	64-120	10	30
Ethylbenzene	250 U		250.	50	ug/kg	99	89	80-120	10	30
Isopropylbenzene	250		250.	50	ug/kg	92	84	76-120	9	30

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599284
Reported: 10/22/2015 13:25

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methylene Chloride	U 250		250.	100	ug/kg	110	98	76-122	11	30
Naphthalene	U 250		250.	50	ug/kg	91	85	53-120	7	30
n-Propylbenzene	U 250		250.	50	ug/kg	99	90	67-124	9	30
Styrene	U 250		250.	50	ug/kg	97	88	76-120	9	30
Tetrachloroethene	U 250		250.	50	ug/kg	100	91	78-120	9	30
1,2,4-Trichlorobenzene	U 250		250.	50	ug/kg	85	79	60-120	8	30
Trichloroethene	U 250		250.	50	ug/kg	105	96	80-120	10	30
1,3,5-Trimethylbenzene	U 250		250.	50	ug/kg	98	89	73-120	10	30
m+p-Xylene	U 250		250.	50	ug/kg	99	89	80-120	10	30
o-Xylene	U 250		250.	50	ug/kg	99	89	80-120	11	30
Batch number: 15286WAB026	Sample number(s): 8081278									
Benzo(a)anthracene	0.5	U	0.5	0.1	ug/l	105	99	76-122	5	30
Benzo(a)pyrene	0.5	U	0.5	0.1	ug/l	98	94	73-115	4	30
Benzo(b)fluoranthene	0.5	U	0.5	0.1	ug/l	101	99	75-123	2	30
1,1'-Biphenyl	1	U	1.	0.5	ug/l	91	88	76-112	4	30
Dibenz(a,h)anthracene	0.5	U	0.5	0.1	ug/l	105	99	72-127	5	30
Dibenzofuran	1	U	1.	0.5	ug/l	92	90	75-109	2	30
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	0.1	ug/l	99	95	70-121	5	30
2-Methylnaphthalene	0.5	U	0.5	0.1	ug/l	86	85	69-103	2	30
Nitrobenzene	1	U	1.	0.5	ug/l	98	94	70-121	5	30
Pentachlorophenol	5	U	5.	1	ug/l	83	90	47-126	8	30
Batch number: 15290SLG026	Sample number(s): 8081281-8081295									
Benzo(a)anthracene	17	U	17.	3	ug/kg	102		76-119		
Benzo(a)pyrene	17	U	17.	3	ug/kg	99		85-117		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	101		78-129		
1,1'-Biphenyl	33	U	33.	17	ug/kg	93		80-116		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	101		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	98		85-115		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	98		81-118		
2-Methylnaphthalene	17	U	17.	3	ug/kg	98		83-109		
Nitrobenzene	33	U	33.	17	ug/kg	95		70-122		
Pentachlorophenol	170	U	170.	33	ug/kg	74		57-126		
Batch number: 15287820002A	Sample number(s): 8081281-8081295									
Moisture						100		99-101		
Moisture						100		99-101		
Moisture Duplicate						100		99-101		

Sample Matrix Quality Control

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599284
Reported: 10/22/2015 13:25
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: A152851AA	Sample number(s): 8081281-8081288,8081292-8081295 UNSPK: P076198								
Acrylonitrile	71	80	55-128	10	30				
Benzene	79*	97	80-120	20	30				
Bromoform	63*	75	64-120	16	30				
Ethylbenzene	52*	73*	80-120	32*	30				
Isopropylbenzene	43*	64*	76-120	38*	30				
Methylene Chloride	94	111	76-122	16	30				
Naphthalene	49*	62	53-120	23	30				
n-Propylbenzene	41*	62*	67-124	39*	30				
Styrene	55*	74*	76-120	28	30				
Tetrachloroethene	57*	80	78-120	31*	30				
1,2,4-Trichlorobenzene	42*	58*	60-120	30	30				
Trichloroethene	71*	91	80-120	24	30				
1,3,5-Trimethylbenzene	46*	67*	73-120	36*	30				
m+p-Xylene	52*	73*	80-120	32*	30				
o-Xylene	53*	73*	80-120	31*	30				
Batch number: L152874AA	Sample number(s): 8081278-8081280 UNSPK: P084519								
Acrylonitrile	91	91	55-127	1	30				
Benzene	111	108	78-120	3	30				
Bromoform	101	100	61-121	1	30				
Ethylbenzene	106	104	78-120	1	30				
Isopropylbenzene	103	102	80-120	1	30				
Methylene Chloride	109	108	77-121	1	30				
Naphthalene	83	84	59-120	1	30				
n-Propylbenzene	108	106	75-130	2	30				
Styrene	104	102	80-120	2	30				
Tetrachloroethene	115	115	80-122	1	30				
1,2,4-Trichlorobenzene	87	89	73-120	1	30				
Trichloroethene	114	113	80-120	1	30				
1,3,5-Trimethylbenzene	105	103	80-120	2	30				
m+p-Xylene	107	106	80-120	1	30				
o-Xylene	99	97	79-120	2	30				
Batch number: Q152852AA	Sample number(s): 8081289-8081291 UNSPK: 8081289								
Acrylonitrile	94	104	55-128	2	30				
Benzene	89	94	80-120	2	30				
Bromoform	79	86	64-120	1	30				
Ethylbenzene	82	87	80-120	2	30				
Isopropylbenzene	77	81	76-120	2	30				
Methylene Chloride	91	94	76-122	5	30				
Naphthalene	82	85	53-120	3	30				
n-Propylbenzene	82	87	67-124	2	30				
Styrene	81	84	76-120	4	30				
Tetrachloroethene	10*	2*	78-120	8	30				
1,2,4-Trichlorobenzene	71	77	60-120	1	30				
Trichloroethene	88	94	80-120	2	30				
1,3,5-Trimethylbenzene	82	86	73-120	3	30				
m+p-Xylene	81	88	80-120	0	30				
o-Xylene	80	86	80-120	1	30				
Batch number: 15290SLG026	Sample number(s): 8081281-8081295 UNSPK: 8081289								

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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: 1599284
Reported: 10/22/2015 13:25

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	90	92	76-119	1	30				
Benzo(a)pyrene	93	89	85-117	4	30				
Benzo(b)fluoranthene	100	93	78-129	8	30				
1,1'-Biphenyl	88	90	80-116	1	30				
Dibenz(a,h)anthracene	97	99	81-123	1	30				
Dibenzofuran	90	92	85-115	2	30				
Indeno(1,2,3-cd)pyrene	97	95	81-118	2	30				
2-Methylnaphthalene	89	91	83-109	2	30				
Nitrobenzene	87	88	70-122	1	30				
Pentachlorophenol	80	80	57-126	1	30				

Batch number: 15287820002A Sample number(s): 8081281-8081295 BKG: 8081289

Moisture	4.4	4.3	3	5
Moisture	4.4	4.3	3	5
Moisture Duplicate	4.4	4.3	3	5

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: VOCs- Solid by 8260B
Batch number: A152851AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8081281	103	105	99	94
8081282	101	98	100	90
8081283	101	97	99	90
8081284	102	100	101	89
8081285	103	102	99	91
8081286	105	107	96	92
8081287	103	100	97	91
8081288	103	101	98	87
8081292	104	103	98	92
8081293	102	97	98	87
8081294	102	98	99	89
8081295	104	101	99	85
Blank	103	106	97	92
LCS	102	101	100	99
LCSD	101	105	99	98
MS	104	101	101	97
MSD	100	97	101	95
Limits:	50-141	54-135	52-141	50-131

Analysis Name: VOCs- 5ml Water by 8260B
Batch number: L152874AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8081278	112	108	100	95
8081279	112	109	99	93
8081280	112	104	100	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: 1599284
Reported: 10/22/2015 13:25

Surrogate Quality Control

Blank	109	105	100	97
LCS	105	101	103	107
LCSD	104	101	103	104
MS	104	104	101	102
MSD	104	106	101	102
Limits:	80-116	77-113	80-113	78-113

Analysis Name: VOCs- Solid by 8260B
Batch number: Q152852AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8081289	101	104	99	92
8081290	93	98	92	88
8081291	95	103	94	90
Blank	100	102	97	91
LCS	114	113	108	103
LCSD	100	105	98	94
MS	93	98	92	88
MSD	95	103	94	90
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL SW846 8270C Water
Batch number: 15286WAB026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8081278	61	41	94	93	92	95
Blank	46	34	87	87	84	95
LCS	47	34	75	90	88	88
LCSD	63	46	85	88	85	86
Limits:	10-107	10-85	22-150	46-128	61-112	43-131

Analysis Name: TCL 8270 (microwave)
Batch number: 15290SLG026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8081281	84	87	99	85	90	99
8081282	81	85	96	83	88	95
8081283	84	88	100	83	89	98
8081284	91	95	95	90	98	108
8081285	89	91	100	85	92	101
8081286	80	84	93	81	88	96
8081287	82	85	93	80	86	95
8081288	85	89	95	86	93	101
8081289	88	92	97	89	97	102
8081290	84	88	94	85	93	99
8081291	86	90	94	86	93	100
8081292	84	88	93	85	93	100
8081293	83	88	92	85	93	102
8081294	84	88	95	88	95	104
8081295	88	92	101	90	98	106
Blank	86	90	100	88	92	98
LCS	92	96	104	92	96	105
MS	84	88	94	85	93	99
MSD	86	90	94	86	93	100
Limits:	58-122	49-134	36-142	54-123	63-117	59-129

*- Outside of specification
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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.

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1599284 Sample # 8081278-95

COC # 388986

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation

PWSID #: 652109.01.F

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Sediment	Soil ✓	Ground ✓	Surface	Potable	NPDES	Water	Other:	Total # of Containers	VOC's	SVOC's	% solids	Remarks
																	depth
HGR-100715-EB01	10/7/15	0915	✓								✓		15	✓	✓		equip blank
100715TB01	10/7/15	—	✓								✓		2	✓			trip blank
100715TB02	10/7/15	—	✓								✓		2	✓			trip blank
S01-SS14-0102-100715	10/7/15	1050	✓			✓							4	✓	✓	✓	1-2'
S01-SS14-0304-100715	10/7/15	1055	✓			✓							4	✓	✓	✓	3-4'
S01-SS14-0809-100715	10/7/15	1100	✓			✓							4	✓	✓	✓	8-9'
S01-SS14-2728-100715	10/7/15	1120	✓			✓							4	✓	✓	✓	27-28'
HGR-100715-FD01	10/7/15	1130	✓			✓							4	✓	✓	✓	field Dup
S01-SS15-0102-100715	10/7/15	1330	✓			✓							4	✓	✓	✓	1-2'
S01-SS15-0405-100715	10/7/15	1335	✓			✓							4	✓	✓	✓	4-5'

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@ch2m.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	10/7/15	1700			

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 0.4 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0615

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1599284 Sample # 8081278-95

COC # 388985

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation

PWSID #:

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Water: Potable	Water: Ground	Water: NPDES	Water: Surface	Other:	Total # of Containers	VOCs	SVOCs	% Solids								Remarks (depth)
S01-SS15-0809-100715	10/7/15	1340	✓		✓							4	✓	✓	✓								8-9'
S01-SS15-2728-100715	10/7/15	1405	✓		✓							4	✓	✓	✓								27-28'
S01-SS15-2728-100715MS	10/7/15	1405	✓		✓							4	✓	✓	✓								matrix spike
S01-SS15-2728-100715MSD	10/7/15	1405	✓		✓							4	✓	✓	✓								matrix spike duplicate
S01-SS16-0102-100715	10/7/15	1510	✓		✓							4	✓	✓	✓								1-2'
S01-SS16-0304-100715	10/7/15	1515	✓		✓							4	✓	✓	✓								3-4'
S01-SS16-0809-100715	10/7/15	1520	✓		✓							4	✓	✓	✓								8-9'
S01-SS16-2728-100715	10/7/15	1535	✓		✓							4	✓	✓	✓								27-28'

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	10/7/15	1700			
			[illegible]	10.8.15	1000

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx ✓ Other _____

Temperature upon receipt 0.4 °C

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0615

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Sample Administration Receipt Documentation Log

Doc Log ID: 112178

Group Number(s): 1599234

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/08/2015 10:00
Number of Packages:	2	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 11:37 on 10/08/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.4	DT	Wet	Y	Bagged	N
2	DT131	0.9	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-5425
T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and the < Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) 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.

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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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

VOCs- 5ml Water by 8260B

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8081278	HGR-100715-EB01	X		1	Equipment Blank
8081279	HGR-100715-TB01	X		1	Trip Blank
8081280	HGR-100715-TB02	X		1	Trip Blank
8081281	S01-SS14-0102-100715		X	0.84	
8081282	S01-SS14-0304-100715		X	0.86	
8081283	S01-SS14-0809-100715		X	0.91	
8081284	S01-SS14-2728-100715		X	0.97	
8081285	HGR-100715-FD01		X	1.02	Field Duplicate Sample
8081286	S01-SS15-0102-100715		X	0.77	
8081287	S01-SS15-0405-100715		X	0.84	
8081288	S01-SS15-0809-100715		X	0.88	
8081289	S01-SS15-2728-100715		X	58.14	Unspiked
8081290	S01-SS15-2728-100715MS		X	52.19	Matrix Spike
8081291	S01-SS15-2728-100715MSD		X	48.36	Matrix Spike Duplicate
8081292	S01-SS16-0102-100715		X	0.79	
8081293	S01-SS16-0304-100715		X	0.84	
8081294	S01-SS16-0809-100715		X	0.86	
8081295	S01-SS16-2728-100715		X	1.02	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

(Sample number(s): 8081281-8081283, 8081286-8081289, 8081292-8081294: Analysis: 10237)
The VOA soil weight is outside the acceptable weight range.
See the VOA Prep Summary Sheet for the affected sample(s).

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

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.

Batch#: Q152852AA (Sample number(s): 8081289-8081291, UNSPK: 8081289)
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Tetrachloroethene
Refer to the QC Summary forms for more information.

SAMPLE ANALYSIS:

(Sample number(s): 8081282-8081283, 8081293-8081295: Analysis: 10237)
The recovery for the sample internal standard is outside the QC acceptance limits. The following corrective action was taken: since this internal standard was not used to quantitate any targetanalytes, the data is reported.

(Sample number(s): 8081289: Analysis: 10237)
Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

Reporting limits were raised due to interference from the sample matrix.

(Sample number(s): 8081290-8081291: Analysis: 10237)
Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR30

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
VOCs- 5ml Water by 8260B	L152874AA	VBLKL79	10/14/2015 11:46:00
		LCSL79	10/14/2015 12:17:00
		LCDL79	10/14/2015 12:39:00
		8081278	10/14/2015 21:39:00
		8081279	10/14/2015 22:01:00
		8081280	10/14/2015 22:23:00
VOCs- Solid by 8260B	A152851AA	VBLKA71	10/12/2015 11:30:00
		LCSA71	10/12/2015 11:52:00
		LCDA71	10/12/2015 12:15:00
		8081281	10/12/2015 13:48:00
		8081282	10/12/2015 14:11:00
		8081283	10/12/2015 14:33:00
		8081284	10/12/2015 14:56:00
		8081285	10/12/2015 15:19:00
		8081286	10/12/2015 15:41:00
		8081287	10/12/2015 16:04:00
		8081288	10/12/2015 16:26:00
		8081292	10/12/2015 16:49:00
		8081293	10/12/2015 17:12:00
		8081294	10/12/2015 17:34:00
		8081295	10/12/2015 17:57:00
VOCs- Solid by 8260B	Q152852AA	VBLKQ70	10/12/2015 08:57:00
		LCSQ70	10/12/2015 10:06:00
		LCDQ70	10/12/2015 10:29:00
		8081289 UNSPK	10/12/2015 16:14:00
		8081290 MS	10/12/2015 15:05:00
		8081291 MSD	10/12/2015 15:28:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR30
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152851AA / VBLKA71 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Acrylonitrile	10/12/15	N.D.	ug/kg	4	20
Methylene Chloride	10/12/15	N.D.	ug/kg	2	5
Benzene	10/12/15	N.D.	ug/kg	0.5	5
Trichloroethene	10/12/15	N.D.	ug/kg	1	5
Tetrachloroethene	10/12/15	N.D.	ug/kg	1	5
Bromoform	10/12/15	N.D.	ug/kg	1	5
Ethylbenzene	10/12/15	N.D.	ug/kg	1	5
Isopropylbenzene	10/12/15	N.D.	ug/kg	1	5
n-Propylbenzene	10/12/15	N.D.	ug/kg	1	5
Styrene	10/12/15	N.D.	ug/kg	1	5
m+p-Xylene	10/12/15	N.D.	ug/kg	1	5
o-Xylene	10/12/15	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	10/12/15	N.D.	ug/kg	1	5
Naphthalene	10/12/15	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	10/12/15	N.D.	ug/kg	1	5

Q152852AA / VBLKQ70 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Acrylonitrile	10/12/15	N.D.	ug/kg	200	1000
Methylene Chloride	10/12/15	N.D.	ug/kg	100	250
Benzene	10/12/15	N.D.	ug/kg	25	250
Trichloroethene	10/12/15	N.D.	ug/kg	50	250
Tetrachloroethene	10/12/15	N.D.	ug/kg	50	250
Bromoform	10/12/15	N.D.	ug/kg	50	250
Ethylbenzene	10/12/15	N.D.	ug/kg	50	250
Isopropylbenzene	10/12/15	N.D.	ug/kg	50	250
n-Propylbenzene	10/12/15	N.D.	ug/kg	50	250
Styrene	10/12/15	N.D.	ug/kg	50	250
m+p-Xylene	10/12/15	N.D.	ug/kg	50	250
o-Xylene	10/12/15	N.D.	ug/kg	50	250
1,3,5-Trimethylbenzene	10/12/15	N.D.	ug/kg	50	250
Naphthalene	10/12/15	N.D.	ug/kg	50	250
1,2,4-Trichlorobenzene	10/12/15	N.D.	ug/kg	50	250

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR30
Matrix: LIQUID

Fraction: Volatiles by GC/MS

L152874AA / VBLKL79 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Methylene Chloride	10/14/15	N.D.	ug/l	2	4
Acrylonitrile	10/14/15	N.D.	ug/l	4	20
Benzene	10/14/15	N.D.	ug/l	0.5	1
Trichloroethene	10/14/15	N.D.	ug/l	0.5	1
Tetrachloroethene	10/14/15	N.D.	ug/l	0.5	1
Ethylbenzene	10/14/15	N.D.	ug/l	0.5	1
m+p-Xylene	10/14/15	N.D.	ug/l	0.5	1
o-Xylene	10/14/15	N.D.	ug/l	0.5	1
Styrene	10/14/15	N.D.	ug/l	1	5
Bromoform	10/14/15	N.D.	ug/l	0.5	4
Isopropylbenzene	10/14/15	N.D.	ug/l	1	5
n-Propylbenzene	10/14/15	N.D.	ug/l	1	5
1,3,5-Trimethylbenzene	10/14/15	N.D.	ug/l	1	5
1,2,4-Trichlorobenzene	10/14/15	N.D.	ug/l	1	5
Naphthalene	10/14/15	N.D.	ug/l	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR30
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152851AA	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
VBLKA71	103	50 - 141	106	54 - 135	97	52 - 141	92	50 - 131
LCSA71	102	50 - 141	101	54 - 135	100	52 - 141	99	50 - 131
LCDA71	101	50 - 141	105	54 - 135	99	52 - 141	98	50 - 131
8081281	103	50 - 141	105	54 - 135	99	52 - 141	94	50 - 131
8081282	101	50 - 141	98	54 - 135	100	52 - 141	90	50 - 131
8081283	101	50 - 141	97	54 - 135	99	52 - 141	90	50 - 131
8081284	102	50 - 141	100	54 - 135	101	52 - 141	89	50 - 131
8081285	103	50 - 141	102	54 - 135	99	52 - 141	91	50 - 131
8081286	105	50 - 141	107	54 - 135	96	52 - 141	92	50 - 131
8081287	103	50 - 141	100	54 - 135	97	52 - 141	91	50 - 131
8081288	103	50 - 141	101	54 - 135	98	52 - 141	87	50 - 131
8081292	104	50 - 141	103	54 - 135	98	52 - 141	92	50 - 131
8081293	102	50 - 141	97	54 - 135	98	52 - 141	87	50 - 131
8081294	102	50 - 141	98	54 - 135	99	52 - 141	89	50 - 131
8081295	104	50 - 141	101	54 - 135	99	52 - 141	85	50 - 131

Q152852AA	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
VBLKQ70	100	50 - 141	102	54 - 135	97	52 - 141	91	50 - 131
LCSQ70	114	50 - 141	113	54 - 135	108	52 - 141	103	50 - 131
LCDQ70	100	50 - 141	105	54 - 135	98	52 - 141	94	50 - 131
8081289 UNSPK	101	50 - 141	104	54 - 135	99	52 - 141	92	50 - 131
8081290 MS	93	50 - 141	98	54 - 135	92	52 - 141	88	50 - 131
8081291 MSD	95	50 - 141	103	54 - 135	94	52 - 141	90	50 - 131

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR30
Matrix: LIQUID

Fraction: Volatiles by GC/MS

L152874AA	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
VBLKL79	109	80 - 116	105	77 - 113	100	80 - 113	97	78 - 113
LCSL79	105	80 - 116	101	77 - 113	103	80 - 113	107	78 - 113
LCDL79	104	80 - 116	101	77 - 113	103	80 - 113	104	78 - 113
8081278	112	80 - 116	108	77 - 113	100	80 - 113	95	78 - 113
8081279	112	80 - 116	109	77 - 113	99	80 - 113	93	78 - 113
8081280	112	80 - 116	104	77 - 113	100	80 - 113	93	78 - 113

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR30
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 8081289 MS: 8081290 MSD: 8081291 **Analyte**	Batch: **Q152852AA** (Sample number(s): 8081289-8081291)								
	Spike Added ug/kg MS/MSD	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	5219.21 / 4835.59	N.D.	4909.69	5011.71	94	104	55-128	2	30
Methylene Chloride	1043.84 / 967.12	N.D.	951.77	906.53	91	94	76-122	5	30
Benzene	1043.84 / 967.12	N.D.	931.1	912.5	89	94	80-120	2	30
Trichloroethene	1043.84 / 967.12	N.D.	923.29	907.33	88	94	80-120	2	30
Tetrachloroethene	1043.84 / 967.12	837.74	937.06	861.52	10 *	2 *	78-120	8	30
Bromoform	1043.84 / 967.12	N.D.	825.54	834.03	79	86	64-120	1	30
Ethylbenzene	1043.84 / 967.12	N.D.	855.6	840.46	82	87	80-120	2	30
Isopropylbenzene	1043.84 / 967.12	N.D.	804.18	786.05	77	81	76-120	2	30
m+p-Xylene	2087.68 / 1934.24	N.D.	1695.15	1696.69	81	88	80-120	0	30
n-Propylbenzene	1043.84 / 967.12	N.D.	857.56	840.66	82	87	67-124	2	30
o-Xylene	1043.84 / 967.12	N.D.	839.66	830.35	80	86	80-120	1	30
Styrene	1043.84 / 967.12	N.D.	844.51	808.32	81	84	76-120	4	30
1,3,5-Trimethylbenzene	1043.84 / 967.12	N.D.	859.98	834.09	82	86	73-120	3	30
1,2,4-Trichlorobenzene	1043.84 / 967.12	N.D.	736.98	745.67	71	77	60-120	1	30
Naphthalene	1043.84 / 967.12	N.D.	851.44	824.21	82	85	53-120	3	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR30
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

LCS: LCSA71 LCSD: LCDA71	Batch: **A152851AA** (Sample number(s): 8081281-8081288, 8081292-8081295)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	100	90.21	93.84	90	94	55-128	4	30
Methylene Chloride	20	19.06	18.99	95	95	76-122	0	30
Benzene	20	18.62	18.37	93	92	80-120	1	30
Trichloroethene	20	18.51	18.07	93	90	80-120	2	30
Tetrachloroethene	20	18.69	18.69	93	93	78-120	0	30
Bromoform	20	16.9	16.9	84	85	64-120	0	30
Ethylbenzene	20	18.74	18.47	94	92	80-120	1	30
Isopropylbenzene	20	19.08	18.78	95	94	76-120	2	30
m+p-Xylene	40	38.27	37.31	96	93	80-120	3	30
n-Propylbenzene	20	18.85	18.7	94	94	67-124	1	30
o-Xylene	20	18.76	18.4	94	92	80-120	2	30
Styrene	20	19.05	18.64	95	93	76-120	2	30
1,3,5-Trimethylbenzene	20	19.1	18.89	95	94	73-120	1	30
1,2,4-Trichlorobenzene	20	17.86	18.38	89	92	60-120	3	30
Naphthalene	20	17.99	18.99	90	95	53-120	5	30

LCS: LCSQ70 LCSD: LCDQ70	Batch: **Q152852AA** (Sample number(s): 8081289-8081291)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Acrylonitrile	5000	5513.71	4987.29	110	100	55-128	10	30
Methylene Chloride	1000	1096.43	982.44	110	98	76-122	11	30
Benzene	1000	1066.59	963.96	107	96	80-120	10	30
Trichloroethene	1000	1054.68	958.61	105	96	80-120	10	30
Tetrachloroethene	1000	1001.72	912.01	100	91	78-120	9	30
Bromoform	1000	982.08	887.28	98	89	64-120	10	30
Ethylbenzene	1000	986.56	893.45	99	89	80-120	10	30
Isopropylbenzene	1000	918.85	840.46	92	84	76-120	9	30
m+p-Xylene	2000	1973.01	1787.72	99	89	80-120	10	30
n-Propylbenzene	1000	988.37	899.21	99	90	67-124	9	30
o-Xylene	1000	993.68	888.39	99	89	80-120	11	30
Styrene	1000	966	879.79	97	88	76-120	9	30
1,3,5-Trimethylbenzene	1000	980.06	887.68	98	89	73-120	10	30
1,2,4-Trichlorobenzene	1000	854.79	791.57	85	79	60-120	8	30
Naphthalene	1000	913.73	853.03	91	85	53-120	7	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR30
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSL79 LCSD: LCDL79	Batch: **L152874AA** (Sample number(s): 8081278-8081280)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Methylene Chloride	20	18.29	19.92	91	100	77-121	9	30
Acrylonitrile	100	78.79	86.74	79	87	55-127	10	30
Benzene	20	16.95	19.56	85	98	78-120	14	30
Trichloroethene	20	18.06	20.06	90	100	80-120	10	30
Tetrachloroethene	20	17.94	19.99	90	100	80-122	11	30
Ethylbenzene	20	17	19	85	95	78-120	11	30
m+p-Xylene	40	34.27	38.87	86	97	80-120	13	30
o-Xylene	20	15.71	17.97	79	90	79-120	13	30
Styrene	20	16.79	18.98	84	95	80-120	12	30
Bromoform	20	18.31	20.03	92	100	61-121	9	30
Isopropylbenzene	20	16.35	18.45	82	92	80-120	12	30
n-Propylbenzene	20	17.97	19.2	90	96	75-130	7	30
1,3,5-Trimethylbenzene	20	17.7	19.01	89	95	80-120	7	30
1,2,4-Trichlorobenzene	20	15.15	16.76	76	84	73-120	10	30
Naphthalene	20	14.86	16.79	74	84	59-120	12	30

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID: ac08t01.d BFB Injection Date: 10/08/15

Instrument ID: HP09685 BFB Injection Time: 11:07

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	15.66
75	30.0 - 60.0% of mass 95	46.34
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	0.00 (0.00)1
174	Greater than 50.0% of mass 95	84.91
175	5.0 - 9.0% of mass 174	6.23 (7.33)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.75 (96.28)1
177	5.0 - 9.0% of mass 176	5.43 (6.64)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	ac08i01.d	10/08/15	11:55
02	VSTD100	ac08i02.d	10/08/15	12:22
03	VSTD50	ac08i03.d	10/08/15	12:48
04	VSTD10	ac08i05.d	10/08/15	14:16
05	VSTD4	ac08i06.d	10/08/15	14:38
06	VSTD001	ac08m01.d	10/08/15	15:01
07	VSTD20	ac08i07.d	10/08/15	15:46
08	LCSAICV	al06v01.d	10/08/15	16:40

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID: ac12t02.d BFB Injection Date: 10/12/15

Instrument ID: HP09685 BFB Injection Time: 10:07

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	15.39
75	30.0 - 60.0% of mass 95	46.02
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.93
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	82.52
175	5.0 - 9.0% of mass 174	6.00 (7.27)1
176	Greater than 95.0%, but less than 101.0% of mass 174	79.21 (95.98)1
177	5.0 - 9.0% of mass 176	5.25 (6.62)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	ac12c01.d	10/12/15	10:45
02	VBLKA71	ac12b01.d	10/12/15	11:30
03	LCSA71	ac12s01.d	10/12/15	11:52
04	LCDA71	ac12s02.d	10/12/15	12:15
05	8081281	ac12s03.d	10/12/15	13:48
06	8081282	ac12s04.d	10/12/15	14:11
07	8081283	ac12s05.d	10/12/15	14:33
08	8081284	ac12s06.d	10/12/15	14:56
09	8081285	ac12s07.d	10/12/15	15:19
10	8081286	ac12s08.d	10/12/15	15:41
11	8081287	ac12s09.d	10/12/15	16:04
12	8081288	ac12s10.d	10/12/15	16:26
13	8081292	ac12s11.d	10/12/15	16:49
14	8081293	ac12s12.d	10/12/15	17:12
15	8081294	ac12s13.d	10/12/15	17:34
16	8081295	ac12s14.d	10/12/15	17:57
17	8076197	ac12s15.d	10/12/15	18:19
18	8076198	ac12s16.d	10/12/15	18:42
19	8076198MS	ac12s17.d	10/12/15	19:04
20	8076198MSD	ac12s18.d	10/12/15	19:27
21	8079058	ac12s19.d	10/12/15	19:49
22	8081272	ac12s21.d	10/12/15	20:35

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.: DHR30

Lab File ID: ac12t02.d BFB Injection Date: 10/12/15

Instrument ID: HP09685 BFB Injection Time: 10:07

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	15.39
75	30.0 - 60.0% of mass 95	46.02
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.93
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	82.52
175	5.0 - 9.0% of mass 174	6.00 (7.27)1
176	Greater than 95.0%, but less than 101.0% of mass 174	79.21 (95.98)1
177	5.0 - 9.0% of mass 176	5.25 (6.62)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	8081273	ac12s22.d	10/12/15	20:57
24	8079591	ac12s25.d	10/12/15	21:20
25	8081565	ac12s26.d	10/12/15	21:42

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.: DHR30

Lab File ID: qa07t01.d BFB Injection Date: 04/07/15

Instrument ID: HP07536 BFB Injection Time: 14:00

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	18.23
75	30.0 - 60.0% of mass 95	48.34
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.06
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	93.05
175	5.0 - 9.0% of mass 174	7.11 (7.64)1
176	Greater than 95.0%, but less than 101.0% of mass 174	91.62 (98.46)1
177	5.0 - 9.0% of mass 176	6.23 (6.80)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	qa07i01.d	04/07/15	14:54
02	VSTD100	qa07i02.d	04/07/15	15:17
03	VSTD50	qa07i03.d	04/07/15	15:41
04	VSTD20	qa07i04.d	04/07/15	16:04
05	VSTD10	qa07i05.d	04/07/15	16:27
06	VSTD4	qa07i06.d	04/07/15	16:50
07	VSTD2	qa07i07.d	04/07/15	17:14
08	1PPBMDL - 1PPBMDL	qa07m01.d	04/07/15	17:37
09	ICVLG	qa07v01.d	04/07/15	18:00

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.: DHR30

Lab File ID: qc12t01.d BFB Injection Date: 10/12/15

Instrument ID: HP07536 BFB Injection Time: 06:43

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	18.01
75	30.0 - 60.0% of mass 95	47.71
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.01
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	89.70
175	5.0 - 9.0% of mass 174	6.84 (7.62)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.32 (97.34)1
177	5.0 - 9.0% of mass 176	5.66 (6.48)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	qc12c01.d	10/12/15	06:56
02	VSTD50	qc12c02.d	10/12/15	07:19
03	LCSQ68	qc12l01.d	10/12/15	07:48
04	LCDQ68	qc12l02.d	10/12/15	08:11
05	VBLKQ68	qc12b01.d	10/12/15	08:34
06	VBLKQ70	qc12b05.d	10/12/15	08:57
07	LCSQ69	qc12l03.d	10/12/15	09:20
08	LCDQ69	qc12l04.d	10/12/15	09:43
09	LCSQ70	qc12l31.d	10/12/15	10:06
10	LCDQ70	qc12l32.d	10/12/15	10:29
11	8078185	qc12s01.d	10/12/15	10:53
12	8077891DL	qc12s02.d	10/12/15	11:16
13	8077889DL	qc12s04.d	10/12/15	11:39
14	8077888	qc12s06.d	10/12/15	12:01
15	8077890	qc12s08.d	10/12/15	12:24
16	8077891	qc12s03.d	10/12/15	12:47
17	8077889	qc12s05.d	10/12/15	13:10
18	8077888DL	qc12s07.d	10/12/15	13:33
19	8077890DL	qc12s09.d	10/12/15	13:56
20	8078042	qc12s10.d	10/12/15	14:19
21	8076231	qc12s33.d	10/12/15	14:42
22	8081290MS	qc12s42.d	10/12/15	15:05

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.: DHR30

Lab File ID: qc12t01.d BFB Injection Date: 10/12/15

Instrument ID: HP07536 BFB Injection Time: 06:43

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	18.01
75	30.0 - 60.0% of mass 95	47.71
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.01
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	89.70
175	5.0 - 9.0% of mass 174	6.84 (7.62)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.32 (97.34)1
177	5.0 - 9.0% of mass 176	5.66 (6.48)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	8081291MSD	qc12s43.d	10/12/15	15:28
24	8076240	qc12s34.d	10/12/15	15:51
25	8081289	qc12s41.d	10/12/15	16:14
26	8078192	qc12s35.d	10/12/15	16:37
27	8078193	qc12s36.d	10/12/15	17:00
28	8078194	qc12s37.d	10/12/15	17:23
29	8078677	qc12s38.d	10/12/15	17:45
30	8055929	qc12s39.d	10/12/15	18:08

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.: DHR30

Lab File ID: lu22t01.d BFB Injection Date: 06/22/15

Instrument ID: HP09915 BFB Injection Time: 11:52

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	20.13
75	30.0 - 60.0% of mass 95	49.97
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.77
173	Less than 2.0% of mass 174	0.55 (0.64)1
174	Greater than 50.0% of mass 95	85.69
175	5.0 - 9.0% of mass 174	5.81 (6.78)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.44 (96.20)1
177	5.0 - 9.0% of mass 176	5.35 (6.48)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	lu22i01.d	06/22/15	13:03
02	VSTD100	lu22i02.d	06/22/15	13:25
03	VSTD50	lu22i03.d	06/22/15	13:46
04	VSTD20	lu22i04.d	06/22/15	14:08
05	VSTD10	lu22i05.d	06/22/15	14:30
06	VSTD4	lu22i06.d	06/22/15	14:52
07	VSTD1	lu22i07.d	06/22/15	15:14
08	MDL0.5 - MDLD0.5	lu22m01.d	06/22/15	15:36
09	LGLICV	lu22v01.d	06/22/15	15:58

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.: DHR30

Lab File ID: lc14t03.d BFB Injection Date: 10/14/15

Instrument ID: HP09915 BFB Injection Time: 10:37

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	21.86
75	30.0 - 60.0% of mass 95	56.67
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.77
173	Less than 2.0% of mass 174	0.94 (0.98)1
174	Greater than 50.0% of mass 95	95.62
175	5.0 - 9.0% of mass 174	6.97 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	93.02 (97.29)1
177	5.0 - 9.0% of mass 176	5.49 (5.90)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	lc14c01.d	10/14/15	11:24
02	VBLKL78	lc14b01.d	10/14/15	11:46
03	VBLKL79	lc14b05.d	10/14/15	11:46
04	LCSL78	lc14s01.d	10/14/15	12:17
05	LCSL79	lc14s31.d	10/14/15	12:17
06	LCDL78	lc14s02.d	10/14/15	12:39
07	LCDL79	lc14s31a.d	10/14/15	12:39
08	8074900	lc14s03.d	10/14/15	13:37
09	8074904	lc14s04.d	10/14/15	13:59
10	8074905	lc14s05.d	10/14/15	14:21
11	8074569	lc14s32.d	10/14/15	14:43
12	8074570	lc14s33.d	10/14/15	15:05
13	8074669	lc14s34.d	10/14/15	15:27
14	8074670	lc14s35.d	10/14/15	15:49
15	8084524	lc14s39.d	10/14/15	17:17
16	8084519	lc14s40.d	10/14/15	17:39
17	8084520MS	lc14s41.d	10/14/15	18:01
18	8084521MSD	lc14s42.d	10/14/15	18:23
19	8084523	lc14s43.d	10/14/15	18:44
20	8078273	lc14s44.d	10/14/15	19:06
21	8078274	lc14s45.d	10/14/15	19:28
22	8078275	lc14s46.d	10/14/15	19:50

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.: DHR30

Lab File ID: lc14t03.d BFB Injection Date: 10/14/15

Instrument ID: HP09915 BFB Injection Time: 10:37

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	21.86
75	30.0 - 60.0% of mass 95	56.67
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.77
173	Less than 2.0% of mass 174	0.94 (0.98)1
174	Greater than 50.0% of mass 95	95.62
175	5.0 - 9.0% of mass 174	6.97 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	93.02 (97.29)1
177	5.0 - 9.0% of mass 176	5.49 (5.90)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	8078276	lc14s47.d	10/14/15	20:11
24	8078277	lc14s48.d	10/14/15	20:33
25	8078278	lc14s49.d	10/14/15	20:55
26	8078279	lc14s50.d	10/14/15	21:17
27	8081278	lc14s51.d	10/14/15	21:39
28	8081279	lc14s52.d	10/14/15	22:01
29	8081280	lc14s53.d	10/14/15	22:23

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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane		0.4439	0.4642	0.4484	0.3385	0.4216	0.4045	0.4202	11	AVG
Chloromethane	#	0.3428	0.3604	0.3484	0.2419	0.2950	0.2821	0.3118	15	AVG #
Vinyl Chloride	*	0.2994	0.3290	0.3162	0.2234	0.2660	0.2571	0.2819	14	AVG *
Bromomethane		0.2139	0.2297	0.2179	0.1585	0.1859	0.1506	0.1928	17	2NDDEG
Chloroethane		0.1690	0.1767	0.1666	0.1215	0.1462	0.1220	0.1504	16	2NDDEG
Dichlorofluoromethane		0.4103	0.4108	0.4017	0.3422	0.3600	0.3366	0.3769	9	AVG
Trichlorofluoromethane		0.4327	0.4596	0.4485	0.3350	0.4206	0.3885	0.4142	11	AVG
Ethanol		0.2170	0.2079	0.2062	0.1957	0.2037	0.1876	0.2030	5	AVG
Freon 123a		0.3377	0.3417	0.3385	0.2885	0.2996	0.2873	0.3155	8	AVG
Acrolein		3.0663	2.8469	2.7579	2.9448	3.1038	2.7852	2.9175	5	AVG
1,1-Dichloroethene	*	0.2588	0.2444	0.2576	0.2368	0.2444	0.2244	0.2444	5	AVG *
Acetone		0.0221	0.0255	0.0229	0.0231	0.0241	0.0190	0.0228	10	AVG
Freon 113		0.2712	0.2622	0.2700	0.2499	0.2496	0.2149	0.2530	8	AVG
2-Propanol		1.1437	1.2707	1.1282	1.0421	1.0867	0.9510	1.1037	10	AVG
Methyl Iodide		0.4798	0.4578	0.4904	0.4518	0.4767	0.4413	0.4663	4	AVG
Carbon Disulfide		0.8358	0.7838	0.8386	0.7745	0.8094	0.7521	0.7990	4	AVG
Methyl Acetate		0.1435	0.1807	0.1700	0.1420	0.1630	0.1369	0.1560	11	AVG
Allyl Chloride		0.3295	0.3738	0.3513	0.3129	0.3682	0.3346	0.3450	7	AVG
Methylene Chloride		0.3112	0.2887	0.2909	0.2647	0.2791	0.2547	0.2815	7	AVG
t-Butyl alcohol		1.3376	1.6399	1.5221	1.4757	1.6276	1.4694	1.5121	7	AVG
Acrylonitrile		0.0652	0.0845	0.0827	0.0870	0.0950	0.0781	0.0821	12	AVG
Methyl Tertiary Butyl Ether		0.5640	0.6233	0.6416	0.6165	0.6685	0.5932	0.6178	6	AVG
trans-1,2-Dichloroethene		0.2921	0.2788	0.2891	0.2719	0.2838	0.2615	0.2795	4	AVG
n-Hexane		0.3495	0.3571	0.3575	0.3504	0.3602	0.2539	0.3381	12	AVG
1,1-Dichloroethane	#	0.5097	0.4851	0.5011	0.4697	0.4950	0.4549	0.4859	4	AVG #
di-Isopropyl ether		0.7219	0.7439	0.7685	0.7407	0.7902	0.7059	0.7452	4	AVG
2-Chloro-1,3-butadiene		0.3347	0.3320	0.3613	0.3509	0.3744	0.3489	0.3503	5	AVG
Ethyl t-butyl ether		0.4207	0.4490	0.4773	0.4803	0.5302	0.4947	0.4754	8	AVG
2-Butanone		0.0826	0.1006	0.0993	0.1135	0.1211	0.0931	0.1017	14	AVG
cis-1,2-Dichloroethene		0.3158	0.3043	0.3187	0.2995	0.3191	0.2894	0.3078	4	AVG
2,2-Dichloropropane		0.3853	0.3768	0.4016	0.3917	0.4210	0.3949	0.3952	4	AVG
Propionitrile		2.1236	2.1326	2.0860	1.9178	2.0715	1.9391	2.0451	5	AVG
Methacrylonitrile		0.0807	0.0991	0.0996	0.0929	0.1005	0.0839	0.0928	9	AVG
Bromochloromethane		0.1534	0.1721	0.1598	0.1401	0.1655	0.1484	0.1566	7	AVG
Tetrahydrofuran		1.8379	1.9430	1.8273	1.9489	2.1640	1.9803	1.9502	6	AVG
Chloroform	*	0.5064	0.4777	0.4988	0.4692	0.4975	0.4584	0.4847	4	AVG *
1,1,1-Trichloroethane		0.5612	0.4782	0.4996	0.4482	0.4811	0.4550	0.4872	8	AVG
Cyclohexane		0.4199	0.4212	0.4273	0.4262	0.4406	0.3589	0.4157	7	AVG
Cyclohexane(2)		0.3923	0.4031	0.4016	0.3977	0.4129	0.3376	0.3909	7	AVG
Cyclohexane(3)		0.1324	0.1357	0.1362	0.1371	0.1434	0.1169	0.1336	7	AVG
1,1-Dichloropropene		0.3975	0.3843	0.4005	0.3829	0.4082	0.3744	0.3913	3	AVG
Carbon Tetrachloride		0.3871	0.3750	0.3944	0.3804	0.4127	0.3836	0.3889	3	AVG
Isobutyl Alcohol		0.5356	0.6658	0.5939	0.5537	0.6020	0.5429	0.5823	8	AVG
Benzene		1.1920	1.1199	1.1615	1.0856	1.1434	1.0422	1.1241	5	AVG
1,2-Dichloroethane		0.3613	0.3518	0.3572	0.3397	0.3633	0.3282	0.3502	4	AVG
1,2-Dichloroethane(2)		0.0335	0.0337	0.0361	0.0329	0.0354	0.0328	0.0341	4	AVG
t-Amyl methyl ether		0.3314	0.3651	0.3946	0.4045	0.4493	0.4265	0.3952	11	AVG
n-Heptane		0.3929	0.3869	0.3565	0.3692	0.3801		0.3771	4	AVG
n-Butanol		0.4056	0.5254	0.4934	0.4731	0.5340	0.4806	0.4854	9	AVG
Trichloroethene		0.3241	0.3065	0.3167	0.2979	0.3181	0.2950	0.3097	4	AVG
Methylcyclohexane		0.4173	0.5388	0.4890	0.4573	0.5397	0.4766	0.4864	10	AVG
1,2-Dichloropropane	*	0.2844	0.2753	0.2847	0.2727	0.2897	0.2628	0.2783	4	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methyl Methacrylate		0.1307	0.1610	0.1785	0.1742	0.1932	0.1661	0.1673	13	AVG
1,4-Dioxane		0.1998	0.2213	0.2130	0.2027	0.2164	0.2001	0.2089	4	AVG
Dibromomethane		0.1645	0.1703	0.1772	0.1661	0.1805	0.1611	0.1699	4	AVG
Bromodichloromethane		0.3353	0.3350	0.3598	0.3541	0.3868	0.3639	0.3558	5	AVG
2-Nitropropane		3.1699	3.3407	3.1989	4.2677	4.7365	4.4486	3.8604	18	1STDEG
cis-1,3-Dichloropropene		0.3732	0.3956	0.4354	0.4393	0.4819	0.4407	0.4277	9	AVG
4-Methyl-2-pentanone		0.1453	0.2021	0.2084	0.2782	0.2893		0.2247	26	1STDEG
Toluene	*	1.0864	1.0042	1.0378	0.9700	1.0257	0.9193	1.0072	6	AVG *
trans-1,3-Dichloropropene		0.4517	0.4853	0.5312	0.5354	0.5902	0.5380	0.5220	9	AVG
Ethyl Methacrylate		0.2789	0.3644	0.4264	0.4444	0.4969	0.4320	0.4072	19	AVG
1,1,2-Trichloroethane		0.3367	0.3446	0.3540	0.3317	0.3546	0.3125	0.3390	5	AVG
Tetrachloroethene		0.4761	0.4461	0.4571	0.4325	0.4683	0.4159	0.4493	5	AVG
1,3-Dichloropropane		0.5483	0.5619	0.5821	0.5509	0.5938	0.5261	0.5605	4	AVG
2-Hexanone		0.1372	0.1981	0.2001	0.2817	0.2921		0.2218	29	1STDEG
Dibromochloromethane		0.3425	0.3603	0.4008	0.3973	0.4431	0.4138	0.3930	9	AVG
1,2-Dibromoethane		0.3214	0.3410	0.3528	0.3412	0.3740	0.3355	0.3443	5	AVG
1-Chlorohexane		0.5419	0.5250	0.5359	0.5217	0.5564	0.4280	0.5182	9	AVG
Chlorobenzene	#	1.3121	1.2236	1.2592	1.1682	1.2137	1.0377	1.2024	8	AVG #
1,1,1,2-Tetrachloroethane		0.3864	0.3921	0.4171	0.4039	0.4282	0.3635	0.3985	6	AVG
Ethylbenzene	*	1.9712	1.9142	1.9716	1.8800	1.9909	1.5759	1.8840	8	AVG *
m+p-Xylene		0.8082	0.7839	0.8093	0.7679	0.8052	0.6327	0.7678	9	AVG
o-Xylene		0.7369	0.7450	0.7803	0.7516	0.7925	0.6456	0.7420	7	AVG
Styrene		1.0465	1.1401	1.2440	1.2065	1.2732	1.0530	1.1605	8	AVG
Bromoform	#	0.1906	0.2205	0.2345	0.2375	0.2706	0.2524	0.2343	12	AVG #
Isopropylbenzene		1.8860	1.8957	1.9781	1.8995	2.0275	1.5945	1.8802	8	AVG
Cyclohexanone		0.6078	0.6454	0.6754	0.6454	0.7341	0.8009	0.6848	10	AVG
1,1,2,2-Tetrachloroethane	#	0.8218	0.9224	0.9237	0.8348	0.8892	0.7127	0.8508	9	AVG #
Bromobenzene		1.0813	1.0059	1.0294	0.9603	0.9956	0.8314	0.9840	9	AVG
trans-1,4-Dichloro-2-butene		0.1862	0.2457	0.2422	0.2286	0.2457	0.2038	0.2254	11	AVG
1,2,3-Trichloropropane		0.2533	0.2870	0.2830	0.2562	0.2719	0.2308	0.2637	8	AVG
n-Propylbenzene		4.7131	4.4191	4.5444	4.2861	4.4580	3.3304	4.2918	11	AVG
2-Chlorotoluene		1.0279	0.9672	0.9975	0.9374	0.9787	0.8341	0.9571	7	AVG
1,3,5-Trimethylbenzene		3.2925	3.2596	3.3603	3.2146	3.3694	2.6110	3.1846	9	AVG
4-Chlorotoluene		1.0817	1.0200	1.0347	0.9692	1.0125	0.8542	0.9954	8	AVG
tert-Butylbenzene		0.7092	0.7009	0.7253	0.6929	0.7489	0.5758	0.6922	9	AVG
Pentachloroethane		0.5403	0.6439	0.6065	0.5114	0.6263	0.5159	0.5740	10	AVG
1,2,4-Trimethylbenzene		3.4009	3.3616	3.4649	3.3043	3.4867	2.5712	3.2649	11	AVG
sec-Butylbenzene		4.2340	4.1335	4.2369	4.1031	4.1816	2.9663	3.9759	13	AVG
1,3-Dichlorobenzene		2.0929	1.9406	1.9678	1.8472	1.8770	1.4531	1.8631	12	AVG
p-Isopropyltoluene		3.6427	3.6484	3.7423	3.6319	3.7149	2.5525	3.4888	13	AVG
1,4-Dichlorobenzene		2.1176	1.9799	1.9602	1.8476	1.8785	1.3947	1.8631	13	AVG
1,2,3-Trimethylbenzene		3.5482	3.9956	3.6913	3.0907	3.6203	2.7206	3.4444	13	AVG
Benzyl Chloride		0.2522	0.3280	0.3620	0.3747	0.4234	0.3866	0.3545	17	1STDEG
1,3-Diethylbenzene		2.1029	2.5030	2.3433	2.0101	2.3695	1.9054	2.2057	11	AVG
1,4-Diethylbenzene		2.1805	2.5638	2.3948	2.0590	2.4153	1.8761	2.2482	11	AVG
n-Butylbenzene		1.7978	1.7880	1.7702	1.7207	1.7922	1.2452	1.6857	13	AVG
1,2-Dichlorobenzene		1.9344	1.8599	1.8711	1.7386	1.7987	1.4420	1.7741	10	AVG
1,2-Diethylbenzene		1.8985	2.1592	1.9659	1.6789	1.9634	1.5641	1.8717	12	AVG
1,2-Dibromo-3-chloropropane		0.1212	0.1477	0.1526	0.1519	0.1716	0.1538	0.1498	11	AVG
1,3,5-Trichlorobenzene		1.3702	1.3620	1.3583	1.3182	1.4111	1.0814	1.3168	9	AVG
1,2,4-Trichlorobenzene		1.0626	1.1312	1.1272	1.1607	1.2792	0.9989	1.1266	8	AVG
Hexachlorobutadiene		0.6188	0.5790	0.5326	0.5785	0.5948		0.5807	5	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

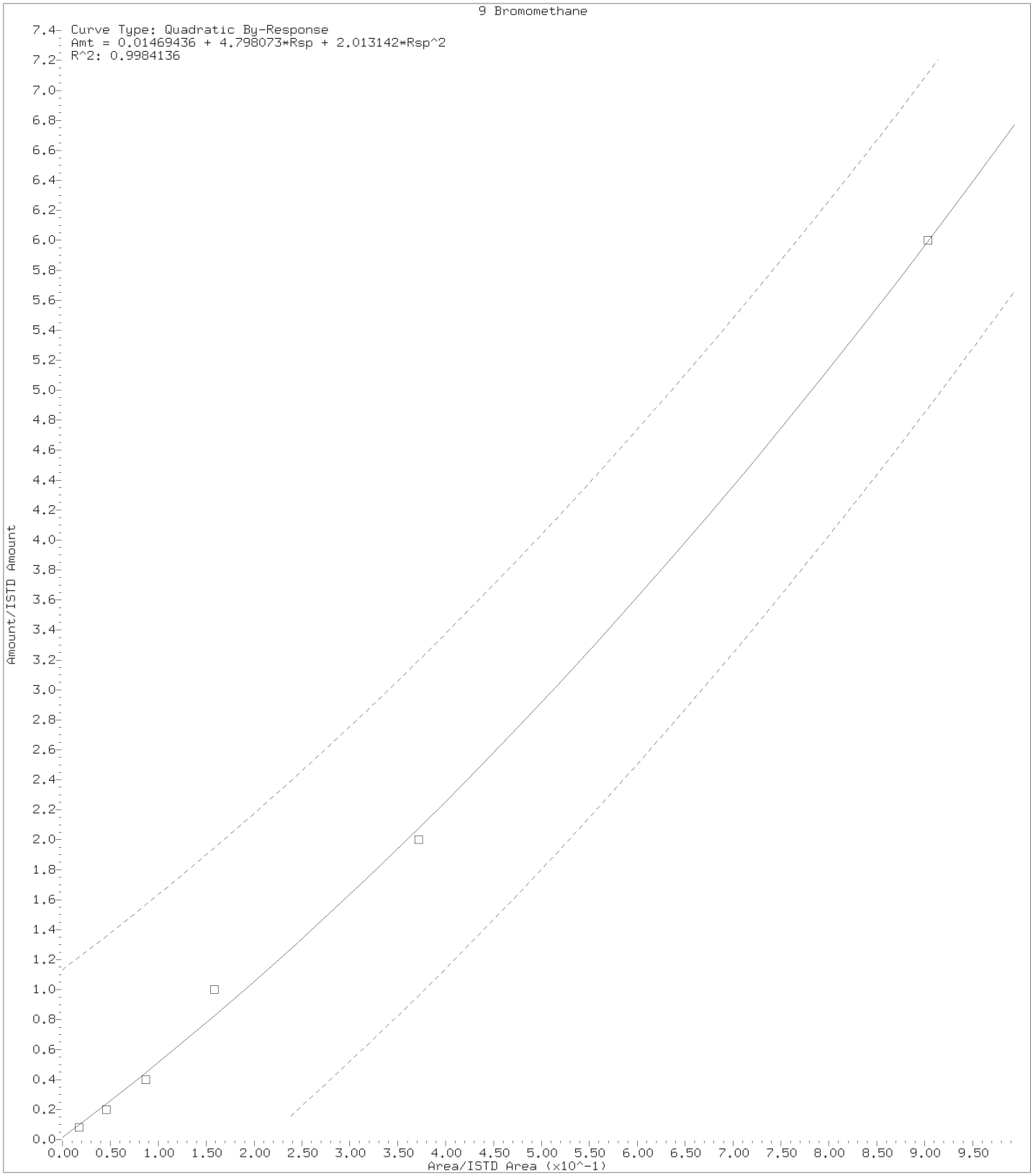
LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene		1.9624	2.5889	2.6715	2.8125	3.1292	2.5002	2.6108	15	AVG
1,2,3-Trichlorobenzene		1.0142	1.0765	1.0590	1.0634	1.1626	0.9178	1.0489	8	AVG
2-Methylnaphthalene		0.3946	0.8331	0.9373	1.2004	1.6786	1.4457	1.0816	43	1STDEG
Dibromofluoromethane		0.2376	0.2397	0.2397	0.2422	0.2441	0.2465	0.2416	1	AVG
Dibromofluoromethane(2)		0.2426	0.2458	0.2458	0.2460	0.2498	0.2510	0.2468	1	AVG
1,2-Dichloroethane-d4		0.0527	0.0554	0.0536	0.0546	0.0543	0.0523	0.0538	2	AVG
1,2-Dichloroethane-d4(2)		0.2391	0.2511	0.2519	0.2472	0.2475	0.2458	0.2471	2	AVG
1,2-Dichloroethane-d4(3)		0.0333	0.0343	0.0343	0.0343	0.0343	0.0338	0.0340	1	AVG
Toluene-d8		1.3473	1.3376	1.3379	1.3375	1.3558	1.3813	1.3496	1	AVG
Toluene-d8(2)		0.8781	0.8733	0.8729	0.8774	0.8880	0.9141	0.8840	2	AVG
4-Bromofluorobenzene		0.4799	0.4821	0.4778	0.4842	0.4936	0.5088	0.4877	2	AVG
4-Bromofluorobenzene(2)		0.3957	0.3966	0.3963	0.3978	0.4047	0.4179	0.4015	2	AVG

Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

FORM VI VOA



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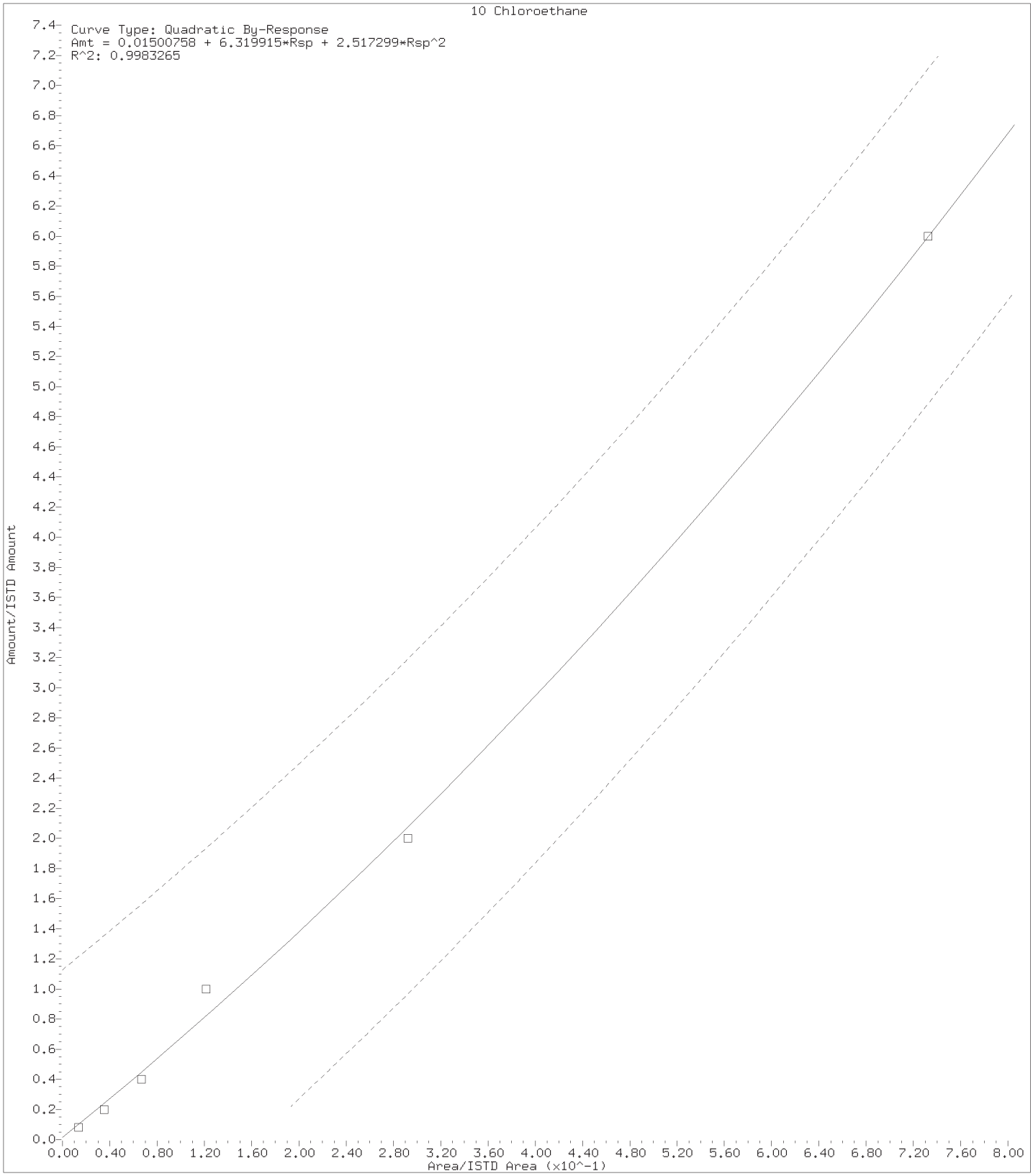

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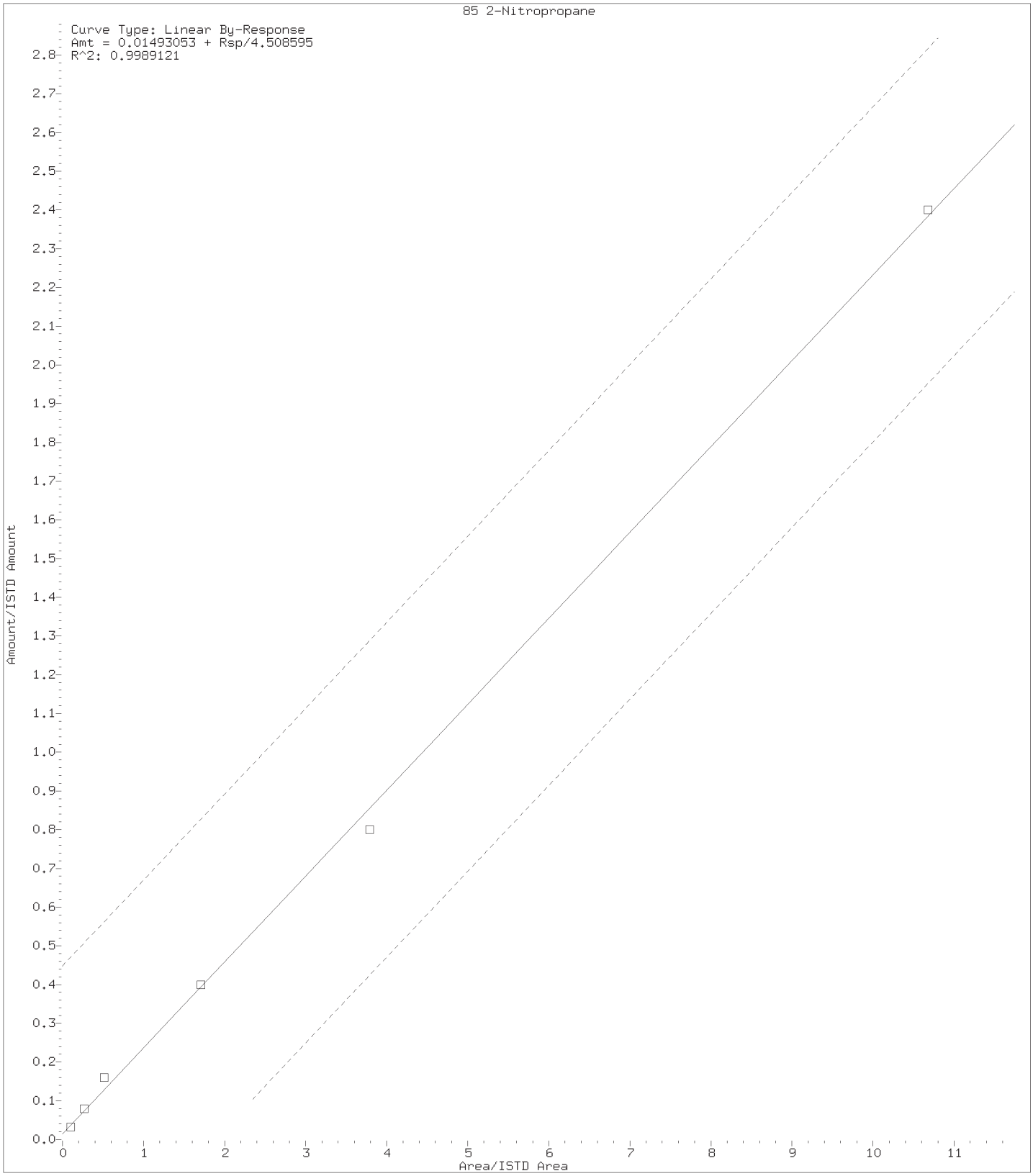

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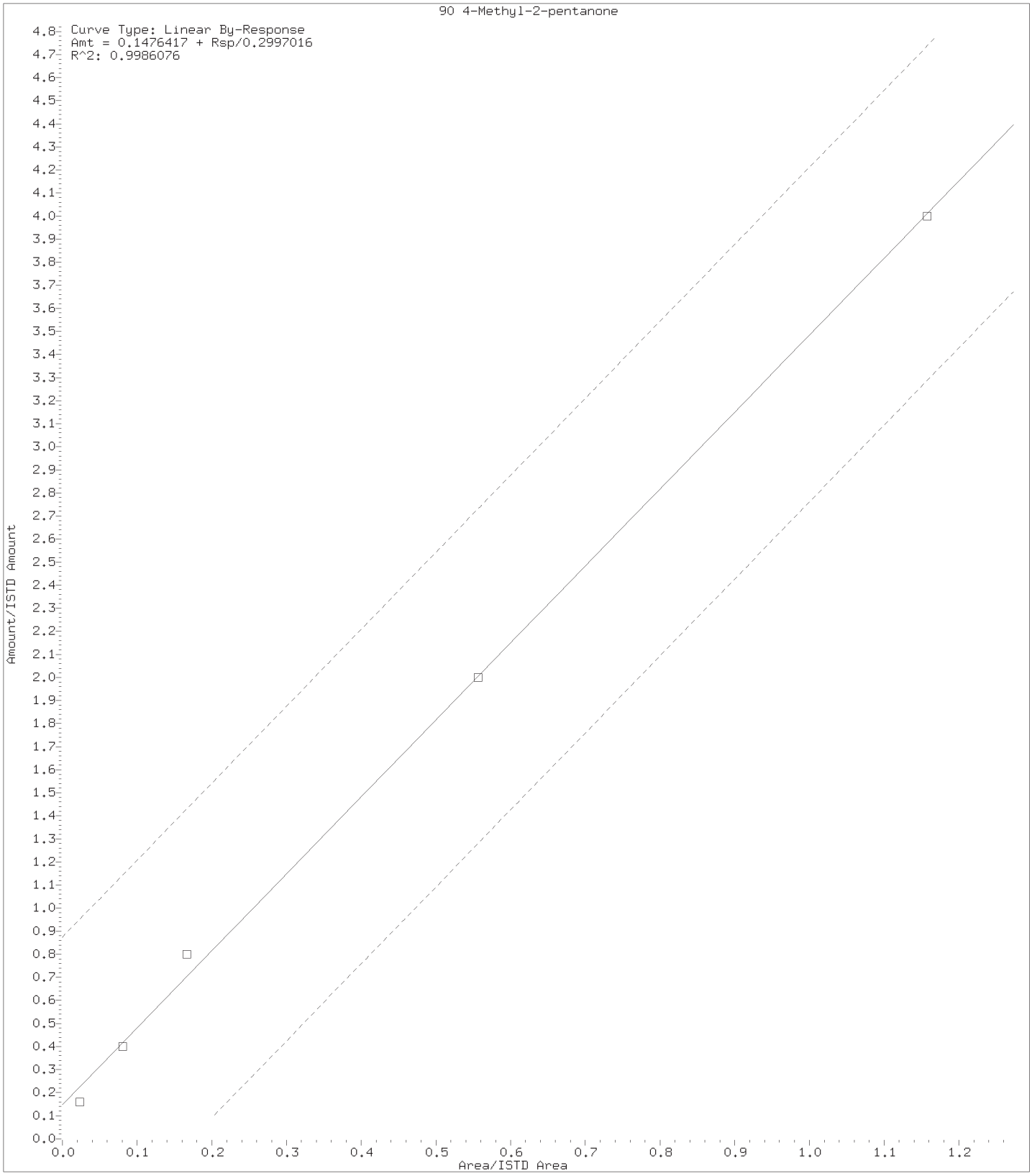

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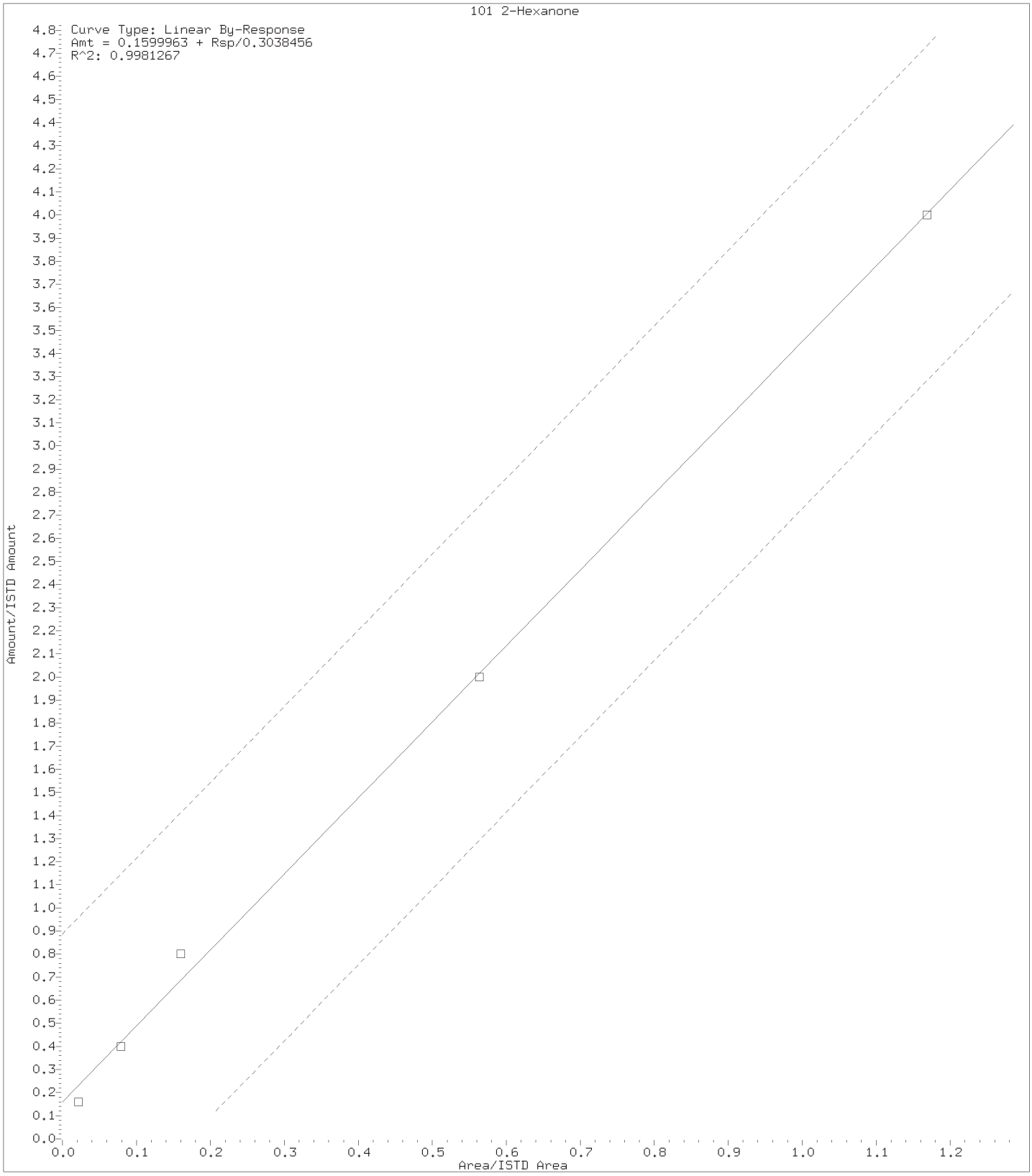
Target 3.5 esignature user ID: ads01731



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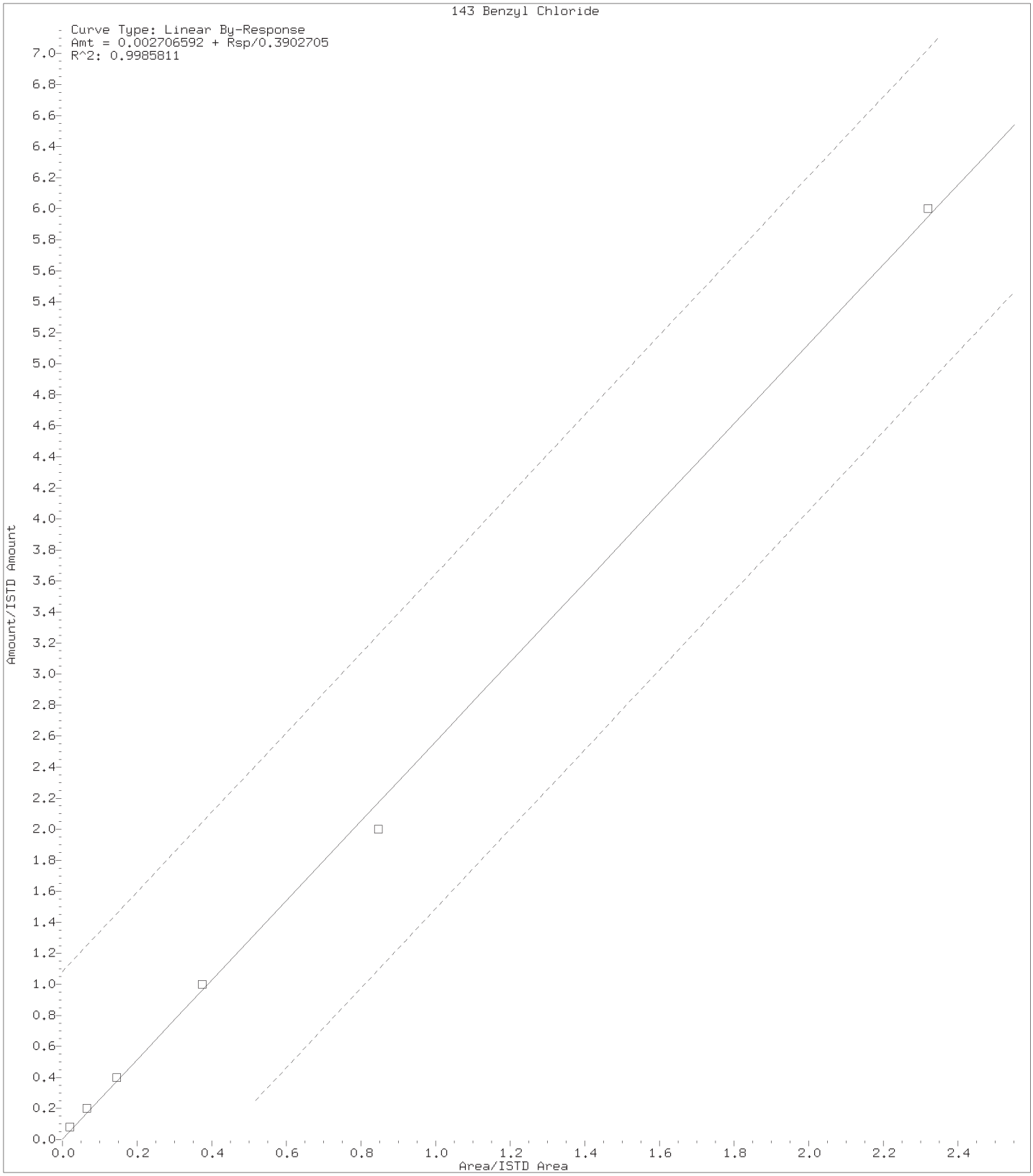
Target 3.5 esignature user ID: ads01731



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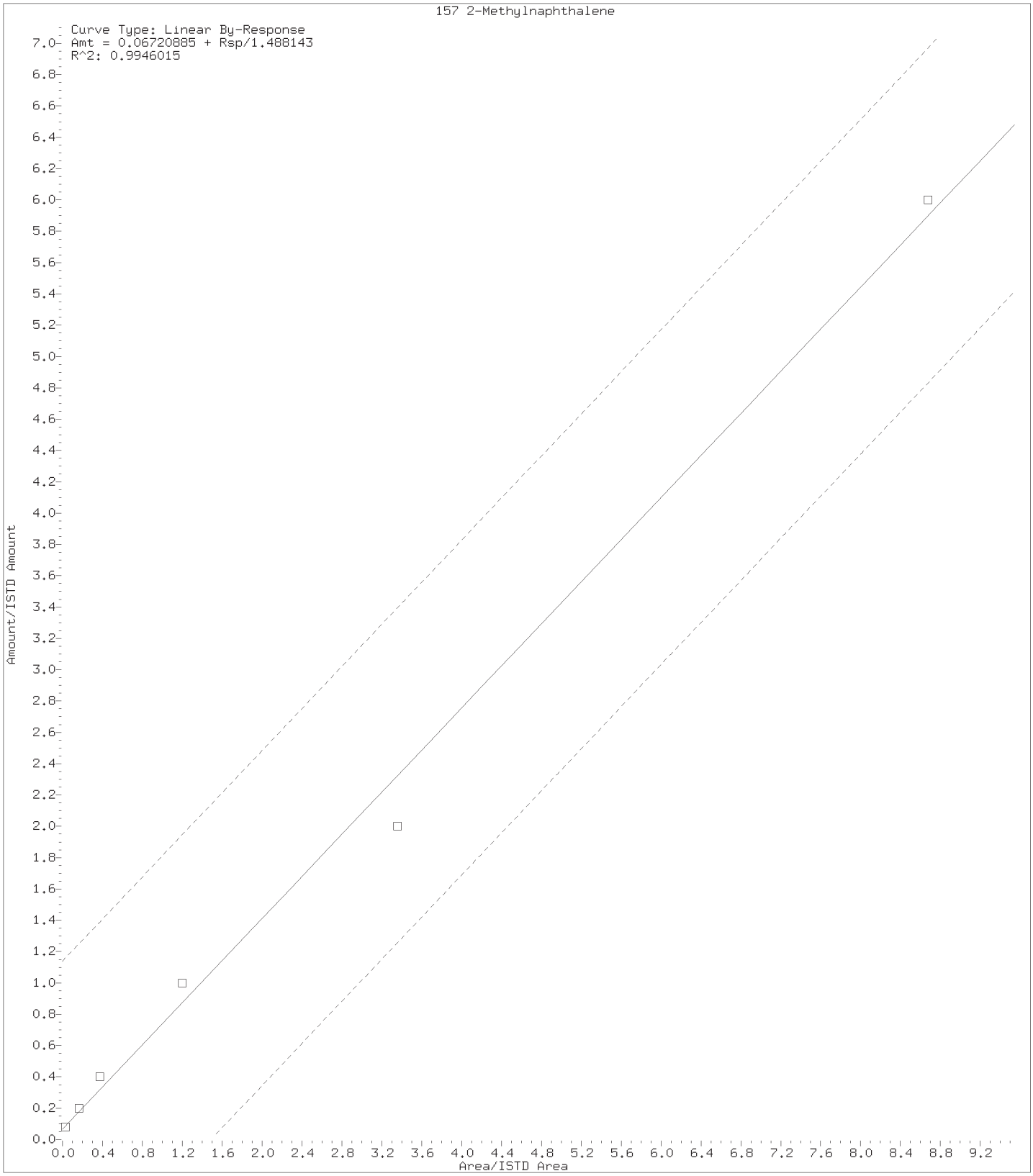
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

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/chem2/HP09685.i/15oct08a.b/ac08i02.d	VSTD100
/chem2/HP09685.i/15oct08a.b/ac08i03.d	VSTD050
/chem2/HP09685.i/15oct08a.b/ac08i07.d	VSTD020
/chem2/HP09685.i/15oct08a.b/ac08i05.d	VSTD010
/chem2/HP09685.i/15oct08a.b/ac08i06.d	VSTD004

Area Summary

File ID:

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	107368	132111	134640	132515	128801	98110	122258	13	Yes
Fluorobenzene	1523541	1610311	1615131	1600991	1608372	1559575	1586320	2	Yes
Chlorobenzene-d5	1112636	1189320	1200791	1190748	1188032	1145867	1171232	3	Yes
1,4-Dichlorobenzene-d4	594568	634667	625879	612087	616048	581685	610822	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. RT
t-Butyl alcohol-d10	3.970	3.958	3.976	3.970	3.976	3.964	3.969
Fluorobenzene	7.462	7.462	7.462	7.456	7.462	7.462	7.461
Chlorobenzene-d5	11.015	11.015	11.015	11.014	11.014	11.015	11.015
1,4-Dichlorobenzene-d4	12.919	12.919	12.919	12.919	12.919	12.919	12.919

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 10/08/2015 at 16:42.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4202	0.4031	19.19	20	-4
# Chloromethane	0.3118	0.3029	19.43	20	-3 #
* Vinyl Chloride	0.2819	0.2811	19.95	20	0 *
Bromomethane	0.1928	0.1325	13.73	20	-31
Chloroethane	0.1504	0.1143	15.47	20	-23
Dichlorofluoromethane	0.3769	0.3725	19.76	20	-1
Trichlorofluoromethane	0.4142	0.4004	19.34	20	-3
Ethanol	0.2030	0.2128	1048.30	1000	5
Freon 123a	0.3155	0.3183	20.18	20	1
Acrolein	2.9175	2.6819	137.89	150	-8
* 1,1-Dichloroethene	0.2444	0.2530	20.71	20	4 *
Acetone	0.0228	0.0214	140.77	150	-6
Freon 113	0.2530	0.2665	21.07	20	5
2-Propanol	1.1037	1.0162	138.10	150	-8
Methyl Iodide	0.4663	0.4825	20.70	20	3
Carbon Disulfide	0.7990	0.7889	19.75	20	-1
Methyl Acetate	0.1560	0.1643	21.06	20	5
Allyl Chloride	0.3450	0.3566	20.67	20	3
Methylene Chloride	0.2815	0.2827	20.08	20	0
t-Butyl alcohol	1.5121	1.4548	192.42	200	-4
Acrylonitrile	0.0821	0.0815	99.31	100	-1
Methyl Tertiary Butyl Ether	0.6178	0.6377	20.64	20	3
trans-1,2-Dichloroethene	0.2795	0.2934	20.99	20	5
n-Hexane	0.3381	0.3696	21.86	20	9
# 1,1-Dichloroethane	0.4859	0.4750	19.55	20	-2 #
di-Isopropyl ether	0.7452	0.7746	20.79	20	4
2-Chloro-1,3-butadiene	0.3503	0.3236	18.48	20	-8
Ethyl t-butyl ether	0.4754	0.5000	21.04	20	5
2-Butanone	0.1017	0.1037	152.87	150	2
cis-1,2-Dichloroethene	0.3078	0.3118	20.26	20	1
2,2-Dichloropropane	0.3952	0.3851	19.49	20	-3
Propionitrile	2.0451	1.9443	142.61	150	-5
Methacrylonitrile	0.0928	0.1006	162.63	150	8
Bromochloromethane	0.1566	0.1571	20.07	20	0
Tetrahydrofuran	1.9502	1.7895	91.76	100	-8
* Chloroform	0.4847	0.4833	19.94	20	0 *

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4872	0.4761	19.55	20	-2
Cyclohexane	0.4157	0.4328	20.82	20	4
1,1-Dichloropropene	0.3913	0.3718	19.00	20	-5
Carbon Tetrachloride	0.3889	0.3884	19.98	20	0
Isobutyl Alcohol	0.5823	0.5226	448.71	500	-10
Benzene	1.1241	1.1237	19.99	20	0
1,2-Dichloroethane	0.3502	0.3456	19.73	20	-1
t-Amyl methyl ether	0.3952	0.4285	21.69	20	8
n-Heptane	0.3771	0.3674	19.48	20	-3
n-Butanol	0.4854	0.4366	899.59	1000	-10
Trichloroethene	0.3097	0.3061	19.76	20	-1
Methylcyclohexane	0.4864	0.5093	20.94	20	5
* 1,2-Dichloropropane	0.2783	0.2824	20.30	20	1 *
Methyl Methacrylate	0.1673	0.1663	19.88	20	-1
1,4-Dioxane	0.2089	0.1877	449.34	500	-10
Dibromomethane	0.1699	0.1687	19.86	20	-1
Bromodichloromethane	0.3558	0.3396	19.09	20	-5
2-Nitropropane	3.8604	3.0206	17.13	20	-14
cis-1,3-Dichloropropene	0.4277	0.4154	19.42	20	-3
4-Methyl-2-pentanone	0.2247	0.2255	82.61	100	-17
* Toluene	1.0072	1.0124	20.10	20	1 *
trans-1,3-Dichloropropene	0.5220	0.5155	19.75	20	-1
Ethyl Methacrylate	0.4072	0.4070	19.99	20	0
1,1,2-Trichloroethane	0.3390	0.3300	19.47	20	-3
Tetrachloroethene	0.4493	0.4554	20.27	20	1
1,3-Dichloropropane	0.5605	0.5461	19.48	20	-3
2-Hexanone	0.2218	0.2188	80.02	100	-20
Dibromochloromethane	0.3930	0.3648	18.57	20	-7
1,2-Dibromoethane	0.3443	0.3445	20.01	20	0
1-Chlorohexane	0.5182	0.5396	20.83	20	4
# Chlorobenzene	1.2024	1.1968	19.91	20	0 #
1,1,1,2-Tetrachloroethane	0.3985	0.3897	19.56	20	-2
* Ethylbenzene	1.8840	1.9314	20.50	20	3 *
m+p-Xylene	0.7678	0.7920	41.26	40	3
o-Xylene	0.7420	0.7521	20.27	20	1
Styrene	1.1605	1.1881	20.48	20	2

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2343	0.2115	18.05	20	-10 #
Isopropylbenzene	1.8802	1.9758	21.02	20	5
Cyclohexanone	0.6848	0.4800	350.48	500	-30
# 1,1,2,2-Tetrachloroethane	0.8508	0.8261	19.42	20	-3 #
Bromobenzene	0.9840	0.9607	19.53	20	-2
trans-1,4-Dichloro-2-butene	0.2254	0.2264	100.47	100	0
1,2,3-Trichloropropane	0.2637	0.2642	20.04	20	0
n-Propylbenzene	4.2918	4.3778	20.40	20	2
2-Chlorotoluene	0.9571	0.9449	19.75	20	-1
1,3,5-Trimethylbenzene	3.1846	3.2713	20.54	20	3
4-Chlorotoluene	0.9954	0.9867	19.83	20	-1
tert-Butylbenzene	0.6922	0.7113	20.55	20	3
Pentachloroethane	0.5740	0.5624	19.59	20	-2
1,2,4-Trimethylbenzene	3.2649	3.3255	20.37	20	2
sec-Butylbenzene	3.9759	4.1472	20.86	20	4
1,3-Dichlorobenzene	1.8631	1.8802	20.18	20	1
p-Isopropyltoluene	3.4888	3.6504	20.93	20	5
1,4-Dichlorobenzene	1.8631	1.9087	20.49	20	2
1,2,3-Trimethylbenzene	3.4444	3.4003	19.74	20	-1
Benzyl Chloride	0.3545	0.3301	17.05	20	-15
1,3-Diethylbenzene	2.2057	2.1987	19.94	20	0
1,4-Diethylbenzene	2.2482	2.3171	20.61	20	3
n-Butylbenzene	1.6857	1.7512	20.78	20	4
1,2-Dichlorobenzene	1.7741	1.7589	19.83	20	-1
1,2-Diethylbenzene	1.8717	1.8817	20.11	20	1
1,2-Dibromo-3-chloropropane	0.1498	0.1381	18.44	20	-8
1,3,5-Trichlorobenzene	1.3168	1.3304	20.21	20	1
1,2,4-Trichlorobenzene	1.1266	1.1318	20.09	20	0
Hexachlorobutadiene	0.5807	0.5593	19.26	20	-4
Naphthalene	2.6108	2.6046	19.95	20	0
1,2,3-Trichlorobenzene	1.0489	1.0383	19.80	20	-1
2-Methylnaphthalene	1.0816	0.8859	15.27	20	-24

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.3412	0.3803	0.3767	0.3590	0.4019	0.3659		0.3708	6	AVG	
Chloromethane	#0.4465	0.4585	0.4591	0.4253	0.4817	0.4280		0.4498	5	AVG	#
Vinyl Chloride	*0.3816	0.4054	0.4110	0.3755	0.4343	0.3914		0.3999	5	AVG	*
Bromomethane	4.6448	4.2513	4.6143	3.5357	3.7838	3.1134		3.9905	15	AVG	
Chloroethane	3.7472	3.6945	3.8475	2.6814	2.9176	2.4107		3.2165	19	2NDDEG	
Dichlorofluoromethane	0.4896	0.4501	0.4076	0.3724	0.4071	0.3402		0.4112	13	AVG	
Trichlorofluoromethane	0.3887	0.4070	0.4177	0.3618	0.4182	0.3891		0.3971	5	AVG	
Ethanol	0.2018	0.1823	0.1693	0.1601	0.1710	0.1502		0.1724	10	AVG	
Freon 123a	0.3601	0.3570	0.3248	0.3086	0.3372	0.3104		0.3330	7	AVG	
Acrolein	3.0170	3.7870	3.2962	3.0355	3.1656	2.5365		3.1397	13	AVG	
1,1-Dichloroethene	*0.2585	0.2646	0.2621	0.2579	0.2717	0.2415		0.2594	4	AVG	*
1,1-Dichloroethene(2)	*0.1447	0.1414	0.1425	0.1384	0.1434	0.1292		0.1399	4	AVG	*
Acetone	0.0245	0.0309	0.0306	0.0323	0.0335	0.0277		0.0299	11	AVG	
Freon 113	0.2452	0.2506	0.2474	0.2545	0.2657	0.2315		0.2491	5	AVG	
2-Propanol	0.8449	0.8635	0.8147	0.7981	0.8847	0.7501		0.8260	6	AVG	
Methyl Iodide	0.4885	0.4937	0.4999	0.4887	0.5185	0.4619		0.4918	4	AVG	
Carbon Disulfide	0.8575	0.8805	0.8696	0.8656	0.9244	0.8436		0.8735	3	AVG	
Methyl Acetate	0.2398	0.2278	0.2368	0.2358	0.2488	0.2268		0.2359	3	AVG	
Allyl Chloride	0.5249	0.5001	0.4890	0.4860	0.5094	0.4604		0.4950	4	AVG	
Methylene Chloride	0.3099	0.3045	0.3187	0.3039	0.3239	0.2832		0.3073	5	AVG	
t-Butyl alcohol	1.2282	1.2713	1.3191	1.2962	1.2968	1.1890		1.2668	4	AVG	
Acrylonitrile	0.1020	0.1269	0.1333	0.1404	0.1422	0.1235		0.1280	11	AVG	
Methyl Tertiary Butyl Ether	0.8603	0.8954	0.9368	0.8843	0.9526	0.8382		0.8946	5	AVG	
trans-1,2-Dichloroethene	0.2848	0.2884	0.2962	0.2835	0.3051	0.2708		0.2881	4	AVG	
n-Hexane	0.3263	0.3288	0.3306	0.3327	0.3595	0.3009		0.3298	6	AVG	
1,1-Dichloroethane	#0.5469	0.5634	0.5774	0.5387	0.5836	0.4921		0.5503	6	AVG	#
di-Isopropyl ether	1.0708	1.1000	1.1568	1.0672	1.1521	1.0135		1.0934	5	AVG	
2-Chloro-1,3-butadiene	0.4726	0.4913	0.4969	0.4719	0.5051	0.4503		0.4814	4	AVG	
Ethyl t-butyl ether	0.9618	1.0016	1.0703	0.9906	1.0550	0.9087		0.9980	6	AVG	
2-Butanone	0.1241	0.1440	0.1567	0.1784	0.1769	0.1430		0.1539	14	AVG	
2-Butanone(2)	0.0241	0.0342	0.0390	0.0441	0.0448	0.0366		0.0371	21	AVG	
cis-1,2-Dichloroethene	0.3126	0.3062	0.3272	0.3126	0.3325	0.2959		0.3145	4	AVG	
2,2-Dichloropropane	0.4251	0.4247	0.4492	0.4189	0.4533	0.4026		0.4290	4	AVG	
Propionitrile	0.0395	0.0401	0.0466	0.0460	0.0502	0.0447		0.0445	9	AVG	
Methacrylonitrile	0.1248	0.1283	0.1358	0.1324	0.1416	0.1269		0.1317	5	AVG	
Bromochloromethane	0.1557	0.1549	0.1618	0.1553	0.1664	0.1499		0.1573	4	AVG	
Tetrahydrofuran	1.5830	1.6581	1.7044	1.7235	1.6461	1.3526		1.6113	8	AVG	
Chloroform	*0.4839	0.4957	0.5127	0.4917	0.5187	0.4507		0.4922	5	AVG	*
1,1,1-Trichloroethane	0.4876	0.4489	0.4751	0.4325	0.4662	0.4058		0.4527	7	AVG	
Cyclohexane	0.4794	0.4765	0.4929	0.4757	0.4989	0.4330		0.4760	5	AVG	
Cyclohexane(2)	0.3639	0.3748	0.3834	0.3719	0.3910	0.3425		0.3713	5	AVG	
Cyclohexane(3)	0.1299	0.1392	0.1437	0.1393	0.1480	0.1289		0.1382	5	AVG	
1,1-Dichloropropene	0.3917	0.3933	0.4067	0.3791	0.4037	0.3625		0.3895	4	AVG	
Carbon Tetrachloride	0.3327	0.3526	0.3675	0.3600	0.3828	0.3433		0.3565	5	AVG	
Isobutyl Alcohol	0.3916	0.3985	0.4286	0.4175	0.4295	0.4037		0.4116	4	AVG	
Benzene	1.1570	1.1625	1.2328	1.1523	1.2248	1.1150		1.1741	4	AVG	
1,2-Dichloroethane	0.3861	0.3982	0.4216	0.4034	0.4194	0.3770		0.4010	4	AVG	
1,2-Dichloroethane(2)	0.0346	0.0367	0.0379	0.0375	0.0398	0.0372		0.0373	5	AVG	
t-Amyl methyl ether	0.8911	0.8991	0.9543	0.9165	0.9443	0.8578		0.9105	4	AVG	
n-Heptane	0.3424	0.3262	0.3269	0.3109	0.3226	0.2679		0.3161	8	AVG	
n-Butanol	0.2709	0.2978	0.3372	0.3570	0.3605	0.3505		0.3290	11	AVG	
Trichloroethene	0.3001	0.2898	0.3028	0.2888	0.3015	0.2783		0.2936	3	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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Methylcyclohexane	0.3610	0.3661	0.3643	0.3736	0.3711	0.3506		0.3644	2	AVG	
1,2-Dichloropropane	*0.3281	0.3220	0.3518	0.3374	0.3461	0.3156		0.3335	4	AVG	*
Methyl Methacrylate	0.2002	0.2042	0.2363	0.2321	0.2400	0.2232		0.2227	8	AVG	
1,4-Dioxane	0.1145	0.1205	0.1306	0.1315	0.1405	0.1294		0.1278	7	AVG	
Dibromomethane	0.1748	0.1801	0.2023	0.1918	0.1987	0.1799		0.1879	6	AVG	
Bromodichloromethane	0.3566	0.3656	0.4011	0.3886	0.4194	0.3712		0.3838	6	AVG	
2-Nitropropane	3.5494	3.7406	3.9170	4.3521	4.2226	3.2066		3.8314	11	AVG	
2-Chloroethyl Vinyl Ether	0.1804	0.2003	0.2209	0.2205	0.2326	0.2167		0.2119	9	AVG	
cis-1,3-Dichloropropene	0.4561	0.4832	0.5216	0.5200	0.5463	0.4789		0.5010	7	AVG	
4-Methyl-2-pentanone	0.2628	0.3316	0.3699	0.4318	0.4218			0.3636	19	1STDEG	
Toluene	*0.9868	0.9724	1.0392	0.9551	1.0141	0.9300		0.9829	4	AVG	*
trans-1,3-Dichloropropene	0.5657	0.5756	0.6414	0.6099	0.6474	0.6040		0.6073	5	AVG	
Ethyl Methacrylate	0.5508	0.5559	0.6044	0.5987	0.5999	0.5654		0.5792	4	AVG	
1,1,2-Trichloroethane	0.3524	0.3523	0.3812	0.3611	0.3654	0.3489		0.3602	3	AVG	
Tetrachloroethene	0.4190	0.4021	0.4276	0.3992	0.4183	0.4005		0.4111	3	AVG	
1,3-Dichloropropane	0.6512	0.6333	0.6846	0.6355	0.6547	0.6131		0.6454	4	AVG	
2-Hexanone	0.2710	0.3355	0.3849	0.4274	0.4085	0.2993		0.3544	18	2NDDEG	
Dibromochloromethane	0.3767	0.3743	0.4275	0.4101	0.4355	0.4157		0.4066	6	AVG	
1,2-Dibromoethane	0.3562	0.3566	0.4020	0.3747	0.3842	0.3591		0.3722	5	AVG	
Chlorobenzene	#1.1179	1.0689	1.1369	1.0827	1.1170	1.0093		1.0888	4	AVG	#
1,1,1,2-Tetrachloroethane	0.3632	0.3661	0.3965	0.3737	0.4040	0.3779		0.3802	4	AVG	
Ethylbenzene	*1.7526	1.7021	1.8449	1.6993	1.8080	1.6241		1.7385	5	AVG	*
m+p-Xylene	0.7007	0.6850	0.7331	0.6830	0.7274	0.6373		0.6944	5	AVG	
o-Xylene	0.6918	0.6676	0.7300	0.6689	0.7024	0.6552		0.6860	4	AVG	
Styrene	1.1789	1.1527	1.2477	1.1803	1.2283	1.1375		1.1876	4	AVG	
Bromoform	#0.2496	0.2642	0.2912	0.2962	0.3118	0.3068		0.2866	9	AVG	#
Isopropylbenzene	1.6329	1.5599	1.6540	1.5398	1.6450	1.4730		1.5841	5	AVG	
Cyclohexanone	0.3767	0.3642	0.4175	0.4090	0.4476	0.3920		0.4012	7	AVG	
1,1,2,2-Tetrachloroethane	#0.9749	0.9950	1.0557	0.9997	0.9910	0.8651		0.9802	6	AVG	#
Bromobenzene	0.9750	0.9445	1.0242	0.9364	0.9956	0.8842		0.9600	5	AVG	
trans-1,4-Dichloro-2-butene	0.2825	0.2865	0.3126	0.3008	0.3052	0.2567		0.2907	7	AVG	
1,2,3-Trichloropropane	0.2837	0.2903	0.3075	0.2892	0.2933	0.2575		0.2869	6	AVG	
n-Propylbenzene	3.6947	3.5302	3.8285	3.4887	3.6474	2.9827		3.5287	8	AVG	
2-Chlorotoluene	0.8116	0.7788	0.8280	0.7625	0.8044	0.6928		0.7797	6	AVG	
1,3,5-Trimethylbenzene	2.7175	2.6048	2.8461	2.5820	2.7069	2.2955		2.6254	7	AVG	
4-Chlorotoluene	0.8775	0.8094	0.8928	0.8226	0.8613	0.7491		0.8354	6	AVG	
tert-Butylbenzene	0.6136	0.5665	0.6258	0.5630	0.5983	0.5130		0.5800	7	AVG	
Pentachloroethane	0.5792	0.5415	0.5953	0.5758	0.6128	0.5613		0.5776	4	AVG	
1,2,4-Trimethylbenzene	2.8296	2.7242	2.9352	2.6880	2.8467	2.4043		2.7380	7	AVG	
sec-Butylbenzene	3.0584	2.9211	3.1523	2.8404	2.9578	2.4330		2.8938	9	AVG	
1,3-Dichlorobenzene	1.6307	1.5311	1.6679	1.5311	1.6163	1.4306		1.5679	6	AVG	
p-Isopropyltoluene	2.7972	2.6484	2.8797	2.6030	2.7288	2.2947		2.6586	8	AVG	
1,4-Dichlorobenzene	1.8009	1.7030	1.8060	1.6389	1.6983	1.4953		1.6904	7	AVG	
1,2,3-Trimethylbenzene	3.1934	2.8684	3.0268	2.7919	2.8783	2.5477		2.8844	8	AVG	
Benzyl Chloride	0.3891	0.4187	0.4669	0.4483	0.4726	0.4167		0.4354	7	AVG	
1,3-Diethylbenzene	1.7337	1.5878	1.6676	1.5318	1.6047	1.4258		1.5919	7	AVG	
1,4-Diethylbenzene	1.7839	1.6119	1.6776	1.5380	1.5984	1.4112		1.6035	8	AVG	
n-Butylbenzene	1.3416	1.2475	1.3475	1.2018	1.2449	1.0340		1.2362	9	AVG	
1,2-Dichlorobenzene	1.6512	1.5552	1.6788	1.5393	1.6077	1.4101		1.5737	6	AVG	
1,2-Diethylbenzene	1.4651	1.3149	1.3779	1.2530	1.3329	1.1584		1.3170	8	AVG	
1,2-Dibromo-3-chloropropane	0.1796	0.1892	0.1989	0.1871	0.1892	0.1654		0.1849	6	AVG	
1,3,5-Trichlorobenzene	1.2478	1.1580	1.2303	1.0768	1.1290	0.9215		1.1273	11	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: HP07536 Calibration Date(s): 04/07/15 04/07/15

Heated Purge: (Y/N) N Calibration Times: 14:54 16:50

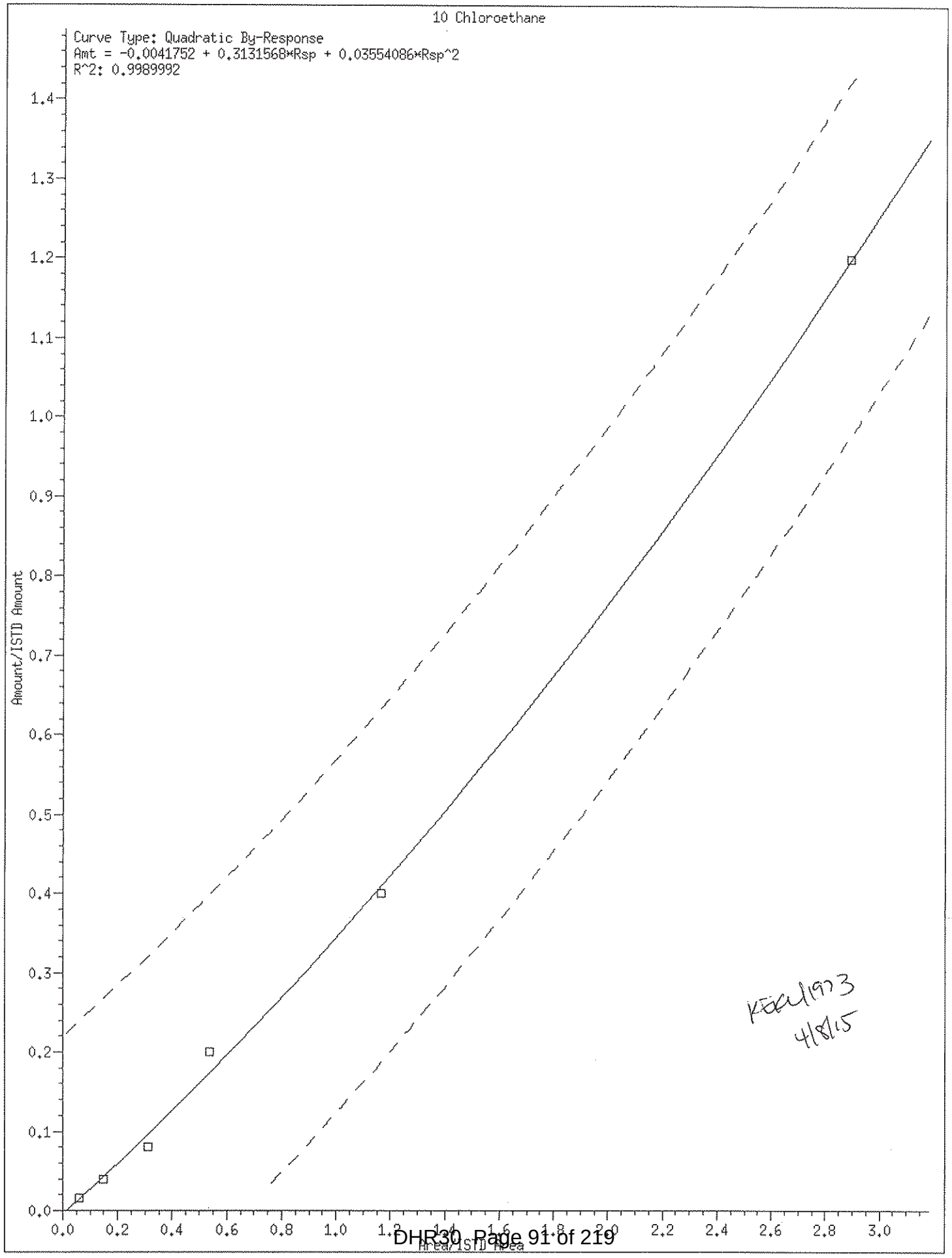
Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = qa07i06.d RRF 10= qa07i05.d RRF 20= qa07i04.d
RRF 50= qa07i03.d RRF100= qa07i02.d RRF300= qa07i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
1,2,4-Trichlorobenzene	1.2518	1.1431	1.2098	1.0395	1.0931	0.8642		1.1003	13	AVG
Hexachlorobutadiene	0.8613	0.7005	0.6935	0.5515	0.5510	0.3875		0.6242	26	2NDDEG
Naphthalene	3.0359	2.8844	3.0282	2.7630	2.8872	2.3135		2.8187	9	AVG
1,2,3-Trichlorobenzene	1.2313	1.0943	1.1481	0.9858	1.0408	0.7722		1.0454	15	AVG
2-Methylnaphthalene	2.1770	1.8228	1.8629	1.5618	1.6793			1.8207	13	AVG
Dibromofluoromethane	0.2413	0.2784	0.2437	0.2579	0.2797	0.2373		0.2564	7	AVG
Dibromofluoromethane(2)	0.2351	0.2955	0.2500	0.2615	0.2851	0.2446		0.2620	9	AVG
1,2-Dichloroethane-d4	0.0611	0.0745	0.0634	0.0673	0.0715	0.0648		0.0671	8	AVG
1,2-Dichloroethane-d4(2)	0.2978	0.3542	0.3022	0.3169	0.3298	0.2933		0.3157	7	AVG
1,2-Dichloroethane-d4(3)	0.0364	0.0489	0.0402	0.0432	0.0458	0.0417		0.0427	10	AVG
Toluene-d8	1.3821	1.5431	1.3696	1.3776	1.4321	1.3323		1.4061	5	AVG
Toluene-d8(2)	0.8908	1.0242	0.9028	0.9023	0.9433	0.8749		0.9230	6	AVG
4-Bromofluorobenzene	0.4584	0.5080	0.4705	0.5036	0.5790	0.4756		0.4992	9	AVG
4-Bromofluorobenzene(2)	0.3948	0.4404	0.4153	0.4447	0.5187	0.4422		0.4427	9	AVG

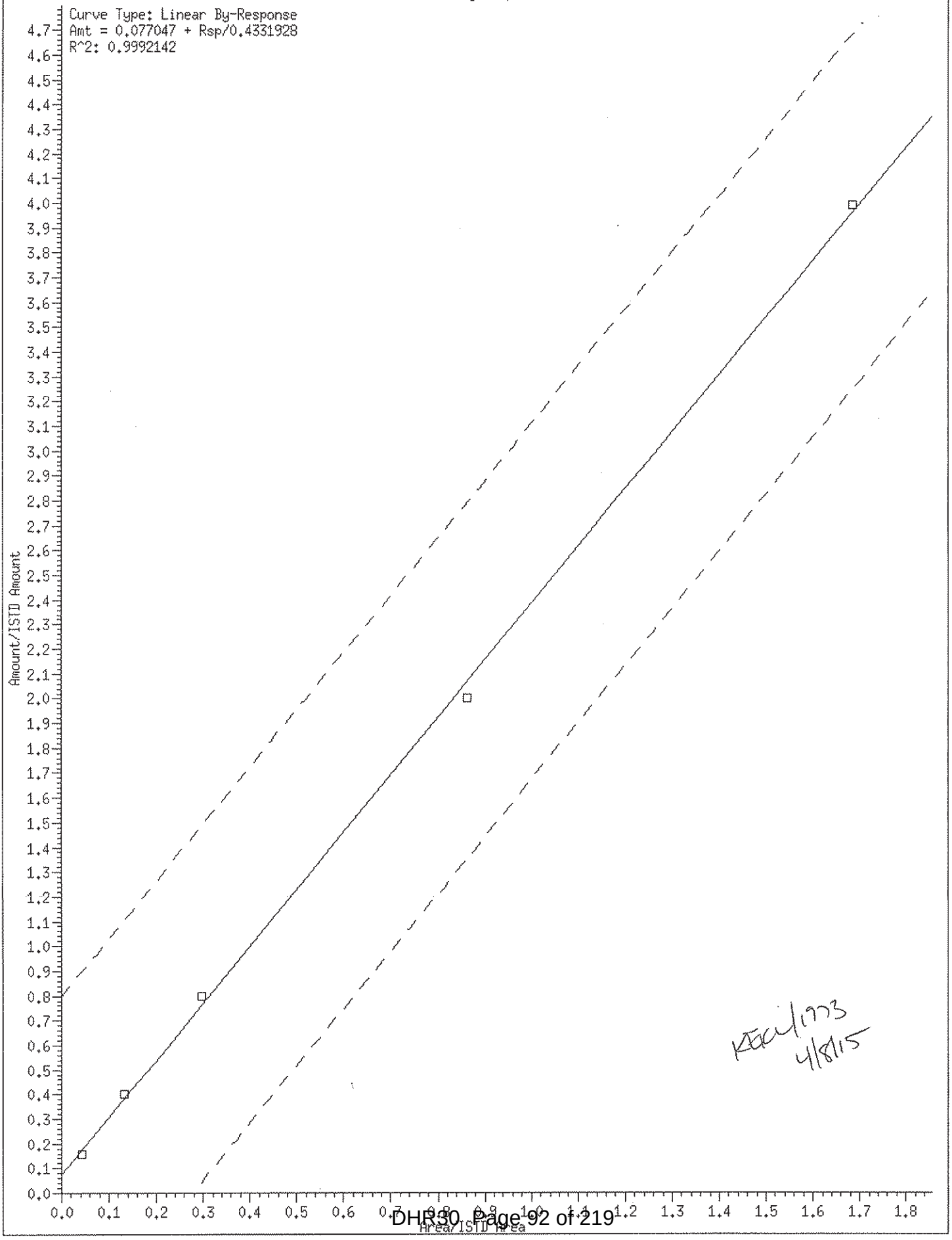
Average %RSD 7

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

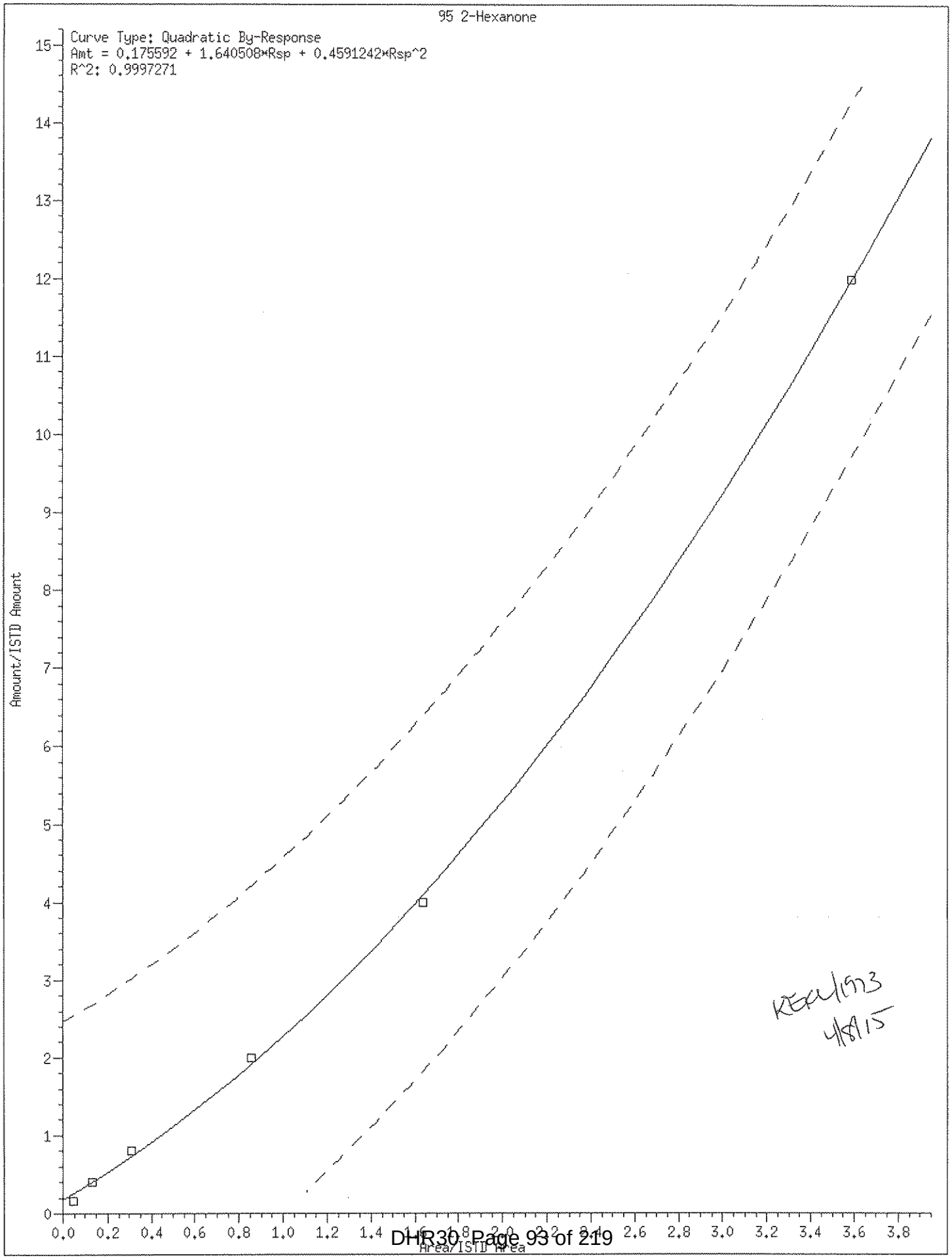

10 Chloroethane
Curve Type: Quadratic By-Response
Amt = -0.0041752 + 0.3131568*Rsp + 0.03554086*Rsp^2
R^2: 0.9989992
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
KEL/1973
4/8/15

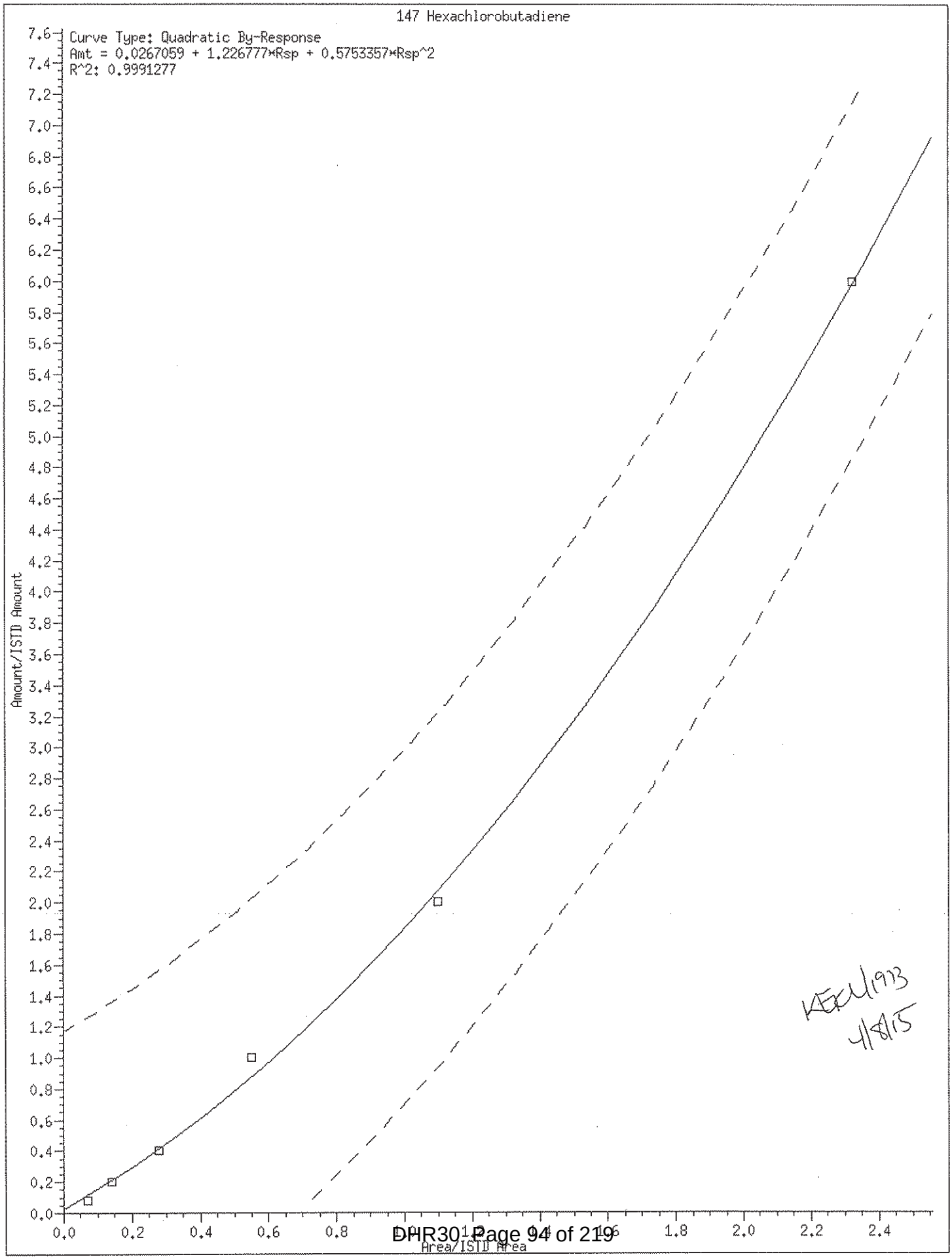
85 4-Methyl-2-pentanone

Curve Type: Linear By-Response
Amt = 0.077047 + Rsp/0.4331928
R^2: 0.9992142



KEC 1/23
4/8/15


95 2-Hexanone
Curve Type: Quadratic By-Response
Amt = 0.175592 + 1.640508*Rsp + 0.4591242*Rsp^2
R^2: 0.9997271
Amount/ISTD Amount
Area/ISTD Area
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
KEM/1573
4/8/15


147 Hexachlorobutadiene
Curve Type: Quadratic By-Response
Amt = 0.0267059 + 1.226777*Rsp + 0.5753357*Rsp^2
R^2: 0.9991277
Amount/ISTD Amount
Area/ISTD Area
KEC 4/93
4/8/15

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07536.i/15apr07a.b/qa07i01.d	VSTD300
/chem/HP07536.i/15apr07a.b/qa07i02.d	VSTD100
/chem/HP07536.i/15apr07a.b/qa07i03.d	VSTD050
/chem/HP07536.i/15apr07a.b/qa07i04.d	VSTD020
/chem/HP07536.i/15apr07a.b/qa07i05.d	VSTD010
/chem/HP07536.i/15apr07a.b/qa07i06.d	VSTD004
/chem/HP07536.i/15apr07a.b/qa07i07.d	VSTD002

Area Summary

File ID:

Internal Standard Name	qa07i01.d	qa07i02.d	qa07i03.d	qa07i04.d	qa07i05.d	qa07i06.d	qa07i07.d	Avg. Area	%RS
t-Butyl alcohol-d10	163678	144918	156050	136482	145143	137319	138256	145978	7
Fluorobenzene	1227552	1101034	1206707	1155320	1212210	1233186	1272068	1201154	5
Chlorobenzene-d5	889568	839074	912537	844318	898931	881249	901532	881030	3
1,4-Dichlorobenzene-d4	489169	420048	448564	404701	434782	432256	431082	437229	6

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	qa07i01.d	qa07i02.d	qa07i03.d	qa07i04.d	qa07i05.d	qa07i06.d	qa07i07.d	Avg. RT
t-Butyl alcohol-d10	3.939	3.949	3.955	3.944	3.939	3.926	3.938	3.941
Fluorobenzene	7.379	7.382	7.382	7.381	7.382	7.382	7.384	7.382
Chlorobenzene-d5	10.921	10.922	10.921	10.920	10.921	10.922	10.923	10.921
1,4-Dichlorobenzene-d4	12.808	12.808	12.811	12.810	12.811	12.812	12.810	12.810

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 04/08/2015 at 15:04.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3708	0.3526	19.02	20	-5	
#	Chloromethane	0.4498	0.4191	18.63	20	-7	#
*	Vinyl Chloride	0.3999	0.3829	19.15	20	-4	*
	Bromomethane	3.9905	4.8456	24.29	20	21	
	Chloroethane	3.2165	4.5379	28.55	20	43	
	Dichlorofluoromethane	0.4112	0.4502	21.90	20	9	
	Trichlorofluoromethane	0.3971	0.4162	20.96	20	5	
	Ethanol	0.1724	0.1471	853.40	1000	-15	
	Freon 123a	0.3330	0.3348	20.11	20	1	
	Acrolein	3.1397	3.1871	152.27	150	2	
*	1,1-Dichloroethene	0.2594	0.2502	19.29	20	-4	*
	Acetone	0.0299	0.0249	124.58	150	-17	
	Freon 113	0.2491	0.2254	18.10	20	-10	
	2-Propanol	0.8260	0.8145	147.91	150	-1	
	Methyl Iodide	0.4918	0.4376	17.80	20	-11	
	Carbon Disulfide	0.8735	0.7362	16.86	20	-16	
	Methyl Acetate	0.2359	0.2548	21.59	20	8	
	Allyl Chloride	0.4950	0.5203	21.02	20	5	
	Methylene Chloride	0.3073	0.2913	18.96	20	-5	
	t-Butyl alcohol	1.2668	1.2750	201.31	200	1	
	Acrylonitrile	0.1280	0.1133	88.48	100	-12	
	Methyl Tertiary Butyl Ether	0.8946	0.8278	18.51	20	-7	
	trans-1,2-Dichloroethene	0.2881	0.2762	19.18	20	-4	
	n-Hexane	0.3298	0.3156	19.14	20	-4	
#	1,1-Dichloroethane	0.5503	0.5297	19.25	20	-4	#
	di-Isopropyl ether	1.0934	1.0708	19.59	20	-2	
	2-Chloro-1,3-butadiene	0.4814	0.4439	18.44	20	-8	
	Ethyl t-butyl ether	0.9980	0.9637	19.31	20	-3	
	2-Butanone	0.1539	0.1413	137.80	150	-8	
	cis-1,2-Dichloroethene	0.3145	0.3032	19.28	20	-4	
	2,2-Dichloropropane	0.4290	0.4167	19.43	20	-3	
	Propionitrile	0.0445	0.0430	144.72	150	-4	
	Methacrylonitrile	0.1317	0.1300	148.14	150	-1	
	Bromochloromethane	0.1573	0.1579	20.07	20	0	
	Tetrahydrofuran	1.6113	1.7868	110.90	100	11	
*	Chloroform	0.4922	0.4918	19.98	20	0	*

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: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4527	0.4143	18.31	20	-8
Cyclohexane	0.4760	0.4707	19.77	20	-1
1,1-Dichloropropene	0.3895	0.4047	20.78	20	4
Carbon Tetrachloride	0.3565	0.3590	20.14	20	1
Isobutyl Alcohol	0.4116	0.4160	505.32	500	1
Benzene	1.1741	1.1579	19.72	20	-1
1,2-Dichloroethane	0.4010	0.3950	19.70	20	-1
t-Amyl methyl ether	0.9105	0.8803	19.34	20	-3
n-Heptane	0.3161	0.3026	19.14	20	-4
n-Butanol	0.3290	0.2949	896.23	1000	-10
Trichloroethene	0.2936	0.2916	19.87	20	-1
Methylcyclohexane	0.3644	0.3681	20.20	20	1
* 1,2-Dichloropropane	0.3335	0.3287	19.71	20	-1 *
Methyl Methacrylate	0.2227	0.2129	19.13	20	-4
1,4-Dioxane	0.1278	0.0978	382.31	500	-24
Dibromomethane	0.1879	0.1847	19.66	20	-2
Bromodichloromethane	0.3838	0.3684	19.20	20	-4
2-Nitropropane	3.8314	3.7051	19.34	20	-3
2-Chloroethyl Vinyl Ether	0.2119	0.2106	19.87	20	-1
cis-1,3-Dichloropropene	0.5010	0.4935	19.70	20	-2
4-Methyl-2-pentanone	0.3636	0.3137	76.26	100	-24
* Toluene	0.9829	0.9861	20.06	20	0 *
trans-1,3-Dichloropropene	0.6073	0.6204	20.43	20	2
Ethyl Methacrylate	0.5792	0.5810	20.06	20	0
1,1,2-Trichloroethane	0.3602	0.3558	19.76	20	-1
Tetrachloroethene	0.4111	0.4017	19.54	20	-2
1,3-Dichloropropane	0.6454	0.6435	19.94	20	0
2-Hexanone	0.3544	0.2994	66.13	100	-34
Dibromochloromethane	0.4066	0.3947	19.41	20	-3
1,2-Dibromoethane	0.3722	0.3772	20.27	20	1
# Chlorobenzene	1.0888	1.0773	19.79	20	-1 #
1,1,1,2-Tetrachloroethane	0.3802	0.3739	19.67	20	-2
* Ethylbenzene	1.7385	1.7170	19.75	20	-1 *
m+p-Xylene	0.6944	0.6821	39.29	40	-2
o-Xylene	0.6860	0.6729	19.62	20	-2
Styrene	1.1876	1.1601	19.54	20	-2

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: HP07536 ICV Date: 04/07/15 Time: 18:00

Lab File ID: qa07v01.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2866	0.2579	18.00	20	-10 #
Isopropylbenzene	1.5841	1.5474	19.54	20	-2
Cyclohexanone	0.4012	0.3242	404.12	500	-19
# 1,1,2,2-Tetrachloroethane	0.9802	0.9597	19.58	20	-2 #
Bromobenzene	0.9600	0.9566	19.93	20	0
trans-1,4-Dichloro-2-butene	0.2907	0.3161	108.72	100	9
1,2,3-Trichloropropane	0.2869	0.2924	20.39	20	2
n-Propylbenzene	3.5287	3.5403	20.07	20	0
2-Chlorotoluene	0.7797	0.7616	19.54	20	-2
1,3,5-Trimethylbenzene	2.6254	2.6032	19.83	20	-1
4-Chlorotoluene	0.8354	0.8252	19.76	20	-1
tert-Butylbenzene	0.5800	0.5688	19.61	20	-2
Pentachloroethane	0.5776	0.5569	19.28	20	-4
1,2,4-Trimethylbenzene	2.7380	2.7273	19.92	20	0
sec-Butylbenzene	2.8938	2.8381	19.61	20	-2
1,3-Dichlorobenzene	1.5679	1.5175	19.36	20	-3
p-Isopropyltoluene	2.6586	2.4939	18.76	20	-6
1,4-Dichlorobenzene	1.6904	1.6251	19.23	20	-4
1,2,3-Trimethylbenzene	2.8844	2.8290	19.62	20	-2
Benzyl Chloride	0.4354	0.4191	19.25	20	-4
1,3-Diethylbenzene	1.5919	1.4993	18.84	20	-6
1,4-Diethylbenzene	1.6035	1.5640	19.51	20	-2
n-Butylbenzene	1.2362	1.1554	18.69	20	-7
1,2-Dichlorobenzene	1.5737	1.5343	19.50	20	-3
1,2-Diethylbenzene	1.3170	1.2936	19.64	20	-2
1,2-Dibromo-3-chloropropane	0.1849	0.1825	19.74	20	-1
1,3,5-Trichlorobenzene	1.1273	1.0163	18.03	20	-10
1,2,4-Trichlorobenzene	1.1003	0.9509	17.29	20	-14
Hexachlorobutadiene	0.6242	0.4495	13.29	20	-34
Naphthalene	2.8187	2.6226	18.61	20	-7
1,2,3-Trichlorobenzene	1.0454	0.8528	16.31	20	-18
2-Methylnaphthalene	1.8207	1.1932	13.11	20	-34

Average %Drift 6

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: HP09915 Calibration Date(s): 06/22/15 06/22/15

Heated Purge: (Y/N) Y Calibration Times: 13:03 15:14

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = lu22i07.d RRF 4 = lu22i06.d RRF 10= lu22i05.d
RRF 20= lu22i04.d RRF 50= lu22i03.d RRF100= lu22i02.d RRF300= lu22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.2751	0.3517	0.3325	0.3501	0.4000	0.3691	0.3623	0.3487	11	AVG
Chloromethane	#0.3616	0.3866	0.3808	0.3977	0.4341	0.3992	0.3734	0.3905	6	AVG #
Vinyl Chloride	*0.3052	0.3511	0.3485	0.3611	0.3978	0.3573	0.3358	0.3510	8	AVG *
Bromomethane	0.2085	0.2262	0.2236	0.2298	0.2600	0.2340	0.2178	0.2285	7	AVG
Chloroethane	0.2054	0.2015	0.2000	0.2083	0.2265	0.2059	0.1865	0.2049	6	AVG
Dichlorofluoromethane	0.4451	0.4895	0.5028	0.5081	0.4749	0.4652	0.4500	0.4765	5	AVG
n-Pentane		0.4421	0.4263	0.4455	0.4369	0.4207	0.4024	0.4290	4	AVG
Trichlorofluoromethane	0.3379	0.4039	0.3999	0.4193	0.4750	0.4452	0.4314	0.4161	10	AVG
Ethyl ether		0.2466	0.2634	0.2669	0.2631	0.2513	0.2468	0.2564	4	AVG
Freon 123a		0.3103	0.3163	0.3196	0.3035	0.2925	0.2873	0.3049	4	AVG
Acrolein	2.0504	1.9393	2.9750	2.3639	2.3634	2.3967	2.2290	2.3311	14	AVG
1,1-Dichloroethene	*0.1775	0.2082	0.2278	0.2425	0.2305	0.2237	0.2208	0.2187	10	AVG *
1,1-Dichloroethene(2)	*0.1025	0.1162	0.1253	0.1337	0.1264	0.1217	0.1201	0.1208	8	AVG *
Acetone	0.9271	0.8970	1.4087	1.0855	1.0634	1.0756	1.0154	1.0675	16	2NDDEG
Freon 113		0.2139	0.2341	0.2487	0.2424	0.2320	0.2314	0.2337	5	AVG
2-Propanol	1.0376	0.7821	0.8754	0.8831	0.8302	0.7980	0.7564	0.8518	11	AVG
Methyl Iodide	0.3496	0.3857	0.4114	0.4409	0.4261	0.4110	0.4028	0.4039	7	AVG
Carbon Disulfide		0.7105	0.7749	0.8361	0.7985	0.7720	0.7607	0.7754	5	AVG
Allyl Chloride		0.4566	0.4957	0.4941	0.4833	0.4623	0.4575	0.4749	4	AVG
Methyl Acetate	0.3343	0.2884	0.3236	0.3044	0.2977	0.2906	0.2816	0.3029	6	AVG
Methylene Chloride	0.2535	0.2588	0.2695	0.2892	0.2733	0.2659	0.2593	0.2671	4	AVG
t-Butyl alcohol	1.2845	1.2056	1.3577	1.3434	1.2416	1.2329	1.1695	1.2622	6	AVG
Acrylonitrile		0.1270	0.1925	0.1455	0.1594	0.1560	0.1425	0.1538	14	AVG
trans-1,2-Dichloroethene	0.2130	0.2363	0.2550	0.2748	0.2623	0.2531	0.2503	0.2493	8	AVG
Methyl Tertiary Butyl Ether	0.7912	0.8138	0.8579	0.9061	0.8723	0.8485	0.8187	0.8441	5	AVG
n-Hexane		0.3796	0.3954	0.4472	0.4234	0.4051	0.4038	0.4091	6	AVG
1,1-Dichloroethane	#0.4184	0.4674	0.5046	0.5452	0.5161	0.4984	0.4870	0.4910	8	AVG #
di-Isopropyl ether	0.9011	0.9318	1.0187	1.0834	1.0310	1.0002	0.9612	0.9896	6	AVG
2-Chloro-1,3-butadiene		0.3743	0.4194	0.4562	0.4379	0.4252	0.4174	0.4217	6	AVG
Ethyl t-butyl ether	0.8132	0.8298	0.9105	0.9638	0.9259	0.8991	0.8632	0.8865	6	AVG
cis-1,2-Dichloroethene	0.2500	0.2665	0.2846	0.3076	0.2950	0.2864	0.2821	0.2817	7	AVG
2-Butanone	0.1683	0.1657	0.2565	0.1910	0.2115	0.2067	0.1903	0.1986	16	2NDDEG
2,2-Dichloropropane	0.2622	0.3082	0.3469	0.3774	0.3809	0.3755	0.3779	0.3470	13	AVG
Propionitrile	1.6316	1.5957	1.7076	1.7347	1.5718	1.6047	1.6068	1.6361	4	AVG
Methacrylonitrile	0.1355	0.1350	0.1485	0.1533	0.1451	0.1434	0.1397	0.1429	5	AVG
Bromochloromethane		0.1437	0.1580	0.1530	0.1480	0.1452	0.1466	0.1491	4	AVG
Tetrahydrofuran	1.0428	1.1570	1.8264	1.3073	1.4065	1.4654	1.4078	1.3733	18	2NDDEG
Chloroform	*0.4106	0.4307	0.4705	0.5048	0.4848	0.4685	0.4627	0.4618	7	AVG *
1,1,1-Trichloroethane	0.3862	0.4460	0.4365	0.4681	0.4393	0.4255	0.4284	0.4329	6	AVG
Cyclohexane		0.4576	0.5022	0.5510	0.5290	0.5098	0.5067	0.5094	6	AVG
Cyclohexane(2)		0.3657	0.3837	0.4208	0.4084	0.3898	0.3909	0.3932	5	AVG
Cyclohexane(3)		0.1341	0.1449	0.1563	0.1509	0.1449	0.1465	0.1463	5	AVG
1,1-Dichloropropene	0.3074	0.3479	0.3807	0.4125	0.3910	0.3785	0.3834	0.3716	9	AVG
Carbon Tetrachloride	0.2367	0.2956	0.3277	0.3595	0.3546	0.3482	0.3594	0.3259	14	AVG
Isobutyl Alcohol	0.4664	0.4382	0.5242	0.4940	0.4601	0.4575	0.4440	0.4692	6	AVG
Benzene	0.9427	1.0243	1.1261	1.1817	1.1250	1.0850	1.0663	1.0787	7	AVG
1,2-Dichloroethane	0.3674	0.3778	0.3990	0.4168	0.3995	0.3898	0.3867	0.3910	4	AVG
1,2-Dichloroethane(2)	0.0264	0.0320	0.0357	0.0365	0.0355	0.0343	0.0346	0.0336	10	AVG
t-Amyl methyl ether	0.7659	0.7709	0.8319	0.8889	0.8591	0.8418	0.8182	0.8252	5	AVG
n-Heptane		0.4595	0.4590	0.5256	0.4971	0.4820	0.4800	0.4839	5	AVG
n-Butanol	0.3095	0.3155	0.4015	0.3923	0.3636	0.3700	0.3535	0.3580	10	AVG
Trichloroethene	0.2402	0.2593	0.2777	0.2992	0.2871	0.2781	0.2816	0.2747	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: HP09915 Calibration Date(s): 06/22/15 06/22/15

Heated Purge: (Y/N) Y Calibration Times: 13:03 15:14

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = lu22i07.d RRF 4 = lu22i06.d RRF 10= lu22i05.d
RRF 20= lu22i04.d RRF 50= lu22i03.d RRF100= lu22i02.d RRF300= lu22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methylcyclohexane		0.4796	0.5221	0.5199	0.5106	0.4773	0.5079	0.5029	4	AVG
Methylcyclohexane(2)		0.2180	0.2300	0.2298	0.2272	0.2095	0.2266	0.2235	4	AVG
1,2-Dichloropropane	*0.2585	0.2758	0.2990	0.3183	0.3062	0.2980	0.2980	0.2934	7	AVG *
Dibromomethane	0.1613	0.1667	0.1840	0.1937	0.1883	0.1855	0.1883	0.1811	7	AVG
1,4-Dioxane	0.0857	0.0952	0.1102	0.1105	0.1021	0.0984	0.0954	0.0996	9	AVG
Methyl Methacrylate		0.2176	0.2342	0.2590	0.2513	0.2527	0.2513	0.2443	6	AVG
Bromodichloromethane	0.2632	0.2997	0.3349	0.3691	0.3681	0.3665	0.3787	0.3400	13	AVG
2-Nitropropane	0.0649	0.0713	0.1180	0.0921	0.1126	0.1149	0.1100	0.0977	22	1STDEG
2-Chloroethyl Vinyl Ether		0.1850	0.2181	0.2165	0.2107	0.2199	0.2128	0.2105	6	AVG
cis-1,3-Dichloropropene	0.2913	0.3515	0.4158	0.4616	0.4640	0.4610	0.4696	0.4164	17	2NDDEG
4-Methyl-2-pentanone	0.3317	0.3409	0.5402	0.4239	0.4679	0.4587	0.4165	0.4257	17	2NDDEG
Toluene	*0.8191	0.8594	0.9376	0.9830	0.9337	0.8962	0.8560	0.8978	6	AVG *
trans-1,3-Dichloropropene	0.3523	0.4235	0.4901	0.5498	0.5604	0.5644	0.5538	0.4992	17	1STDEG
Ethyl Methacrylate		0.5343	0.5902	0.6402	0.6182	0.6113	0.5741	0.5947	6	AVG
1,1,2-Trichloroethane	0.3336	0.3272	0.3446	0.3659	0.3484	0.3428	0.3294	0.3417	4	AVG
Tetrachloroethene	0.3275	0.3712	0.4059	0.4305	0.4123	0.4006	0.4038	0.3931	9	AVG
1,3-Dichloropropane	0.5628	0.5702	0.6034	0.6341	0.6087	0.5952	0.5692	0.5919	4	AVG
2-Hexanone	0.3006	0.3160	0.5240	0.4114	0.4400	0.4308	0.3719	0.3992	19	2NDDEG
Dibromochloromethane	0.2859	0.3079	0.3462	0.3903	0.3954	0.4007	0.3996	0.3609	13	AVG
1,2-Dibromoethane	0.3161	0.3416	0.3676	0.3889	0.3779	0.3722	0.3609	0.3607	7	AVG
1-Chlorohexane	0.4871	0.4797	0.4964	0.5410	0.5190	0.4993	0.4962	0.5027	4	AVG
Chlorobenzene	#0.9109	0.9671	1.0321	1.0810	1.0342	1.0066	0.9804	1.0017	5	AVG #
1,1,1,2-Tetrachloroethane	0.2656	0.3006	0.3381	0.3717	0.3685	0.3701	0.3761	0.3415	13	AVG
Ethylbenzene	*1.5341	1.6697	1.8171	1.9291	1.8566	1.8001	1.7143	1.7601	7	AVG *
m+p-Xylene	0.5573	0.6368	0.7029	0.7472	0.7166	0.6946	0.6722	0.6754	9	AVG
o-Xylene	0.5661	0.6189	0.6995	0.7456	0.7155	0.6928	0.6744	0.6733	9	AVG
Styrene		1.0214	1.1496	1.2334	1.2002	1.1763	1.1378	1.1531	6	AVG
Bromoform	#0.2170	0.2211	0.2483	0.2812	0.2924	0.3013	0.3111	0.2675	14	AVG #
Isopropylbenzene		1.6441	1.7777	1.9329	1.8389	1.7720	1.6867	1.7754	6	AVG
Cyclohexanone	0.4914	0.5177	0.5279	0.5728	0.5728	0.5286	0.4739	0.5264	7	AVG
Bromobenzene		0.8066	0.8672	0.9035	0.8795	0.8572	0.8719	0.8643	4	AVG
1,1,2,2-Tetrachloroethane	#0.9471	0.9535	1.0609	1.0623	1.0241	0.9749	0.9141	0.9910	6	AVG #
1,2,3-Trichloropropane		0.2908	0.2995	0.3010	0.2939	0.2831	0.2644	0.2888	5	AVG
trans-1,4-Dichloro-2-butene			0.1847	0.2137	0.2315	0.2381	0.2543	0.2245	12	AVG
n-Propylbenzene		3.6150	3.8527	4.1469	4.0022	3.7492	3.3876	3.7923	7	AVG
2-Chlorotoluene		0.7149	0.7587	0.8039	0.7869	0.7370	0.7323	0.7556	5	AVG
4-Chlorotoluene		0.7308	0.7954	0.8409	0.8142	0.7770	0.7669	0.7875	5	AVG
1,3,5-Trimethylbenzene		2.5197	2.7477	2.9570	2.9031	2.7216	2.5859	2.7392	6	AVG
tert-Butylbenzene		0.5069	0.5384	0.6015	0.5886	0.5635	0.5671	0.5610	6	AVG
Pentachloroethane		0.4436	0.4951	0.5019	0.5303	0.5285	0.5503	0.5083	7	AVG
1,2,4-Trimethylbenzene		2.6301	2.8549	3.0579	2.9857	2.8477	2.7016	2.8463	6	AVG
sec-Butylbenzene		3.2828	3.4024	3.7785	3.6741	3.4608	3.2126	3.4685	6	AVG
1,3-Dichlorobenzene	1.4765	1.5282	1.6127	1.7082	1.6796	1.6166	1.5631	1.5978	5	AVG
p-Isopropyltoluene	2.5019	2.8319	2.9894	3.3402	3.2829	3.1270	2.9300	3.0005	10	AVG
1,4-Dichlorobenzene	1.6456	1.5969	1.6855	1.7658	1.7293	1.6563	1.6009	1.6686	4	AVG
1,2,3-Trimethylbenzene		2.9331	3.1745	3.0780	3.0699	2.8965	2.7570	2.9848	5	AVG
Benzyl Chloride		1.2255	1.5946	1.7954	1.9238	1.9348	1.8907	1.7275	16	1STDEG
1,3-Diethylbenzene		1.8491	1.9846	1.9414	1.9147	1.7693	1.7441	1.8672	5	AVG
1,4-Diethylbenzene		1.9254	2.0595	2.0235	1.9976	1.8366	1.8138	1.9427	5	AVG
1,2-Dichlorobenzene	1.5737	1.5278	1.6269	1.6896	1.6506	1.5800	1.5402	1.5984	4	AVG
n-Butylbenzene	1.4256	1.4921	1.5147	1.6697	1.6292	1.5314	1.4546	1.5310	6	AVG
1,2-Diethylbenzene		1.5583	1.6657	1.6268	1.6193	1.5099	1.4896	1.5783	4	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: HP09915 Calibration Date(s): 06/22/15 06/22/15

Heated Purge: (Y/N) Y Calibration Times: 13:03 15:14

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

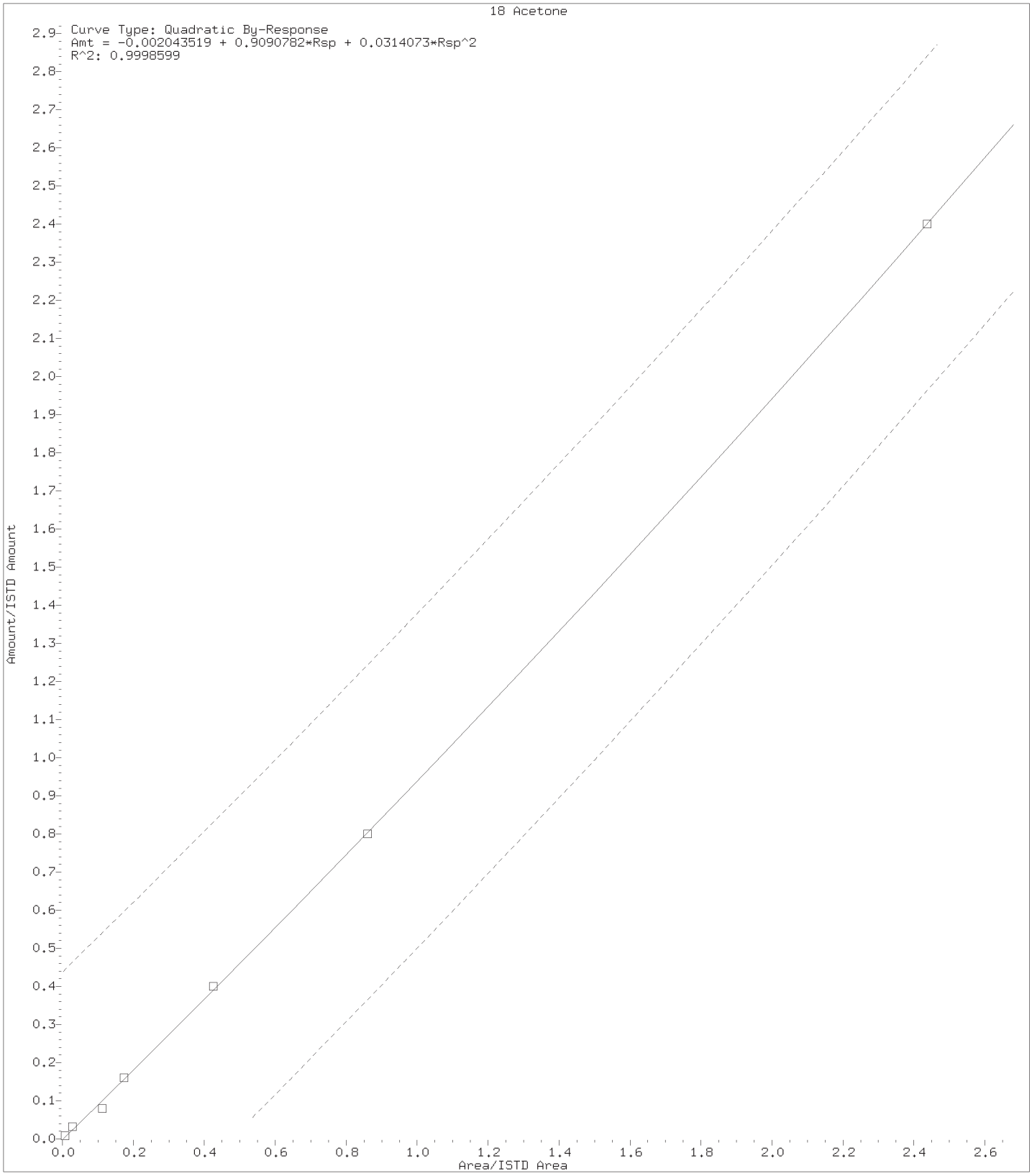
LAB FILE ID: RRF 1 = lu22i07.d RRF 4 = lu22i06.d RRF 10= lu22i05.d
RRF 20= lu22i04.d RRF 50= lu22i03.d RRF100= lu22i02.d RRF300= lu22i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
1,2-Dibromo-3-chloropropane		0.1882	0.2112	0.2154	0.2159	0.2096	0.1973	0.2062	5	AVG
1,3,5-Trichlorobenzene		1.2111	1.2451	1.3609	1.3427	1.2764	1.2137	1.2750	5	AVG
1,2,4-Trichlorobenzene		1.2227	1.2292	1.3200	1.3102	1.2378	1.1329	1.2421	5	AVG
Hexachlorobutadiene		0.5825	0.5520	0.6279	0.6153	0.5972	0.5400	0.5858	6	AVG
Naphthalene	3.4366	3.2803	3.6388	3.6766	3.6167	3.4225	2.9340	3.4293	8	AVG
1,2,3-Trichlorobenzene	1.3505	1.1641	1.1702	1.2660	1.2411	1.1789	1.0073	1.1968	9	AVG
2-Methylnaphthalene	2.3559	2.1201	2.2532	2.2970	2.2862	2.1796	1.5291	2.1459	13	AVG
Dibromofluoromethane	0.2406	0.2397	0.2405	0.2406	0.2431	0.2441	0.2451	0.2420	1	AVG
Dibromofluoromethane(2)		0.2467	0.2483	0.2478	0.2496	0.2500	0.2506	0.2488	1	AVG
1,2-Dichloroethane-d4	0.0612	0.0609	0.0608	0.0615	0.0611	0.0602	0.0611	0.0610	1	AVG
1,2-Dichloroethane-d4(2)		0.3199	0.3221	0.3167	0.3185	0.3156	0.3173	0.3184	1	AVG
1,2-Dichloroethane-d4(3)		0.0387	0.0386	0.0388	0.0388	0.0384	0.0393	0.0388	1	AVG
Toluene-d8	1.3188	1.3103	1.3175	1.3085	1.3084	1.2937	1.2301	1.2982	2	AVG
Toluene-d8(2)		0.8513	0.8469	0.8437	0.8447	0.8384	0.8045	0.8382	2	AVG
4-Bromofluorobenzene	0.5049	0.5041	0.5039	0.5012	0.4946	0.4945	0.4830	0.4980	2	AVG
4-Bromofluorobenzene(2)		0.4422	0.4405	0.4436	0.4386	0.4350	0.4265	0.4377	1	AVG

Average %RSD 7

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

FORM VI VOA



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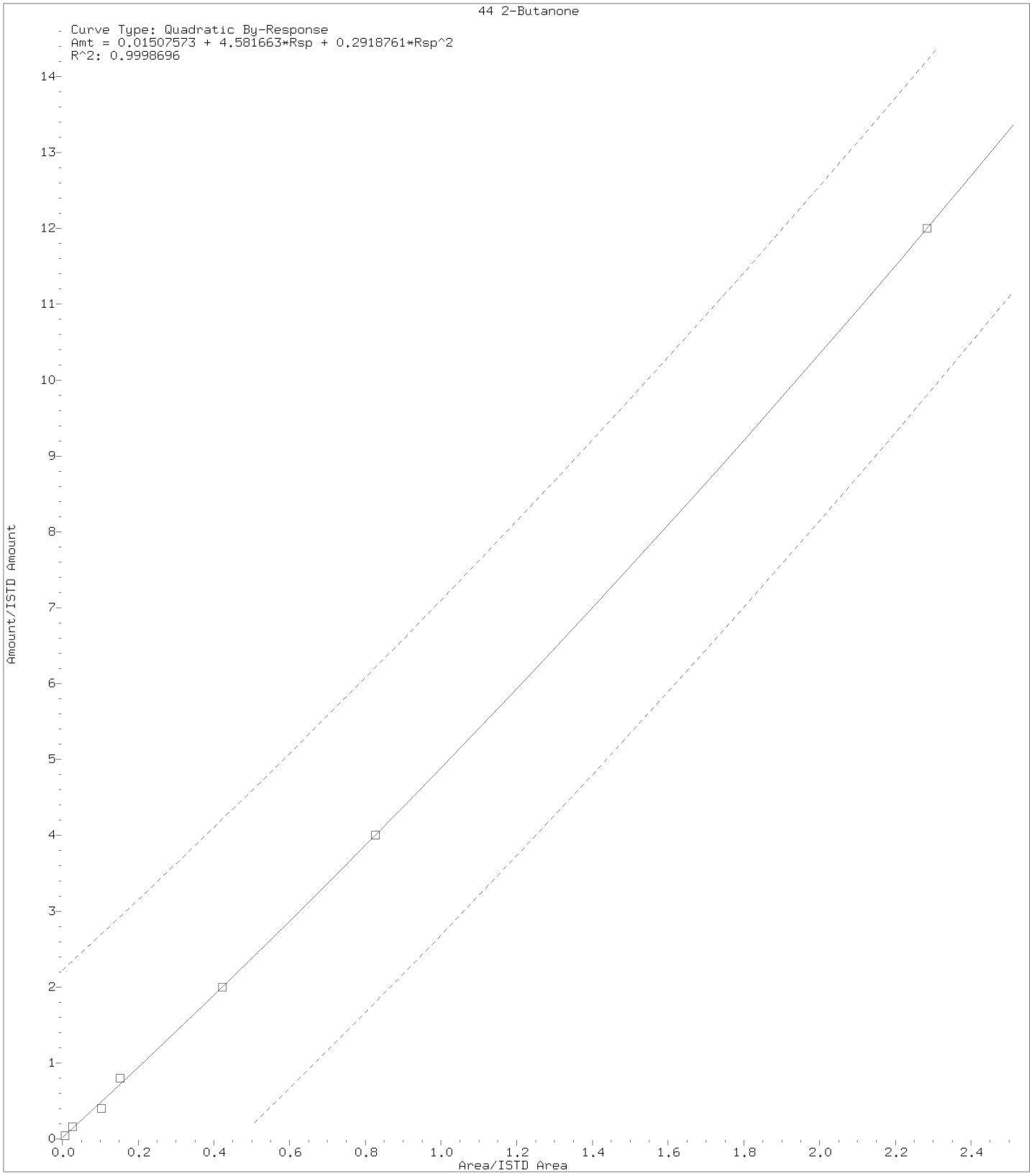

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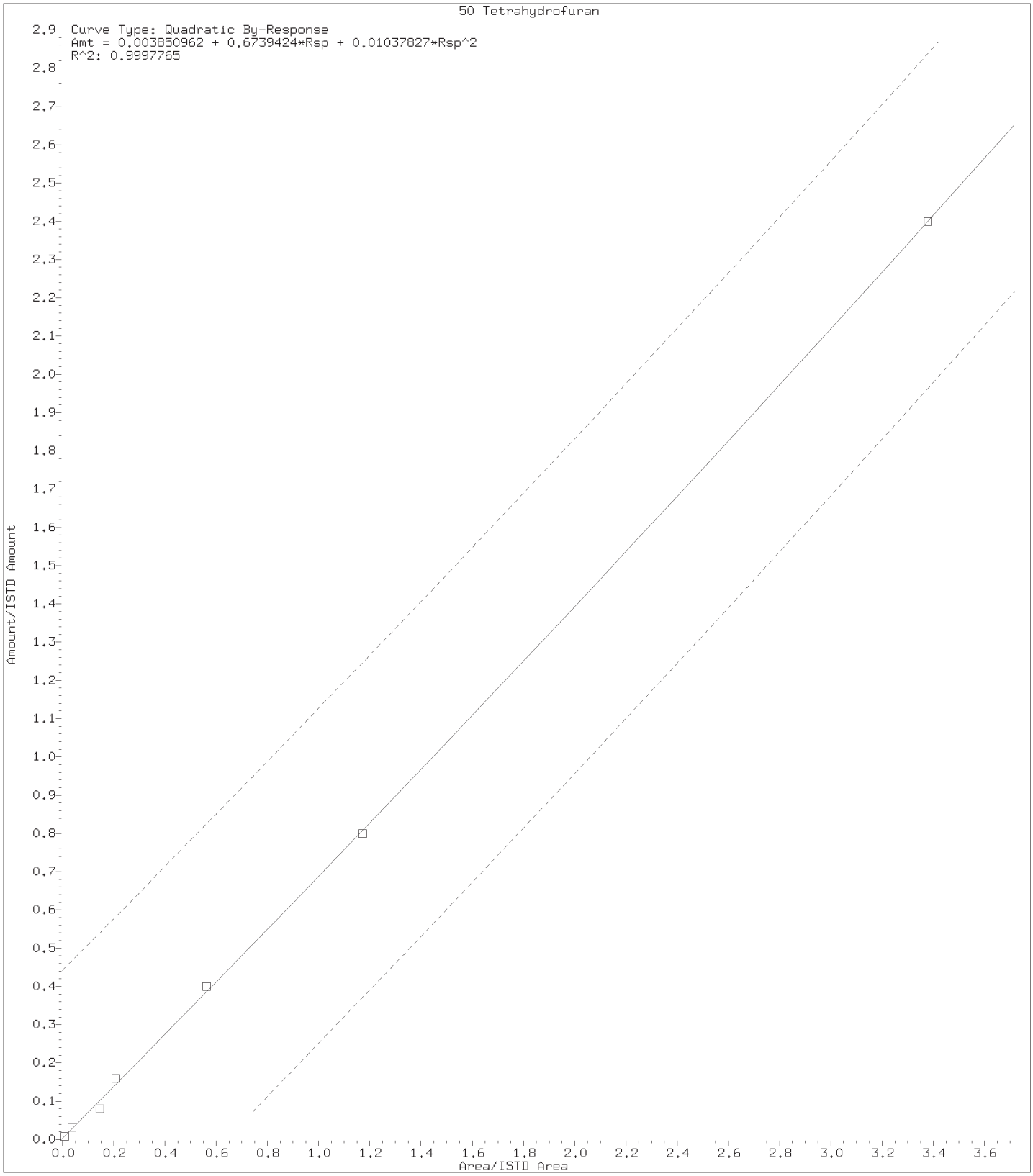
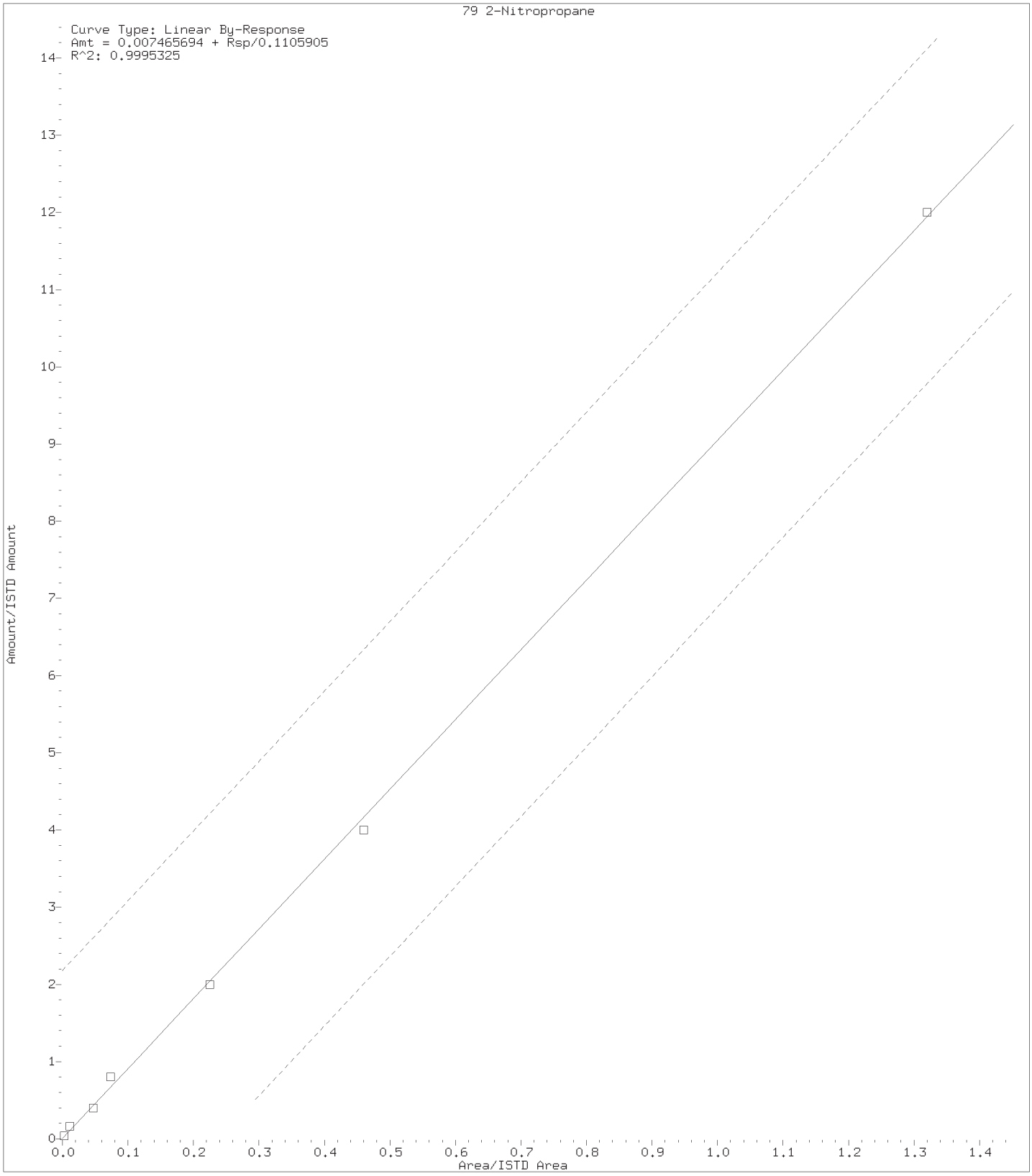
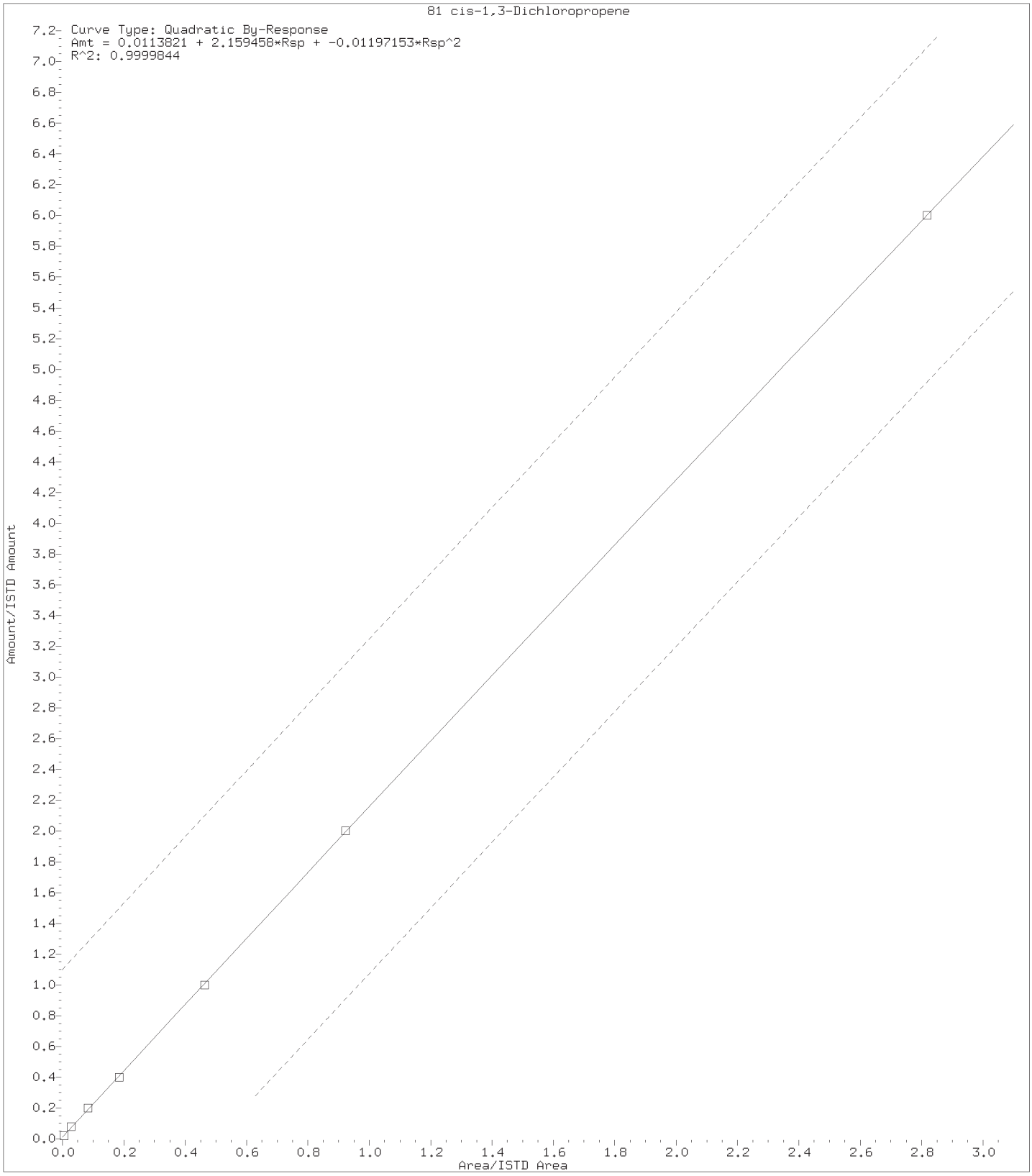
Target 3.5 esignature user ID: kas02648



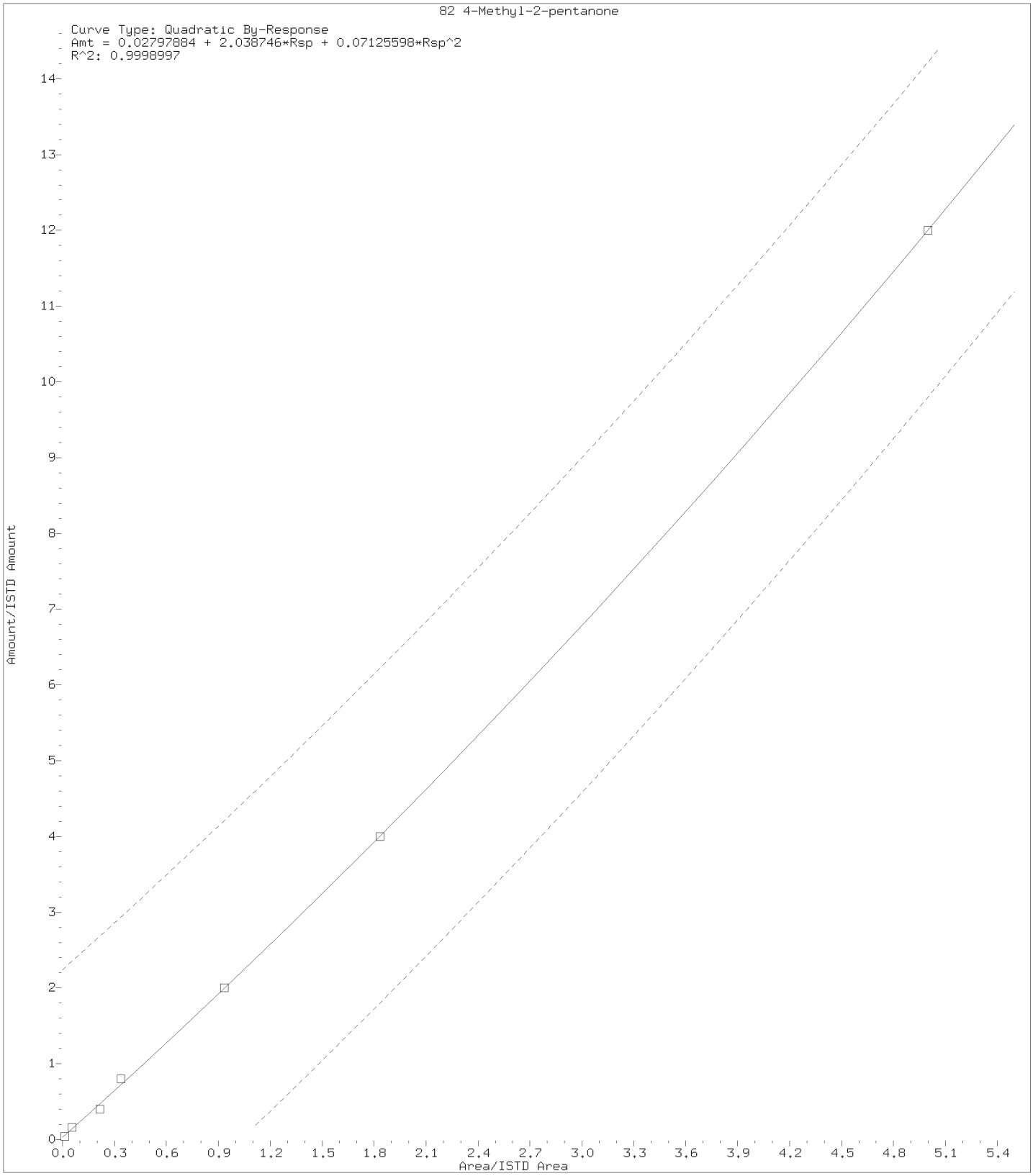
Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



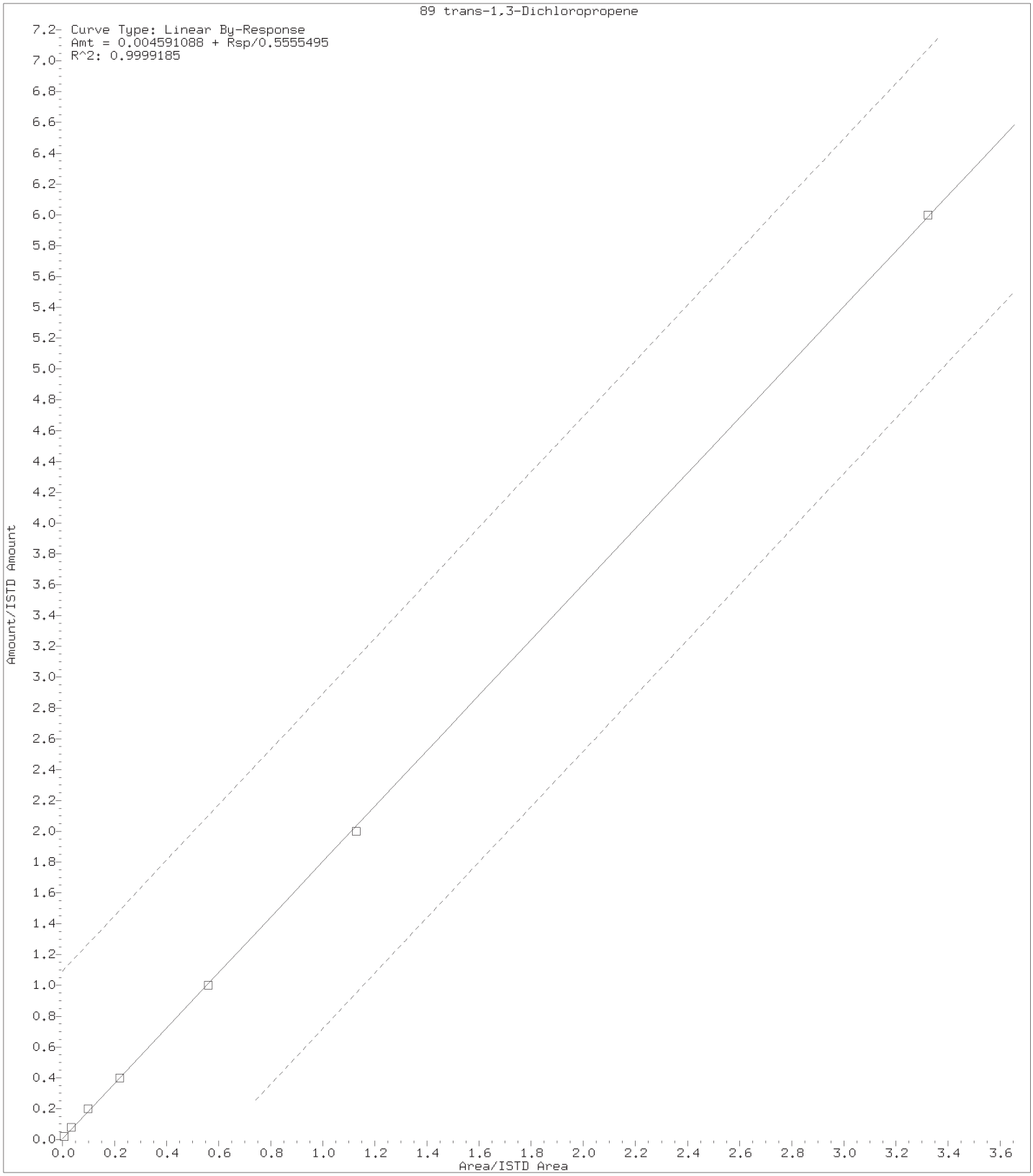
Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



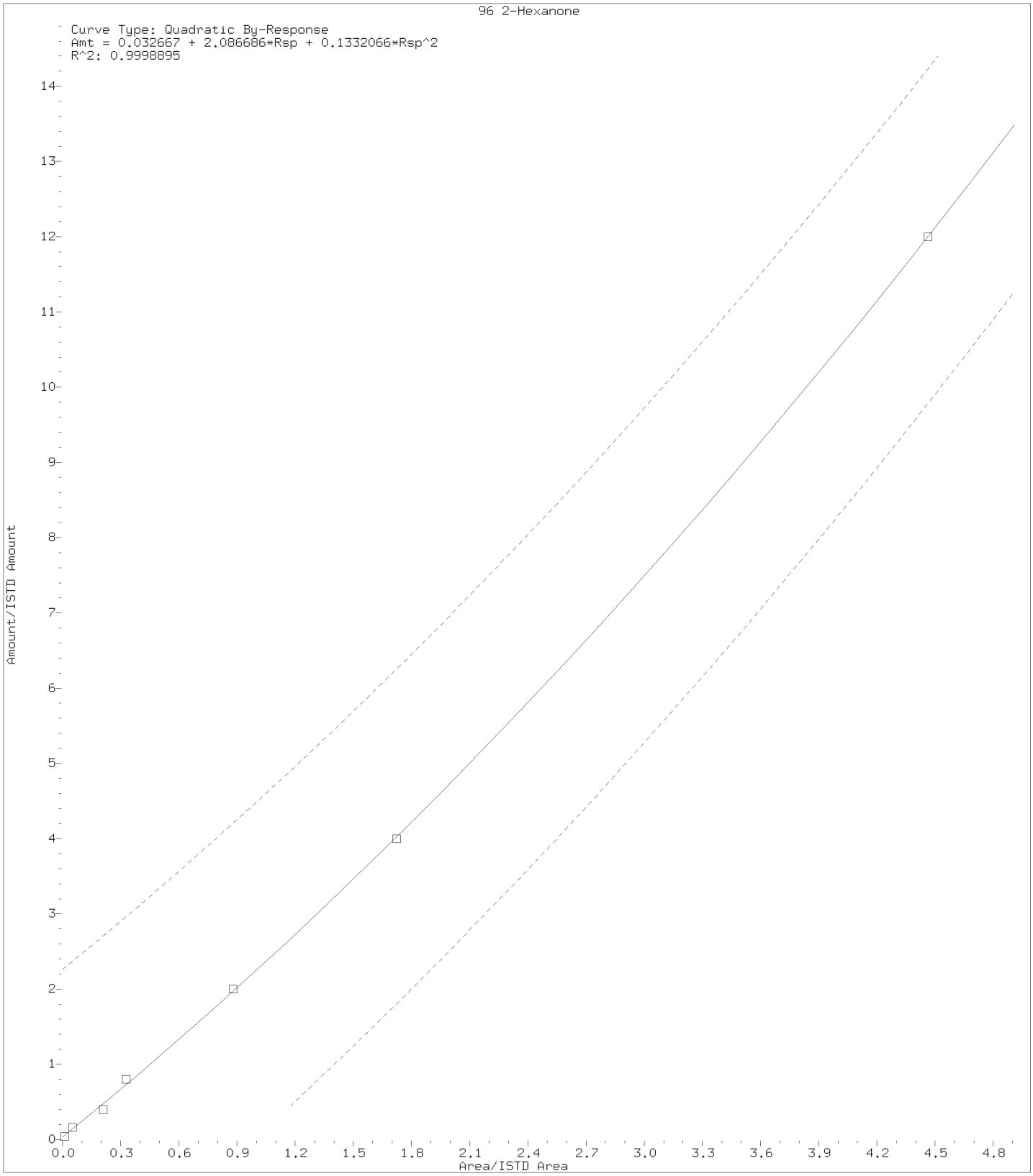
Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



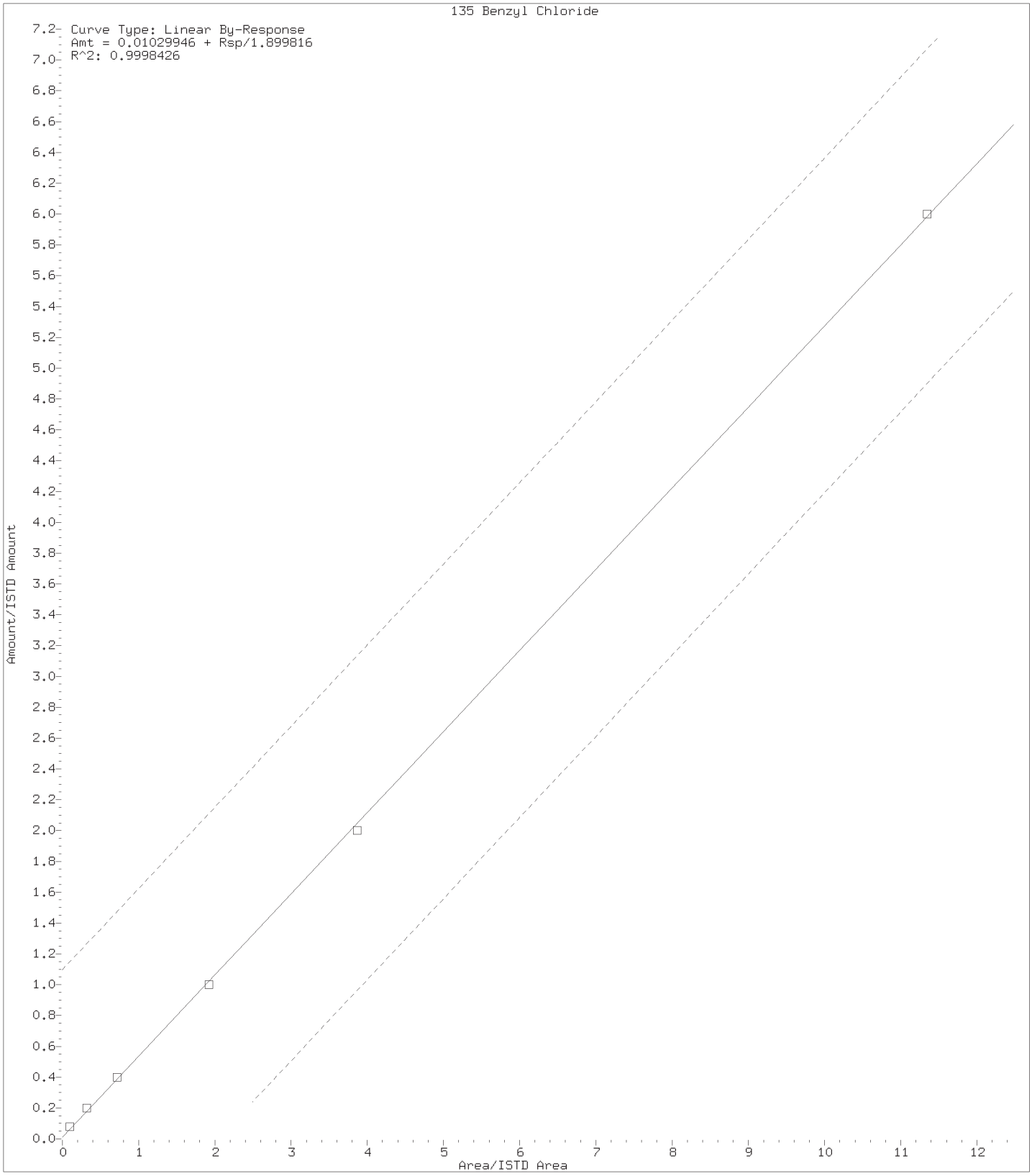
Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648



Digitally signed by Kevin A. Sposito on 06/23/2015 at 18:35.
Target 3.5 esignature user ID: kas02648

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09915.i/15jun22a.b/lu22i01.d	VSTD300
/chem/HP09915.i/15jun22a.b/lu22i02.d	VSTD100
/chem/HP09915.i/15jun22a.b/lu22i03.d	VSTD050
/chem/HP09915.i/15jun22a.b/lu22i04.d	VSTD020
/chem/HP09915.i/15jun22a.b/lu22i05.d	VSTD010
/chem/HP09915.i/15jun22a.b/lu22i06.d	VSTD004
/chem/HP09915.i/15jun22a.b/lu22i07.d	VSTD001

Area Summary

File ID:

Internal Standard Name	lu22i01.d	lu22i02.d	lu22i03.d	lu22i04.d	lu22i05.d	lu22i06.d	lu22i07.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	220322	233660	238855	221007	218984	224824	217081	224962	4	Yes
Fluorobenzene	1333803	1362051	1340686	1299007	1305899	1350924	1316347	1329817	2	Yes
Chlorobenzene-d5	1062212	1037918	1013578	978641	982484	1010278	981258	1009481	3	Yes
1,4-Dichlorobenzene-d4	608603	583986	557375	547466	541879	561738	541915	563280	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	lu22i01.d	lu22i02.d	lu22i03.d	lu22i04.d	lu22i05.d	lu22i06.d	lu22i07.d	Avg. RT
t-Butyl alcohol-d10	4.154	4.157	4.150	4.157	4.147	4.147	4.141	4.150
Fluorobenzene	7.645	7.645	7.642	7.642	7.639	7.642	7.642	7.643
Chlorobenzene-d5	11.134	11.134	11.131	11.134	11.131	11.131	11.131	11.132
1,4-Dichlorobenzene-d4	13.021	13.018	13.018	13.018	13.018	13.018	13.018	13.019

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 06/22/2015 at 17:04.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09915 ICV Date: 06/22/15 Time: 15:58

Lab File ID: lu22v01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.3487	0.3060	17.55	20	-12
# Chloromethane	0.3905	0.3542	18.14	20	-9 #
* Vinyl Chloride	0.3510	0.3341	19.04	20	-5 *
Bromomethane	0.2285	0.2191	19.18	20	-4
Chloroethane	0.2049	0.1890	18.45	20	-8
Dichlorofluoromethane	0.4765	0.4273	17.93	20	-10
n-Pentane	0.4290	0.4817	22.46	20	12
Trichlorofluoromethane	0.4161	0.4184	20.11	20	1
Ethyl ether	0.2564	0.2552	19.91	20	0
Freon 123a	0.3049	0.2836	18.60	20	-7
Acrolein	2.3311	2.0780	133.71	150	-11
* 1,1-Dichloroethene	0.2187	0.2215	20.26	20	1 *
Acetone	1.0675	0.9955	138.04	150	-8
Freon 113	0.2337	0.2346	20.08	20	0
2-Propanol	0.8518	0.7745	136.38	150	-9
Methyl Iodide	0.4039	0.4186	20.72	20	4
Carbon Disulfide	0.7754	0.7310	18.85	20	-6
Allyl Chloride	0.4749	0.4490	18.91	20	-5
Methyl Acetate	0.3029	0.2852	18.83	20	-6
Methylene Chloride	0.2671	0.2660	19.92	20	0
t-Butyl alcohol	1.2622	1.1950	189.36	200	-5
Acrylonitrile	0.1538	0.1382	89.83	100	-10
trans-1,2-Dichloroethene	0.2493	0.2587	20.76	20	4
Methyl Tertiary Butyl Ether	0.8441	0.8284	19.63	20	-2
n-Hexane	0.4091	0.4234	20.70	20	3
# 1,1-Dichloroethane	0.4910	0.4821	19.64	20	-2 #
di-Isopropyl ether	0.9896	1.0177	20.57	20	3
2-Chloro-1,3-butadiene	0.4217	0.3799	18.02	20	-10
Ethyl t-butyl ether	0.8865	0.8688	19.60	20	-2
cis-1,2-Dichloroethene	0.2817	0.2789	19.80	20	-1
2-Butanone	0.1986	0.1898	135.95	150	-9
2,2-Dichloropropane	0.3470	0.3292	18.97	20	-5
Propionitrile	1.6361	1.6247	148.95	150	-1
Methacrylonitrile	0.1429	0.1461	153.31	150	2
Bromochloromethane	0.1491	0.1442	19.35	20	-3
Tetrahydrofuran	1.3733	1.3189	90.57	100	-9

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: HP09915 ICV Date: 06/22/15 Time: 15:58

Lab File ID: lu22v01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
* Chloroform	0.4618	0.4582	19.84	20	-1 *
1,1,1-Trichloroethane	0.4329	0.4188	19.35	20	-3
Cyclohexane	0.5094	0.5075	19.93	20	0
1,1-Dichloropropene	0.3716	0.3550	19.11	20	-4
Carbon Tetrachloride	0.3259	0.3214	19.72	20	-1
Isobutyl Alcohol	0.4692	0.4304	458.69	500	-8
Benzene	1.0787	1.0713	19.86	20	-1
1,2-Dichloroethane	0.3910	0.3832	19.60	20	-2
t-Amyl methyl ether	0.8252	0.8106	19.65	20	-2
n-Heptane	0.4839	0.4841	20.01	20	0
n-Butanol	0.3580	0.3289	918.69	1000	-8
Trichloroethene	0.2747	0.2761	20.10	20	1
Methylcyclohexane	0.5029	0.4962	19.73	20	-1
* 1,2-Dichloropropane	0.2934	0.2941	20.04	20	0 *
Dibromomethane	0.1811	0.1772	19.57	20	-2
1,4-Dioxane	0.0996	0.0955	479.08	500	-4
Methyl Methacrylate	0.2443	0.2322	19.01	20	-5
Bromodichloromethane	0.3400	0.3263	19.19	20	-4
2-Nitropropane	0.0977	0.0811	15.04	20	-25
2-Chloroethyl Vinyl Ether	0.2105	0.2019	19.18	20	-4
cis-1,3-Dichloropropene	0.4164	0.4127	18.38	20	-8
4-Methyl-2-pentanone	0.4257	0.4104	87.48	100	-13
* Toluene	0.8978	0.8971	19.98	20	0 *
trans-1,3-Dichloropropene	0.4992	0.4975	18.14	20	-9
Ethyl Methacrylate	0.5947	0.5719	19.23	20	-4
1,1,2-Trichloroethane	0.3417	0.3273	19.16	20	-4
Tetrachloroethene	0.3931	0.3934	20.02	20	0
1,3-Dichloropropane	0.5919	0.5773	19.50	20	-2
2-Hexanone	0.3992	0.3932	87.81	100	-12
Dibromochloromethane	0.3609	0.3401	18.85	20	-6
1,2-Dibromoethane	0.3607	0.3624	20.09	20	0
1-Chlorohexane	0.5027	0.4889	19.45	20	-3
# Chlorobenzene	1.0017	0.9861	19.69	20	-2 #
1,1,1,2-Tetrachloroethane	0.3415	0.3294	19.29	20	-4
* Ethylbenzene	1.7601	1.7419	19.79	20	-1 *
m+p-Xylene	0.6754	0.6737	39.90	40	0

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: HP09915 ICV Date: 06/22/15 Time: 15:58

Lab File ID: lu22v01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
o-Xylene	0.6733	0.6555	19.47	20	-3
Styrene	1.1531	1.1234	19.48	20	-3
# Bromoform	0.2675	0.2379	17.79	20	-11 #
Isopropylbenzene	1.7754	1.7510	19.73	20	-1
Cyclohexanone	0.5264	0.4270	405.58	500	-19
Bromobenzene	0.8643	0.8131	18.82	20	-6
# 1,1,2,2-Tetrachloroethane	0.9910	0.9134	18.43	20	-8 #
1,2,3-Trichloropropane	0.2888	0.2706	18.74	20	-6
trans-1,4-Dichloro-2-butene	0.2245	0.1725	76.83	100	-23
n-Propylbenzene	3.7923	3.7001	19.51	20	-2
2-Chlorotoluene	0.7556	0.7186	19.02	20	-5
4-Chlorotoluene	0.7875	0.7445	18.91	20	-5
1,3,5-Trimethylbenzene	2.7392	2.6374	19.26	20	-4
tert-Butylbenzene	0.5610	0.5360	19.11	20	-4
Pentachloroethane	0.5083	0.4659	18.33	20	-8
1,2,4-Trimethylbenzene	2.8463	2.7008	18.98	20	-5
sec-Butylbenzene	3.4685	3.3903	19.55	20	-2
1,3-Dichlorobenzene	1.5978	1.5167	18.99	20	-5
p-Isopropyltoluene	3.0005	2.9236	19.49	20	-3
1,4-Dichlorobenzene	1.6686	1.5948	19.11	20	-4
1,2,3-Trimethylbenzene	2.9848	2.8397	19.03	20	-5
Benzyl Chloride	1.7275	1.5142	16.46	20	-18
1,3-Diethylbenzene	1.8672	1.7812	19.08	20	-5
1,4-Diethylbenzene	1.9427	1.9017	19.58	20	-2
1,2-Dichlorobenzene	1.5984	1.4999	18.77	20	-6
n-Butylbenzene	1.5310	1.4918	19.49	20	-3
1,2-Diethylbenzene	1.5783	1.5235	19.31	20	-3
1,2-Dibromo-3-chloropropane	0.2062	0.1748	16.95	20	-15
1,3,5-Trichlorobenzene	1.2750	1.1921	18.70	20	-7
1,2,4-Trichlorobenzene	1.2421	1.1538	18.58	20	-7
Hexachlorobutadiene	0.5858	0.5341	18.23	20	-9
Naphthalene	3.4293	3.1565	18.41	20	-8
1,2,3-Trichlorobenzene	1.1968	1.0593	17.70	20	-11
2-Methylnaphthalene	2.1459	1.7666	16.46	20	-18

Average %Drift 5

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/15oct08a.b/ac08i06.d
/chem2/HP09685.i/15oct08a.b/ac08i05.d
/chem2/HP09685.i/15oct08a.b/ac08i07.d
/chem2/HP09685.i/15oct08a.b/ac08i03.d
/chem2/HP09685.i/15oct08a.b/ac08i02.d
/chem2/HP09685.i/15oct08a.b/ac08i01.d

File /chem2/HP09685.i/15oct08a.b/ac08i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/15oct12b.b/ac12c01.d

RT Summary

File ID:

Internal Standard Name	ac12c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	3.970	3.976	Yes
Fluorobenzene	7.468	7.462	Yes
Chlorobenzene-d5	11.015	11.015	Yes
1,4-Dichlorobenzene-d4	12.919	12.919	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	ac12c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	112612	134640	67320	269280	Yes
Fluorobenzene	1371361	1615131	807566	3230262	Yes
Chlorobenzene-d5	1022313	1200791	600396	2401582	Yes
1,4-Dichlorobenzene-d4	538248	625879	312940	1251758	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/12/2015 at 11:11

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 10/12/15 Time: 10:45

Lab File ID: ac12c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4202	0.3743	44.54	50	-11	
#	Chloromethane	0.3118	0.2779	44.57	50	-11	#
*	Vinyl Chloride	0.2819	0.2574	45.66	50	-9	*
	Bromomethane	0.1928	0.1798	47.12	50	-6	
	Chloroethane	0.1504	0.1360	46.06	50	-8	
	Trichlorofluoromethane	0.4142	0.4078	49.23	50	-2	
	Ethanol	0.2030	0.2144	2640.59	2500	6	
	Acrolein	2.9175	3.3704	577.63	500	16	
*	1,1-Dichloroethene	0.2444	0.2271	46.46	50	-7	*
	Acetone	0.0228	0.0252	110.63	100	11	
	Freon 113	0.2530	0.2324	45.94	50	-8	
	2-Propanol	1.1037	1.0219	231.46	250	-7	
	Methyl Iodide	0.4663	0.4497	48.22	50	-4	
	Carbon Disulfide	0.7990	0.7329	45.86	50	-8	
	Methyl Acetate	0.1560	0.1559	49.97	50	0	
	Allyl Chloride	0.3450	0.3224	46.72	50	-7	
	Methylene Chloride	0.2815	0.2644	46.95	50	-6	
	t-Butyl alcohol	1.5121	1.4969	247.49	250	-1	
	Acrylonitrile	0.0821	0.0908	55.29	50	11	
	Methyl Tertiary Butyl Ether	0.6178	0.6002	48.58	50	-3	
	trans-1,2-Dichloroethene	0.2795	0.2673	47.81	50	-4	
	n-Hexane	0.3381	0.3106	45.94	50	-8	
#	1,1-Dichloroethane	0.4859	0.4526	46.58	50	-7	#
	di-Isopropyl ether	0.7452	0.7000	46.97	50	-6	
	2-Chloro-1,3-butadiene	0.3503	0.3245	46.32	50	-7	
	Ethyl t-butyl ether	0.4754	0.4471	47.03	50	-6	
	2-Butanone	0.1017	0.1187	116.72	100	17	
	cis-1,2-Dichloroethene	0.3078	0.3010	48.90	50	-2	
	2,2-Dichloropropane	0.3952	0.3697	46.77	50	-6	
	Propionitrile	2.0451	1.9919	243.49	250	-3	
	Methacrylonitrile	0.0928	0.0950	127.95	125	2	
	Bromochloromethane	0.1566	0.1598	51.02	50	2	
	Tetrahydrofuran	1.9502	2.1352	109.48	100	9	
*	Chloroform	0.4847	0.4652	47.99	50	-4	*
	1,1,1-Trichloroethane	0.4872	0.4239	43.50	50	-13	
	Cyclohexane	0.4157	0.3774	45.39	50	-9	

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: 10/12/15 Time: 10:45

Lab File ID: ac12c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane(2)	0.3909	0.3618	46.28	50	-7	
	Cyclohexane(3)	0.1336	0.1217	45.56	50	-9	
	1,1-Dichloropropene	0.3913	0.3631	46.39	50	-7	
	Carbon Tetrachloride	0.3889	0.3671	47.21	50	-6	
	Isobutyl Alcohol	0.5823	0.5875	630.54	625	1	
	Benzene	1.1241	1.0597	47.13	50	-6	
	1,2-Dichloroethane	0.3502	0.3341	47.69	50	-5	
	1,2-Dichloroethane(2)	0.0341	0.0332	48.72	50	-3	
	t-Amyl methyl ether	0.3952	0.3810	48.20	50	-4	
	n-Heptane	0.3771	0.3205	42.50	50	-15	
	n-Butanol	0.4854	0.4851	1249.34	1250	0	
	Trichloroethene	0.3097	0.2907	46.93	50	-6	
	Methylcyclohexane	0.4864	0.4946	50.83	50	2	
*	1,2-Dichloropropane	0.2783	0.2629	47.23	50	-6	*
	Methyl Methacrylate	0.1673	0.1724	51.53	50	3	
	1,4-Dioxane	0.2089	0.2071	619.74	625	-1	
	Dibromomethane	0.1699	0.1712	50.36	50	1	
	Bromodichloromethane	0.3558	0.3468	48.74	50	-3	
	2-Nitropropane	3.8604	4.4375	102.16	100	2	
	cis-1,3-Dichloropropene	0.4277	0.4210	49.22	50	-2	
	4-Methyl-2-pentanone	0.2247	0.2857	102.70	100	3	
*	Toluene	1.0072	0.9485	47.09	50	-6	*
	trans-1,3-Dichloropropene	0.5220	0.5135	49.19	50	-2	
	Ethyl Methacrylate	0.4072	0.4309	52.92	50	6	
	1,1,2-Trichloroethane	0.3390	0.3321	48.99	50	-2	
	Tetrachloroethene	0.4493	0.4193	46.65	50	-7	
	1,3-Dichloropropane	0.5605	0.5430	48.43	50	-3	
	2-Hexanone	0.2218	0.2892	103.18	100	3	
	Dibromochloromethane	0.3930	0.3952	50.27	50	1	
	1,2-Dibromoethane	0.3443	0.3428	49.78	50	0	
	1-Chlorohexane	0.5182	0.4897	47.25	50	-6	
#	Chlorobenzene	1.2024	1.1480	47.74	50	-5	#
	1,1,1,2-Tetrachloroethane	0.3985	0.3950	49.56	50	-1	
*	Ethylbenzene	1.8840	1.8279	48.51	50	-3	*
	m+p-Xylene	0.7678	0.7494	97.60	100	-2	
	o-Xylene	0.7420	0.7399	49.86	50	0	

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: 10/12/15 Time: 10:45

Lab File ID: acl2c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Styrene	1.1605	1.1618	50.06	50	0
# Bromoform	0.2343	0.2356	50.26	50	1 #
Isopropylbenzene	1.8802	1.8420	48.98	50	-2
Cyclohexanone	0.6848	0.7145	652.04	625	4
# 1,1,2,2-Tetrachloroethane	0.8508	0.8374	49.21	50	-2 #
Bromobenzene	0.9840	0.9337	47.44	50	-5
trans-1,4-Dichloro-2-butene	0.2254	0.2258	125.23	125	0
1,2,3-Trichloropropane	0.2637	0.2605	49.40	50	-1
n-Propylbenzene	4.2918	4.1222	48.02	50	-4
2-Chlorotoluene	0.9571	0.9063	47.35	50	-5
1,3,5-Trimethylbenzene	3.1846	3.1089	48.81	50	-2
4-Chlorotoluene	0.9954	0.9446	47.45	50	-5
tert-Butylbenzene	0.6922	0.6662	48.12	50	-4
Pentachloroethane	0.5740	0.5555	48.39	50	-3
1,2,4-Trimethylbenzene	3.2649	3.2373	49.58	50	-1
sec-Butylbenzene	3.9759	3.9095	49.17	50	-2
1,3-Dichlorobenzene	1.8631	1.8045	48.43	50	-3
p-Isopropyltoluene	3.4888	3.5352	50.67	50	1
1,4-Dichlorobenzene	1.8631	1.8040	48.41	50	-3
1,2,3-Trimethylbenzene	3.4444	3.3987	49.34	50	-1
Benzyl Chloride	0.3545	0.3722	47.82	50	-4
1,3-Diethylbenzene	2.2057	2.1952	49.76	50	0
1,4-Diethylbenzene	2.2482	2.2413	49.85	50	0
n-Butylbenzene	1.6857	1.6431	48.74	50	-3
1,2-Dichlorobenzene	1.7741	1.7073	48.12	50	-4
1,2-Diethylbenzene	1.8717	1.8337	48.98	50	-2
1,2-Dibromo-3-chloropropane	0.1498	0.1548	51.66	50	3
1,3,5-Trichlorobenzene	1.3168	1.2955	49.19	50	-2
1,2,4-Trichlorobenzene	1.1266	1.1436	50.75	50	2
Hexachlorobutadiene	0.5807	0.5196	44.74	50	-11
Naphthalene	2.6108	2.8616	54.80	50	10
1,2,3-Trichlorobenzene	1.0489	1.0712	51.06	50	2
2-Methylnaphthalene	1.0816	1.1797	43.00	50	-14
Dibromofluoromethane	0.2416	0.2453	50.76	50	2
Dibromofluoromethane(2)	0.2468	0.2503	50.70	50	1

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: 10/12/15 Time: 10:45

Lab File ID: ac12c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,2-Dichloroethane-d4	0.0538	0.0552	51.24	50	2
1,2-Dichloroethane-d4(2)	0.2471	0.2487	50.32	50	1
1,2-Dichloroethane-d4(3)	0.0340	0.0352	51.69	50	3
Toluene-d8	1.3496	1.3350	49.46	50	-1
Toluene-d8(2)	0.8840	0.8694	49.17	50	-2
4-Bromofluorobenzene	0.4877	0.4789	49.10	50	-2
4-Bromofluorobenzene(2)	0.4015	0.3898	48.55	50	-3

Average %Drift 4

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:

/chem/HP07536.i/15apr07a.b/qa07i06.d
/chem/HP07536.i/15apr07a.b/qa07i05.d
/chem/HP07536.i/15apr07a.b/qa07i04.d
/chem/HP07536.i/15apr07a.b/qa07i03.d
/chem/HP07536.i/15apr07a.b/qa07i02.d
/chem/HP07536.i/15apr07a.b/qa07i01.d

File /chem/HP07536.i/15apr07a.b/qa07i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07536.i/15oct12a.b/qc12c02.d

RT Summary

File ID:

Internal Standard Name	qc12c02.d	ICAL RT	In Spec
t-Butyl alcohol-d10	3.930	3.955	Yes
Fluorobenzene	7.382	7.382	Yes
Chlorobenzene-d5	10.918	10.921	Yes
1,4-Dichlorobenzene-d4	12.805	12.811	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	qc12c02.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	160673	156050	78025	312100	Yes
Fluorobenzene	1367602	1206707	603354	2413414	Yes
Chlorobenzene-d5	991501	912537	456268	1825074	Yes
1,4-Dichlorobenzene-d4	467317	448564	224282	897128	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

report generated on 10/12/2015 at 08:07

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07536 Calibration Date: 10/12/15 Time: 07:19

Lab File ID: qc12c02.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3708	0.3141	42.35	50	-15	
#	Chloromethane	0.4498	0.3837	42.64	50	-15	#
*	Vinyl Chloride	0.3999	0.3427	42.86	50	-14	*
	Bromomethane	3.9905	7.4931	93.89	50	88	
	Chloroethane	3.2165	7.5174	136.75	50	173	
	Dichlorofluoromethane	0.4112	0.4074	49.53	50	-1	
	Trichlorofluoromethane	0.3971	0.3764	47.39	50	-5	
	Ethanol	0.1724	0.1307	1894.66	2500	-24	
	Freon 123a	0.3330	0.2911	43.71	50	-13	
	Acrolein	3.1397	3.6228	576.95	500	15	
*	1,1-Dichloroethene	0.2594	0.2459	47.40	50	-5	*
*	1,1-Dichloroethene(2)	0.1399	0.1379	49.27	50	-1	*
	Acetone	0.0299	0.0339	113.27	100	13	
	Freon 113	0.2491	0.2085	41.84	50	-16	
	2-Propanol	0.8260	0.7918	239.67	250	-4	
	Methyl Iodide	0.4918	0.4809	48.89	50	-2	
	Carbon Disulfide	0.8735	0.7850	44.93	50	-10	
	Methyl Acetate	0.2359	0.2881	61.05	50	22	
	Allyl Chloride	0.4950	0.5522	55.79	50	12	
	Methylene Chloride	0.3073	0.3055	49.70	50	-1	
	t-Butyl alcohol	1.2668	1.2875	254.08	250	2	
	Acrylonitrile	0.1280	0.1450	56.61	50	13	
	Methyl Tertiary Butyl Ether	0.8946	0.9054	50.60	50	1	
	trans-1,2-Dichloroethene	0.2881	0.2754	47.80	50	-4	
	n-Hexane	0.3298	0.2464	37.36	50	-25	
#	1,1-Dichloroethane	0.5503	0.5468	49.68	50	-1	#
	di-Isopropyl ether	1.0934	1.0977	50.20	50	0	
	2-Chloro-1,3-butadiene	0.4814	0.4308	44.75	50	-11	
	Ethyl t-butyl ether	0.9980	0.9736	48.78	50	-2	
	2-Butanone	0.1539	0.1747	113.52	100	14	
	2-Butanone(2)	0.0371	0.0400	107.89	100	8	
	cis-1,2-Dichloroethene	0.3145	0.3037	48.29	50	-3	
	2,2-Dichloropropane	0.4290	0.4273	49.81	50	0	
	Propionitrile	0.0445	0.0479	269.24	250	8	
	Methacrylonitrile	0.1317	0.1345	127.70	125	2	
	Bromochloromethane	0.1573	0.1620	51.48	50	3	

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: HP07536 Calibration Date: 10/12/15 Time: 07:19

Lab File ID: qc12c02.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Tetrahydrofuran	1.6113	1.8075	112.18	100	12	
*	Chloroform	0.4922	0.4931	50.08	50	0	*
	1,1,1-Trichloroethane	0.4527	0.4026	44.46	50	-11	
	Cyclohexane	0.4760	0.3709	38.96	50	-22	
	Cyclohexane(2)	0.3713	0.2889	38.91	50	-22	
	Cyclohexane(3)	0.1382	0.1089	39.43	50	-21	
	1,1-Dichloropropene	0.3895	0.3809	48.89	50	-2	
	Carbon Tetrachloride	0.3565	0.3289	46.12	50	-8	
	Isobutyl Alcohol	0.4116	0.4466	678.20	625	9	
	Benzene	1.1741	1.1422	48.65	50	-3	
	1,2-Dichloroethane	0.4010	0.4274	53.29	50	7	
	1,2-Dichloroethane(2)	0.0373	0.0388	52.01	50	4	
	t-Amyl methyl ether	0.9105	0.8896	48.85	50	-2	
	n-Heptane	0.3161	0.2429	38.41	50	-23	
	n-Butanol	0.3290	0.3001	1140.03	1250	-9	
	Trichloroethene	0.2936	0.2802	47.73	50	-5	
	Methylcyclohexane	0.3644	0.2772	38.03	50	-24	
*	1,2-Dichloropropane	0.3335	0.3253	48.77	50	-2	*
	Methyl Methacrylate	0.2227	0.2356	52.92	50	6	
	1,4-Dioxane	0.1278	0.1148	561.04	625	-10	
	Dibromomethane	0.1879	0.1866	49.64	50	-1	
	Bromodichloromethane	0.3838	0.3708	48.32	50	-3	
	2-Nitropropane	3.8314	4.1976	109.56	100	10	
	2-Chloroethyl Vinyl Ether	0.2119	0.2262	53.39	50	7	
	cis-1,3-Dichloropropene	0.5010	0.5098	50.87	50	2	
	4-Methyl-2-pentanone	0.3636	0.3602	87.01	100	-13	
*	Toluene	0.9829	0.9411	47.87	50	-4	*
	trans-1,3-Dichloropropene	0.6073	0.6448	53.09	50	6	
	Ethyl Methacrylate	0.5792	0.5963	51.48	50	3	
	1,1,2-Trichloroethane	0.3602	0.3732	51.80	50	4	
	Tetrachloroethene	0.4111	0.3693	44.92	50	-10	
	1,3-Dichloropropane	0.6454	0.6719	52.05	50	4	
	2-Hexanone	0.3544	0.3664	81.21	100	-19	
	Dibromochloromethane	0.4066	0.4143	50.95	50	2	
	1,2-Dibromoethane	0.3722	0.3940	52.93	50	6	
#	Chlorobenzene	1.0888	1.0405	47.78	50	-4	#

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: HP07536 Calibration Date: 10/12/15 Time: 07:19

Lab File ID: qc12c02.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	1,1,1,2-Tetrachloroethane	0.3802	0.3684	48.45	50	-3	
*	Ethylbenzene	1.7385	1.6155	46.46	50	-7	*
	m+p-Xylene	0.6944	0.6386	91.96	100	-8	
	o-Xylene	0.6860	0.6328	46.12	50	-8	
	Styrene	1.1876	1.1034	46.46	50	-7	
#	Bromoform	0.2866	0.2884	50.31	50	1	#
	Isopropylbenzene	1.5841	1.3610	42.96	50	-14	
	Cyclohexanone	0.4012	0.3292	512.83	625	-18	
#	1,1,2,2-Tetrachloroethane	0.9802	1.0438	53.24	50	6	#
	Bromobenzene	0.9600	0.9374	48.83	50	-2	
	trans-1,4-Dichloro-2-butene	0.2907	0.3511	150.99	125	21	
	1,2,3-Trichloropropane	0.2869	0.3012	52.50	50	5	
	n-Propylbenzene	3.5287	3.1891	45.19	50	-10	
	2-Chlorotoluene	0.7797	0.7310	46.88	50	-6	
	1,3,5-Trimethylbenzene	2.6254	2.3861	45.44	50	-9	
	4-Chlorotoluene	0.8354	0.7981	47.77	50	-4	
	tert-Butylbenzene	0.5800	0.5020	43.27	50	-13	
	Pentachloroethane	0.5776	0.5464	47.29	50	-5	
	1,2,4-Trimethylbenzene	2.7380	2.5072	45.79	50	-8	
	sec-Butylbenzene	2.8938	2.5044	43.27	50	-13	
	1,3-Dichlorobenzene	1.5679	1.4513	46.28	50	-7	
	p-Isopropyltoluene	2.6586	2.2802	42.88	50	-14	
	1,4-Dichlorobenzene	1.6904	1.5425	45.63	50	-9	
	1,2,3-Trimethylbenzene	2.8844	2.6734	46.34	50	-7	
	Benzyl Chloride	0.4354	0.4701	53.99	50	8	
	1,3-Diethylbenzene	1.5919	1.3725	43.11	50	-14	
	1,4-Diethylbenzene	1.6035	1.3930	43.44	50	-13	
	n-Butylbenzene	1.2362	1.0511	42.52	50	-15	
	1,2-Dichlorobenzene	1.5737	1.4499	46.07	50	-8	
	1,2-Diethylbenzene	1.3170	1.1773	44.70	50	-11	
	1,2-Dibromo-3-chloropropane	0.1849	0.1872	50.63	50	1	
	1,3,5-Trichlorobenzene	1.1273	0.9176	40.70	50	-19	
	1,2,4-Trichlorobenzene	1.1003	0.8648	39.30	50	-21	
	Hexachlorobutadiene	0.6242	0.4064	31.01	50	-38	
	Naphthalene	2.8187	2.4552	43.55	50	-13	
	1,2,3-Trichlorobenzene	1.0454	0.7900	37.78	50	-24	

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: HP07536 Calibration Date: 10/12/15 Time: 07:19

Lab File ID: qc12c02.d Init. Calib. Date(s): 04/07/15 04/07/15

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
2-Methylnaphthalene	1.8207	1.1338	31.14	50	-38
Dibromofluoromethane	0.2564	0.2832	55.24	50	10
Dibromofluoromethane(2)	0.2620	0.2894	55.24	50	10
1,2-Dichloroethane-d4	0.0671	0.0740	55.16	50	10
1,2-Dichloroethane-d4(2)	0.3157	0.3642	57.68	50	15
1,2-Dichloroethane-d4(3)	0.0427	0.0476	55.76	50	12
Toluene-d8	1.4061	1.5200	54.05	50	8
Toluene-d8(2)	0.9230	1.0037	54.37	50	9
4-Bromofluorobenzene	0.4992	0.5144	51.52	50	3
4-Bromofluorobenzene(2)	0.4427	0.4650	52.52	50	5

Average %Drift 11

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:

/chem/HP09915.i/15jun22a.b/lu22i07.d
/chem/HP09915.i/15jun22a.b/lu22i06.d
/chem/HP09915.i/15jun22a.b/lu22i05.d
/chem/HP09915.i/15jun22a.b/lu22i04.d
/chem/HP09915.i/15jun22a.b/lu22i03.d
/chem/HP09915.i/15jun22a.b/lu22i02.d
/chem/HP09915.i/15jun22a.b/lu22i01.d

File /chem/HP09915.i/15jun22a.b/lu22i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP09915.i/15oct14b.b/lc14c01.d

RT Summary

Internal Standard Name	File ID: lc14c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.134	4.150	Yes
Fluorobenzene	7.636	7.642	Yes
Chlorobenzene-d5	11.131	11.131	Yes
1,4-Dichlorobenzene-d4	13.015	13.018	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: lc14c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	331305	238855	119428	477710	Yes
Fluorobenzene	2070975	1340686	670343	2681372	Yes
Chlorobenzene-d5	1591696	1013578	506789	2027156	Yes
1,4-Dichlorobenzene-d4	916261	557375	278688	1114750	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/14/2015 at 12:23

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09915 Calibration Date: 10/14/15 Time: 11:24

Lab File ID: lc14c01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3487	0.3575	51.26	50	3	
#	Chloromethane	0.3905	0.3779	48.39	50	-3	#
*	Vinyl Chloride	0.3510	0.3554	50.63	50	1	*
	Bromomethane	0.2285	0.2582	56.49	50	13	
	Chloroethane	0.2049	0.2183	53.28	50	7	
	Trichlorofluoromethane	0.4161	0.4897	58.84	50	18	
	Ethyl ether	0.2564	0.2524	49.23	50	-2	
	Acrolein	2.3311	2.3708	508.51	500	2	
*	1,1-Dichloroethene	0.2187	0.2160	49.39	50	-1	*
*	1,1-Dichloroethene(2)	0.1208	0.1206	49.90	50	0	*
	Acetone	1.0675	0.9989	91.55	100	-8	
	Freon 113	0.2337	0.2343	50.13	50	0	
	2-Propanol	0.8518	0.7810	229.21	250	-8	
	Methyl Iodide	0.4039	0.4053	50.17	50	0	
	Carbon Disulfide	0.7754	0.7812	50.37	50	1	
	Allyl Chloride	0.4749	0.3786	39.86	50	-20	
	Methyl Acetate	0.3029	0.2584	42.65	50	-15	
	Methylene Chloride	0.2671	0.2543	47.62	50	-5	
	t-Butyl alcohol	1.2622	1.2977	257.03	250	3	
	Acrylonitrile	0.1538	0.1358	44.13	50	-12	
	trans-1,2-Dichloroethene	0.2493	0.2447	49.08	50	-2	
	Methyl Tertiary Butyl Ether	0.8441	0.7613	45.10	50	-10	
	n-Hexane	0.4091	0.3701	45.23	50	-10	
#	1,1-Dichloroethane	0.4910	0.4748	48.35	50	-3	#
	di-Isopropyl ether	0.9896	0.8206	41.46	50	-17	
	2-Chloro-1,3-butadiene	0.4217	0.4116	48.80	50	-2	
	Ethyl t-butyl ether	0.8865	0.7468	42.12	50	-16	
	cis-1,2-Dichloroethene	0.2817	0.2738	48.58	50	-3	
	2-Butanone	0.1986	0.1916	90.70	100	-9	
	2,2-Dichloropropane	0.3470	0.3767	54.28	50	9	
	Propionitrile	1.6361	1.6552	252.91	250	1	
	Methacrylonitrile	0.1429	0.1378	120.54	125	-4	
	Bromochloromethane	0.1491	0.1440	48.29	50	-3	
	Tetrahydrofuran	1.3733	1.3969	95.92	100	-4	
*	Chloroform	0.4618	0.4699	50.87	50	2	*
	1,1,1-Trichloroethane	0.4329	0.4268	49.30	50	-1	

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: HP09915 Calibration Date: 10/14/15 Time: 11:24

Lab File ID: lc14c01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.5094	0.4299	42.20	50	-16	
	Cyclohexane(2)	0.3932	0.3514	44.68	50	-11	
	Cyclohexane(3)	0.1463	0.1260	43.06	50	-14	
	1,1-Dichloropropene	0.3716	0.3610	48.58	50	-3	
	Carbon Tetrachloride	0.3259	0.3534	54.20	50	8	
	Isobutyl Alcohol	0.4692	0.5452	726.25	625	16	
	Benzene	1.0787	1.0198	47.27	50	-5	
	1,2-Dichloroethane	0.3910	0.4381	56.02	50	12	
	1,2-Dichloroethane(2)	0.0336	0.0337	50.21	50	0	
	t-Amyl methyl ether	0.8252	0.7152	43.34	50	-13	
	n-Heptane	0.4839	0.4438	45.85	50	-8	
	n-Butanol	0.3580	0.4039	1410.44	1250	13	
	Trichloroethene	0.2747	0.2664	48.48	50	-3	
	Methylcyclohexane	0.5029	0.4275	42.50	50	-15	
	Methylcyclohexane(2)	0.2235	0.1958	43.81	50	-12	
*	1,2-Dichloropropane	0.2934	0.2717	46.30	50	-7	*
	Dibromomethane	0.1811	0.1909	52.70	50	5	
	1,4-Dioxane	0.0996	0.1197	751.09	625	20	
	Methyl Methacrylate	0.2443	0.2416	49.44	50	-1	
	Bromodichloromethane	0.3400	0.3650	53.67	50	7	
	2-Nitropropane	0.0977	0.1451	131.56	100	32	
	2-Chloroethyl Vinyl Ether	0.2105	0.2086	49.55	50	-1	
	cis-1,3-Dichloropropene	0.4164	0.4334	47.25	50	-5	
	4-Methyl-2-pentanone	0.4257	0.4817	102.92	100	3	
*	Toluene	0.8978	0.8540	47.56	50	-5	*
	trans-1,3-Dichloropropene	0.4992	0.5637	50.97	50	2	
	Ethyl Methacrylate	0.5947	0.5682	47.77	50	-4	
	1,1,2-Trichloroethane	0.3417	0.3453	50.53	50	1	
	Tetrachloroethene	0.3931	0.3866	49.18	50	-2	
	1,3-Dichloropropane	0.5919	0.5879	49.66	50	-1	
	2-Hexanone	0.3992	0.4954	111.55	100	12	
	Dibromochloromethane	0.3609	0.3907	54.13	50	8	
	1,2-Dibromoethane	0.3607	0.3616	50.11	50	0	
	1-Chlorohexane	0.5027	0.4601	45.77	50	-8	
#	Chlorobenzene	1.0017	0.9916	49.49	50	-1	#
	1,1,1,2-Tetrachloroethane	0.3415	0.3588	52.52	50	5	

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: HP09915 Calibration Date: 10/14/15 Time: 11:24

Lab File ID: lc14c01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
* Ethylbenzene	1.7601	1.7030	48.38	50	-3 *
m+p-Xylene	0.6754	0.6613	97.92	100	-2
o-Xylene	0.6733	0.6409	47.60	50	-5
Styrene	1.1531	1.1340	49.17	50	-2
# Bromoform	0.2675	0.3022	56.48	50	13 #
Isopropylbenzene	1.7754	1.6914	47.64	50	-5
Cyclohexanone	0.5264	0.4590	544.90	625	-13
Bromobenzene	0.8643	0.8144	47.11	50	-6
# 1,1,2,2-Tetrachloroethane	0.9910	0.9729	49.09	50	-2 #
1,2,3-Trichloropropane	0.2888	0.2913	50.44	50	1
trans-1,4-Dichloro-2-butene	0.2245	0.2843	158.31	125	27
n-Propylbenzene	3.7923	3.6069	47.56	50	-5
2-Chlorotoluene	0.7556	0.7076	46.82	50	-6
4-Chlorotoluene	0.7875	0.7578	48.11	50	-4
1,3,5-Trimethylbenzene	2.7392	2.6394	48.18	50	-4
tert-Butylbenzene	0.5610	0.5342	47.61	50	-5
Pentachloroethane	0.5083	0.5139	50.55	50	1
1,2,4-Trimethylbenzene	2.8463	2.7497	48.30	50	-3
sec-Butylbenzene	3.4685	3.3787	48.71	50	-3
1,3-Dichlorobenzene	1.5978	1.5295	47.86	50	-4
p-Isopropyltoluene	3.0005	2.9717	49.52	50	-1
1,4-Dichlorobenzene	1.6686	1.5902	47.65	50	-5
1,2,3-Trimethylbenzene	2.9848	2.8633	47.96	50	-4
Benzyl Chloride	1.7275	1.9849	52.76	50	6
1,3-Diethylbenzene	1.8672	1.7327	46.40	50	-7
1,4-Diethylbenzene	1.9427	1.8225	46.90	50	-6
1,2-Dichlorobenzene	1.5984	1.5412	48.21	50	-4
n-Butylbenzene	1.5310	1.5128	49.40	50	-1
1,2-Diethylbenzene	1.5783	1.4745	46.71	50	-7
1,2-Dibromo-3-chloropropane	0.2062	0.2147	52.06	50	4
1,3,5-Trichlorobenzene	1.2750	1.1978	46.97	50	-6
1,2,4-Trichlorobenzene	1.2421	1.1183	45.02	50	-10
Hexachlorobutadiene	0.5858	0.5524	47.15	50	-6
Naphthalene	3.4293	3.0947	45.12	50	-10
1,2,3-Trichlorobenzene	1.1968	1.0846	45.31	50	-9
2-Methylnaphthalene	2.1459	1.6155	37.64	50	-25

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: HP09915 Calibration Date: 10/14/15 Time: 11:24

Lab File ID: lc14c01.d Init. Calib. Date(s): 06/22/15 06/22/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane	0.2420	0.2496	51.57	50	3
Dibromofluoromethane(2)	0.2488	0.2586	51.96	50	4
1,2-Dichloroethane-d4	0.0610	0.0620	50.82	50	2
1,2-Dichloroethane-d4(2)	0.3184	0.3638	57.14	50	14
1,2-Dichloroethane-d4(3)	0.0388	0.0395	50.90	50	2
Toluene-d8	1.2982	1.2995	50.05	50	0
Toluene-d8(2)	0.8382	0.8436	50.32	50	1
4-Bromofluorobenzene	0.4980	0.5110	51.30	50	3
4-Bromofluorobenzene(2)	0.4377	0.4533	51.78	50	4

Average %Drift 6

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID (Standard): ac12c01.d Date Analyzed: 10/12/15

Instrument ID: HP09685 Time Analyzed: 10:45

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	112612	3.970	1371361	7.468	1022313	11.014	538248	12.919
	UPPER LIMIT	225224	4.470	2742722	7.968	2044626	11.514	1076496	13.419
	LOWER LIMIT	56306	3.470	685680	6.968	511156	10.514	269124	12.419
	LAB SAMPLE ID								
01	VBLKA71	93961	3.970	1279543	7.462	960569	11.014	467108	12.925
02	LCSA71	92194	3.976	1323116	7.468	990625	11.014	515913	12.925
03	LCDA71	103802	3.970	1337080	7.468	1008281	11.015	518707	12.919
04	8081281	87325	3.976	1377382	7.462	1013493	11.014	492418	12.919
05	8081282	51640 *	3.976	1263786	7.462	925608	11.014	437316	12.925
06	8081283	53776 *	3.976	1292520	7.462	958555	11.014	451181	12.925
07	8081284	60602	3.976	1284407	7.468	942395	11.014	427825	12.925
08	8081285	64513	3.970	1261627	7.468	928021	11.015	428617	12.925
09	8081286	71137	3.970	1253474	7.462	955838	11.014	457677	12.925
10	8081287	60668	3.982	1271482	7.468	958499	11.014	457104	12.925
11	8081288	64604	3.970	1195090	7.468	895505	11.015	406569	12.925
12	8081292	59058	3.976	1221018	7.468	916376	11.015	441977	12.925
13	8081293	46543 *	3.976	1141905	7.468	849340	11.014	383858	12.925
14	8081294	47954 *	3.976	1174709	7.468	869559	11.014	397406	12.925
15	8081295	50952 *	3.970	1187491	7.468	868459	11.015	351945	12.925
16	8076197	58501	3.970	1134398	7.468	843528	11.014	402375	12.925
17	8076198	57082	3.970	1135929	7.462	841069	11.014	392733	12.925
18	8076198MS	75396	3.964	1240755	7.462	922494	11.014	460034	12.925
19	8076198MSD	66714	3.970	1214311	7.462	892135	11.014	436453	12.925
20	8079058	69737	3.976	1302552	7.468	948212	11.015	427521	12.925
21	8081272	62864	3.976	1159839	7.468	844806	11.014	366711	12.925
22	8081273	67083	3.964	1188737	7.462	898746	11.014	427651	12.925

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID (Standard): ac12c01.d Date Analyzed: 10/12/15

Instrument ID: HP09685 Time Analyzed: 10:45

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	112612	3.970	1371361	7.468	1022313	11.014	538248	12.919
	UPPER LIMIT	225224	4.470	2742722	7.968	2044626	11.514	1076496	13.419
	LOWER LIMIT	56306	3.470	685680	6.968	511156	10.514	269124	12.419
	LAB SAMPLE ID								
23	8079591	63895	3.976	1114449	7.468	745477	11.014	255527 *	12.925
24	8081565	63253	3.964	1166113	7.462	834734	11.014	350227	12.925

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

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.: DHR30

Lab File ID (Standard): qc12c02.d Date Analyzed: 10/12/15

Instrument ID: HP07536 Time Analyzed: 07:19

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	160673	3.930	1367602	7.382	991501	10.918	467317	12.805
	UPPER LIMIT	321346	4.430	2735204	7.882	1983002	11.418	934634	13.305
	LOWER LIMIT	80336	3.430	683801	6.882	495750	10.418	233658	12.305
	LAB SAMPLE ID								
01	LCSQ68	158512	3.922	1346723	7.381	999826	10.921	467518	12.808
02	LCDQ68	164393	3.919	1308082	7.381	973687	10.917	436678	12.807
03	VBLKQ68	138205	3.913	1173125	7.382	845089	10.921	385309	12.808
04	VBLKQ70	170532	3.933	1283555	7.376	930006	10.922	420561	12.808
05	LCSQ69	134730	3.916	1194983	7.381	863966	10.920	399994	12.807
06	LCDQ69	145313	3.917	1318833	7.382	961127	10.922	453754	12.808
07	LCSQ70	144788	3.940	1182794	7.382	873647	10.919	411692	12.809
08	LCDQ70	170309	3.945	1324357	7.379	964003	10.918	451170	12.808
09	8078185	152817	3.940	1166370	7.382	851326	10.922	378831	12.809
10	8077891DL	167072	3.922	1270463	7.381	913718	10.920	404296	12.807
11	8077889DL	130083	3.926	1148653	7.382	822457	10.921	372031	12.811
12	8077888	158814	3.927	1232170	7.383	903216	10.922	408515	12.809
13	8077890	136757	3.927	1153033	7.383	818493	10.922	359063	12.812
14	8077891	165058	3.955	1248286	7.382	890965	10.921	390564	12.808
15	8077889	127917	3.920	1188893	7.382	823102	10.921	361926	12.808
16	8077888DL	166912	3.949	1280422	7.380	929974	10.919	406428	12.809
17	8077890DL	138913	3.933	1108891	7.379	811826	10.922	357824	12.808
18	8078042	146859	3.925	1279450	7.381	974039	10.920	497484	12.807
19	8076231	151721	3.930	1126559	7.382	842734	10.922	386221	12.808
20	8081290MS	179871	3.948	1328997	7.381	978796	10.920	454304	12.807
21	8081291MSD	181447	3.933	1322214	7.382	969227	10.922	457213	12.808
22	8076240	167375	3.956	1248659	7.386	951136	10.919	437261	12.809

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID (Standard): qc12c02.d Date Analyzed: 10/12/15

Instrument ID: HP07536 Time Analyzed: 07:19

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	160673	3.930	1367602	7.382	991501	10.918	467317	12.805
	UPPER LIMIT	321346	4.430	2735204	7.882	1983002	11.418	934634	13.305
	LOWER LIMIT	80336	3.430	683801	6.882	495750	10.418	233658	12.305
	LAB SAMPLE ID								
23	8081289	148114	3.929	1139186	7.382	840273	10.921	391918	12.811
24	8078192	172123	3.945	1264581	7.378	948047	10.921	448293	12.808
25	8078193	156569	3.930	1153359	7.383	874093	10.919	417598	12.809
26	8078194	175919	3.932	1298552	7.382	947336	10.921	426511	12.808
27	8078677	133066	3.939	1138985	7.382	845228	10.921	412067	12.808
28	8055929	165931	3.938	1272252	7.378	941392	10.920	444982	12.810

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

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.: DHR30

Lab File ID (Standard): lc14c01.d Date Analyzed: 10/14/15

Instrument ID: HP09915 Time Analyzed: 11:24

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	331305	4.134	2070975	7.636	1591696	11.131	916261	13.015
	UPPER LIMIT	662610	4.634	4141950	8.136	3183392	11.631	1832522	13.515
	LOWER LIMIT	165652	3.634	1035488	7.136	795848	10.631	458130	12.515
	LAB SAMPLE ID								
01	VBLKL78	301779	4.141	1846164	7.636	1378388	11.131	739004	13.015
02	VBLKL79	301779	4.141	1846164	7.636	1378388	11.131	739004	13.015
03	LCSL78	371371	4.131	2019291	7.629	1579625	11.128	896113	13.015
04	LCSL79	371371	4.131	2019291	7.629	1579625	11.128	896113	13.015
05	LCDL78	342926	4.137	2040607	7.632	1538383	11.127	871778	13.018
06	LCDL79	342926	4.137	2040607	7.632	1538383	11.127	871778	13.018
07	8074900	456465	4.124	2973779	7.636	2067968	11.131	1043371	13.018
08	8074904	279828	4.138	1730418	7.636	1308622	11.131	749184	13.015
09	8074905	230757	4.134	1601227	7.639	1148625	11.127	642065	13.018
10	8074569	205405	4.131	1499887	7.636	1086662	11.128	683505	13.018
11	8074570	178945	4.131	1731005	7.636	1138426	11.131	597711	13.015
12	8074669	189502	4.121	1365432	7.639	1086547	11.128	579762	13.015
13	8074670	226064	4.160	1317501	7.642	855831	11.131	556154	13.018
14	8084524	238511	4.137	1920922	7.639	1416107	11.131	762307	13.018
15	8084519	257273	4.125	1948430	7.636	1443959	11.131	778551	13.015
16	8084520MS	360095	4.125	2105707	7.629	1603961	11.128	905145	13.015
17	8084521MSD	372714	4.131	2178878	7.633	1657743	11.131	937202	13.015
18	8084523	290726	4.128	2037746	7.632	1517788	11.128	812768	13.018
19	8078273	286313	4.121	2008579	7.632	1505450	11.127	803128	13.018
20	8078274	296581	4.121	2021510	7.636	1503790	11.128	812289	13.015
21	8078275	272463	4.138	1948610	7.636	1457635	11.128	781192	13.018
22	8078276	282013	4.134	1890767	7.639	1416317	11.128	764974	13.018

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: LANCAS Case No.: SAS No.: SDG No.: DHR30

Lab File ID (Standard): lc14c01.d Date Analyzed: 10/14/15

Instrument ID: HP09915 Time Analyzed: 11:24

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	331305	4.134	2070975	7.636	1591696	11.131	916261	13.015
	UPPER LIMIT	662610	4.634	4141950	8.136	3183392	11.631	1832522	13.515
	LOWER LIMIT	165652	3.634	1035488	7.136	795848	10.631	458130	12.515
	LAB SAMPLE ID								
23	8078277	268854	4.134	1878759	7.639	1405742	11.131	758113	13.018
24	8078278	258401	4.134	1841751	7.636	1387987	11.128	748050	13.018
25	8078279	272892	4.121	1819165	7.632	1386058	11.128	738389	13.018
26	8081278	249867	4.131	1807048	7.633	1352652	11.131	740321	13.015
27	8081279	272404	4.141	1842291	7.632	1388105	11.131	746042	13.018
28	8081280	277468	4.128	1823764	7.632	1381448	11.131	742718	13.018

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15OCT08A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	AC08T01.D	BFBAUG28-15	10/08/2015	11:07		
ADS01731	AC08X01.D	CBLK	10/08/2015	11:32		
ADS01731	AC08I01.D	VSTD300	10/08/2015	11:55		
ADS01731	AC08I02.D	VSTD100	10/08/2015	12:22		
ADS01731	AC08I03.D	VSTD050	10/08/2015	12:48		
ADS01731	AC08I04.D	VSTD020	10/08/2015	13:43		
ADS01731	AC08I05.D	VSTD010	10/08/2015	14:16		
ADS01731	AC08I06.D	VSTD004	10/08/2015	14:38		
ADS01731	AC08M01.D	VSTD001	10/08/2015	15:01		
ADS01731	AC08I07.D	VSTD020	10/08/2015	15:46		
ADS01731	AL06V01.D	LCSAICV	10/08/2015	16:40		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15OCT12B\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	AC12T02.D	BFBAUG28-15	10/12/2015	10:07		
ADS01731	AC12C01.D	VSTD050	10/12/2015	10:45	A152851AA	
ADS01731	AC12B00.D	VBLKA71	10/12/2015	11:07	A152851AA	
ADS01731	AC12B01.D	VBLKA71	10/12/2015	11:30	A152851AA	
ADS01731	AC12S01.D	LCSA71	10/12/2015	11:52	A152851AA	
ADS01731	AC12S02.D	LCDA71	10/12/2015	12:15	A152851AA	
ADS01731	AC12S03.D	8081281	10/12/2015	13:48	A152851AA	
ADS01731	AC12S04.D	8081282	10/12/2015	14:11	A152851AA	
ADS01731	AC12S05.D	8081283	10/12/2015	14:33	A152851AA	
ADS01731	AC12S06.D	8081284	10/12/2015	14:56	A152851AA	
ADS01731	AC12S07.D	8081285	10/12/2015	15:19	A152851AA	
ADS01731	AC12S08.D	8081286	10/12/2015	15:41	A152851AA	
ADS01731	AC12S09.D	8081287	10/12/2015	16:04	A152851AA	
ADS01731	AC12S10.D	8081288	10/12/2015	16:26	A152851AA	
ADS01731	AC12S11.D	8081292	10/12/2015	16:49	A152851AA	
ADS01731	AC12S12.D	8081293	10/12/2015	17:12	A152851AA	
ADS01731	AC12S13.D	8081294	10/12/2015	17:34	A152851AA	
ADS01731	AC12S14.D	8081295	10/12/2015	17:57	A152851AA	
ADS01731	AC12S15.D	8076197	10/12/2015	18:19	A152851AA	
ADS01731	AC12S16.D	8076198	10/12/2015	18:42	A152851AA	
ADS01731	AC12S17.D	8076198MS	10/12/2015	19:04	A152851AA	
ADS01731	AC12S18.D	8076198MSD	10/12/2015	19:27	A152851AA	
ADS01731	AC12S19.D	8079058	10/12/2015	19:49	A152851AA	
ADS01731	AC12S20.D	8079059	10/12/2015	20:12	A152851AA	
ADS01731	AC12S21.D	8081272	10/12/2015	20:35	A152851AA	
ADS01731	AC12S22.D	8081273	10/12/2015	20:57	A152851AA	
ADS01731	AC12S25.D	8079591	10/12/2015	21:20	A152851AA	
ADS01731	AC12S26.D	8081565	10/12/2015	21:42	A152851AA	

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07536 **HP #14**

Data Directory Path is - d:\data\15APR07A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	QA07T01.D	50ng BFB	04/07/2015	14:00		
KEL01973	QA07X05.D	CBLK	04/07/2015	14:30		
KEL01973	QA07I01.D	VSTD300	04/07/2015	14:54		
KEL01973	QA07I02.D	VSTD100	04/07/2015	15:17		
KEL01973	QA07I03.D	VSTD050	04/07/2015	15:41		
KEL01973	QA07I04.D	VSTD020	04/07/2015	16:04		
KEL01973	QA07I05.D	VSTD010	04/07/2015	16:27		
KEL01973	QA07I06.D	VSTD004	04/07/2015	16:50		
KEL01973	QA07I07.D	VSTD002	04/07/2015	17:14		
KEL01973	QA07M01.D	1PPB MDL	04/07/2015	17:37		
KEL01973	QA07V01.D	ICVLG	04/07/2015	18:00		

Lancaster Laboratories
Volatiles
Runlog for Hewlett Packard GC/MS System HP07536 **HP #14**

Data Directory Path is - D:\DATA\15oct12a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
amd00492	QC12T01.D	50NGBFB	10/12/2015	06:43	Q152851AA	
amd00492	QC12C01.D	VSTD050	10/12/2015	06:56	Q152851AA	
amd00492	QC12C02.D	VSTD050	10/12/2015	07:19	Q152851AA	
amd00492	QC12L01.D	LCSQ68	10/12/2015	07:48	Q152851AA	500
amd00492	QC12L02.D	LCDQ68	10/12/2015	08:11	Q152851AA	500
amd00492	QC12B01.D	VBLKQ68	10/12/2015	08:34	Q152851AA	500
amd00492	QC12B05.D	VBLKQ70	10/12/2015	08:57	Q152852AA	50
amd00492	QC12L03.D	LCSQ69	10/12/2015	09:20	Q152851AA	500
amd00492	QC12L04.D	LCDQ69	10/12/2015	09:43	Q152851AA	500
amd00492	QC12L31.D	LCSQ70	10/12/2015	10:06	Q152852AA	50
amd00492	QC12L32.D	LCDQ70	10/12/2015	10:29	Q152852AA	50
amd00492	QC12S01.D	8078185	10/12/2015	10:53	Q152851AA	500
amd00492	QC12S02.D	8077891	10/12/2015	11:16	Q152851AA	500000
amd00492	QC12S04.D	8077889	10/12/2015	11:39	Q152851AA	500000
amd00492	QC12S06.D	8077888	10/12/2015	12:01	Q152851AA	500000
amd00492	QC12S08.D	8077890	10/12/2015	12:24	Q152851AA	50000
amd00492	QC12S03.D	8077891	10/12/2015	12:47	Q152851AA	500000
amd00492	QC12S05.D	8077889	10/12/2015	13:10	Q152851AA	500000
amd00492	QC12S07.D	8077888DL	10/12/2015	13:33	Q152851AA	5e+006
amd00492	QC12S09.D	8077890DL	10/12/2015	13:56	Q152851AA	500000
amd00492	QC12S10.D	8078042	10/12/2015	14:19	Q152851AA	500
amd00492	QC12S33.D	8076231	10/12/2015	14:42	Q152852AA	50
amd00492	QC12S42.D	8081290MS	10/12/2015	15:05	Q152852AA	50
amd00492	QC12S43.D	8081291MSD	10/12/2015	15:28	Q152852AA	50
amd00492	QC12S34.D	8076240	10/12/2015	15:51	Q152852AA	50
amd00492	QC12S41.D	8081289	10/12/2015	16:14	Q152852AA	50
amd00492	QC12S35.D	8078192	10/12/2015	16:37	Q152852AA	100
amd00492	QC12S36.D	8078193	10/12/2015	17:00	Q152852AA	100
amd00492	QC12S37.D	8078194	10/12/2015	17:23	Q152852AA	50
amd00492	QC12S38.D	8078677	10/12/2015	17:45	Q152852AA	500
amd00492	QC12S39.D	8055929	10/12/2015	18:08	Q152852AA	50

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09915 **HP #23**

Data Directory Path is - d:\data\15JUN22A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
kel01973	LU22T01.D	50 BFB MAR06-15	06/22/2015	11:52		
kel01973	LU22X03.D	BLK	06/22/2015	12:19		
kel01973	LU22X04.D	BLK	06/22/2015	12:41		
kel01973	LU22I01.D	VSTD300	06/22/2015	13:03		
kel01973	LU22I02.D	VSTD100	06/22/2015	13:25		
kel01973	LU22I03.D	VSTD050	06/22/2015	13:46		
kel01973	LU22I04.D	VSTD020	06/22/2015	14:08		
kel01973	LU22I05.D	VSTD010	06/22/2015	14:30		
kel01973	LU22I06.D	VSTD004	06/22/2015	14:52		
kel01973	LU22I07.D	VSTD001	06/22/2015	15:14		
kel01973	LU22M01.D	MDL 0.5	06/22/2015	15:36		
kel01973	LU22V01.D	LGLICV	06/22/2015	15:58		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09915 **HP #23**

Data Directory Path is - d:\data\15OCT14B\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	LC14T03.D	50NGBFB	10/14/2015	10:37		
ADS01731	LC14X01.D	BLK	10/14/2015	11:02	L152872AA	
ADS01731	LC14C01.D	VSTD050	10/14/2015	11:24	L152872AA	
ADS01731	LC14B01.D	VBLKL78	10/14/2015	11:46	L152872AA	
ADS01731	LC14S01.D	LCSL78	10/14/2015	12:17	L152872AA	
ADS01731	LC14S02.D	LCDL78	10/14/2015	12:39	L152872AA	
ADS01731	LC14S03.D	8074900	10/14/2015	13:37	L152872AA	
ADS01731	LC14S04.D	8074904	10/14/2015	13:59	L152872AA	
ADS01731	LC14S05.D	8074905	10/14/2015	14:21	L152872AA	
ADS01731	LC14S32.D	8074569	10/14/2015	14:43	L152874AA	
ADS01731	LC14S33.D	8074570	10/14/2015	15:05	L152874AA	
ADS01731	LC14S34.D	8074669	10/14/2015	15:27	L152874AA	
ADS01731	LC14S35.D	8074670	10/14/2015	15:49	L152874AA	
ADS01731	LC14S36.D	8075567	10/14/2015	16:11	L152874AA	
ADS01731	LC14S37.D	8075566	10/14/2015	16:33	L152874AA	
ADS01731	LC14S38.D	8075566DL	10/14/2015	16:55	L152874AA	10
ADS01731	LC14S39.D	8084524	10/14/2015	17:17	L152874AA	
ADS01731	LC14S40.D	8084519	10/14/2015	17:39	L152874AA	
ADS01731	LC14S41.D	8084520MS	10/14/2015	18:01	L152874AA	
ADS01731	LC14S42.D	8084521MSD	10/14/2015	18:23	L152874AA	
ADS01731	LC14S43.D	8084523	10/14/2015	18:44	L152874AA	
ADS01731	LC14S44.D	8078273	10/14/2015	19:06	L152874AA	
ADS01731	LC14S45.D	8078274	10/14/2015	19:28	L152874AA	
ADS01731	LC14S46.D	8078275	10/14/2015	19:50	L152874AA	
ADS01731	LC14S47.D	8078276	10/14/2015	20:11	L152874AA	
ADS01731	LC14S48.D	8078277	10/14/2015	20:33	L152874AA	
ADS01731	LC14S49.D	8078278	10/14/2015	20:55	L152874AA	
ADS01731	LC14S50.D	8078279	10/14/2015	21:17	L152874AA	
ADS01731	LC14S51.D	8081278	10/14/2015	21:39	L152874AA	
ADS01731	LC14S52.D	8081279	10/14/2015	22:01	L152874AA	
ADS01731	LC14S53.D	8081280	10/14/2015	22:23	L152874AA	
ADS01731	LC14S54.D	8081379	10/14/2015	22:45	L152874AA	
ADS01731	LC14S55.D	8081378	10/14/2015	23:07	L152874AA	

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VOA Prep Summary by SDG: DHR30

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
8081281	150A	07320	15645940	N	10/07/15 10:50	10/08/15 17:25	32.00 g	38.79 g	6.79 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081281	150B	07320	15645934	Y	10/07/15 10:50	10/08/15 17:25	31.76 g	37.73 g	5.97 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081281	169A	07578	15645789	N	10/07/15 10:50	10/08/15 17:06	29.42 g	35.20 g	5.78 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081282	150A	07320	15645938	N	10/07/15 10:55	10/08/15 17:25	31.77 g	37.87 g	6.10 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081282	150B	07320	15645932	Y	10/07/15 10:55	10/08/15 17:25	31.60 g	37.40 g	5.80 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081282	169A	07578	15645783	N	10/07/15 10:55	10/08/15 17:07	29.70 g	35.64 g	5.94 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081283	150A	07320	15645931	N	10/07/15 11:00	10/08/15 17:26	31.75 g	37.70 g	5.95 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081283	150B	07320	15645937	Y	10/07/15 11:00	10/08/15 17:26	31.86 g	37.37 g	5.51 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081283	169A	07578	15645780	N	10/07/15 11:00	10/08/15 17:09	29.47 g	35.15 g	5.68 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081284	150A	07320	15645929	Y	10/07/15 11:20	10/08/15 17:26	31.93 g	37.07 g	5.14 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081284	150B	07320	15645930	N	10/07/15 11:20	10/08/15 17:26	31.68 g	36.43 g	4.75 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081284	169A	07578	15645781	N	10/07/15 11:20	10/08/15 17:12	29.42 g	34.42 g	5.00 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081285	150A	07320	15645907	N	10/07/15 11:30	10/08/15 17:26	31.83 g	37.01 g	5.18 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081285	150B	07320	15645919	Y	10/07/15 11:30	10/08/15 17:26	31.83 g	36.73 g	4.90 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081285	169A	07578	15645779	N	10/07/15 11:30	10/08/15 17:14	29.61 g	35.05 g	5.44 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081286	150A	07320	15645960	N	10/07/15 13:30	10/08/15 17:26	31.90 g	38.49 g	6.59 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081286	150B	07320	15645948	Y	10/07/15 13:30	10/08/15 17:26	31.75 g	38.21 g	6.46 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081286	169A	07578	15645773	N	10/07/15 13:30	10/08/15 17:20	29.44 g	36.03 g	6.59 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081287	150A	07320	15645954	Y	10/07/15 13:35	10/08/15 17:26	31.68 g	37.61 g	5.93 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081287	150B	07320	15645942	N	10/07/15 13:35	10/08/15 17:26	31.83 g	37.88 g	6.05 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081287	169A	07578	15645772	N	10/07/15 13:35	10/08/15 17:22	29.48 g	35.48 g	6.00 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081288	150A	07320	15645950	N	10/07/15 13:40	10/08/15 18:35	31.92 g	37.93 g	6.01 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081288	150B	07320	15645944	Y	10/07/15 13:40	10/08/15 18:35	32.14 g	37.84 g	5.70 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081288	169A	07578	15645771	N	10/07/15 13:40	10/08/15 18:14	29.62 g	35.19 g	5.57 g	4.50 g - 5.50 g	N	15252	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

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VOA Prep Summary by SDG: DHR30

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
8081289	150A	07320	15645945	N	10/07/15 14:05	10/08/15 18:35	31.62 g	36.14 g	4.52 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081289	150B	07320	15645951	N	10/07/15 14:05	10/08/15 18:35	31.78 g	36.96 g	5.18 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081289	169A	07578	15645770	Y	10/07/15 14:05	10/08/15 18:16	29.60 g	33.90 g	4.30 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081290	150A	07320	15645946	N	10/07/15 14:05	10/08/15 18:35	32.04 g	36.27 g	4.23 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081290	150B	07320	15645952	N	10/07/15 14:05	10/08/15 18:35	31.81 g	37.42 g	5.61 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081290	169A	07578	15645777	Y	10/07/15 14:05	10/08/15 18:18	29.82 g	34.61 g	4.79 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081291	150A	07320	15645947	N	10/07/15 14:05	10/08/15 18:35	31.82 g	36.62 g	4.80 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081291	150B	07320	15645941	N	10/07/15 14:05	10/08/15 18:35	32.03 g	37.44 g	5.41 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081291	169A	07578	15645775	Y	10/07/15 14:05	10/08/15 18:20	29.64 g	34.81 g	5.17 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081292	150A	07320	15645943	N	10/07/15 15:10	10/08/15 18:35	31.63 g	38.39 g	6.76 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081292	150B	07320	15645949	Y	10/07/15 15:10	10/08/15 18:35	31.84 g	38.15 g	6.31 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081292	169A	07578	15645774	N	10/07/15 15:10	10/08/15 18:22	29.66 g	35.51 g	5.85 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081293	150A	07320	15645955	Y	10/07/15 15:15	10/08/15 18:35	32.10 g	38.04 g	5.94 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081293	150B	07320	15645961	N	10/07/15 15:15	10/08/15 18:35	31.96 g	37.97 g	6.01 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081293	169A	07578	15645776	N	10/07/15 15:15	10/08/15 18:25	29.65 g	35.72 g	6.07 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081294	150A	07320	15645936	N	10/07/15 15:20	10/08/15 18:35	31.69 g	37.61 g	5.92 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081294	150B	07320	15645935	Y	10/07/15 15:20	10/08/15 18:35	31.85 g	37.67 g	5.82 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081294	169A	07578	15645778	N	10/07/15 15:20	10/08/15 18:31	29.52 g	35.24 g	5.72 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081295	150A	07320	15645933	Y	10/07/15 15:35	10/08/15 18:36	31.86 g	36.76 g	4.90 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081295	150B	07320	15645939	N	10/07/15 15:35	10/08/15 18:36	32.14 g	37.49 g	5.35 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081295	169A	07578	15645782	N	10/07/15 15:35	10/08/15 18:34	29.51 g	34.73 g	5.22 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8076198	150A	00374	15646859	Y	09/30/15 13:10	10/06/15 01:08	0.00 g	5.13 g	5.13 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8076198	150B	00374	15646860	N	09/30/15 13:10	10/06/15 01:08	0.00 g	5.34 g	5.34 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8076198	150C	00374	15646861	N	09/30/15 13:10	10/06/15 01:08	0.00 g	5.47 g	5.47 g	4.50 g - 5.50 g	Y	1527801	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: DHR30

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
8076198	150D	00374	15646862	N	09/30/15 13:10	10/06/15 01:08	0.00 g	5.41 g	5.41 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8076198	169A	06646	15646863	N	09/30/15 13:10	10/06/15 00:08	0.00 g	5.44 g	5.44 g	4.50 g - 5.50 g	Y	15265	MeOH w/surrogate (5 mL)	5.000	
8076198	169B	06646	15646864	N	09/30/15 13:10	10/06/15 00:09	0.00 g	5.25 g	5.25 g	4.50 g - 5.50 g	Y	15265	MeOH w/surrogate (5 mL)	5.000	
8076198	169C	06646	15646865	N	09/30/15 13:10	10/06/15 00:10	0.00 g	5.37 g	5.37 g	4.50 g - 5.50 g	Y	15265	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

Semivolatiles by GC/MS Data

Case Narrative/Conformance Summary

Semivolatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR30

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8081278	HGR-100715-EB01	X		1	Equipment Blank
8081281	S01-SS14-0102-100715		X	1	
8081282	S01-SS14-0304-100715		X	1	
8081283	S01-SS14-0809-100715		X	1	
8081284	S01-SS14-2728-100715		X	5	
8081285	HGR-100715-FD01		X	1	Field Duplicate Sample
8081286	S01-SS15-0102-100715		X	1	
8081287	S01-SS15-0405-100715		X	1	
8081288	S01-SS15-0809-100715		X	1	
8081289	S01-SS15-2728-100715		X	1	Unspiked
8081290	S01-SS15-2728-100715MS		X	1	Matrix Spike
8081291	S01-SS15-2728-100715MSD		X	1	Matrix Spike Duplicate
8081292	S01-SS16-0102-100715		X	1	
8081293	S01-SS16-0304-100715		X	1	
8081294	S01-SS16-0809-100715		X	1	
8081295	S01-SS16-2728-100715		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:

All QC is within specification.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR30

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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

Quality Control and Calibration Summary Forms

Semivolatiles by GC/MS

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR30

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	15290SLG026	SBLKLG290	10/20/2015 12:00:00
		290LGLCS	10/20/2015 13:27:00
		8081281	10/20/2015 13:48:00
		8081282	10/20/2015 14:10:00
		8081283	10/20/2015 14:31:00
		8081284	10/20/2015 14:53:00
		8081285	10/20/2015 15:14:00
		8081286	10/20/2015 15:36:00
		8081287	10/20/2015 15:57:00
		8081288	10/20/2015 16:19:00
		8081289 UNSPK	10/20/2015 16:41:00
		8081290 MS	10/20/2015 17:02:00
		8081291 MSD	10/20/2015 17:24:00
		8081292	10/20/2015 17:46:00
		8081293	10/20/2015 18:07:00
		8081294	10/20/2015 18:29:00
		8081295	10/20/2015 18:51:00
TCL SW846 8270C Water	15286WAB026	SBLKWB286	10/15/2015 20:20:00
		286WBLCS	10/15/2015 20:48:00
		286WBLCSD	10/15/2015 21:16:00
		8081278	10/16/2015 02:22:00

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR30

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
Nitrobenzene	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
1,1'-Biphenyl	17	33	ug/kg
Dibenzofuran	17	33	ug/kg
Pentachlorophenol	33	170	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Benzo(b)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

04678: TCL SW846 8270C Water Analyte Name	Default MDL	Default LOQ	Units
Nitrobenzene	0.5	1	ug/l
2-Methylnaphthalene	0.1	0.5	ug/l
1,1'-Biphenyl	0.5	1	ug/l
Dibenzofuran	0.5	1	ug/l
Pentachlorophenol	1	5	ug/l
Benzo(a)anthracene	0.1	0.5	ug/l
Benzo(b)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

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR30
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

15286WAB026 / SBLKWB286 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Nitrobenzene	10/15/15	N.D.	ug/l	0.5	1
1,1'-Biphenyl	10/15/15	N.D.	ug/l	0.5	1
2-Methylnaphthalene	10/15/15	N.D.	ug/l	0.1	0.5
Benzo(a)anthracene	10/15/15	N.D.	ug/l	0.1	0.5
Benzo(a)pyrene	10/15/15	N.D.	ug/l	0.1	0.5
Benzo(b)fluoranthene	10/15/15	N.D.	ug/l	0.1	0.5
Dibenz(a,h)anthracene	10/15/15	N.D.	ug/l	0.1	0.5
Dibenzofuran	10/15/15	N.D.	ug/l	0.5	1
Indeno(1,2,3-cd)pyrene	10/15/15	N.D.	ug/l	0.1	0.5
Pentachlorophenol	10/15/15	N.D.	ug/l	1	5

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR30
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15290SLG026 / SBLKLG290 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Benzo(a)anthracene	10/20/15	N.D.	ug/kg	3	17
Benzo(a)pyrene	10/20/15	N.D.	ug/kg	3	17
Benzo(b)fluoranthene	10/20/15	N.D.	ug/kg	3	17
1,1'-Biphenyl	10/20/15	N.D.	ug/kg	17	33
Dibenz(a,h)anthracene	10/20/15	N.D.	ug/kg	3	17
Dibenzofuran	10/20/15	N.D.	ug/kg	17	33
Indeno(1,2,3-cd)pyrene	10/20/15	N.D.	ug/kg	3	17
2-Methylnaphthalene	10/20/15	N.D.	ug/kg	3	17
Nitrobenzene	10/20/15	N.D.	ug/kg	17	33
Pentachlorophenol	10/20/15	N.D.	ug/kg	33	170

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR30
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

15286WAB026	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
SBLKWB286	46	10 - 107	34	10 - 85	87	22 - 150	87	46 - 128	84	61 - 112	95	43 - 131
286WBLCS	47	10 - 107	34	10 - 85	75	22 - 150	90	46 - 128	88	61 - 112	88	43 - 131
286WBLCSD	63	10 - 107	46	10 - 85	85	22 - 150	88	46 - 128	85	61 - 112	86	43 - 131
8081278	61	10 - 107	41	10 - 85	94	22 - 150	93	46 - 128	92	61 - 112	95	43 - 131

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR30
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15290SLG026	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
SBLKLG290	86	58 - 122	90	49 - 134	100	36 - 142	88	54 - 123	92	63 - 117	98	59 - 129
290LGLCS	92	58 - 122	96	49 - 134	104	36 - 142	92	54 - 123	96	63 - 117	105	59 - 129
8081281	84	58 - 122	87	49 - 134	99	36 - 142	85	54 - 123	90	63 - 117	99	59 - 129
8081282	81	58 - 122	85	49 - 134	96	36 - 142	83	54 - 123	88	63 - 117	95	59 - 129
8081283	84	58 - 122	88	49 - 134	100	36 - 142	83	54 - 123	89	63 - 117	98	59 - 129
8081284	91	58 - 122	95	49 - 134	95	36 - 142	90	54 - 123	98	63 - 117	108	59 - 129
8081285	89	58 - 122	91	49 - 134	100	36 - 142	85	54 - 123	92	63 - 117	101	59 - 129
8081286	80	58 - 122	84	49 - 134	93	36 - 142	81	54 - 123	88	63 - 117	96	59 - 129
8081287	82	58 - 122	85	49 - 134	93	36 - 142	80	54 - 123	86	63 - 117	95	59 - 129
8081288	85	58 - 122	89	49 - 134	95	36 - 142	86	54 - 123	93	63 - 117	101	59 - 129
8081289 UNSPK	88	58 - 122	92	49 - 134	97	36 - 142	89	54 - 123	97	63 - 117	102	59 - 129
8081290 MS	84	58 - 122	88	49 - 134	94	36 - 142	85	54 - 123	93	63 - 117	99	59 - 129
8081291 MSD	86	58 - 122	90	49 - 134	94	36 - 142	86	54 - 123	93	63 - 117	100	59 - 129
8081292	84	58 - 122	88	49 - 134	93	36 - 142	85	54 - 123	93	63 - 117	100	59 - 129
8081293	83	58 - 122	88	49 - 134	92	36 - 142	85	54 - 123	93	63 - 117	102	59 - 129
8081294	84	58 - 122	88	49 - 134	95	36 - 142	88	54 - 123	95	63 - 117	104	59 - 129
8081295	88	58 - 122	92	49 - 134	101	36 - 142	90	54 - 123	98	63 - 117	106	59 - 129

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR30
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 8081289 MS: 8081290 MSD: 8081291 **Analyte**	Batch: **15290SLG026** (Sample number(s): 8081281-8081295)								
	Spike Added ug/kg MS/MSD	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1'-Biphenyl	1661.68 / 1652.35	N.D.	1457.62	1479.57	88	90	80-116	1	30
2-Methylnaphthalene	1661.68 / 1652.35	N.D.	1472.86	1500.31	89	91	83-109	2	30
Benzo(a)anthracene	1661.68 / 1652.35	9.90	1505.43	1525.61	90	92	76-119	1	30
Benzo(a)pyrene	1661.68 / 1652.35	14.57	1554.48	1491.95	93	89	85-117	4	30
Benzo(b)fluoranthene	1661.68 / 1652.35	23.13	1686.23	1559.11	100	93	78-129	8	30
Dibenz(a,h)anthracene	1661.68 / 1652.35	4.27	1611.67	1633.01	97	99	81-123	1	30
Dibenzofuran	1661.68 / 1652.35	N.D.	1500.63	1525.27	90	92	85-115	2	30
Indeno(1,2,3-cd)pyrene	1661.68 / 1652.35	11.67	1623.85	1588.3	97	95	81-118	2	30
Nitrobenzene	1661.68 / 1652.35	N.D.	1437.82	1455.3	87	88	70-122	1	30
Pentachlorophenol	1661.68 / 1652.35	N.D.	1334.38	1318.98	80	80	57-126	1	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR30
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 286WBLCS LCSD: 286WBLCSD	Batch: **15286WAB026** (Sample number(s): 8081278)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Nitrobenzene	50	49.07	46.76	98	94	70-121	5	30
1,1'-Biphenyl	50	45.64	43.99	91	88	76-112	4	30
2-Methylnaphthalene	50	43.18	42.46	86	85	69-103	2	30
Benzo(a)anthracene	50	52.35	49.56	105	99	76-122	5	30
Benzo(a)pyrene	50	48.76	46.93	98	94	73-115	4	30
Benzo(b)fluoranthene	50	50.46	49.34	101	99	75-123	2	30
Dibenz(a,h)anthracene	50	52.38	49.68	105	99	72-127	5	30
Dibenzofuran	50	46.14	45.23	92	90	75-109	2	30
Indeno(1,2,3-cd)pyrene	50	49.75	47.37	99	95	70-121	5	30
Pentachlorophenol	50	41.41	44.89	83	90	47-126	8	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR30
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 290LGLCS	Batch: **15290SLG026** (Sample number(s): 8081281-8081295)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1'-Biphenyl	1666.67	1550.41	NA	93	NA	80-116	NA	NA
2-Methylnaphthalene	1666.67	1635.05	NA	98	NA	83-109	NA	NA
Benzo(a)anthracene	1666.67	1699.81	NA	102	NA	76-119	NA	NA
Benzo(a)pyrene	1666.67	1653.76	NA	99	NA	85-117	NA	NA
Benzo(b)fluoranthene	1666.67	1689.52	NA	101	NA	78-129	NA	NA
Dibenz(a,h)anthracene	1666.67	1683.18	NA	101	NA	81-123	NA	NA
Dibenzofuran	1666.67	1629.53	NA	98	NA	85-115	NA	NA
Indeno(1,2,3-cd)pyrene	1666.67	1636.3	NA	98	NA	81-118	NA	NA
Nitrobenzene	1666.67	1576.42	NA	95	NA	70-122	NA	NA
Pentachlorophenol	1666.67	1238.45	NA	74	NA	57-126	NA	NA

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: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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	STD2735 - SSTD30	bj0601.d	10/12/15	19:56
02	STD2735 - SSTD.5	bj0602.d	10/12/15	20:26
03	STD2735 - SSTD120	bj0603.d	10/12/15	20:48
04	STD2735 - SSTD80	bj0604.d	10/12/15	21:10
05	STD2735 - SSTD50	bj0605.d	10/12/15	21:32
06	STD2735 - SSTD15	bj0606.d	10/12/15	21:54
07	STD2735 - SSTD5	bj0607.d	10/12/15	22:15
08	STD2735 - SSTD1	bj0608.d	10/12/15	22:37
09	8270MDL2735 - SSTD0.5	bj0609.d	10/12/15	22:59
10	PAHMDL2735 - SSTD0.1	bj0610.d	10/12/15	23:21
11	ICV2465 - SSTD050	bj0611.d	10/12/15	23:42
12	BAS2735 - SSTD50	bj0612.d	10/13/15	00:04
13	BAS2735 - SSTD120	bj0613.d	10/13/15	00:26
14	BAS2735 - SSTD80	bj0614.d	10/13/15	00:48
15	BAS2735 - SSTD30	bj0615.d	10/13/15	01:10
16	BAS2735 - SSTD15	bj0616.d	10/13/15	01:32
17	BAS2735 - SSTD5	bj0617.d	10/13/15	01:54
18	BAS2735 - SSTD001	bj0618.d	10/13/15	02:15

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: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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
19	BASICV2475 - SSTD050	bj0619.d	10/13/15	02:37

FORM V SV

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: bj1000z.d DFTPP Injection Date: 10/20/15

Instrument ID: HP18444 DFTPP Injection Time: 10:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.3
68	Less than 2.0% of mass 69	0.27 (0.67)1
69	Mass 69 relative abundance	40.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.07
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.59
275	10.0 - 30.0% of mass 198	25.1
365	Greater than 1.00% of mass 198	2.32
441	Present, and less than mass 443	8.14
442	Greater than 40.0 % of mass 198	53.5
443	17.0 - 23.0% of mass 442	9.78 (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	STD2735 - SSTD30	bj1001a.d	10/20/15	10:31
02	BAS2735 - SSTD50	bj1002a.d	10/20/15	10:58
03	SBLKLG290	bj1004.d	10/20/15	12:00
04	PDA2225 - SSTD50	bj1002b.d	10/20/15	12:22
05	SBLKLE290	bj1022.d	10/20/15	12:43
06	290LELCS	bj1023.d	10/20/15	13:05
07	290LGLCS	bj1005.d	10/20/15	13:27
08	8081281	bj1006.d	10/20/15	13:48
09	8081282	bj1007.d	10/20/15	14:10
10	8081283	bj1008.d	10/20/15	14:31
11	8081284	bj1009.d	10/20/15	14:53
12	8081285	bj1010.d	10/20/15	15:14
13	8081286	bj1011.d	10/20/15	15:36
14	8081287	bj1012.d	10/20/15	15:57
15	8081288	bj1013.d	10/20/15	16:19
16	8081289	bj1014.d	10/20/15	16:41
17	8081290MS	bj1015.d	10/20/15	17:02
18	8081291MSD	bj1016.d	10/20/15	17:24

FORM V SV

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: bj1000z.d DFTPP Injection Date: 10/20/15

Instrument ID: HP18444 DFTPP Injection Time: 10:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.3
68	Less than 2.0% of mass 69	0.27 (0.67)1
69	Mass 69 relative abundance	40.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.07
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.59
275	10.0 - 30.0% of mass 198	25.1
365	Greater than 1.00% of mass 198	2.32
441	Present, and less than mass 443	8.14
442	Greater than 40.0 % of mass 198	53.5
443	17.0 - 23.0% of mass 442	9.78 (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	8081292	bj1017.d	10/20/15	17:46
20	8081293	bj1018.d	10/20/15	18:07
21	8081294	bj1019.d	10/20/15	18:29
22	8081295	bj1020.d	10/20/15	18:51
23	8084533	bj1021.d	10/20/15	19:12
24	8082030	bj1024.d	10/20/15	19:35
25	8082030MS	bj1025.d	10/20/15	19:56
26	8082030MSD	bj1026.d	10/20/15	20:18

FORM V SV

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: lj0530.d DFTPP Injection Date: 10/15/15

Instrument ID: HP20296 DFTPP Injection Time: 11:57

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.8
68	Less than 2.0% of mass 69	0.97 (1.92)1
69	Mass 69 relative abundance	50.3
70	Less than 2.0% of mass 69	0.15 (0.3)1
127	40.0 - 60.0% of mass 198	47.2
197	Less than 1.0% of mass 198	0.39
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1.00% of mass 198	2.05
441	Present, and less than mass 443	9.92
442	Greater than 40.0 % of mass 198	60.3
443	17.0 - 23.0% of mass 442	11.0 (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	RVSTD2745 - SSTD7.5	lj0531.d	10/15/15	13:06
02	RVSTD2745 - SSTD.125	lj0532.d	10/15/15	14:04
03	RVSTD2745 - SSTD30	lj0533.d	10/15/15	14:32
04	RVSTD2745 - SSTD20	lj0534.d	10/15/15	15:00
05	RVSTD2745 - SSTD12.5	lj0535.d	10/15/15	15:28
06	RVSTD2745 - SSTD3.75	lj0536.d	10/15/15	15:56
07	RVSTD2745 - SSTD1.25	lj0537.d	10/15/15	16:23
08	RVSTD2745 - SSTD.25	lj0538.d	10/15/15	16:51
09	RVMDL2745 - SSTD0.125	lj0539.d	10/15/15	17:19
10	PAHMDL2745 - SSTD0.025	lj0540.d	10/15/15	17:47
11	RVICV2465 - SSTD12.5	lj0541.d	10/15/15	18:15
12	RVBASICV2475 - SSTD12.5	lj0542.d	10/15/15	18:43

FORM V SV

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: lj0550a.d DFTPP Injection Date: 10/15/15

Instrument ID: HP20296 DFTPP Injection Time: 19:29

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	0.94 (1.9)1
69	Mass 69 relative abundance	49.6
70	Less than 2.0% of mass 69	0.25 (0.5)1
127	40.0 - 60.0% of mass 198	47.5
197	Less than 1.0% of mass 198	0.25
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 1.00% of mass 198	2.04
441	Present, and less than mass 443	8.77
442	Greater than 40.0 % of mass 198	56.7
443	17.0 - 23.0% of mass 442	10.9 (19.2)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	RVSTD2745 - SSTD7.5	lj0551.d	10/15/15	19:42
02	SBLKWB286	lj0552.d	10/15/15	20:20
03	286WBLCS	lj0553.d	10/15/15	20:48
04	286WBLCSD	lj0554.d	10/15/15	21:16
05	SBLKWJ285	lj0555.d	10/15/15	21:44
06	285WJLCS	lj0556.d	10/15/15	22:11
07	8078440RE	lj0557.d	10/15/15	22:39
08	8078454RE	lj0558.d	10/15/15	23:07
09	8078459RE	lj0559.d	10/15/15	23:35
10	8082169	lj0560.d	10/16/15	00:03
11	8080090	lj0561.d	10/16/15	00:31
12	8080094	lj0562.d	10/16/15	00:59
13	8080097	lj0563.d	10/16/15	01:26
14	8080101	lj0564.d	10/16/15	01:54
15	8081278	lj0565.d	10/16/15	02:22
16	8081673	lj0566.d	10/16/15	02:50
17	8081674	lj0567.d	10/16/15	03:18
18	8081675	lj0568.d	10/16/15	03:46

FORM V SV

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: lj0550a.d DFTPP Injection Date: 10/15/15

Instrument ID: HP20296 DFTPP Injection Time: 19:29

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	0.94 (1.9)1
69	Mass 69 relative abundance	49.6
70	Less than 2.0% of mass 69	0.25 (0.5)1
127	40.0 - 60.0% of mass 198	47.5
197	Less than 1.0% of mass 198	0.25
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.4
365	Greater than 1.00% of mass 198	2.04
441	Present, and less than mass 443	8.77
442	Greater than 40.0 % of mass 198	56.7
443	17.0 - 23.0% of mass 442	10.9 (19.2)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	8081676	lj0569.d	10/16/15	04:13
20	8081053	lj0570.d	10/16/15	04:41
21	8081054MS	lj0571.d	10/16/15	05:09
22	8081055MSD	lj0572.d	10/16/15	05:37
23	8081057	lj0573.d	10/16/15	06:04
24	8081058	lj0574.d	10/16/15	06:32
25	8081059	lj0575.d	10/16/15	07:00
26	8081060	lj0576.d	10/16/15	07:28

6B
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane				0.731	0.702	0.704	0.729	0.667	0.669	0.700	4	AVG
N-Nitrosodimethylamine				1.025	1.113	1.240	1.222	1.173	1.174	1.158	7	AVG
Pyridine				1.900	1.958	1.914	2.083	1.922	1.859	1.939	4	AVG
2-Picoline				1.890	1.900	1.980	2.020	1.905	1.867	1.927	3	AVG
N-Nitrosomethylethylamine				0.968	0.842	0.900	0.906	0.857	0.846	0.886	5	AVG
Methyl methanesulfonate				0.962	0.972	1.044	1.000	0.960	0.950	0.981	4	AVG
N-Nitrosodiethylamine			0.876	0.808	0.810	0.874	0.845	0.799	0.802	0.831	4	AVG
Ethyl methanesulfonate			0.821	0.797	0.829	0.852	0.859	0.783	0.782	0.818	4	AVG
Phenol	*		2.231	2.344	2.394	2.494	2.532	2.337	2.300	2.376	4	AVG *
Aniline			2.753	2.780	2.742	2.884	2.872	2.682	2.645	2.765	3	AVG
a-methylstyrene				1.723	1.547	1.618	1.625	1.509	1.498	1.587	5	AVG
bis(2-Chloroethyl)ether			1.801	1.774	1.759	1.808	1.785	1.698	1.686	1.759	3	AVG
2-Chlorophenol			1.558	1.446	1.443	1.481	1.516	1.425	1.404	1.468	4	AVG
1,3-Dichlorobenzene			1.689	1.603	1.582	1.580	1.603	1.472	1.451	1.569	5	AVG
1,4-Dichlorobenzene	*		1.620	1.585	1.587	1.615	1.639	1.497	1.480	1.575	4	AVG *
Benzyl alcohol				1.189	1.122	1.163	1.162	1.092	1.098	1.138	3	AVG
1,2-Dichlorobenzene			1.583	1.479	1.476	1.515	1.547	1.412	1.394	1.487	5	AVG
Indene				2.956	2.741	2.852	2.838	2.669	2.649	2.784	4	AVG
2-Methylphenol			1.474	1.471	1.482	1.532	1.559	1.461	1.441	1.488	3	AVG
2,2'-oxybis(1-Chloropropane)			2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
bis(2-Chloroisopropyl)ether			2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
N-Nitrosopyrrolidine			0.957	0.877	0.910	0.968	0.942	0.913	0.912	0.926	3	AVG
Acetophenone			3.036	2.813	2.522	2.599	2.470	2.363	2.356	2.594	10	AVG
4-Methylphenol			1.618	1.561	1.610	1.822	1.674	1.738	1.686	1.673	5	AVG
Total Cresols			1.546	1.516	1.546	1.677	1.617	1.600	1.563	1.581	3	AVG
N-Nitroso-di-n-propylamine	#		1.625	1.476	1.445	1.508	1.475	1.426	1.415	1.481	5	AVG #
N-Nitrosomorpholine				1.258	1.267	1.318	1.270	1.198	1.180	1.249	4	AVG
o-Toluidine			2.824	2.705	2.709	2.755	2.746	2.525	2.511	2.682	4	AVG
Hexachloroethane				0.615	0.604	0.636	0.635	0.595	0.597	0.614	3	AVG
Nitrobenzene			0.533	0.507	0.501	0.521	0.514	0.493	0.486	0.508	3	AVG
N-Nitrosopiperidine			0.214	0.195	0.208	0.214	0.211	0.201	0.199	0.206	4	AVG
Isophorone			1.003	0.926	0.936	0.982	0.956	0.930	0.915	0.950	3	AVG
2-Nitrophenol	*		0.188	0.183	0.191	0.204	0.205	0.197	0.194	0.195	4	AVG *
2,4-Dimethylphenol			0.397	0.416	0.422	0.442	0.434	0.422	0.413	0.421	4	AVG
O,O,O-Triethylphosphorothioate				0.206	0.195	0.203	0.202	0.197	0.191	0.199	3	AVG
bis(2-Chloroethoxy)methane			0.544	0.503	0.527	0.563	0.563	0.541	0.511	0.536	4	AVG
Benzoic acid				0.350	0.404	0.442	0.435	0.437	0.437	0.418	9	AVG
1,2,3,4-Tetrahydronaphthalene				0.655	0.607	0.634	0.624	0.593	0.593	0.618	4	AVG
2,4-Dichlorophenol	*		0.306	0.296	0.310	0.324	0.319	0.314	0.304	0.310	3	AVG *
1,2,4-Trichlorobenzene				0.343	0.342	0.354	0.346	0.346	0.336	0.344	2	AVG
Naphthalene		1.114	1.112	1.072	1.080	1.098	1.104	1.056	1.014	1.081	3	AVG
4-Chloroaniline			0.487	0.475	0.471	0.493	0.481	0.455	0.458	0.474	3	AVG
2,6-Dichlorophenol			0.295	0.296	0.303	0.315	0.311	0.306	0.301	0.304	2	AVG
Hexachloropropene				0.199	0.215	0.222	0.229	0.220	0.217	0.217	5	AVG
Hexachlorobutadiene	*		0.198	0.196	0.191	0.203	0.203	0.202	0.196	0.199	2	AVG *
Quinoline				0.747	0.739	0.757	0.747	0.720	0.698	0.734	3	AVG
Caprolactam				0.155	0.148	0.145	0.144	0.139	0.135	0.144	5	AVG
N-Nitrosodi-n-butylamine			0.390	0.332	0.438	0.455	0.451	0.432	0.343	0.406	13	AVG
4-Chloro-3-methylphenol	*		0.411	0.363	0.370	0.393	0.383	0.376	0.369	0.381	4	AVG *
Safrole				0.281	0.281	0.305	0.293	0.293	0.289	0.290	3	AVG
2-Methylnaphthalene		0.754	0.762	0.705	0.725	0.744	0.739	0.724	0.708	0.733	3	AVG
1-Methylnaphthalene		0.655	0.658	0.655	0.659	0.686	0.671	0.658	0.650	0.661	2	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
Hexachlorocyclopentadiene	#			0.311	0.331	0.370	0.365	0.359	0.354	0.348	7	AVG	#
1,2,4,5-Tetrachlorobenzene			0.588	0.589	0.580	0.587	0.601	0.574	0.554	0.582	3	AVG	
cis-Isosafrole				0.519	0.485	0.504	0.515	0.505	0.505	0.505	2	AVG	
2,4,6-Trichlorophenol	*		0.374	0.377	0.400	0.407	0.414	0.399	0.379	0.393	4	AVG	*
2,4,5-Trichlorophenol			0.385	0.407	0.439	0.434	0.442	0.422	0.409	0.420	5	AVG	
trans-Isosafrole				0.538	0.554	0.577	0.569	0.562	0.560	0.560	2	AVG	
Isosafrole				0.535	0.542	0.564	0.560	0.552	0.551	0.551	2	AVG	
1,1'-Biphenyl			1.809	1.738	1.533	1.556	1.507	1.459	1.406	1.573	9	AVG	
2-Chloronaphthalene			1.111	1.081	1.032	1.235	1.152	1.330	1.076	1.146	9	AVG	
1-Chloronaphthalene			1.143	1.170	1.283	1.047	1.113	1.058	1.077	1.127	7	AVG	
Diphenyl ether			0.877	0.800	0.812	0.813	0.816	0.811	0.782	0.816	4	AVG	
2-Nitroaniline			0.378	0.380	0.394	0.406	0.417	0.410	0.392	0.397	4	AVG	
1,4-Naphthoquinone				0.501	0.508	0.531	0.538	0.526	0.494	0.516	3	AVG	
1,4-Dinitrobenzene				0.191	0.210	0.208	0.229	0.226	0.215	0.213	6	AVG	
Dimethylphthalate				1.417	1.402	1.401	1.418	1.384	1.310	1.389	3	AVG	
1,3-Dinitrobenzene				0.213	0.226	0.236	0.254	0.250	0.238	0.236	6	AVG	
2,6-Dinitrotoluene			0.276	0.297	0.321	0.329	0.334	0.335	0.324	0.317	7	AVG	
Acenaphthylene		1.898	1.861	1.739	1.798	1.861	1.889	1.816	1.770	1.829	3	AVG	
3-Nitroaniline			0.315	0.334	0.349	0.363	0.369	0.361	0.346	0.348	5	AVG	
Acenaphthene	*	1.260	1.294	1.220	1.227	1.223	1.253	1.220	1.168	1.233	3	AVG	*
2,4-Dinitrophenol	#			0.184	0.209	0.219	0.229	0.229	0.223	0.216	8	AVG	#
4-Nitrophenol	#			0.203	0.213	0.210	0.218	0.208	0.200	0.209	3	AVG	#
Pentachlorobenzene			0.599	0.522	0.547	0.533	0.558	0.545	0.523	0.547	5	AVG	
2,4-Dinitrotoluene				0.403	0.433	0.450	0.463	0.456	0.436	0.440	5	AVG	
2,4_2,6-Dinitrotoluenes				0.350	0.377	0.389	0.398	0.396	0.380	0.382	5	AVG	
Dibenzofuran			1.869	1.729	1.728	1.695	1.748	1.687	1.585	1.720	5	AVG	
1-Naphthylamine				1.263	1.284	1.278	1.345	1.285	1.208	1.277	3	AVG	
2,3,4,6-Tetrachlorophenol			0.367	0.348	0.375	0.379	0.387	0.383	0.375	0.373	3	AVG	
2-Naphthylamine				1.264	1.312	1.289	1.330	1.264	1.160	1.270	5	AVG	
Diethylphthalate				1.360	1.366	1.387	1.373	1.340	1.308	1.356	2	AVG	
Thionazin				0.270	0.243	0.261	0.252	0.253	0.286	0.261	6	AVG	
Fluorene		1.414	1.503	1.387	1.412	1.408	1.443	1.365	1.297	1.404	4	AVG	
4-Chlorophenyl-phenylether			0.731	0.713	0.693	0.692	0.695	0.675	0.650	0.693	4	AVG	
5-Nitro-o-toluidine			0.476	0.390	0.411	0.416	0.421	0.401	0.388	0.415	7	AVG	
4-Nitroaniline			0.389	0.370	0.396	0.391	0.401	0.387	0.346	0.383	5	AVG	
4,6-Dinitro-2-methylphenol				0.125	0.125	0.138	0.144	0.143	0.139	0.136	6	AVG	
N-Nitrosodiphenylamine (1)	*		0.556	0.564	0.564	0.604	0.585	0.550	0.569	0.571	3	AVG	*
NDPA as diphenylamine				0.564	0.564	0.604	0.585	0.550	0.569	0.573	3	AVG	
1,2-Diphenylhydrazine			0.817	0.836	0.828	0.901	0.864	0.841	0.846	0.848	3	AVG	
Tetraethyldithiopyrophosphate				0.123	0.124	0.141	0.133	0.132	0.136	0.132	5	AVG	
1,3,5-Trinitrobenzene				0.064	0.077	0.082	0.093	0.090	0.086	0.082	13	AVG	
Diallate (peak 1)				0.365	0.377	0.410	0.394	0.390	0.398	0.389	4	AVG	
Phorate			0.496	0.497	0.526	0.586	0.565	0.556	0.572	0.543	7	AVG	
Phenacetin			0.379	0.380	0.392	0.407	0.410	0.392	0.388	0.393	3	AVG	
4-Bromophenyl-phenylether				0.196	0.192	0.203	0.202	0.192	0.190	0.196	3	AVG	
Diallate (peak 2)				0.349	0.387	0.393	0.375	0.386	0.391	0.380	4	AVG	
Diallate trans/cis				0.362	0.378	0.407	0.391	0.389	0.397	0.387	4	AVG	
Hexachlorobenzene		0.234	0.216	0.207	0.201	0.214	0.205	0.199	0.205	0.210	5	AVG	
Dimethoate				0.335	0.348	0.362	0.360	0.338	0.323	0.344	4	AVG	
Pentachlorophenol	*			0.138	0.139	0.155	0.150	0.142	0.143	0.145	5	AVG	*
4-Aminobiphenyl			0.650	0.648	0.649	0.645	0.599	0.515		0.618	9	AVG	
Pentachloronitrobenzene				0.088	0.088	0.096	0.095	0.092	0.094	0.092	4	AVG	

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Pronamide		0.286	0.285	0.310	0.324	0.333	0.326	0.322	0.312	6	AVG
Dinoseb			0.153	0.179	0.210	0.211	0.212	0.216	0.197	13	AVG
Phenanthrene	1.111	1.091	1.023	1.014	1.032	1.037	0.982	0.954	1.031	5	AVG
Anthracene	1.030	1.011	1.005	1.019	1.047	1.054	1.005	0.963	1.017	3	AVG
Carbazole		1.002	0.945	0.947	0.983	0.990	0.922	0.912	0.957	4	AVG
Methyl parathion			0.216	0.247	0.264	0.269	0.255	0.243	0.249	8	AVG
Di-n-butylphthalate			1.035	1.096	1.175	1.161	1.109	1.083	1.110	5	AVG
Parathion			0.122	0.139	0.154	0.159	0.156	0.153	0.147	10	AVG
4-Nitroquinoline-1-oxide				0.093	0.098	0.119	0.114	0.110	0.107	10	AVG
Octachlorostyrene			0.089	0.083	0.082	0.084	0.079	0.079	0.083	4	AVG
Isodrin		0.115	0.120	0.122	0.124	0.126	0.121	0.122	0.122	3	AVG
Fluoranthene	* 1.236	1.122	1.132	1.162	1.150	1.190	1.101	1.071	1.145	5	AVG *
Benzidine			0.573	0.630	0.636	0.632	0.535	0.482	0.581	11	AVG
Pyrene	1.158	1.134	1.051	1.061	1.064	1.059	0.998	0.963	1.061	6	AVG
p-Dimethylaminoazobenzene		0.183	0.190	0.202	0.206	0.216	0.212	0.202	0.202	6	AVG
Chlorobenzilate		0.258	0.274	0.292	0.307	0.306	0.297	0.285	0.289	6	AVG
3,3'-Dimethylbenzidine			0.549	0.593	0.610	0.619	0.553	0.520	0.574	7	AVG
Butylbenzylphthalate			0.407	0.441	0.456	0.469	0.441	0.419	0.439	5	AVG
2-Acetylaminofluorene			0.355	0.402	0.401	0.436	0.400	0.369	0.394	7	AVG
3,3'-Dichlorobenzidine			0.345	0.375	0.376	0.391	0.361	0.342	0.365	5	AVG
4,4'-Methylenebis(2-chloroanil			0.184	0.198	0.204	0.211	0.191	0.179	0.195	6	AVG
Benzo(a)anthracene	0.908	0.921	0.930	0.985	0.959	1.011	0.940	0.840	0.937	6	AVG
Chrysene	0.908	0.955	0.927	0.965	0.894	0.954	0.862	0.781	0.906	7	AVG
bis(2-Ethylhexyl)phthalate			0.567	0.618	0.636	0.657	0.627	0.599	0.617	5	AVG
6-Methylchrysene			0.623	0.663	0.644	0.677	0.625	0.603	0.639	4	AVG
Di-n-octylphthalate	*		1.139	1.302	1.478	1.467	1.488	1.401	1.379	10	AVG *
Benzo(b)fluoranthene	1.206	1.180	1.256	1.249	1.307	1.280	1.277	1.235	1.249	3	AVG
7,12-Dimethylbenz[a]anthracene		0.526	0.514	0.577	0.606	0.615	0.588	0.564	0.570	7	AVG
Benzo(k)fluoranthene	1.183	1.285	1.181	1.254	1.239	1.313	1.249	1.155	1.232	4	AVG
Benzo(a)pyrene	* 1.227	1.090	1.116	1.161	1.192	1.226	1.186	1.128	1.166	4	AVG *
3-Methylcholanthrene		0.521	0.516	0.553	0.555	0.581	0.563	0.519	0.544	5	AVG
Dibenz(a,h)acridine			0.803	0.879	0.912	0.928	0.904	0.899	0.888	5	AVG
Dibenz(a,j)acridine			0.912	0.950	0.956	0.972	0.957	0.923	0.945	2	AVG
Indeno(1,2,3-cd)pyrene	1.241	1.239	1.216	1.275	1.293	1.317	1.252	1.213	1.256	3	AVG
Dibenz(a,h)anthracene	0.967	0.999	1.007	1.071	1.061	1.095	1.044	0.960	1.025	5	AVG
Benzo(g,h,i)perylene	1.022	0.966	1.019	1.054	1.056	1.076	1.039	1.005	1.030	3	AVG
Total PAHs	0.941	0.911	0.890	0.889	1.004	0.955	0.980	0.948	0.940	4	AVG
2-Fluorophenol			1.487	1.467	1.536	1.519	1.427	1.420	1.476	3	AVG
Phenol-d6			2.067	2.077	2.177	2.152	1.997	1.988	2.076	4	AVG
Nitrobenzene-d5			0.486	0.493	0.518	0.507	0.486	0.473	0.494	3	AVG
2-Fluorobiphenyl			1.375	1.368	1.400	1.377	1.328	1.257	1.351	4	AVG
2,4,6-Tribromophenol			0.190	0.198	0.190	0.200	0.192	0.179	0.192	4	AVG
Terphenyl-d14			0.697	0.700	0.737	0.710	0.670	0.644	0.693	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 and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d SSTD030
/chem/HP18444.i/15oct12a.b/bj0602.d SSTD0.5
/chem/HP18444.i/15oct12a.b/bj0603.d SSTD120
/chem/HP18444.i/15oct12a.b/bj0604.d SSTD080
/chem/HP18444.i/15oct12a.b/bj0605.d SSTD050
/chem/HP18444.i/15oct12a.b/bj0606.d SSTD015
/chem/HP18444.i/15oct12a.b/bj0607.d SSTD005
/chem/HP18444.i/15oct12a.b/bj0608.d SSTD001

Area Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	198560	177577	197363	186165	169174	156895	156087	140449	172784	12
Naphthalene-d8	799113	692251	787344	731353	678498	633266	635273	580853	692244	11
Acenaphthene-d10	498506	421976	480824	446481	411488	390070	392148	373146	426830	11
Phenanthrene-d10	983616	877740	946298	918441	843644	815462	813504	819423	877266	7
Pyrene-d10	1112950	1048500	1076847	1030998	982436	959534	949803	960310	1015172	6
Perylene-d12	792924	781837	745690	721722	747844	767704	735876	722121	751965	4

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d
1,4-Dichlorobenzene-d4	5.718	5.712	5.718	5.718	5.718	5.718	5.718	5.718
Naphthalene-d8	6.948	6.948	6.954	6.948	6.948	6.948	6.948	6.948
Acenaphthene-d10	8.661	8.662	8.667	8.662	8.662	8.661	8.662	8.662
Phenanthrene-d10	10.113	10.113	10.119	10.119	10.113	10.113	10.113	10.113
Pyrene-d10	11.506	11.500	11.506	11.506	11.506	11.500	11.500	11.500
Perylene-d12	14.175	14.175	14.175	14.175	14.175	14.170	14.170	14.170

Comments: _____

Report generated on 10/13/2015 at 08:42

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	47.39	-5	20	YES
N-Nitrosodimethylamine	50.00	48.09	-4	20	YES
Pyridine	50.00	48.22	-4	20	YES
2-Picoline	50.00	48.68	-3	20	YES
N-Nitrosomethylethylamine	50.00	46.71	-7	20	YES
Methyl methanesulfonate	50.00	49.27	-1	20	YES
N-Nitrosodiethylamine	50.00	48.14	-4	20	YES
Ethyl methanesulfonate	50.00	49.66	-1	20	YES
Phenol	50.00	50.34	1	20	YES
Aniline	50.00	49.28	-1	20	YES
bis(2-Chloroethyl)ether	50.00	48.92	-2	20	YES
2-Chlorophenol	50.00	48.99	-2	20	YES
1,3-Dichlorobenzene	50.00	50.75	2	20	YES
1,4-Dichlorobenzene	50.00	50.93	2	20	YES
Benzyl alcohol	50.00	48.12	-4	20	YES
1,2-Dichlorobenzene	50.00	51.74	3	20	YES
Indene	50.00	48.66	-3	20	YES
2-Methylphenol	50.00	51.54	3	20	YES
2,2'-oxybis(1-Chloropropane	50.00	50.67	1	20	YES
bis(2-Chloroisopropyl)ether	50.00	50.67	1	20	YES
N-Nitrosopyrrolidine	50.00	48.01	-4	20	YES
Acetophenone	50.00	44.96	-10	20	YES
4-Methylphenol	50.00	48.23	-4	20	YES
N-Nitroso-di-n-propylamine	50.00	48.58	-3	20	YES
N-Nitrosomorpholine	50.00	47.46	-5	20	YES
o-Toluidine	50.00	49.44	-1	20	YES
Total Cresols	100.00	99.77	0	20	YES
Hexachloroethane	50.00	51.04	2	20	YES
Nitrobenzene	50.00	47.91	-4	20	YES
N-Nitrosopiperidine	50.00	47.24	-6	20	YES
Isophorone	50.00	49.98	0	20	YES
2-Nitrophenol	50.00	51.15	2	20	YES
2,4-Dimethylphenol	50.00	48.08	-4	20	YES
bis(2-Chloroethoxy)methane	50.00	52.85	6	20	YES
Benzoic acid	100.00	89.68	-10	20	YES
O,O,O-Triethylphosphorothio	50.00	50.03	0	20	YES
2,4-Dichlorophenol	50.00	50.65	1	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	50.00	50.29	1	20	YES
Naphthalene	50.00	50.55	1	20	YES
4-Chloroaniline	50.00	49.60	-1	20	YES
2,6-Dichlorophenol	50.00	50.28	1	20	YES
Hexachloropropene	50.00	52.14	4	20	YES
Hexachlorobutadiene	50.00	51.31	3	20	YES
Quinoline	50.00	50.11	0	20	YES
N-Nitrosodi-n-butylamine	50.00	40.82	-18	20	YES
4-Chloro-3-methylphenol	50.00	49.45	-1	20	YES
Safrole	50.00	49.58	-1	20	YES
2-Methylnaphthalene	50.00	48.15	-4	20	YES
1-Methylnaphthalene	50.00	50.63	1	20	YES
Hexachlorocyclopentadiene	100.00	97.34	-3	20	YES
1,2,4,5-Tetrachlorobenzene	50.00	50.08	0	20	YES
cis-Isosafrole	6.00	6.21	3	20	YES
2,4,6-Trichlorophenol	50.00	49.53	-1	20	YES
2,4,5-Trichlorophenol	50.00	50.84	2	20	YES
trans-Isosafrole	44.00	45.47	3	20	YES
1,1'-Biphenyl	50.00	46.10	-8	20	YES
2-Chloronaphthalene	50.00	50.49	1	20	YES
Isosafrole	50.00	51.68	3	20	YES
1-Chloronaphthalene	50.00	46.81	-6	20	YES
Diphenyl ether	50.00	47.79	-4	20	YES
2-Nitroaniline	50.00	49.97	0	20	YES
1,4-Naphthoquinone	62.50	61.10	-2	20	YES
1,4-Dinitrobenzene	50.00	48.97	-2	20	YES
Dimethylphthalate	50.00	49.62	-1	20	YES
1,3-Dinitrobenzene	50.00	50.08	0	20	YES
2,6-Dinitrotoluene	50.00	51.39	3	20	YES
Acenaphthylene	50.00	49.92	0	20	YES
3-Nitroaniline	50.00	51.24	2	20	YES
Acenaphthene	50.00	50.37	1	20	YES
2,4-Dinitrophenol	100.00	101.26	1	20	YES
4-Nitrophenol	50.00	50.37	1	20	YES
Pentachlorobenzene	50.00	48.54	-3	20	YES
2,4-Dinitrotoluene	50.00	50.58	1	20	YES
Dibenzofuran	50.00	48.81	-2	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	100.00	101.97	2	20	YES
1-Naphthylamine	100.00	97.04	-3	20	YES
2,3,4,6-Tetrachlorophenol	50.00	50.37	1	20	YES
2-Naphthylamine	100.00	96.00	-4	20	YES
Diethylphthalate	50.00	50.58	1	20	YES
Thionazin	50.00	48.34	-3	20	YES
Fluorene	50.00	50.83	2	20	YES
4-Chlorophenyl-phenylether	50.00	50.18	0	20	YES
5-Nitro-o-toluidine	50.00	49.81	0	20	YES
4-Nitroaniline	50.00	50.11	0	20	YES
4,6-Dinitro-2-methylphenol	50.00	50.26	1	20	YES
N-Nitrosodiphenylamine	50.00	49.80	0	20	YES
NDPA as diphenylamine	50.00	49.59	-1	20	YES
1,2-Diphenylhydrazine	50.00	50.99	2	20	YES
Tetraethyldithiopyrophospha	50.00	48.34	-3	20	YES
1,3,5-Trinitrobenzene	50.00	48.56	-3	20	YES
Diallate (peak 1)	37.50	34.32	-8	20	YES
Phorate	50.00	50.26	1	20	YES
Phenacetin	50.00	48.92	-2	20	YES
4-Bromophenyl-phenylether	50.00	51.59	3	20	YES
Diallate (peak 2)	12.50	11.56	-7	20	YES
Hexachlorobenzene	50.00	48.32	-3	20	YES
Diallate trans/cis	50.00	45.89	-8	20	YES
Dimethoate	50.00	46.06	-8	20	YES
Pentachlorophenol	50.00	53.94	8	20	YES
4-Aminobiphenyl	50.00	60.03	20	20	YES
Pentachloronitrobenzene	50.00	49.78	0	20	YES
Pronamide	50.00	50.54	1	20	YES
Dinoseb	50.00	52.95	6	20	YES
Phenanthrene	50.00	48.60	-3	20	YES
Anthracene	50.00	51.27	3	20	YES
Carbazole	50.00	48.96	-2	20	YES
Methyl parathion	50.00	46.81	-6	20	YES
Di-n-butylphthalate	50.00	52.94	6	20	YES
Parathion	50.00	51.74	3	20	YES
4-Nitroquinoline-1-oxide	600.00	739.65	23	20	NO *
Isodrin	50.00	48.68	-3	20	YES

NC = Could not calculate

Comments:

* non-CCC, OK if greater than 20% D

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	49.16	-2	20	YES
Benzidine	250.00	251.86	1	20	YES
Pyrene	50.00	48.89	-2	20	YES
p-Dimethylaminoazobenzene	50.00	56.48	13	20	YES
Chlorobenzilate	50.00	51.83	4	20	YES
3,3'-Dimethylbenzidine	100.00	101.19	1	20	YES
Butylbenzylphthalate	50.00	53.20	6	20	YES
2-Acetylaminofluorene	50.00	50.48	1	20	YES
3,3'-Dichlorobenzidine	50.00	47.50	-5	20	YES
Benzo(a)anthracene	50.00	52.14	4	20	YES
Chrysene	50.00	52.77	6	20	YES
4,4'-Methylenebis(2-chloroa	50.00	48.13	-4	20	YES
bis(2-Ethylhexyl)phthalate	50.00	54.31	9	20	YES
6-Methylchrysene	50.00	50.28	1	20	YES
Di-n-octylphthalate	50.00	55.44	11	20	YES
Benzo(b)fluoranthene	50.00	51.32	3	20	YES
7,12-Dimethylbenz[a]anthrac	50.00	51.43	3	20	YES
Benzo(k)fluoranthene	50.00	53.09	6	20	YES
Benzo(a)pyrene	50.00	49.72	-1	20	YES
3-Methylcholanthrene	50.00	56.83	14	20	YES
Dibenz(a,h)acridine	50.00	49.63	-1	20	YES
Dibenz(a,j)acridine	50.00	48.01	-4	20	YES
Indeno(1,2,3-cd)pyrene	50.00	50.66	1	20	YES
Dibenz(a,h)anthracene	50.00	52.50	5	20	YES
Benzo(g,h,i)perylene	50.00	51.88	4	20	YES
Total PAHs	900.00	808.05	-10	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0619.d

ICV SAMPLE ID: BASICV2475 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	53.60	7	20	YES
Caprolactam	50.00	47.59	-5	20	YES
Atrazine	50.00	52.08	4	20	YES

NC = Could not calculate

Comments:

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RRF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane			0.671	0.708	0.736	0.718	0.688	0.711	0.705	3	AVG
N-Nitrosodimethylamine			1.037	1.100	1.131	1.157	1.105	1.154	1.114	4	AVG
Pyridine			1.752	1.880	1.913	1.913	1.898	1.941	1.883	4	AVG
2-Picoline			1.923	2.012	1.976	2.003	1.910	1.957	1.964	2	AVG
N-Nitrosomethylethylamine			0.781	0.806	0.816	0.826	0.788	0.805	0.804	2	AVG
Methyl methanesulfonate			0.914	0.978	0.960	0.979	0.922	0.938	0.948	3	AVG
N-Nitrosodiethylamine		0.675	0.737	0.768	0.777	0.794	0.758	0.770	0.754	5	AVG
Ethyl methanesulfonate		0.792	0.741	0.782	0.786	0.799	0.748	0.773	0.774	3	AVG
Benzaldehyde			1.554	1.552	1.487	1.451	1.437	1.332	1.469	6	AVG
Phenol		2.226	2.080	2.152	2.203	2.239	2.150	2.332	2.197	4	AVG
Aniline		2.703	2.714	2.783	2.760	2.811	2.759	2.767	2.757	1	AVG
a-methylstyrene			1.450	1.560	1.523	1.593	1.553	1.561	1.540	3	AVG
bis(2-Chloroethyl)ether		1.805	1.705	1.694	1.711	1.719	1.658	1.663	1.708	3	AVG
2-Chlorophenol		1.332	1.389	1.403	1.433	1.452	1.372	1.395	1.397	3	AVG
1,3-Dichlorobenzene		1.592	1.499	1.589	1.571	1.590	1.516	1.546	1.557	2	AVG
1,4-Dichlorobenzene		1.595	1.559	1.606	1.604	1.637	1.548	1.566	1.588	2	AVG
Benzyl alcohol			1.003	1.046	1.056	1.094	1.051	1.064	1.052	3	AVG
1,2-Dichlorobenzene		1.492	1.475	1.490	1.516	1.546	1.464	1.482	1.495	2	AVG
Indene			2.579	2.654	2.591	2.761	2.686	2.677	2.658	3	AVG
2-Methylphenol		1.500	1.445	1.467	1.495	1.512	1.443	1.463	1.475	2	AVG
2,2'-oxybis(1-Chloropropane)		2.537	2.370	2.404	2.407	2.447	2.339	2.326	2.404	3	AVG
bis(2-Chloroisopropyl)ether		2.537	2.370	2.404	2.407	2.447	2.339	2.326	2.404	3	AVG
N-Nitrosopyrrolidine		0.758	0.749	0.787	0.805	0.834	0.809	0.798	0.792	4	AVG
Acetophenone		2.534	2.227	2.316	2.244	2.275	2.301	2.229	2.304	5	AVG
4-Methylphenol		1.507	1.471	1.563	1.573	1.612	1.523	1.528	1.540	3	AVG
Total Cresols		1.504	1.458	1.515	1.534	1.562	1.483	1.496	1.507	2	AVG
N-Nitroso-di-n-propylamine		1.318	1.316	1.336	1.354	1.384	1.304	1.317	1.333	2	AVG
N-Nitrosomorpholine			0.982	1.031	1.056	1.070	1.012	1.013	1.028	3	AVG
o-Toluidine		2.517	2.486	2.623	2.663	2.687	2.572	2.550	2.585	3	AVG
Hexachloroethane			0.640	0.668	0.661	0.685	0.646	0.653	0.659	2	AVG
Nitrobenzene		0.478	0.482	0.510	0.525	0.515	0.493	0.504	0.501	3	AVG
N-Nitrosopiperidine		0.177	0.185	0.197	0.198	0.200	0.190	0.194	0.191	4	AVG
Isophorone		0.840	0.841	0.902	0.915	0.908	0.872	0.888	0.881	3	AVG
2-Nitrophenol		0.168	0.178	0.177	0.192	0.193	0.183	0.189	0.183	5	AVG
2,4-Dimethylphenol		0.381	0.413	0.419	0.440	0.429	0.414	0.420	0.417	4	AVG
O,O,O-Triethylphosphorothioate			0.173	0.189	0.191	0.185	0.178	0.183	0.183	4	AVG
bis(2-Chloroethoxy)methane		0.545	0.522	0.538	0.547	0.544	0.520	0.530	0.535	2	AVG
Benzoic acid			0.216	0.287	0.317	0.347	0.353	0.363	0.314	18	1STDEG
1,2,3,4-Tetrahydronaphthalene			0.602	0.609	0.612	0.630	0.617	0.624	0.615	2	AVG
2,4-Dichlorophenol		0.273	0.283	0.304	0.309	0.306	0.296	0.301	0.296	4	AVG
1,2,4-Trichlorobenzene		0.349	0.327	0.346	0.345	0.345	0.328	0.336	0.339	3	AVG
Naphthalene	1.113	1.082	1.044	1.098	1.089	1.081	1.033	1.050	1.074	3	AVG
4-Chloroaniline		0.425	0.422	0.451	0.454	0.455	0.436	0.442	0.441	3	AVG
2,6-Dichlorophenol		0.283	0.297	0.294	0.310	0.307	0.289	0.298	0.297	3	AVG
Hexachloropropene			0.203	0.219	0.231	0.232	0.226	0.231	0.224	5	AVG
Hexachlorobutadiene		0.185	0.192	0.193	0.201	0.198	0.189	0.194	0.193	3	AVG
Quinoline			0.646	0.673	0.695	0.687	0.661	0.668	0.672	3	AVG
Caprolactam			0.090	0.102	0.102	0.104	0.099	0.099	0.099	5	AVG
N-Nitrosodi-n-butylamine			0.290	0.322	0.409	0.403	0.390	0.398	0.368	14	AVG
4-Chloro-3-methylphenol		0.301	0.341	0.365	0.378	0.379	0.353	0.359	0.354	8	AVG
Safrole			0.254	0.276	0.278	0.278	0.270	0.273	0.271	3	AVG
2-Methylnaphthalene	0.754	0.705	0.701	0.722	0.723	0.716	0.684	0.694	0.712	3	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

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: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RRF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
1-Methylnaphthalene	0.733	0.608	0.647	0.651	0.655	0.649	0.625	0.633	0.650	6	AVG
Hexachlorocyclopentadiene			0.347	0.354	0.371	0.382	0.379	0.383	0.370	4	AVG
1,2,4,5-Tetrachlorobenzene		0.615	0.591	0.605	0.589	0.594	0.594	0.591	0.597	2	AVG
cis-Isosafrole			0.527	0.527	0.528	0.528	0.522	0.521	0.526	1	AVG
2,4,6-Trichlorophenol		0.346	0.345	0.385	0.386	0.388	0.389	0.390	0.376	6	AVG
2,4,5-Trichlorophenol		0.405	0.396	0.421	0.412	0.421	0.407	0.401	0.409	2	AVG
trans-Isosafrole			0.552	0.564	0.571	0.580	0.570	0.573	0.568	2	AVG
Isosafrole			0.548	0.558	0.564	0.571	0.562	0.564	0.561	1	AVG
1,1'-Biphenyl		1.601	1.465	1.517	1.452	1.481	1.493	1.467	1.497	3	AVG
2-Chloronaphthalene		1.239	1.155	1.157	1.152	1.178	1.205	1.163	1.178	3	AVG
1-Chloronaphthalene		1.170	1.128	1.157	1.114	1.119	1.055	1.110	1.122	3	AVG
Diphenyl ether		0.795	0.790	0.819	0.800	0.806	0.799	0.786	0.799	1	AVG
2-Nitroaniline		0.336	0.312	0.360	0.372	0.376	0.371	0.371	0.357	7	AVG
1,4-Naphthoquinone			0.421	0.467	0.485	0.492	0.480	0.480	0.471	5	AVG
1,4-Dinitrobenzene			0.156	0.180	0.181	0.194	0.192	0.196	0.183	8	AVG
Dimethylphthalate			1.271	1.304	1.267	1.280	1.261	1.255	1.273	1	AVG
1,3-Dinitrobenzene			0.172	0.205	0.201	0.207	0.208	0.207	0.200	7	AVG
2,6-Dinitrotoluene		0.225	0.265	0.285	0.289	0.288	0.290	0.289	0.276	9	AVG
Acenaphthylene	1.748	1.709	1.740	1.847	1.815	1.844	1.828	1.822	1.794	3	AVG
3-Nitroaniline		0.233	0.293	0.315	0.316	0.319	0.321	0.323	0.303	11	AVG
Acenaphthene	1.101	1.248	1.183	1.244	1.213	1.211	1.174	1.190	1.195	4	AVG
2,4-Dinitrophenol				0.165	0.171	0.186	0.194	0.199	0.183	8	AVG
4-Nitrophenol				0.235	0.231	0.237	0.235	0.232	0.234	1	AVG
Pentachlorobenzene		0.451	0.469	0.477	0.476	0.470	0.462	0.462	0.467	2	AVG
2,4-Dinitrotoluene			0.351	0.388	0.380	0.398	0.396	0.390	0.384	5	AVG
2,4_2,6-Dinitrotoluenes		0.280	0.308	0.336	0.334	0.343	0.343	0.340	0.326	7	AVG
Dibenzofuran		1.715	1.616	1.671	1.609	1.634	1.590	1.600	1.634	3	AVG
1-Naphthylamine				1.209	1.148	1.208	1.184	1.204	1.191	2	AVG
2,3,4,6-Tetrachlorophenol		0.270	0.288	0.315	0.314	0.318	0.320	0.322	0.307	7	AVG
2-Naphthylamine				1.165	1.121	1.163	1.163	1.179	1.158	2	AVG
Diethylphthalate			1.220	1.246	1.253	1.287	1.262	1.245	1.252	2	AVG
Thionazin			0.242	0.272	0.232	0.240	0.237	0.234	0.243	6	AVG
Fluorene	1.220	1.297	1.279	1.327	1.277	1.285	1.271	1.267	1.278	2	AVG
4-Chlorophenyl-phenylether		0.566	0.615	0.629	0.622	0.630	0.619	0.611	0.613	4	AVG
5-Nitro-o-toluidine		0.327	0.315	0.365	0.355	0.370	0.370	0.368	0.353	6	AVG
4-Nitroaniline		0.236	0.299	0.326	0.326	0.331	0.322	0.322	0.309	11	AVG
4,6-Dinitro-2-methylphenol				0.119	0.128	0.130	0.134	0.135	0.129	5	AVG
N-Nitrosodiphenylamine (1)		0.588	0.582	0.597	0.587	0.586	0.573	0.584	0.585	1	AVG
NDPA as diphenylamine		0.588	0.582	0.597	0.587	0.586	0.573	0.584	0.585	1	AVG
1,2-Diphenylhydrazine		0.819	0.870	0.911	0.896	0.896	0.882	0.897	0.882	3	AVG
Tetraethyldithiopyrophosphate			0.140	0.143	0.143	0.140	0.138	0.136	0.140	2	AVG
1,3,5-Trinitrobenzene				0.068	0.076	0.077	0.078	0.081	0.076	6	AVG
Diallate (peak 1)			0.377	0.390	0.391	0.388	0.375	0.382	0.384	2	AVG
Phorate		0.467	0.543	0.564	0.580	0.579	0.559	0.564	0.551	7	AVG
Phenacetin		0.361	0.361	0.410	0.427	0.428	0.415	0.418	0.403	7	AVG
4-Bromophenyl-phenylether		0.182	0.169	0.176	0.179	0.177	0.174	0.178	0.177	2	AVG
Diallate (peak 2)			0.367	0.386	0.376	0.379	0.372	0.380	0.377	2	AVG
Diallate trans/cis			0.375	0.389	0.388	0.386	0.374	0.382	0.383	2	AVG
Hexachlorobenzene	0.188	0.183	0.182	0.185	0.184	0.183	0.180	0.186	0.184	1	AVG
Dimethoate			0.336	0.362	0.372	0.372	0.356	0.358	0.359	4	AVG
Atrazine			0.188	0.199	0.195	0.196	0.189	0.183	0.191	3	AVG
Pentachlorophenol			0.106	0.115	0.125	0.128	0.126	0.131	0.122	8	AVG

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

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: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

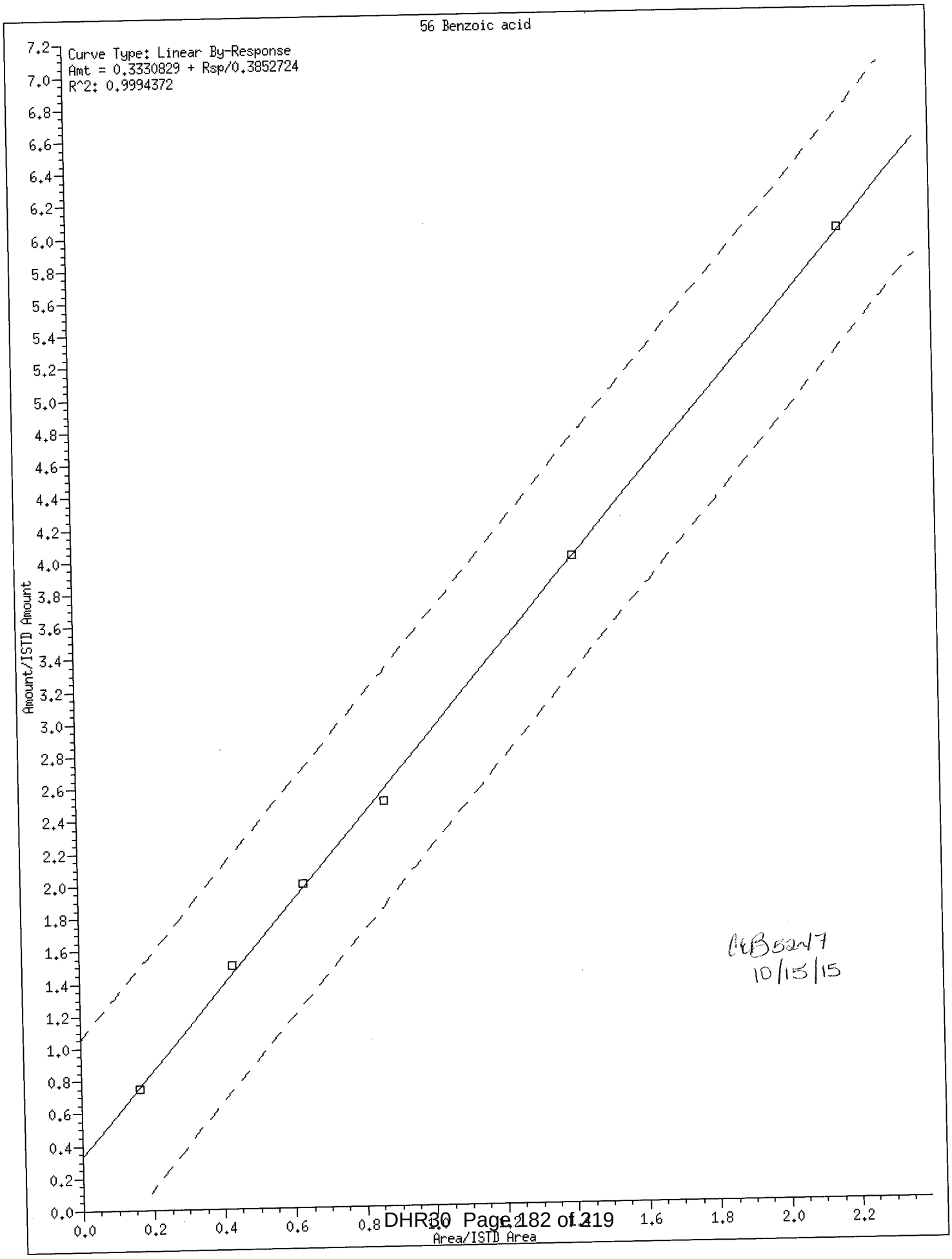
LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
4-Aminobiphenyl		0.609	0.629	0.685	0.690	0.684	0.674	0.690	0.666	5	AVG
Pentachloronitrobenzene			0.086	0.090	0.088	0.090	0.089	0.090	0.089	2	AVG
Pronamide		0.244	0.275	0.317	0.333	0.331	0.321	0.328	0.307	11	AVG
Dinoseb			0.132	0.168	0.189	0.198	0.204	0.210	0.184	16	1STDEG
Phenanthrene	1.072	1.027	1.024	1.051	1.043	1.040	1.024	1.050	1.042	2	AVG
Anthracene	1.033	0.996	1.006	1.048	1.048	1.057	1.033	1.047	1.034	2	AVG
Carbazole		0.868	0.929	0.967	0.986	0.982	0.958	0.967	0.951	4	AVG
Methyl parathion			0.216	0.261	0.277	0.284	0.275	0.276	0.265	9	AVG
Di-n-butylphthalate			1.068	1.164	1.192	1.191	1.174	1.197	1.164	4	AVG
Parathion			0.123	0.155	0.161	0.167	0.165	0.168	0.156	11	AVG
4-Nitroquinoline-1-oxide				0.090	0.102	0.118	0.123	0.128	0.112	14	AVG
Octachlorostyrene			0.061	0.066	0.066	0.066	0.066	0.067	0.065	3	AVG
Isodrin		0.132	0.114	0.119	0.123	0.122	0.121	0.121	0.122	4	AVG
Fluoranthene	1.163	1.030	1.089	1.155	1.176	1.164	1.137	1.155	1.134	4	AVG
Benzidine				0.664	0.662	0.667	0.640	0.633	0.653	2	AVG
Pyrene	1.199	1.094	1.047	1.076	1.058	1.057	1.029	1.048	1.076	5	AVG
p-Dimethylaminoazobenzene		0.128	0.151	0.177	0.190	0.193	0.188	0.194	0.174	15	AVG
Chlorobenzilate			0.282	0.316	0.320	0.318	0.312	0.315	0.310	5	AVG
3,3'-Dimethylbenzidine			0.572	0.643	0.686	0.687	0.664	0.683	0.656	7	AVG
Butylbenzylphthalate			0.407	0.462	0.468	0.468	0.455	0.463	0.454	5	AVG
2-Acetylaminofluorene			0.310	0.385	0.413	0.419	0.415	0.437	0.397	11	AVG
3,3'-Dichlorobenzidine			0.314	0.352	0.357	0.359	0.351	0.365	0.350	5	AVG
4,4'-Methylenebis(2-chloroanil				0.201	0.201	0.205	0.200	0.205	0.203	1	AVG
Benzo(a)anthracene	0.904	0.830	0.877	0.968	0.955	0.968	0.945	0.963	0.926	6	AVG
Chrysene	0.901	0.827	0.877	0.912	0.890	0.907	0.875	0.890	0.885	3	AVG
bis(2-Ethylhexyl)phthalate			0.546	0.653	0.671	0.680	0.665	0.690	0.651	8	AVG
6-Methylchrysene			0.570	0.628	0.639	0.635	0.623	0.657	0.625	5	AVG
Di-n-octylphthalate			1.256	1.479	1.602	1.632	1.603	1.630	1.533	10	AVG
Benzo(b)fluoranthene	1.231	1.188	1.172	1.266	1.234	1.256	1.247	1.249	1.231	3	AVG
7,12-Dimethylbenz[a]anthracene		0.440	0.496	0.547	0.553	0.569	0.557	0.562	0.532	9	AVG
Benzo(k)fluoranthene	1.201	1.128	1.198	1.206	1.213	1.239	1.180	1.210	1.197	3	AVG
Benzo(a)pyrene	1.021	1.109	1.126	1.166	1.174	1.184	1.183	1.207	1.146	5	AVG
3-Methylcholanthrene		0.461	0.494	0.536	0.559	0.567	0.555	0.576	0.535	8	AVG
Dibenz(a,h)acridine			0.882	0.956	0.999	1.015	0.998	1.038	0.981	6	AVG
Dibenz(a,j)acridine			0.905	0.971	1.007	1.025	1.006	1.020	0.989	5	AVG
Indeno(1,2,3-cd)pyrene	1.244	1.294	1.300	1.356	1.378	1.399	1.361	1.392	1.341	4	AVG
Dibenz(a,h)anthracene	1.067	1.009	1.060	1.142	1.167	1.175	1.144	1.175	1.117	6	AVG
Benzo(g,h,i)perylene	1.141	1.108	1.106	1.135	1.173	1.187	1.147	1.168	1.146	3	AVG
Total PAHs	1.164	1.121	1.132	1.155	1.135	1.153	1.118	1.108	1.136	2	AVG
2-Fluorophenol		1.390	1.447	1.515	1.533	1.535	1.470	1.517	1.487	4	AVG
Phenol-d6		2.052	1.955	2.093	2.079	2.109	2.017	2.029	2.048	3	AVG
Nitrobenzene-d5		0.513	0.486	0.507	0.515	0.512	0.498	0.503	0.505	2	AVG
2-Fluorobiphenyl		1.377	1.365	1.413	1.370	1.391	1.357	1.375	1.378	1	AVG
2,4,6-Tribromophenol		0.128	0.141	0.148	0.146	0.149	0.151	0.150	0.145	6	AVG
Terphenyl-d14		0.657	0.643	0.675	0.673	0.676	0.656	0.668	0.664	2	AVG

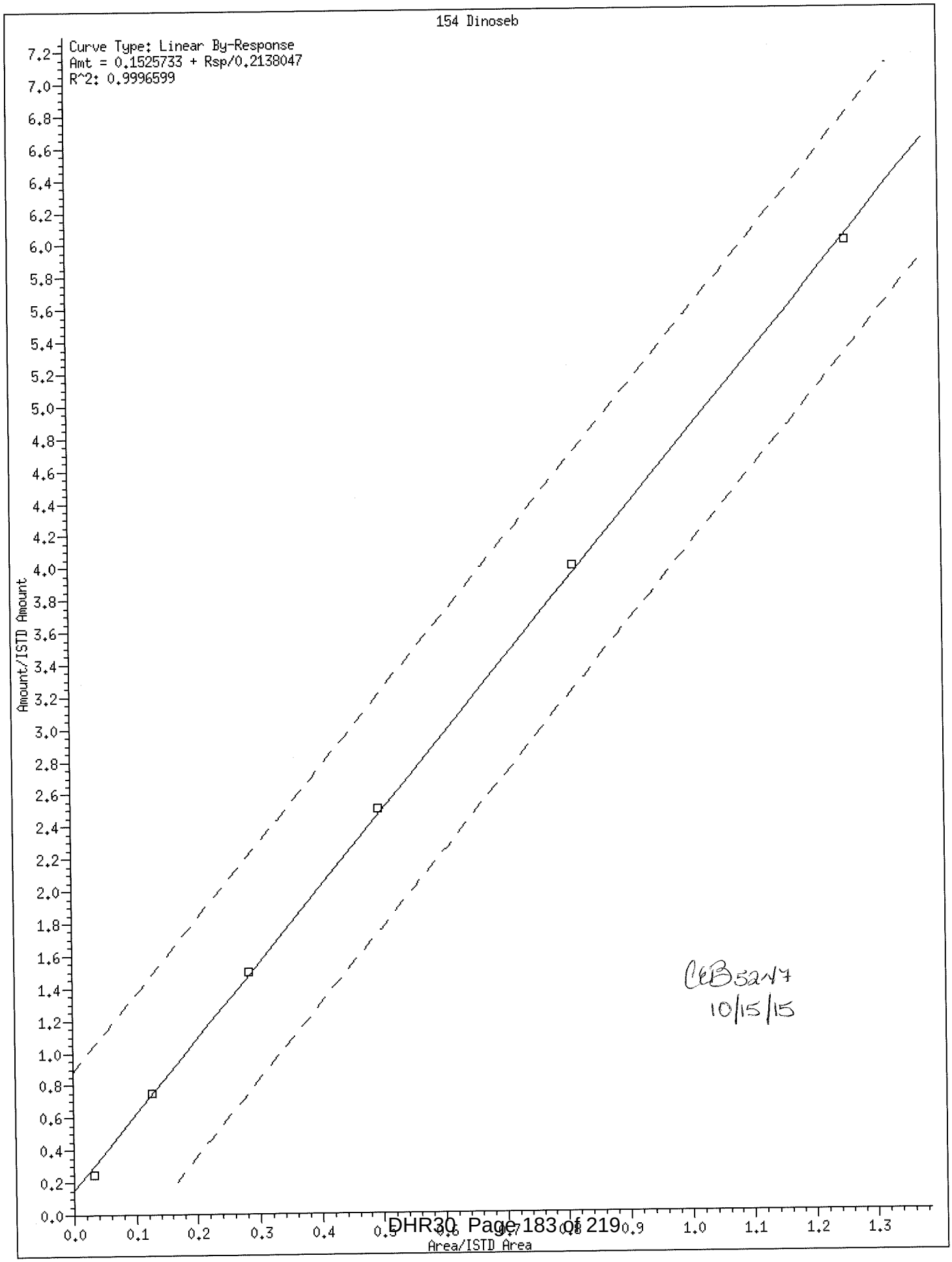
Average %RSD 4

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 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



CB 52417
10/15/15


154 Dinoseb
Curve Type: Linear By-Response
Amt = 0.1525733 + Rsp/0.2138047
R^2: 0.9996599
Amount/ISTD Amount
Area/ISTD Area
CEB5247
10/15/15

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP20296.i/15oct15.b/lj0531.d SSTD7.5
/chem/HP20296.i/15oct15.b/lj0532.d SSTD0.125
/chem/HP20296.i/15oct15.b/lj0533.d SSTD030
/chem/HP20296.i/15oct15.b/lj0534.d SSTD020
/chem/HP20296.i/15oct15.b/lj0535.d SSTD12.5
/chem/HP20296.i/15oct15.b/lj0536.d SSTD3.75
/chem/HP20296.i/15oct15.b/lj0537.d SSTD1.25
/chem/HP20296.i/15oct15.b/lj0538.d SSTD0.25

Area Summary

File ID:

Internal Standard Name	lj0531.d	lj0532.d	lj0533.d	lj0534.d	lj0535.d	lj0536.d	lj0537.d	lj0538.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	185789	172168	169733	172350	164820	166396	175058	177531	172981	4
Naphthalene-d8	704214	666639	649919	670534	645068	644442	677442	683133	667674	3
Acenaphthene-d10	414115	384995	368836	375673	370090	363918	378866	377362	379232	4
Phenanthrene-d10	752998	693584	676284	702612	688510	667346	687996	684811	694268	4
Pyrene-d10	869908	797125	773974	802565	786512	760948	791702	772801	794442	4
Perylene-d12	649934	566613	603092	599209	580842	563925	565243	559095	585994	5

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	lj0531.d	lj0532.d	lj0533.d	lj0534.d	lj0535.d	lj0536.d	lj0537.d	lj0538.d
1,4-Dichlorobenzene-d4	7.049	7.049	7.049	7.049	7.049	7.043	7.043	7.043
Naphthalene-d8	9.039	9.038	9.039	9.039	9.038	9.033	9.033	9.033
Acenaphthene-d10	11.868	11.868	11.868	11.868	11.862	11.862	11.863	11.862
Phenanthrene-d10	13.799	13.799	13.804	13.799	13.799	13.793	13.793	13.793
Pyrene-d10	15.874	15.874	15.879	15.874	15.874	15.874	15.874	15.869
Perylene-d12	20.495	20.495	20.501	20.495	20.495	20.495	20.495	20.490

Comments: _____

Report generated on 10/15/2015 at 18:14

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP20296

Method: SW-846 8270C MINI | File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 | BATCH: 15OCT15026 | Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	12.50	12.64	1	20	YES
N-Nitrosodimethylamine	12.50	12.40	-1	20	YES
Pyridine	12.50	13.16	5	20	YES
2-Picoline	12.50	12.46	0	20	YES
N-Nitrosomethylethylamine	12.50	12.22	-2	20	YES
Methyl methanesulfonate	12.50	12.63	1	20	YES
N-Nitrosodiethylamine	12.50	12.25	-2	20	YES
Ethyl methanesulfonate	12.50	12.38	-1	20	YES
Phenol	12.50	12.23	-2	20	YES
Aniline	12.50	12.38	-1	20	YES
bis(2-Chloroethyl)ether	12.50	12.22	-2	20	YES
2-Chlorophenol	12.50	12.45	0	20	YES
1,3-Dichlorobenzene	12.50	12.58	1	20	YES
1,4-Dichlorobenzene	12.50	12.54	0	20	YES
Benzyl alcohol	12.50	12.76	2	20	YES
1,2-Dichlorobenzene	12.50	12.89	3	20	YES
Indene	12.50	12.95	4	20	YES
2-Methylphenol	12.50	12.69	2	20	YES
2,2'-oxybis(1-Chloropropane	12.50	13.05	4	20	YES
bis(2-Chloroisopropyl)ether	12.50	13.05	4	20	YES
N-Nitrosopyrrolidine	12.50	12.23	-2	20	YES
Acetophenone	12.50	12.33	-1	20	YES
4-Methylphenol	12.50	12.38	-1	20	YES
N-Nitroso-di-n-propylamine	12.50	12.19	-2	20	YES
N-Nitrosomorpholine	12.50	12.24	-2	20	YES
o-Toluidine	12.50	12.39	-1	20	YES
Total Cresols	25.00	25.08	0	20	YES
Hexachloroethane	12.50	12.73	2	20	YES
Nitrobenzene	12.50	12.65	1	20	YES
N-Nitrosopiperidine	12.50	12.38	-1	20	YES
Isophorone	12.50	12.95	4	20	YES
2-Nitrophenol	12.50	12.72	2	20	YES
2,4-Dimethylphenol	12.50	12.15	-3	20	YES
bis(2-Chloroethoxy)methane	12.50	12.75	2	20	YES
Benzoic acid	25.00	20.80	-17	20	YES
O,O,O-Triethylphosphorothio	12.50	12.25	-2	20	YES
2,4-Dichlorophenol	12.50	12.72	2	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP20296

Method: SW-846 8270C MINI | File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 | BATCH: 15OCT15026 | Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	12.50	12.74	2	20	YES
Naphthalene	12.50	12.71	2	20	YES
4-Chloroaniline	12.50	12.56	1	20	YES
2,6-Dichlorophenol	12.50	12.55	0	20	YES
Hexachloropropene	12.50	13.64	9	20	YES
Hexachlorobutadiene	12.50	13.08	5	20	YES
Quinoline	12.50	12.48	0	20	YES
N-Nitrosodi-n-butylamine	12.50	10.58	-15	20	YES
4-Chloro-3-methylphenol	12.50	12.96	4	20	YES
Safrole	12.50	12.41	-1	20	YES
2-Methylnaphthalene	12.50	11.98	-4	20	YES
1-Methylnaphthalene	12.50	12.40	-1	20	YES
Hexachlorocyclopentadiene	25.00	27.00	8	20	YES
1,2,4,5-Tetrachlorobenzene	12.50	12.58	1	20	YES
cis-Isosafrole	2.13	1.56	-27	20	NO*
2,4,6-Trichlorophenol	12.50	13.30	6	20	YES
2,4,5-Trichlorophenol	12.50	12.60	1	20	YES
trans-Isosafrole	10.38	11.71	13	20	YES
1,1'-Biphenyl	12.50	12.77	2	20	YES
2-Chloronaphthalene	12.50	13.04	4	20	YES
Isosafrole	12.50	13.27	6	20	YES
1-Chloronaphthalene	12.50	12.37	-1	20	YES
Diphenyl ether	12.50	12.73	2	20	YES
2-Nitroaniline	12.50	13.04	4	20	YES
1,4-Naphthoquinone	15.63	16.13	3	20	YES
1,4-Dinitrobenzene	12.50	12.82	3	20	YES
Dimethylphthalate	12.50	12.71	2	20	YES
1,3-Dinitrobenzene	12.50	13.03	4	20	YES
2,6-Dinitrotoluene	12.50	13.43	7	20	YES
Acenaphthylene	12.50	13.12	5	20	YES
3-Nitroaniline	12.50	13.36	7	20	YES
Acenaphthene	12.50	13.27	6	20	YES
2,4-Dinitrophenol	25.00	25.68	3	20	YES
4-Nitrophenol	12.50	13.14	5	20	YES
Pentachlorobenzene	12.50	12.66	1	20	YES
2,4-Dinitrotoluene	12.50	13.19	6	20	YES
Dibenzofuran	12.50	12.70	2	20	YES

NC = Could not calculate

Comments: *See Isosafrole summary compound.

CEB5247
10/15/15

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP20296

Method: SW-846 8270C MINI File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 BATCH: 15OCT15026 Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	25.00	26.62	6	20	YES
1-Naphthylamine	25.00	25.22	1	20	YES
2,3,4,6-Tetrachlorophenol	12.50	13.32	7	20	YES
2-Naphthylamine	25.00	25.39	2	20	YES
Diethylphthalate	12.50	13.00	4	20	YES
Thionazin	12.50	12.49	0	20	YES
Fluorene	12.50	13.09	5	20	YES
4-Chlorophenyl-phenylether	12.50	13.11	5	20	YES
5-Nitro-o-toluidine	12.50	13.59	9	20	YES
4-Nitroaniline	12.50	13.22	6	20	YES
4,6-Dinitro-2-methylphenol	12.50	12.67	1	20	YES
N-Nitrosodiphenylamine	12.50	12.56	0	20	YES
NDPA as diphenylamine	12.50	12.56	0	20	YES
1,2-Diphenylhydrazine	12.50	13.27	6	20	YES
Tetraethyldithiopyrophospha	12.50	12.45	0	20	YES
1,3,5-Trinitrobenzene	12.50	12.19	-2	20	YES
Diallate (peak 1)	9.38	8.85	-6	20	YES
Phorate	12.50	12.84	3	20	YES
Phenacetin	12.50	12.76	2	20	YES
4-Bromophenyl-phenylether	12.50	12.72	2	20	YES
Diallate (peak 2)	3.13	2.95	-5	20	YES
Hexachlorobenzene	12.50	12.23	-2	20	YES
Diallate trans/cis	12.50	11.81	-6	20	YES
Dimethoate	12.50	12.56	0	20	YES
Pentachlorophenol	12.50	13.80	10	20	YES
4-Aminobiphenyl	12.50	14.59	17	20	YES
Pentachloronitrobenzene	12.50	12.58	1	20	YES
Pronamide	12.50	12.99	4	20	YES
Dinoseb	12.50	12.22	-2	20	YES
Phenanthrene	12.50	12.48	0	20	YES
Anthracene	12.50	12.94	4	20	YES
Carbazole	12.50	12.74	2	20	YES
Methyl parathion	12.50	12.96	4	20	YES
Di-n-butylphthalate	12.50	13.01	4	20	YES
Parathion	12.50	13.36	7	20	NO*
4-Nitroquinoline-1-oxide	150.00	188.66	26	20	YES
Isodrin	12.50	12.28	-2	20	YES

NC = Could not calculate

Comments: _*Non-CCC < 50% D OK.

CEB 5x17
10/15/15

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP20296

Method: SW-846 8270C MINI File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 BATCH: 15OCT15026 Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	12.50	12.92	3	20	YES
Benzidine	62.50	63.36	1	20	YES
Pyrene	12.50	12.30	-2	20	YES
p-Dimethylaminoazobenzene	12.50	14.75	18	20	YES
Chlorobenzilate	12.50	12.90	3	20	YES
3,3'-Dimethylbenzidine	25.00	24.18	-3	20	YES
Butylbenzylphthalate	12.50	13.52	8	20	YES
2-Acetylaminofluorene	12.50	13.03	4	20	YES
3,3'-Dichlorobenzidine	12.50	12.29	-2	20	YES
Benzo(a)anthracene	12.50	13.20	6	20	YES
Chrysene	12.50	13.27	6	20	YES
4,4'-Methylenebis(2-chloroa	12.50	12.30	-2	20	YES
bis(2-Ethylhexyl)phthalate	12.50	13.56	9	20	YES
6-Methylchrysene	12.50	12.84	3	20	YES
Di-n-octylphthalate	12.50	13.90	11	20	YES
Benzo(b)fluoranthene	12.50	13.29	6	20	YES
7,12-Dimethylbenz[a]anthrac	12.50	12.83	3	20	YES
Benzo(k)fluoranthene	12.50	12.99	4	20	YES
Benzo(a)pyrene	12.50	12.86	3	20	YES
3-Methylcholanthrene	12.50	14.38	15	20	YES
Dibenz(a,h)acridine	12.50	13.01	4	20	YES
Dibenz(a,j)acridine	12.50	12.28	-2	20	YES
Indeno(1,2,3-cd)pyrene	12.50	13.05	4	20	YES
Dibenz(a,h)anthracene	12.50	13.43	7	20	YES
Benzo(g,h,i)perylene	12.50	13.24	6	20	YES
Total PAHs	225.00	232.53	3	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS
LAB CODE: LANCAS
INSTRUMENT: HP20296
Method: SW-846 8270C MINI
File ID: lj0542.d
ICV SAMPLE ID: RVBASICV2475
BATCH: 15OCT15026
Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	12.50	14.30	14	20	YES
Caprolactam	12.50	13.24	6	20	YES
Atrazine	12.50	13.69	10	20	YES

NC = Could not calculate

Comments:

Page 1 of 1

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.700	0.702	30.060	30.0	0
N-Nitrosodimethylamine	1.158	1.121	29.040	30.0	-3
Pyridine	1.939	1.907	29.490	30.0	-2
2-Picoline	1.927	1.900	29.580	30.0	-1
N-Nitrosomethylethylamine	0.886	0.852	28.830	30.0	-4
Methyl methanesulfonate	0.981	0.910	27.810	30.0	-7
N-Nitrosodiethylamine	0.831	0.823	29.710	30.0	-1
Ethyl methanesulfonate	0.818	0.812	29.800	30.0	-1
* Phenol	2.376	2.417	30.510	30.0	2*
Aniline	2.765	2.741	29.740	30.0	-1
a-methylstyrene	1.587	1.577	29.820	30.0	-1
bis(2-Chloroethyl)ether	1.759	1.724	29.420	30.0	-2
2-Chlorophenol	1.467	1.469	30.020	30.0	0
1,3-Dichlorobenzene	1.569	1.600	30.600	30.0	2
* 1,4-Dichlorobenzene	1.575	1.619	30.840	30.0	3*
Benzyl alcohol	1.138	1.094	28.840	30.0	-4
1,2-Dichlorobenzene	1.487	1.557	31.410	30.0	5
Indene	2.784	2.744	29.570	30.0	-1
2-Methylphenol	1.488	1.477	29.770	30.0	-1
2,2'-oxybis(1-Chloropropane)	2.620	2.301	26.360	30.0	-12
bis(2-Chloroisopropyl)ether	2.620	2.301	26.360	30.0	-12
N-Nitrosopyrrolidine	0.926	0.912	29.550	30.0	-2
Acetophenone	2.594	2.371	27.430	30.0	-9
4-Methylphenol	1.673	1.724	30.920	30.0	3
Total Cresols	1.581	1.601	60.690	60.0	1
# N-Nitroso-di-n-propylamine	1.482	1.359	27.520	30.0	-8#
N-Nitrosomorpholine	1.249	1.101	26.460	30.0	-12
o-Toluidine	2.682	2.638	29.500	30.0	-2
Hexachloroethane	0.614	0.613	29.970	30.0	0
Nitrobenzene	0.508	0.488	28.800	30.0	-4
N-Nitrosopiperidine	0.206	0.210	30.510	30.0	2
Isophorone	0.950	0.911	28.770	30.0	-4
* 2-Nitrophenol	0.195	0.212	32.720	30.0	9*
2,4-Dimethylphenol	0.421	0.427	30.410	30.0	1
O,O,O-Triethylphosphorothioate	0.199	0.215	32.320	30.0	8
bis(2-Chloroethoxy)methane	0.536	0.514	28.750	30.0	-4

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.418	0.328	31.390	40.0	-22
1,2,3,4-Tetrahydronaphthalene	0.618	0.604	29.320	30.0	-2
* 2,4-Dichlorophenol	0.310	0.327	31.600	30.0	5*
1,2,4-Trichlorobenzene	0.344	0.357	31.120	30.0	4
Naphthalene	1.081	1.087	30.170	30.0	1
4-Chloroaniline	0.474	0.483	30.530	30.0	2
2,6-Dichlorophenol	0.304	0.319	31.500	30.0	5
Hexachloropropene	0.217	0.233	32.200	30.0	7
* Hexachlorobutadiene	0.199	0.212	32.000	30.0	7*
Quinoline	0.734	0.751	30.670	30.0	2
Caprolactam	0.144	0.140	29.120	30.0	-3
N-Nitrosodi-n-butylamine	0.406	0.428	31.620	30.0	5
* 4-Chloro-3-methylphenol	0.381	0.381	30.050	30.0	0*
Safrole	0.290	0.304	31.440	30.0	5
2-Methylnaphthalene	0.733	0.749	30.650	30.0	2
1-Methylnaphthalene	0.661	0.684	31.000	30.0	3
# Hexachlorocyclopentadiene	0.348	0.295	25.360	30.0	-15#
1,2,4,5-Tetrachlorobenzene	0.582	0.618	31.850	30.0	6
cis-Isosafrole	0.505	0.523	5.280	5.1	4
* 2,4,6-Trichlorophenol	0.393	0.408	31.130	30.0	4*
2,4,5-Trichlorophenol	0.420	0.442	31.580	30.0	5
trans-Isosafrole	0.560	0.582	25.870	24.9	4
Isosafrole	0.551	0.572	31.150	30.0	4
1,1'-Biphenyl	1.573	1.538	29.330	30.0	-2
2-Chloronaphthalene	1.145	1.053	27.570	30.0	-8
1-Chloronaphthalene	1.127	1.212	32.260	30.0	8
Diphenyl ether	0.816	0.818	30.080	30.0	0
2-Nitroaniline	0.397	0.418	31.590	30.0	5
1,4-Naphthoquinone	0.516	0.509	29.560	30.0	-1
1,4-Dinitrobenzene	0.213	0.226	31.810	30.0	6
Dimethylphthalate	1.388	1.403	30.310	30.0	1
1,3-Dinitrobenzene	0.236	0.250	31.750	30.0	6
2,6-Dinitrotoluene	0.317	0.328	31.060	30.0	4
Acenaphthylene	1.829	1.879	30.820	30.0	3
3-Nitroaniline	0.348	0.369	31.800	30.0	6
* Acenaphthene	1.233	1.223	29.760	30.0	-1*

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
# 2,4-Dinitrophenol	0.216	0.198	36.810	40.0	-8#
# 4-Nitrophenol	0.209	0.204	29.280	30.0	-2#
Pentachlorobenzene	0.547	0.573	31.410	30.0	5
2,4-Dinitrotoluene	0.440	0.460	31.370	30.0	5
2,4_2,6-Dinitrotoluenes	0.382	0.394	62.430	60.0	4
Dibenzofuran	1.720	1.724	30.070	30.0	0
1-Naphthylamine	1.277	1.292	30.340	30.0	1
2,3,4,6-Tetrachlorophenol	0.373	0.375	30.150	30.0	0
2-Naphthylamine	1.270	1.306	30.850	30.0	3
Diethylphthalate	1.356	1.351	29.900	30.0	0
Thionazin	0.261	0.285	32.800	30.0	9
Fluorene	1.404	1.442	30.830	30.0	3
4-Chlorophenyl-phenylether	0.693	0.704	30.460	30.0	2
5-Nitro-o-toluidine	0.415	0.417	30.200	30.0	1
4-Nitroaniline	0.383	0.377	29.570	30.0	-1
4,6-Dinitro-2-methylphenol	0.136	0.135	29.780	30.0	-1
* N-Nitrosodiphenylamine (1)	0.571	0.592	31.150	30.0	4*
NDPA as diphenylamine	0.573	0.592	31.020	30.0	3
1,2-Diphenylhydrazine	0.848	0.790	27.950	30.0	-7
Tetraethyldithiopyrophosphate	0.132	0.129	29.390	30.0	-2
1,3,5-Trinitrobenzene	0.082	0.090	33.040	30.0	10
Diallate (peak 1)	0.389	0.372	23.850	24.9	-4
Phorate	0.543	0.736	40.710	30.0	36
Phenacetin	0.393	0.391	29.920	30.0	0
4-Bromophenyl-phenylether	0.196	0.214	32.740	30.0	9
Diallate (peak 2)	0.380	0.371	4.980	5.1	-2
Diallate trans/cis	0.387	0.372	28.830	30.0	-4
Hexachlorobenzene	0.210	0.225	32.110	30.0	7
Dimethoate	0.344	0.347	30.270	30.0	1
* Pentachlorophenol	0.145	0.129	26.810	30.0	-11*
4-Aminobiphenyl	0.618	0.634	30.810	30.0	3
Pentachloronitrobenzene	0.092	0.096	31.110	30.0	4
Pronamide	0.312	0.331	31.760	30.0	6
Dinoseb	0.197	0.197	30.030	30.0	0
Phenanthrene	1.031	1.032	30.060	30.0	0
Anthracene	1.017	1.048	30.920	30.0	3

(1) Cannot be Separated from Diphenylamine

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.957	0.984	30.830	30.0	3
Methyl parathion	0.249	0.262	31.570	30.0	5
Di-n-butylphthalate	1.110	1.162	31.400	30.0	5
Parathion	0.147	0.151	30.720	30.0	2
4-Nitroquinoline-1-oxide	0.107	0.091	25.490	30.0	-15
Octachlorostyrene	0.083	0.089	32.350	30.0	8
Isodrin	0.122	0.122	29.980	30.0	0
* Fluoranthene	1.145	1.199	31.410	30.0	5*
Benzidine	0.581	0.629	97.430	90.0	8
Pyrene	1.061	1.090	30.820	30.0	3
p-Dimethylaminoazobenzene	0.202	0.213	31.680	30.0	6
Chlorobenzilate	0.289	0.296	30.750	30.0	3
3,3'-Dimethylbenzidine	0.574	0.637	33.290	30.0	11
Butylbenzylphthalate	0.439	0.462	31.540	30.0	5
2-Acetylaminofluorene	0.394	0.442	33.650	30.0	12
3,3'-Dichlorobenzidine	0.365	0.411	33.790	30.0	13
4,4'-Methylenebis(2-chloroanil	0.195	0.225	34.710	30.0	16
Benzo(a)anthracene	0.937	1.043	33.400	30.0	11
Chrysene	0.906	0.960	31.820	30.0	6
bis(2-Ethylhexyl)phthalate	0.617	0.656	31.890	30.0	6
6-Methylchrysene	0.639	0.700	32.840	30.0	9
* Di-n-octylphthalate	1.379	1.397	30.400	30.0	1*
Benzo(b)fluoranthene	1.249	1.317	31.630	30.0	5
7,12-Dimethylbenz[a]anthracene	0.570	0.590	31.040	30.0	3
Benzo(k)fluoranthene	1.232	1.205	29.340	30.0	-2
* Benzo(a)pyrene	1.166	1.178	30.300	30.0	1*
3-Methylcholanthrene	0.544	0.570	31.450	30.0	5
Dibenz(a,h)acridine	0.888	0.958	32.370	30.0	8
Dibenz(a,j)acridine	0.945	0.964	30.620	30.0	2
Indeno(1,2,3-cd)pyrene	1.256	1.326	31.680	30.0	6
Dibenz(a,h)anthracene	1.025	1.083	31.680	30.0	6
Benzo(g,h,i)perylene	1.030	1.094	31.870	30.0	6
Total PAHs	0.940	0.920	497.190	540.0	-8
2-Fluorophenol	1.476	1.497	60.860	60.0	1
Phenol-d6	2.076	2.084	60.210	60.0	0

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.481	58.500	60.0	-2
2-Fluorobiphenyl	1.351	1.407	62.480	60.0	4
2,4,6-Tribromophenol	0.192	0.220	68.760	60.0	15
Terphenyl-d14	0.693	0.752	65.100	60.0	8
				Average %Drift:	5

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d **
/chem/HP18444.i/15oct12a.b/bj0602.d
/chem/HP18444.i/15oct12a.b/bj0603.d
/chem/HP18444.i/15oct12a.b/bj0604.d
/chem/HP18444.i/15oct12a.b/bj0605.d
/chem/HP18444.i/15oct12a.b/bj0606.d
/chem/HP18444.i/15oct12a.b/bj0607.d
/chem/HP18444.i/15oct12a.b/bj0608.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/15oct20.b/bj1001a.d

Area Summary

File ID:

Internal Standard Name	bj1001a.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	215787	198560	99280	397120	Yes
Naphthalene-d8	846920	799113	399556	1598226	Yes
Acenaphthene-d10	525009	498506	249253	997012	Yes
Phenanthrene-d10	1069090	983616	491808	1967232	Yes
Pyrene-d10	1227808	1112950	556475	2225900	Yes
Perylene-d12	996042	792924	396462	1585848	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	bj1001a.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.343	5.718	Yes
Naphthalene-d8	6.573	6.948	Yes
Acenaphthene-d10	8.275	8.661	Yes
Phenanthrene-d10	9.721	10.113	Yes
Pyrene-d10	11.096	11.506	Yes
Perylene-d12	13.707	14.175	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/20/2015 at 10:55

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP20296 Calibration Date: 10/15/15 Time: 19:42

Lab File ID: lj0551.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.705	0.723	7.690	7.5	2
N-Nitrosodimethylamine	1.114	1.126	7.580	7.5	1
Pyridine	1.883	1.852	7.380	7.5	-2
2-Picoline	1.964	1.991	7.600	7.5	1
N-Nitrosomethylethylamine	0.804	0.804	7.500	7.5	0
Methyl methanesulfonate	0.948	0.950	7.510	7.5	0
N-Nitrosodiethylamine	0.754	0.776	7.720	7.5	3
Ethyl methanesulfonate	0.774	0.788	7.630	7.5	2
Benzaldehyde	1.469	1.450	7.410	7.5	-1
Phenol	2.197	2.190	7.480	7.5	0
Aniline	2.757	2.776	7.550	7.5	1
a-methylstyrene	1.540	1.523	7.420	7.5	-1
bis(2-Chloroethyl)ether	1.708	1.692	7.430	7.5	-1
2-Chlorophenol	1.396	1.410	7.570	7.5	1
1,3-Dichlorobenzene	1.557	1.568	7.550	7.5	1
1,4-Dichlorobenzene	1.588	1.593	7.530	7.5	0
Benzyl alcohol	1.053	1.019	7.260	7.5	-3
1,2-Dichlorobenzene	1.495	1.498	7.520	7.5	0
Indene	2.658	2.540	7.170	7.5	-4
2-Methylphenol	1.475	1.488	7.560	7.5	1
2,2'-oxybis(1-Chloropropane)	2.404	2.414	7.530	7.5	0
bis(2-Chloroisopropyl)ether	2.404	2.414	7.530	7.5	0
N-Nitrosopyrrolidine	0.792	0.794	7.530	7.5	0
Acetophenone	2.304	2.229	7.260	7.5	-3
4-Methylphenol	1.540	1.571	7.650	7.5	2
Total Cresols	1.507	1.529	15.220	15.0	1
N-Nitroso-di-n-propylamine	1.333	1.338	7.530	7.5	0
N-Nitrosomorpholine	1.028	1.043	7.610	7.5	2
o-Toluidine	2.585	2.640	7.660	7.5	2
Hexachloroethane	0.659	0.662	7.530	7.5	0
Nitrobenzene	0.501	0.518	7.760	7.5	3
N-Nitrosopiperidine	0.191	0.202	7.900	7.5	5
Isophorone	0.881	0.894	7.610	7.5	1
2-Nitrophenol	0.183	0.190	7.810	7.5	4
2,4-Dimethylphenol	0.417	0.430	7.740	7.5	3
O,O,O-Triethylphosphorothioate	0.183	0.184	7.550	7.5	1

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: HP20296 Calibration Date: 10/15/15 Time: 19:42

Lab File ID: lj0551.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
bis(2-Chloroethoxy)methane	0.535	0.542	7.590	7.5	1
Benzoic acid	0.314	0.315	9.830	10.0	-2
1,2,3,4-Tetrahydronaphthalene	0.615	0.611	7.450	7.5	-1
2,4-Dichlorophenol	0.296	0.312	7.910	7.5	5
1,2,4-Trichlorobenzene	0.339	0.346	7.650	7.5	2
Naphthalene	1.074	1.085	7.580	7.5	1
4-Chloroaniline	0.441	0.451	7.680	7.5	2
2,6-Dichlorophenol	0.297	0.306	7.740	7.5	3
Hexachloropropene	0.224	0.229	7.670	7.5	2
Hexachlorobutadiene	0.193	0.196	7.610	7.5	2
Quinoline	0.672	0.687	7.670	7.5	2
Caprolactam	0.099	0.100	7.560	7.5	1
N-Nitrosodi-n-butylamine	0.368	0.401	8.150	7.5	9
4-Chloro-3-methylphenol	0.354	0.365	7.740	7.5	3
Safrole	0.271	0.271	7.480	7.5	0
2-Methylnaphthalene	0.712	0.716	7.540	7.5	1
1-Methylnaphthalene	0.650	0.648	7.470	7.5	0
Hexachlorocyclopentadiene	0.370	0.365	7.410	7.5	-1
1,2,4,5-Tetrachlorobenzene	0.597	0.598	7.510	7.5	0
cis-Isosafrole	0.526	0.507	1.230	1.3	-4
2,4,6-Trichlorophenol	0.376	0.377	7.540	7.5	0
2,4,5-Trichlorophenol	0.409	0.402	7.380	7.5	-2
trans-Isosafrole	0.568	0.560	6.130	6.2	-2
Isosafrole	0.561	0.551	7.360	7.5	-2
1,1'-Biphenyl	1.497	1.480	7.410	7.5	-1
2-Chloronaphthalene	1.178	1.194	7.600	7.5	1
1-Chloronaphthalene	1.122	1.114	7.440	7.5	-1
Diphenyl ether	0.799	0.810	7.600	7.5	1
2-Nitroaniline	0.357	0.366	7.680	7.5	2
1,4-Naphthoquinone	0.471	0.471	7.500	7.5	0
1,4-Dinitrobenzene	0.183	0.178	7.300	7.5	-3
Dimethylphthalate	1.273	1.284	7.570	7.5	1
1,3-Dinitrobenzene	0.200	0.203	7.590	7.5	1
2,6-Dinitrotoluene	0.276	0.282	7.680	7.5	2
Acenaphthylene	1.794	1.852	7.740	7.5	3
3-Nitroaniline	0.303	0.312	7.730	7.5	3

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: HP20296 Calibration Date: 10/15/15 Time: 19:42

Lab File ID: lj0551.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Acenaphthene	1.196	1.214	7.620	7.5	2
2,4-Dinitrophenol	0.183	0.165	9.030	10.0	-10
4-Nitrophenol	0.234	0.234	7.500	7.5	0
Pentachlorobenzene	0.467	0.476	7.640	7.5	2
2,4-Dinitrotoluene	0.384	0.383	7.480	7.5	0
2,4_2,6-Dinitrotoluenes	0.326	0.333	15.160	15.0	1
Dibenzofuran	1.634	1.660	7.620	7.5	2
1-Naphthylamine	1.191	1.183	7.450	7.5	-1
2,3,4,6-Tetrachlorophenol	0.307	0.312	7.630	7.5	2
2-Naphthylamine	1.158	1.143	7.410	7.5	-1
Diethylphthalate	1.252	1.250	7.490	7.5	0
Thionazin	0.243	0.235	7.250	7.5	-3
Fluorene	1.278	1.289	7.560	7.5	1
4-Chlorophenyl-phenylether	0.613	0.618	7.560	7.5	1
5-Nitro-o-toluidine	0.353	0.367	7.800	7.5	4
4-Nitroaniline	0.309	0.324	7.870	7.5	5
4,6-Dinitro-2-methylphenol	0.129	0.122	7.100	7.5	-5
N-Nitrosodiphenylamine (1)	0.585	0.588	7.530	7.5	0
NDPA as diphenylamine	0.585	0.588	7.530	7.5	0
1,2-Diphenylhydrazine	0.882	0.922	7.850	7.5	5
Tetraethyldithiopyrophosphate	0.140	0.144	7.720	7.5	3
1,3,5-Trinitrobenzene	0.076	0.073	7.250	7.5	-3
Diallate (peak 1)	0.384	0.386	6.260	6.2	1
Phorate	0.551	0.584	7.960	7.5	6
Phenacetin	0.403	0.425	7.910	7.5	6
4-Bromophenyl-phenylether	0.177	0.179	7.590	7.5	1
Diallate (peak 2)	0.377	0.386	1.310	1.3	2
Diallate trans/cis	0.383	0.386	7.570	7.5	1
Hexachlorobenzene	0.184	0.183	7.470	7.5	0
Dimethoate	0.359	0.374	7.810	7.5	4
Atrazine	0.191	0.198	7.750	7.5	3
Pentachlorophenol	0.122	0.122	7.490	7.5	0
4-Aminobiphenyl	0.666	0.695	7.830	7.5	4
Pentachloronitrobenzene	0.089	0.089	7.530	7.5	0
Pronamide	0.307	0.329	8.040	7.5	7
Dinoseb	0.184	0.186	7.300	7.5	-3

(1) Cannot be Separated from Diphenylamine

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: HP20296 Calibration Date: 10/15/15 Time: 19:42

Lab File ID: lj0551.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenanthrene	1.041	1.039	7.480	7.5	0
Anthracene	1.034	1.054	7.650	7.5	2
Carbazole	0.951	0.983	7.760	7.5	3
Methyl parathion	0.265	0.278	7.880	7.5	5
Di-n-butylphthalate	1.164	1.210	7.800	7.5	4
Parathion	0.156	0.165	7.910	7.5	6
4-Nitroquinoline-1-oxide	0.112	0.100	6.680	7.5	-11
Octachlorostyrene	0.065	0.064	7.350	7.5	-2
Isodrin	0.122	0.121	7.450	7.5	-1
Fluoranthene	1.134	1.171	7.750	7.5	3
Benzidine	0.653	0.665	22.910	22.5	2
Pyrene	1.076	1.071	7.470	7.5	0
p-Dimethylaminoazobenzene	0.174	0.181	7.790	7.5	4
Chlorobenzilate	0.310	0.326	7.870	7.5	5
3,3'-Dimethylbenzidine	0.656	0.675	7.720	7.5	3
Butylbenzylphthalate	0.454	0.475	7.850	7.5	5
2-Acetylaminofluorene	0.397	0.400	7.570	7.5	1
3,3'-Dichlorobenzidine	0.350	0.363	7.790	7.5	4
4,4'-Methylenebis(2-chloroanil	0.203	0.204	7.560	7.5	1
Benzo(a)anthracene	0.926	0.980	7.940	7.5	6
Chrysene	0.885	0.909	7.710	7.5	3
bis(2-Ethylhexyl)phthalate	0.651	0.683	7.870	7.5	5
6-Methylchrysene	0.625	0.649	7.780	7.5	4
Di-n-octylphthalate	1.533	1.609	7.870	7.5	5
Benzo(b)fluoranthene	1.230	1.265	7.710	7.5	3
7,12-Dimethylbenz[a]anthracene	0.532	0.549	7.740	7.5	3
Benzo(k)fluoranthene	1.197	1.240	7.770	7.5	4
Benzo(a)pyrene	1.146	1.199	7.850	7.5	5
3-Methylcholanthrene	0.535	0.557	7.800	7.5	4
Dibenz(a,h)acridine	0.981	1.002	7.660	7.5	2
Dibenz(a,j)acridine	0.989	1.034	7.840	7.5	5
Indeno(1,2,3-cd)pyrene	1.340	1.398	7.820	7.5	4
Dibenz(a,h)anthracene	1.117	1.182	7.930	7.5	6
Benzo(g,h,i)perylene	1.146	1.191	7.800	7.5	4
Total PAHs	1.136	1.153	138.370	135.0	2
2-Fluorophenol	1.487	1.517	15.300	15.0	2

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: HP20296 Calibration Date: 10/15/15 Time: 19:42

Lab File ID: lj0551.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenol-d6	2.048	2.067	15.140	15.0	1
Nitrobenzene-d5	0.505	0.513	15.250	15.0	2
2-Fluorobiphenyl	1.378	1.388	15.110	15.0	1
2,4,6-Tribromophenol	0.145	0.143	14.830	15.0	-1
Terphenyl-d14	0.664	0.679	15.330	15.0	2
			Average %Drift:		2

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP20296.i/15oct15.b/lj0531.d **
/chem/HP20296.i/15oct15.b/lj0532.d
/chem/HP20296.i/15oct15.b/lj0533.d
/chem/HP20296.i/15oct15.b/lj0534.d
/chem/HP20296.i/15oct15.b/lj0535.d
/chem/HP20296.i/15oct15.b/lj0536.d
/chem/HP20296.i/15oct15.b/lj0537.d
/chem/HP20296.i/15oct15.b/lj0538.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP20296.i/15oct15a.b/lj0551.d

Area Summary

File ID:

Internal Standard Name	lj0551.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	205093	185789	92894	371578	Yes
Naphthalene-d8	775262	704214	352107	1408428	Yes
Acenaphthene-d10	443673	414115	207058	828230	Yes
Phenanthrene-d10	808576	752998	376499	1505996	Yes
Pyrene-d10	931324	869908	434954	1739816	Yes
Perylene-d12	694765	649934	324967	1299868	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	lj0551.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	7.049	7.049	Yes
Naphthalene-d8	9.038	9.039	Yes
Acenaphthene-d10	11.862	11.868	Yes
Phenanthrene-d10	13.799	13.799	Yes
Pyrene-d10	15.874	15.874	Yes
Perylene-d12	20.495	20.495	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/15/2015 at 20:10

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	215787	5.343	846920	6.573	525009	8.275
	UPPER LIMIT	431574	5.843	1693840	7.073	1050018	8.775
	LOWER LIMIT	107894	4.843	423460	6.073	262505	7.775
	LLI SAMPLE NO.						
01	SBLKLG290	284565	5.343	1077817	6.567	667203	8.275
02	SBLKLE290	234300	5.343	895080	6.567	547793	8.275
03	290LELCS	289040	5.343	1106182	6.573	667707	8.275
04	290LGLCS	309197	5.343	1175764	6.573	728121	8.281
05	8081281	264176	5.343	1012257	6.567	624509	8.275
06	8081282	313638	5.343	1209218	6.567	748331	8.275
07	8081283	281864	5.343	1097592	6.567	678676	8.275
08	8081284	250419	5.343	984825	6.567	583339	8.275
09	8081285	227996	5.343	902126	6.573	555852	8.275
10	8081286	313080	5.343	1202521	6.573	715917	8.275
11	8081287	218720	5.343	866713	6.573	526585	8.275
12	8081288	269729	5.343	1049092	6.573	627260	8.275
13	8081289	331975	5.343	1286525	6.573	752946	8.275
14	8081290MS	298479	5.343	1132727	6.573	667968	8.281
15	8081291MSD	273509	5.343	1063252	6.573	639553	8.281
16	8081292	263506	5.343	1022317	6.573	604406	8.275
17	8081293	298317	5.343	1152698	6.573	678146	8.275

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1069090	9.721	1227808	11.096	996042	13.707
	UPPER LIMIT	2138180	10.221	2455616	11.596	1992084	14.207
	LOWER LIMIT	534545	9.221	613904	10.596	498021	13.207
	LLI SAMPLE NO.						
01	SBLKLG290	1323734	9.715	1495795	11.096	1095807	13.707
02	SBLKLE290	1101310	9.715	1257572	11.096	919983	13.707
03	290LELCS	1316924	9.721	1408679	11.102	935554	13.707
04	290LGLCS	1400803	9.720	1545142	11.102	1063375	13.713
05	8081281	1235611	9.715	1395259	11.096	1004224	13.707
06	8081282	1486901	9.715	1658955	11.096	1170332	13.707
07	8081283	1378940	9.715	1560113	11.096	1115834	13.707
08	8081284	1099676	9.715	1146809	11.096	820790	13.707
09	8081285	1080766	9.715	1182188	11.102	855793	13.713
10	8081286	1380489	9.721	1474573	11.102	876471	13.713
11	8081287	1036272	9.721	1162742	11.102	848086	13.713
12	8081288	1198784	9.720	1249130	11.102	779013	13.713
13	8081289	1433116	9.721	1473346	11.102	862486	13.713
14	8081290MS	1255021	9.721	1274420	11.102	777418	13.719
15	8081291MSD	1183196	9.720	1190658	11.102	827478	13.719
16	8081292	1089535	9.721	1117114	11.102	750057	13.719
17	8081293	1232100	9.721	1231390	11.102	758125	13.719

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	215787	5.343	846920	6.573	525009	8.275
	UPPER LIMIT	431574	5.843	1693840	7.073	1050018	8.775
	LOWER LIMIT	107894	4.843	423460	6.073	262505	7.775
	LLI SAMPLE NO.						
18	8081294	290312	5.343	1095648	6.573	638565	8.275
19	8081295	310358	5.343	1194698	6.573	701764	8.281
20	8084533	330472	5.343	1290020	6.573	723529	8.275
21	8082030	253878	5.343	969677	6.573	572023	8.281
22	8082030MS	293801	5.343	1134148	6.573	640655	8.281
23	8082030MSD	299333	5.343	1149587	6.573	664200	8.281

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1069090	9.721	1227808	11.096	996042	13.707
	UPPER LIMIT	2138180	10.221	2455616	11.596	1992084	14.207
	LOWER LIMIT	534545	9.221	613904	10.596	498021	13.207
	LLI SAMPLE NO.						
18	8081294	1156131	9.721	1188346	11.102	764523	13.719
19	8081295	1297680	9.720	1287581	11.102	770337	13.719
20	8084533	1219309	9.720	1160765	11.102	765373	13.719
21	8082030	1016056	9.726	1055610	11.108	805270	13.725
22	8082030MS	1128503	9.726	1165130	11.108	899076	13.725
23	8082030MSD	1168610	9.726	1183215	11.108	900313	13.725

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0551.d Date Analyzed: 10/15/15

Instrument ID: HP20296 Time Analyzed: 19:42

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	205093	7.049	775262	9.038	443673	11.862
	UPPER LIMIT	410186	7.549	1550524	9.538	887346	12.362
	LOWER LIMIT	102547	6.549	387631	8.538	221837	11.362
	LLI SAMPLE NO.						
01	SBLKWB286	162291	7.049	636624	9.038	358128	11.862
02	286WBLCS	174418	7.049	660296	9.033	376314	11.863
03	286WBLCSD	163864	7.049	640652	9.038	370888	11.862
04	SBLKWJ285	198372	7.043	762322	9.033	431184	11.863
05	285WJLCS	175352	7.049	668453	9.039	381732	11.863
06	8078440RE	155541	7.043	593741	9.033	341513	11.862
07	8078454RE	158102	7.043	608585	9.038	349284	11.862
08	8078459RE	156357	7.044	602651	9.033	355240	11.863
09	8082169	166231	7.043	643134	9.033	355232	11.862
10	8080090	162015	7.043	626703	9.033	349665	11.862
11	8080094	168807	7.049	647883	9.033	377155	11.862
12	8080097	167590	7.044	657294	9.033	376827	11.863
13	8080101	168722	7.049	649365	9.038	373534	11.862
14	8081278	172801	7.049	662720	9.038	371199	11.862
15	8081673	200458	7.049	781294	9.038	441217	11.862
16	8081674	166744	7.049	644336	9.039	367474	11.863
17	8081675	181349	7.049	655674	9.038	378358	11.863

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0551.d Date Analyzed: 10/15/15

Instrument ID: HP20296 Time Analyzed: 19:42

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	808576	13.799	931324	15.874	694765	20.495
	UPPER LIMIT	1617152	14.299	1862648	16.374	1389530	20.995
	LOWER LIMIT	404288	13.299	465662	15.374	347383	19.995
	LLI SAMPLE NO.						
01	SBLKWB286	637381	13.793	717271	15.874	518421	20.495
02	286WBLCS	666282	13.794	755205	15.874	578234	20.495
03	286WBLCSD	673083	13.793	779251	15.874	569233	20.495
04	SBLKWJ285	773219	13.793	869487	15.869	643309	20.495
05	285WJLCS	682932	13.793	780840	15.874	597175	20.495
06	8078440RE	617827	13.793	702324	15.869	509744	20.490
07	8078454RE	638813	13.793	731226	15.874	553321	20.490
08	8078459RE	637384	13.794	713205	15.874	539700	20.495
09	8082169	653238	13.793	735062	15.874	543788	20.490
10	8080090	642230	13.793	724511	15.874	544043	20.495
11	8080094	685581	13.793	786249	15.874	591047	20.495
12	8080097	687275	13.794	777051	15.874	561035	20.496
13	8080101	690950	13.799	783397	15.879	623507	20.501
14	8081278	678983	13.793	767932	15.874	599029	20.495
15	8081673	817636	13.793	929617	15.874	685052	20.495
16	8081674	668288	13.793	770864	15.874	571437	20.495
17	8081675	629871	13.793	765513	15.879	629048	20.501

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0551.d Date Analyzed: 10/15/15

Instrument ID: HP20296 Time Analyzed: 19:42

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	205093	7.049	775262	9.038	443673	11.862
	UPPER LIMIT	410186	7.549	1550524	9.538	887346	12.362
	LOWER LIMIT	102547	6.549	387631	8.538	221837	11.362
	LLI SAMPLE NO.						
18	8081676	188187	7.049	667971	9.038	370588	11.863
19	8081053	195893	7.049	736382	9.033	419456	11.863
20	8081054MS	188605	7.049	693083	9.038	399543	11.862
21	8081055MSD	180504	7.049	704666	9.039	405223	11.863
22	8081057	215170	7.044	728785	9.033	422720	11.863
23	8081058	201195	7.043	766092	9.033	420824	11.862
24	8081059	219323	7.043	763866	9.033	435747	11.863
25	8081060	198172	7.043	777708	9.033	415194	11.863

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0551.d Date Analyzed: 10/15/15

Instrument ID: HP20296 Time Analyzed: 19:42

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	808576	13.799	931324	15.874	694765	20.495
	UPPER LIMIT	1617152	14.299	1862648	16.374	1389530	20.995
	LOWER LIMIT	404288	13.299	465662	15.374	347383	19.995
	LLI SAMPLE NO.						
18	8081676	686776	13.793	789461	15.874	608341	20.495
19	8081053	765195	13.793	878171	15.874	688513	20.495
20	8081054MS	700132	13.793	806963	15.874	612592	20.495
21	8081055MSD	702623	13.793	826193	15.874	617246	20.495
22	8081057	768709	13.794	879519	15.869	653847	20.495
23	8081058	750720	13.793	839370	15.874	601554	20.495
24	8081059	792753	13.793	911245	15.869	664134	20.495
25	8081060	690006	13.793	781450	15.869	585829	20.490

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

Preparation and Run Logs

Semivolatiles by GC/MS

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct12a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
whs02991	BJ0600.D	DFTPP2245	10/12/2015	19:32		
whs02991	BJ0601.D	STD2735	10/12/2015	19:56		
whs02991	BJ0602.D	STD2735	10/12/2015	20:26		
whs02991	BJ0603.D	STD2735	10/12/2015	20:48		
whs02991	BJ0604.D	STD2735	10/12/2015	21:10		
whs02991	BJ0605.D	STD2735	10/12/2015	21:32		
whs02991	BJ0606.D	STD2735	10/12/2015	21:54		
whs02991	BJ0607.D	STD2735	10/12/2015	22:15		
whs02991	BJ0608.D	STD2735	10/12/2015	22:37		
whs02991	BJ0609.D	8270MDL2735	10/12/2015	22:59		
whs02991	BJ0610.D	PAHMDL2735	10/12/2015	23:21		
whs02991	BJ0611.D	ICV2465	10/12/2015	23:42		
whs02991	BJ0612.D	BAS2735	10/13/2015	00:04		
whs02991	BJ0613.D	BAS2735	10/13/2015	00:26		
whs02991	BJ0614.D	BAS2735	10/13/2015	00:48		
whs02991	BJ0615.D	BAS2735	10/13/2015	01:10		
whs02991	BJ0616.D	BAS2735	10/13/2015	01:32		
whs02991	BJ0617.D	BAS2735	10/13/2015	01:54		
whs02991	BJ0618.D	BAS2735	10/13/2015	02:15		
whs02991	BJ0619.D	BASICV2475	10/13/2015	02:37		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct20\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BJ1000.D	DFTPP2245	10/20/2015	08:53		
lmh00956	BJ1001.D	STD2735	10/20/2015	09:06		
lmh00956	BJ1002.D	BAS2735	10/20/2015	09:30		
lmh00956	BJ1003.D	KEP2715	10/20/2015	09:52		
lmh00956	BJ1000z.D	DFTPP2245	10/20/2015	10:17		
lmh00956	BJ1001a.D	STD2735	10/20/2015	10:31		
lmh00956	BJ1002a.D	BAS2735	10/20/2015	10:58		
lmh00956	BJ1003a.D	KEP2715	10/20/2015	11:19		
lmh00956	BJ1004.D	SBLKLG290	10/20/2015	12:00	15290SLG	
lmh00956	BJ1002b.D	PDA2225	10/20/2015	12:22		
lmh00956	BJ1022.D	SBLKLE290	10/20/2015	12:43	15290SLE	
lmh00956	BJ1023.D	290LELCS	10/20/2015	13:05	15290SLE	
lmh00956	BJ1005.D	290LGLCS	10/20/2015	13:27	15290SLG	
lmh00956	BJ1006.D	8081281	10/20/2015	13:48	15290SLG	
lmh00956	BJ1007.D	8081282	10/20/2015	14:10	15290SLG	
lmh00956	BJ1008.D	8081283	10/20/2015	14:31	15290SLG	
lmh00956	BJ1009.D	8081284	10/20/2015	14:53	15290SLG	
lmh00956	BJ1010.D	8081285	10/20/2015	15:14	15290SLG	
lmh00956	BJ1011.D	8081286	10/20/2015	15:36	15290SLG	
lmh00956	BJ1012.D	8081287	10/20/2015	15:57	15290SLG	
lmh00956	BJ1013.D	8081288	10/20/2015	16:19	15290SLG	
lmh00956	BJ1014.D	8081289	10/20/2015	16:41	15290SLG	
lmh00956	BJ1015.D	8081290	10/20/2015	17:02	15290SLG	
lmh00956	BJ1016.D	8081291	10/20/2015	17:24	15290SLG	
lmh00956	BJ1017.D	8081292	10/20/2015	17:46	15290SLG	
lmh00956	BJ1018.D	8081293	10/20/2015	18:07	15290SLG	
lmh00956	BJ1019.D	8081294	10/20/2015	18:29	15290SLG	5
lmh00956	BJ1020.D	8081295	10/20/2015	18:51	15290SLG	
lmh00956	BJ1021.D	8084533	10/20/2015	19:12	15290SLG	
lmh00956	BJ1024.D	8082030	10/20/2015	19:35	15290SLE	5
lmh00956	BJ1025.D	8082030	10/20/2015	19:56	15290SLE	5
lmh00956	BJ1026.D	8082030	10/20/2015	20:18	15290SLE	5

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP20296 **HP #12**

Data Directory Path is - D:\DATA\15oct15\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
hbz01996	LJ0530.D	RVDFTPP2435	10/15/2015	11:57		
hbz01996	LJ0531.D	RVSTD2745	10/15/2015	13:06		
hbz01996	LJ0532.D	RVSTD2745	10/15/2015	14:04		
hbz01996	LJ0533.D	RVSTD2745	10/15/2015	14:32		
hbz01996	LJ0534.D	RVSTD2745	10/15/2015	15:00		
hbz01996	LJ0535.D	RVSTD2745	10/15/2015	15:28		
hbz01996	LJ0536.D	RVSTD2745	10/15/2015	15:56		
hbz01996	LJ0537.D	RVSTD2745	10/15/2015	16:23		
hbz01996	LJ0538.D	RVSTD2745	10/15/2015	16:51		
hbz01996	LJ0539.D	RVMDL2745	10/15/2015	17:19		
hbz01996	LJ0540.D	PAHMDL2745	10/15/2015	17:47		
hbz01996	LJ0541.D	RVICV2465	10/15/2015	18:15		
hbz01996	LJ0542.D	RVBASICV2475	10/15/2015	18:43		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP20296 **HP #12**

Data Directory Path is - D:\DATA\15oct15a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	LJ0550.D	RVDFTPP2435	10/15/2015	19:17		
ceb05247	LJ0550a.D	RVDFTPP2435	10/15/2015	19:29		
ceb05247	LJ0551.D	RVSTD2745	10/15/2015	19:42		
ceb05247	LJ0552.D	SBLKWB286	10/15/2015	20:20	15286WAB	
ceb05247	LJ0553.D	286WBLCS	10/15/2015	20:48	15286WAB	
ceb05247	LJ0554.D	286WBLCSD	10/15/2015	21:16	15286WAB	
ceb05247	LJ0555.D	SBLKWJ285	10/15/2015	21:44	15285WAJ	
ceb05247	LJ0556.D	285WJLCS	10/15/2015	22:11	15285WAJ	
ceb05247	LJ0557.D	8078440RE	10/15/2015	22:39	15286WAB	
ceb05247	LJ0558.D	8078454RE	10/15/2015	23:07	15286WAB	
ceb05247	LJ0559.D	8078459RE	10/15/2015	23:35	15286WAB	
ceb05247	LJ0560.D	8082169	10/16/2015	00:03	15286WAB	
ceb05247	LJ0561.D	8080090	10/16/2015	00:31	15286WAB	
ceb05247	LJ0562.D	8080094	10/16/2015	00:59	15286WAB	
ceb05247	LJ0563.D	8080097	10/16/2015	01:26	15286WAB	
ceb05247	LJ0564.D	8080101	10/16/2015	01:54	15286WAB	
ceb05247	LJ0565.D	8081278	10/16/2015	02:22	15286WAB	
ceb05247	LJ0566.D	8081673	10/16/2015	02:50	15286WAB	
ceb05247	LJ0567.D	8081674	10/16/2015	03:18	15286WAB	
ceb05247	LJ0568.D	8081675	10/16/2015	03:46	15286WAB	
ceb05247	LJ0569.D	8081676	10/16/2015	04:13	15286WAB	
ceb05247	LJ0570.D	8081053	10/16/2015	04:41	15285WAJ	
ceb05247	LJ0571.D	8081054	10/16/2015	05:09	15285WAJ	
ceb05247	LJ0572.D	8081055	10/16/2015	05:37	15285WAJ	
ceb05247	LJ0573.D	8081057	10/16/2015	06:04	15285WAJ	
ceb05247	LJ0574.D	8081058	10/16/2015	06:32	15285WAJ	
ceb05247	LJ0575.D	8081059	10/16/2015	07:00	15285WAJ	
ceb05247	LJ0576.D	8081060	10/16/2015	07:28	15285WAJ	

Organic Extraction Batchlog Assigned to: 7673 Ryan Schafran Reviewed by: CEB 10/15/15 Start Date: 10/13/15 Start time: 17:00

15286WAB026

Tech 1: RS7623 Tech 2:

Dept: 26 Prep Analysis: 00813 BNA Water Extraction TCL SW846 8270C Water

QC	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
BLANKA	SBLKWB286	250	SS1528026A	1		—	1	✓	✓	—	Topped
LCSA	286WBLCS	250	SS1528026A	1	MS1527626B	1	1	✓	✓	—	↓
LCSDA	286WBLCSD	250	SS1528026A	1	MS1527626B	1	1	✓	✓	—	↓

Solvent Used	Lot No.
10N NaOH	2507A14
Methylene Chloride	121877
Sodium Sulfate	15287A
Sulfuric Acid	155108

Spike Solutions: Witness:

MS1527626B MINI SEP. LCS SPIKE

SS1528026A MINI SEP. BNA SURROGATE

	Sample #		Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	List	Due Date	Prio
1	8078440	R	86303	247	SS1528026A	1	1	✓	✓	153B	Orange	04678	2272	10/16/2015	S
2	8078454	R	86311	246	SS1528026A	↓	1	✓	✓	153B	↓	04678	2272	10/16/2015	S
3	8078459	R	86313	249	SS1528026A	↓	1	✓	✓	153B	Clear	04678	2272	10/16/2015	S
4	8080090		F158A	248	SS1528026A	↓	1	✓	✓	153A	↓	04678	2272	10/19/2015	N
5	8080094		39A1X	247	SS1528026A	↓	1	✓	✓	153A	Brown	04678	2272	10/19/2015	N
6	8080097		40A1X	246	SS1528026A	↓	1	✓	✓	153A	Yellow	04678	2272	10/19/2015	N
7	8080101		41A1X	245	SS1528026A	↓	1	✓	✓	153A	↓	04678	2272	10/19/2015	N
8	8081278		D3001	241	SS1528026A	↓	1	✓	✓	153A	Clear	04678	17671	10/20/2015	N
* 9	8081673		P1222	247	SS1528026A	↓	1	✓	✓	153A	↓	04678	643	10/20/2015	N
10	8081674		P1223	242	SS1528026A	↓	1	✓	✓	153A	↓	04678	643	10/20/2015	N
11	8081675		P1224	247	SS1528026A	↓	1	✓	✓	153A	↓	04678	643	10/20/2015	N
12	8081676		P1225	247	SS1528026A	↓	1	✓	✓	153A	↓	04678	643	10/20/2015	N
13	8082169		86809	246	SS1528026A	✓	1	✓	✓	153A	✓	04678	12251	10/16/2015	S

NA RS7623 10/13/15

Rack ID:	—	Work Station	5	Micro Temp 100?	—
Internal Standard	MVISTD2795	Balance #	7		

S-bath ID	88 C	S-bath ID	C	N-Evap	C	M-vap	C	15286WAB026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Organic Extraction Batchlog Assigned to: 504 Sally Appleyard Reviewed by: 10/20/15 Start Date: 10/19/15 Start time: 18:35

15290SLG026

Tech 1: SLA 504 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
8081290MS	D3012	30.09	SS1528526A	1.0	MS1527626A	1.0	1.0	Z	Z	301A	
8081291MSD	D3012	30.26	SS1528526A		MS1527626A	1.0	1.0	Z	Z	301A	
BLANKA	SBLKLG290	30.0	SS1528526A				1.0	Z	Z		
LCSA	290LGLCS	30.0	SS1528526A		MS1527626A	1.0	1.0	Z	Z		

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185100/15A
Methylene Chloride	123566
Sodium Sulfate	15290A

Spike Solutions: Witness: N/A

MS1527626A LCS SPIKE MIX

SS1528526A BNA SURROGATE STANDARD

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8081281	D3004	30.30	SS1528526A	1.0	1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
2 8081282	D3005	30.41	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
3 8081283	D3006	30.16	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
4 8081284	D3007	30.18	SS1528526A		1.0	Z	Z	301A	Soil;Rocks;Brown	10727	14775	10/20/2015	N
5 8081285	D3008	30.10	SS1528526A		1.0	Z	Z	301A	Soil;Rocks;Brown	10727	14775	10/20/2015	N
6 8081286	D3009	30.37	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
7 8081287	D3010	30.38	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
8 8081288	D3011	30.04	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
9 8081289BKG	D3012	30.09	SS1528526A		1.0	Z	Z	301A	Sandy;Rocks;Black;Brown	10727	14775	10/20/2015	N
10 8081292	D3013	30.12	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
11 8081293	D3014	30.39	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
12 8081294	D3015	30.28	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
13 8081295	D3016	30.24	SS1528526A		1.0	Z	Z	301A	Sandy;Rocks;Black;Brown	10727	14775	10/20/2015	N
14 8084533	HRWS1	30.15	SS1528526A		1.0	Z	Z	301A		10727	1847	10/22/2015	N

SLA 10/19/15 N/A

Rack ID:		Work Station	Micro	Micro Temp 100?
Internal Standard	LC15691N	Balance #	—	✓

S-bath ID	397 C	S-bath ID	C	N-Evap	C	M-vap	C	15290SLG026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Moisture Data

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CLIENT: **CH2M Hill, Inc.**
SDG: DHR30

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8081281	D3004
8081282	D3005
8081283	D3006
8081284	D3007
8081285	D3008FD
8081286	D3009
8081287	D3010
8081288	D3011
8081289	D3012BKG
8081290	D3012MS
8081291	D3012MSD
8081292	D3013
8081293	D3014
8081294	D3015
8081295	D3016

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 15287820002A	Sample number(s): 8081281-8081295				
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: 15287820002A	Sample number(s): 8081281-8081295			
Moisture	4.4	4.3	3	5
Moisture	4.4	4.3	3	5
Moisture Duplicate	4.4	4.3	3	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: **15287820002**

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8081281	A	00111	1.1021	5.5175	5.7113	16.46	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081282	A	00111	1.1058	5.4982	5.5767	18.68	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081283	A	00111	1.1097	7.1081	6.7810	20.21	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081284	A	00111	1.0994	5.1549	5.8691	7.47	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081285FD	A	00111	1.1014	5.7263	6.5196	5.38	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081286	A	00111	1.1144	6.7759	6.5989	19.06	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081287	A	00111	1.1072	5.8058	5.6966	20.95	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081288	A	00111	1.1095	7.4969	7.1123	19.93	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081289BKG	A	00111	1.1100	6.8592	7.6672	4.40	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081290MS	A	00118				4.40	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081291MSD	A	00118				4.40	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081291MSD	A	00121	1.1188	5.7761	6.6493	4.25	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081292	A	00111	1.1052	5.4149	5.6449	16.16	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081293	A	00111	1.0719	6.6404	6.6010	16.74	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081294	A	00111	1.1022	7.6885	7.4402	17.57	10/14/15 (189/WCS)	10/15/15 (236/CW)
8081295	A	00111	1.0716	5.9260	6.2593	12.46	10/14/15 (189/WCS)	10/15/15 (236/CW)
LCS 89.5% Std.		00111	1.0921	5.0099	1.6206	89.45	10/14/15 (189/WCS)	10/15/15 (236/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
Groundwater and Water Samples
Collected on 10/08/15

SDG# DHR31

GROUP	SAMPLE NUMBERS
1599690	8083446-8083455

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-13-10
AZ Cert. # AZ0780

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: 10/20/2015**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

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Sample Reference List for SDG Number DHR31
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
8083446	11832	S01-VP11-2832-100815 Grab Groundwater
8083447	DHRFD	HGR-100815-FD01 Grab Groundwater
8083448	11852	S01-VP11-4852-100815 Grab Groundwater
8083449	DHRTB	100815TB Water
8083450	12832	S01-VP12-2832-100815 Grab Groundwater
8083451	12852	S01-VP12-4852-100815 Grab Groundwater
8083452	12852	S01-VP12-4852-100815 MS Grab Groundwater
8083453	12852	S01-VP12-4852-100815 MSD Grab Groundwater
8083454	83213	S01-VP13-2832-100815 Grab Groundwater
8083455	13852	S01-VP13-4852-100815 Grab Groundwater

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Sample pH Log

SDG: DHR31

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8083446	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083447	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083448	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083449	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083450	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083451	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083452	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083453	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083454	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8083455	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key

PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

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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.

02898 VOCs- 25ml Water by 8260B

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.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

October 15, 2015

Project: Dow Hanging Rock, OH

Submittal Date: 10/09/2015
Group Number: 1599690
SDG: DHR31
PO Number: 10381-7-101541
Release Number: DHR31
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
S01-VP11-2832-100815 Grab Groundwater	8083446
HGR-100815-FD01 Grab Groundwater	8083447
S01-VP11-4852-100815 Grab Groundwater	8083448
100815TB Water	8083449
S01-VP12-2832-100815 Grab Groundwater	8083450
S01-VP12-4852-100815 Grab Groundwater	8083451
S01-VP12-4852-100815 MS Grab Groundwater	8083452
S01-VP12-4852-100815 MSD Grab Groundwater	8083453
S01-VP13-2832-100815 Grab Groundwater	8083454
S01-VP13-4852-100815 Grab Groundwater	8083455

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: S01-VP11-2832-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083446
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 09:30 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

11832 SDG#: DHR31-01

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	2.6		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.4	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 17:06	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 17:06	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-100815-FD01 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083447
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 10:00 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHRFD SDG#: DHR31-02FD

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5		0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.8		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 17:29	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 17:29	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP11-4852-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083448
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 10:10 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

11852 SDG#: DHR31-03

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.6		0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.9		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 17:51	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 17:51	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 100815TB Water
Dow Hanging Rock, OH

LL Sample # WW 8083449
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

DHRTB SDG#: DHR31-04TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 15:15	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 15:15	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP12-2832-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083450
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 13:20 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

12832 SDG#: DHR31-05

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.6		0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.1	J	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	5.6		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.4	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 18:14	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 18:14	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP12-4852-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083451
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 13:50 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

12852 SDG#: DHR31-06BKG

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.2	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.2		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.2	J	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 15:59	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 15:59	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP12-4852-100815 MS Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083452
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 13:50 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

12852 SDG#: DHR31-06MS

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	26	5.0	1.0	1
02898	Benzene	71-43-2	5.3	0.5	0.1	1
02898	Bromoform	75-25-2	4.9	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.2	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	5.1	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.6	0.5	0.2	1
02898	Naphthalene	91-20-3	5.2	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.5	0.5	0.1	1
02898	Styrene	100-42-5	5.3	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	8.6	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	4.8	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.5	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	5.3	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	10	0.5	0.1	1
02898	o-Xylene	95-47-6	5.1	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 16:22	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 16:22	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: S01-VP12-4852-100815 MSD Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083453
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 13:50 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

12852 SDG#: DHR31-06MSD

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**	**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	24	5.0	1.0	1
02898	Benzene	71-43-2	5.1	0.5	0.1	1
02898	Bromoform	75-25-2	4.9	0.5	0.1	1
02898	Ethylbenzene	100-41-4	5.2	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	5.2	0.5	0.1	1
02898	Methylene Chloride	75-09-2	4.5	0.5	0.2	1
02898	Naphthalene	91-20-3	5.6	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	5.7	0.5	0.1	1
02898	Styrene	100-42-5	5.5	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.3	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	5.1	0.5	0.1	1
02898	Trichloroethene	79-01-6	5.3	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	5.5	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	11	0.5	0.1	1
02898	o-Xylene	95-47-6	5.2	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 16:44	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 16:44	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP13-2832-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083454
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 15:00 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

83213 SDG#: DHR31-07

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.1	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	6.6		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.7		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 18:36	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 18:36	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: S01-VP13-4852-100815 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8083455
LL Group # 1599690
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/08/2015 16:00 by DR

Submitted: 10/09/2015 09:20
Reported: 10/15/2015 17:04

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

13852 SDG#: DHR31-08

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.2	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152872AA	10/14/2015 18:58	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152872AA	10/14/2015 18:58	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599690
Reported: 10/15/2015 17:04

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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C152872AA	Sample number(s): 8083446-8083455									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	100		63-141		
Benzene	0.5	U	0.5	0.1	ug/l	94		80-120		
Bromoform	0.5	U	0.5	0.1	ug/l	85		64-134		
Ethylbenzene	0.5	U	0.5	0.1	ug/l	93		80-120		
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	91		80-120		
Methylene Chloride	0.5	U	0.5	0.2	ug/l	91		80-120		
Naphthalene	0.5	U	0.5	0.1	ug/l	92		59-136		
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	100		79-121		
Styrene	0.5	U	0.5	0.1	ug/l	93		80-122		
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	90		80-120		
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	88		70-123		
Trichloroethene	0.5	U	0.5	0.1	ug/l	93		80-120		
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	97		80-120		
m+p-Xylene	0.5	U	0.5	0.1	ug/l	93		80-120		
o-Xylene	0.5	U	0.5	0.1	ug/l	90		80-120		

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: C152872AA	Sample number(s): 8083446-8083455 UNSPK: 8083451								
Acrylonitrile	103	95	63-141	8	30				
Benzene	101	97	80-120	4	30				
Bromoform	97	98	64-134	1	30				
Ethylbenzene	103	104	80-120	1	30				
Isopropylbenzene	102	105	80-120	3	30				
Methylene Chloride	93	90	80-120	3	30				
Naphthalene	104	111	59-136	7	30				
n-Propylbenzene	110	114	79-121	3	30				
Styrene	106	109	80-122	3	30				
Tetrachloroethene	148*	102	80-120	31*	30				
1,2,4-Trichlorobenzene	97	103	70-123	6	30				
Trichloroethene	106	103	80-120	3	30				
1,3,5-Trimethylbenzene	107	110	80-120	3	30				
m+p-Xylene	104	105	80-120	2	30				
o-Xylene	102	105	80-120	3	30				

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599690
Reported: 10/15/2015 17:04

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: VOCs- 25ml Water by 8260B
Batch number: C152872AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8083446	96	105	99	94
8083447	95	103	98	95
8083448	96	105	98	96
8083449	97	103	97	93
8083450	96	102	99	96
8083451	95	103	97	96
8083452	96	108	100	96
8083453	95	107	100	96
8083454	95	105	99	93
8083455	95	103	97	94
Blank	96	104	98	94
LCS	94	102	100	96
MS	96	108	100	96
MSD	95	107	100	96
Limits:	77-114	74-113	77-110	78-110

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 11372 Group # 1599690 Sample # 8083446-55

COC # 388777

Client Information

Client: CH2m Hill
Acct. #:
Project Name/#: Hanging Rock Phase II RCRA Investigation
PWSID #: 652109.01
Project Manager: Rachel Grand
P.O. #:
Sampler: Dee Roberts
Quote #:
State where samples were collected: Ohio
For Compliance: Yes ☐ No ☐

For Lab Use Only
FSC:
SCR#: 178327

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Ground Water	Surface Water	Potable	NPDES	Other:	Total # of Containers	VOC's (H)										Remarks (depth)
SØ1-VP11-2832-1ØØ815	10/8/15	0930	✓				✓					3	3										28-32'
HGR-1ØØ815-FDØ1	10/8/15	1000	✓				✓					3	3										Field Duplicate
SØ1-VP11-4852-1ØØ815	10/8/15	1010	✓				✓					3	3										48-52'
1ØØ815TB	10/8/15	—	✓				✓					2	2										Trip blank
SØ1-VP12-2832-1ØØ815	10/8/15	1320	✓				✓					3	3										28-32'
SØ1-VP12-4852-1ØØ815	10/8/15	1350	✓				✓					3	3	* no preservative **									48-52'
SØ1-VP12-4852-1ØØ815MS	10/8/15	1350	✓				✓					3	3	* no preservative **									matrix spike
SØ1-VP12-4852-1ØØ815msD	10/8/15	1350	✓				✓					3	3	* no preservative **									matrix spike duplicate
SØ1-VP13-2832-1ØØ815	10/8/15	1500	✓				✓					3	3										28-32'
SØ1-VP13-4852-1ØØ815	10/8/15	1600	✓				✓					3	3										48-52'

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: Rachel.Grand@ch2m.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	9/30/15	11:40			
[signature]	10/8/15	1700			
			[signature]	10-9-15	920

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx ✓ Other _____

Temperature upon receipt 3.0 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 112658

Group Number(s): 1599690

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/09/2015 9:20
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	Yes
Samples Chilled:	Yes	VOA IDs (≥ 6mm):	See Below
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	2
Samples Intact:	Yes	Trip Blank Type:	HCL
Missing Samples:	No	Air Quality Samples Present:	No
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

VOA Vial IDs (Headspace ≥ 6mm): ...4852-100815MS (1)

Unpacked by Timothy Cubberley (6520) at 14:18 on 10/09/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	3.0	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-4125
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and the < Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC 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 EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL 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 Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR31

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8083446	S01-VP11-2832-100815	X		1	
8083447	HGR-100815-FD01	X		1	Field Duplicate Sample
8083448	S01-VP11-4852-100815	X		1	
8083449	100815TB	X		1	Trip Blank
8083450	S01-VP12-2832-100815	X		1	
8083451	S01-VP12-4852-100815	X		1	Unspiked
8083452	S01-VP12-4852-100815 MS	X		1	Matrix Spike
8083453	S01-VP12-4852-100815 MSD	X		1	Matrix Spike Duplicate
8083454	S01-VP13-2832-100815	X		1	
8083455	S01-VP13-4852-100815	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.

Batch#: C152872AA (Sample number(s): 8083446-8083455, UNSPK: 8083451)
The relative percent difference(s) for the following analyte(s) in the MS/MSD is outside the acceptance window: Tetrachloroethene

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR31

GC/MS Volatiles

Fraction: Volatiles by GC/MS

The recovery(ies) for the following analyte(s) in the MS is outside the acceptance window: Tetrachloroethene

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

Lancaster Laboratories Environmental

Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR31

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
VOCs- 25ml Water by 8260B	C152872AA	VBLKC48	10/14/2015 09:42:00
		LCSC48	10/14/2015 08:58:00
		8083446	10/14/2015 17:06:00
		8083447	10/14/2015 17:29:00
		8083448	10/14/2015 17:51:00
		8083449	10/14/2015 15:15:00
		8083450	10/14/2015 18:14:00
		8083451 UNSPK	10/14/2015 15:59:00
		8083452 MS	10/14/2015 16:22:00
		8083453 MSD	10/14/2015 16:44:00
		8083454	10/14/2015 18:36:00
		8083455	10/14/2015 18:58:00

Lancaster Laboratories Environmental

Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR31
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C152872AA / VBLKC48 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Methylene Chloride	10/14/15	N.D.	ug/l	0.2	0.5
Acrylonitrile	10/14/15	N.D.	ug/l	1.0	5.0
Benzene	10/14/15	N.D.	ug/l	0.1	0.5
Trichloroethene	10/14/15	N.D.	ug/l	0.1	0.5
Tetrachloroethene	10/14/15	N.D.	ug/l	0.1	0.5
Ethylbenzene	10/14/15	N.D.	ug/l	0.1	0.5
m+p-Xylene	10/14/15	N.D.	ug/l	0.1	0.5
o-Xylene	10/14/15	N.D.	ug/l	0.1	0.5
Styrene	10/14/15	N.D.	ug/l	0.1	0.5
Bromoform	10/14/15	N.D.	ug/l	0.1	0.5
Isopropylbenzene	10/14/15	N.D.	ug/l	0.1	0.5
n-Propylbenzene	10/14/15	N.D.	ug/l	0.1	0.5
1,3,5-Trimethylbenzene	10/14/15	N.D.	ug/l	0.1	0.5
1,2,4-Trichlorobenzene	10/14/15	N.D.	ug/l	0.1	0.5
Naphthalene	10/14/15	N.D.	ug/l	0.1	0.5

Lancaster Laboratories Environmental

Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR31
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C152872AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKC48	96	77 - 114	104	74 - 113	98	77 - 110	94	78 - 110
LCSC48	94	77 - 114	102	74 - 113	100	77 - 110	96	78 - 110
8083446	96	77 - 114	105	74 - 113	99	77 - 110	94	78 - 110
8083447	95	77 - 114	103	74 - 113	98	77 - 110	95	78 - 110
8083448	96	77 - 114	105	74 - 113	98	77 - 110	96	78 - 110
8083449	97	77 - 114	103	74 - 113	97	77 - 110	93	78 - 110
8083450	96	77 - 114	102	74 - 113	99	77 - 110	96	78 - 110
8083451 UNSPK	95	77 - 114	103	74 - 113	97	77 - 110	96	78 - 110
8083452 MS	96	77 - 114	108	74 - 113	100	77 - 110	96	78 - 110
8083453 MSD	95	77 - 114	107	74 - 113	100	77 - 110	96	78 - 110
8083454	95	77 - 114	105	74 - 113	99	77 - 110	93	78 - 110
8083455	95	77 - 114	103	74 - 113	97	77 - 110	94	78 - 110

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR31
Matrix: LIQUID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 8083451 MS: 8083452 MSD: 8083453	Batch: **C152872AA** (Sample number(s): 8083446-8083455)								
Analyte	**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**
Methylene Chloride	5.00	N.D.	4.64	4.52	93	90	80-120	3	30
Acrylonitrile	25	N.D.	25.82	23.8	103	95	63-141	8	30
Benzene	5.00	0.209	5.25	5.05	101	97	80-120	4	30
Trichloroethene	5.00	0.158	5.46	5.30	106	103	80-120	3	30
Tetrachloroethene	5.00	1.20	8.62	6.28	148 *	102	80-120	31 *	30
Ethylbenzene	5.00	N.D.	5.15	5.22	103	104	80-120	1	30
m+p-Xylene	10	N.D.	10.36	10.55	104	105	80-120	2	30
o-Xylene	5.00	N.D.	5.08	5.24	102	105	80-120	3	30
Styrene	5.00	N.D.	5.31	5.47	106	109	80-122	3	30
Bromoform	5.00	N.D.	4.87	4.92	97	98	64-134	1	30
Isopropylbenzene	5.00	N.D.	5.09	5.23	102	105	80-120	3	30
n-Propylbenzene	5.00	N.D.	5.52	5.68	110	114	79-121	3	30
1,3,5-Trimethylbenzene	5.00	N.D.	5.33	5.51	107	110	80-120	3	30
1,2,4-Trichlorobenzene	5.00	N.D.	4.83	5.13	97	103	70-123	6	30
Naphthalene	5.00	N.D.	5.18	5.56	104	111	59-136	7	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR31
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSC48	Batch: **C152872AA** (Sample number(s): 8083446-8083455)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Methylene Chloride	5.00	4.55	NA	91	NA	80-120	NA	NA
Acrylonitrile	25	24.92	NA	100	NA	63-141	NA	NA
Benzene	5.00	4.69	NA	94	NA	80-120	NA	NA
Trichloroethene	5.00	4.64	NA	93	NA	80-120	NA	NA
Tetrachloroethene	5.00	4.49	NA	90	NA	80-120	NA	NA
Ethylbenzene	5.00	4.65	NA	93	NA	80-120	NA	NA
m+p-Xylene	10	9.32	NA	93	NA	80-120	NA	NA
o-Xylene	5.00	4.48	NA	90	NA	80-120	NA	NA
Styrene	5.00	4.66	NA	93	NA	80-122	NA	NA
Bromoform	5.00	4.25	NA	85	NA	64-134	NA	NA
Isopropylbenzene	5.00	4.56	NA	91	NA	80-120	NA	NA
n-Propylbenzene	5.00	5.02	NA	100	NA	79-121	NA	NA
1,3,5-Trimethylbenzene	5.00	4.84	NA	97	NA	80-120	NA	NA
1,2,4-Trichlorobenzene	5.00	4.40	NA	88	NA	70-123	NA	NA
Naphthalene	5.00	4.59	NA	92	NA	59-136	NA	NA

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR31___

Lab File ID: cl30t01.d BFB Injection Date: 07/30/15

Instrument ID: HP10193 BFB Injection Time: 11:30

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	22.62
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	7.23
173	Less than 2.0% of mass 174	0.30 (0.35)1
174	Greater than 50.0% of mass 95	85.40
175	5.0 - 9.0% of mass 174	6.32 (7.40)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.56 (97.84)1
177	5.0 - 9.0% of mass 176	5.25 (6.29)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	VSTD25	cl30i11.d	07/30/15	12:20
02	VSTD10	cl30i12.d	07/30/15	12:43
03	VSTD5	cl30i13.d	07/30/15	13:06
04	VSTD2	cl30i14.d	07/30/15	13:30
05	VSTD1	cl30i15.d	07/30/15	13:53
06	VSTD.5	cl30i16.d	07/30/15	14:16
07	VSTD.2	cl30i17.d	07/30/15	14:38
08	MDL0.1 - MDL0.1	cl30m11.d	07/30/15	15:01
09	LCSC02	cl30v11.d	07/30/15	15:23
10	VSTD25	cl30i01.d	07/30/15	16:11
11	VSTD10	cl30i02.d	07/30/15	16:33
12	VSTD5	cl30i03.d	07/30/15	16:57
13	VSTD2	cl30i04.d	07/30/15	17:19
14	VSTD1	cl30i05.d	07/30/15	17:41
15	VSTD.5	cl30i06.d	07/30/15	18:04
16	VSTD.2	cl30i07.d	07/30/15	18:27
17	MDL0.1 - MDL0.1	cl30m01.d	07/30/15	18:50
18	LCSCLG	cl30v01.d	07/30/15	19:34

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.:_DHR31___

Lab File ID: cc14t01.d BFB Injection Date: 10/14/15

Instrument ID: HP10193 BFB Injection Time: 07:48

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	21.93
75	30.0 - 60.0% of mass 95	54.29
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.81
173	Less than 2.0% of mass 174	0.84 (1.03)1
174	Greater than 50.0% of mass 95	81.87
175	5.0 - 9.0% of mass 174	5.97 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.00 (97.72)1
177	5.0 - 9.0% of mass 176	5.26 (6.57)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	VSTD10	cc14c01.d	10/14/15	08:35
02	LCSC47	cc14l01.d	10/14/15	08:58
03	LCSC48	cc14l01a.d	10/14/15	08:58
04	LCDC47	cc14l02.d	10/14/15	09:20
05	VBLKC47	cc14b01.d	10/14/15	09:42
06	VBLKC48	cc14b01a.d	10/14/15	09:42
07	8074748	cc14s01.d	10/14/15	10:05
08	8074748DL	cc14s02.d	10/14/15	10:27
09	8064716DL	cc14s03.d	10/14/15	12:38
10	8074742	cc14s04.d	10/14/15	13:00
11	8074743	cc14s05.d	10/14/15	13:23
12	8076577	cc14s06.d	10/14/15	14:07
13	8076579	cc14s07.d	10/14/15	14:30
14	8076581	cc14s08.d	10/14/15	14:52
15	8083449	cc14s31.d	10/14/15	15:15
16	8086814	cc14s41.d	10/14/15	15:37
17	8083451	cc14s32.d	10/14/15	15:59
18	8083452MS	cc14s33.d	10/14/15	16:22
19	8083453MSD	cc14s34.d	10/14/15	16:44
20	8083446	cc14s35.d	10/14/15	17:06
21	8083447	cc14s36.d	10/14/15	17:29
22	8083448	cc14s37.d	10/14/15	17:51

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.:_DHR31___

Lab File ID: cc14t01.d BFB Injection Date: 10/14/15

Instrument ID: HP10193 BFB Injection Time: 07:48

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	21.93
75	30.0 - 60.0% of mass 95	54.29
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.81
173	Less than 2.0% of mass 174	0.84 (1.03)1
174	Greater than 50.0% of mass 95	81.87
175	5.0 - 9.0% of mass 174	5.97 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.00 (97.72)1
177	5.0 - 9.0% of mass 176	5.26 (6.57)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	8083450	cc14s38.d	10/14/15	18:14
24	8083454	cc14s39.d	10/14/15	18:36
25	8083455	cc14s40.d	10/14/15	18:58
26	8086808	cc14s42.d	10/14/15	19:21

FORM V VOA

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.4294	0.4230	0.4613	0.3709	0.3716	0.3669	0.3835	0.4009	9	AVG
Chloromethane	#0.4808	0.4357	0.4737	0.3733	0.3623	0.3625	0.3703	0.4084	13	AVG #
Vinyl Chloride	*0.3753	0.3751	0.4081	0.3293	0.3281	0.3259	0.3353	0.3539	9	AVG *
1,3-Butadiene	0.3816	0.3815	0.3918	0.3107	0.2421	0.1997	0.1532	0.2944	33	2NDDEG
Bromomethane	0.2614	0.2469	0.2611	0.2103	0.2033	0.2018	0.2037	0.2269	12	AVG
Chloroethane		0.2368	0.2534	0.1957	0.1847	0.1841	0.1861	0.2068	15	AVG
Dichlorofluoromethane	0.5943	0.5879	0.6213	0.5009	0.4843	0.4881	0.4939	0.5387	11	AVG
Trichlorofluoromethane	0.4969	0.4961	0.5391	0.4374	0.4393	0.4397	0.4523	0.4715	8	AVG
Ethyl ether	0.2393	0.2229	0.2716	0.2118	0.2017	0.1904	0.1934	0.2187	13	AVG
Freon 123a	0.3725	0.3775	0.3770	0.2960	0.2919	0.2907	0.2984	0.3291	13	AVG
Acrolein	2.0462	2.1658	2.4585	2.2266	1.8378	1.8543	1.8482	2.0625	11	AVG
1,1-Dichloroethene	*0.2542	0.2541	0.2861	0.2403	0.2144	0.2159	0.2150	0.2400	11	AVG *
Freon 113	0.2418	0.2606	0.2957	0.2619	0.2341	0.2372	0.2354	0.2524	9	AVG
Acetone		4.0550	3.8772	3.5338	2.9086	2.9112	3.0142	3.3833	15	AVG
Methyl Iodide	0.4429	0.4561	0.5068	0.4390	0.3923	0.4002	0.3961	0.4333	10	AVG
Carbon Disulfide	0.7773	0.7934	0.9033	0.7834	0.7114	0.7334	0.7333	0.7765	8	AVG
Allyl Chloride	0.5726	0.5214	0.6303	0.4822	0.4653	0.4503	0.4590	0.5116	13	AVG
Methyl Acetate	0.1370	0.1554	0.1666	0.1640	0.1544	0.1541	0.1566	0.1554	6	AVG
Methylene Chloride	0.3050	0.2955	0.3197	0.2735	0.2390	0.2401	0.2368	0.2728	13	AVG
t-Butyl Alcohol	1.1390	1.1431	1.3346	1.0813	0.9876	0.9670	0.9814	1.0906	12	AVG
Acrylonitrile	2.9159	3.8461	4.3481	3.7968	3.3938	3.3570	3.5416	3.5999	13	AVG
trans-1,2-Dichloroethene	0.2895	0.2818	0.3159	0.2665	0.2392	0.2421	0.2425	0.2682	11	AVG
Methyl Tertiary Butyl Ether	0.7860	0.7942	0.8806	0.7722	0.6979	0.6948	0.6824	0.7583	9	AVG
n-Hexane	0.4735	0.5041	0.5336	0.4684	0.4231	0.4296	0.4338	0.4666	9	AVG
1,1-Dichloroethane	#0.6119	0.6030	0.6757	0.5840	0.5187	0.5244	0.5256	0.5776	10	AVG #
di-Isopropyl Ether	1.1700	1.1827	1.3135	1.1392	1.0205	1.0243	1.0148	1.1236	10	AVG
2-Chloro-1,3-Butadiene	0.5379	0.5451	0.6183	0.5165	0.4707	0.4773	0.4821	0.5211	10	AVG
Ethyl t-butyl ether	0.9752	1.0300	1.1365	0.9922	0.8898	0.8975	0.8818	0.9719	10	AVG
cis-1,2-Dichloroethene	0.3064	0.3156	0.3501	0.2971	0.2664	0.2696	0.2681	0.2962	10	AVG
2,2-Dichloropropane	0.4785	0.4823	0.5371	0.4619	0.4210	0.4285	0.4254	0.4621	9	AVG
2-Butanone	5.5541	5.7740	6.8241	6.0409	5.2446	5.3576	5.4260	5.7459	10	AVG
Propionitrile	1.1749	1.2801	1.5020	1.3713	1.1624	1.1926	1.1681	1.2645	10	AVG
Methacrylonitrile	3.9019	4.4684	5.4368	4.7221	4.1186	4.2195	4.3444	4.4588	11	AVG
Bromochloromethane	0.1284	0.1298	0.1595	0.1204	0.1182	0.1128	0.1148	0.1263	13	AVG
Tetrahydrofuran	1.4500	1.5062	1.7219	1.4605	1.2420	1.2912	1.3018	1.4248	12	AVG
Chloroform	*0.5452	0.5564	0.6223	0.5212	0.4668	0.4730	0.4706	0.5222	11	AVG *
1,1,1-Trichloroethane	0.4606	0.4821	0.5274	0.4615	0.4128	0.4203	0.4202	0.4550	9	AVG
Cyclohexane	0.6063	0.6005	0.6544	0.5652	0.5124	0.5138	0.5119	0.5664	10	AVG
Cyclohexane(2)	0.4032	0.5149	0.4863	0.4275	0.3884	0.3918	0.3920	0.4292	12	AVG
Cyclohexane(3)	0.1784	0.1749	0.1918	0.1655	0.1471	0.1492	0.1471	0.1649	11	AVG
1,1-Dichloropropene	0.4221	0.4541	0.4943	0.4294	0.3910	0.3994	0.4030	0.4276	8	AVG
Carbon Tetrachloride	0.3722	0.3883	0.4457	0.3927	0.3572	0.3701	0.3780	0.3863	7	AVG
Isobutyl Alcohol	0.3291	0.3961	0.4783	0.4076	0.3767	0.3857	0.3833	0.3938	11	AVG
Benzene	1.2036	1.2118	1.3519	1.1504	1.0347	1.0474	1.0475	1.1496	10	AVG
1,2-Dichloroethane	0.4658	0.4449	0.4782	0.4008	0.3568	0.3587	0.3531	0.4083	13	AVG
1,2-Dichloroethane(2)	0.0500	0.0308	0.0336	0.0298	0.0261	0.0259	0.0255	0.0317	27	AVG
t-Amyl methyl ether	0.7887	0.8320	0.9293	0.8113	0.7295	0.7344	0.7267	0.7931	9	AVG
n-Heptane	0.5596	0.6048	0.6438	0.5585	0.5061	0.5106	0.5152	0.5569	9	AVG
n-Butanol	0.2228	0.3916	0.3466	0.3225	0.3023	0.3103	0.2962	0.3132	16	2NDDEG
Trichloroethene	0.3080	0.3199	0.3568	0.3047	0.2707	0.2750	0.2762	0.3016	10	AVG
Methylcyclohexane		0.5119	0.6424	0.4933	0.4824	0.4733	0.4828	0.5144	12	AVG
1,2-Dichloropropane	*0.3278	0.3230	0.3630	0.3071	0.2805	0.2817	0.2822	0.3093	10	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: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Methyl Methacrylate	8.2427	9.7834	11.178	9.6891	8.7829	9.0432	9.7328	9.4932	10	AVG
Dibromomethane	0.1302	0.1402	0.1579	0.1394	0.1250	0.1239	0.1241	0.1344	9	AVG
1,4-Dioxane		0.0618	0.0739	0.0676	0.0604	0.0585	0.0573	0.0633	10	AVG
Bromodichloromethane	0.3664	0.3668	0.4187	0.3602	0.3377	0.3457	0.3548	0.3643	7	AVG
2-Nitropropane	3.2608	3.6315	4.3482	3.9522	3.5557	3.7864	3.9414	3.7823	9	AVG
1-Bromo-2-chloroethane	0.3358	0.3338	0.4066	0.3200	0.3059	0.2948	0.2971	0.3277	12	AVG
cis-1,3-Dichloropropene	0.4201	0.4467	0.5027	0.4461	0.4133	0.4259	0.4336	0.4412	7	AVG
4-Methyl-2-Pentanone		0.2334	0.2668	0.2392	0.2195	0.2179	0.2118	0.2314	9	AVG
Toluene	*1.0378	1.0532	1.1713	0.9975	0.8952	0.9039	0.8900	0.9927	11	AVG *
trans-1,3-Dichloropropene	0.4638	0.4897	0.5590	0.5142	0.4765	0.4978	0.5048	0.5008	6	AVG
Ethyl Methacrylate		0.4357	0.4834	0.4366	0.3982	0.4045	0.4002	0.4264	8	AVG
1,1,2-Trichloroethane	0.2626	0.2750	0.3082	0.2620	0.2405	0.2403	0.2364	0.2607	10	AVG
Tetrachloroethene	0.4619	0.4815	0.5355	0.4562	0.4131	0.4232	0.4216	0.4561	9	AVG
1,3-Dichloropropane	0.5094	0.5126	0.5778	0.5009	0.4529	0.4520	0.4496	0.4936	9	AVG
2-Hexanone	0.2102	0.2278	0.2682	0.2395	0.2154	0.2153	0.2068	0.2262	10	AVG
Dibromochloromethane	0.2658	0.2982	0.3470	0.3089	0.2955	0.3067	0.3138	0.3051	8	AVG
1,2-Dibromoethane	0.2525	0.2536	0.2929	0.2595	0.2319	0.2355	0.2323	0.2512	9	AVG
Chlorobenzene	#1.1821	1.1657	1.3147	1.1241	1.0187	1.0281	1.0272	1.1229	10	AVG #
1,1,1,2-Tetrachloroethane	0.3561	0.3757	0.4310	0.3746	0.3496	0.3573	0.3648	0.3727	7	AVG
Ethylbenzene	*1.9671	2.0589	2.2950	1.9573	1.7930	1.8186	1.8388	1.9612	9	AVG *
m+p-Xylene	0.7599	0.7757	0.8626	0.7570	0.6817	0.6970	0.7010	0.7478	8	AVG
o-Xylene	0.7485	0.7733	0.8682	0.7512	0.6761	0.6911	0.6857	0.7420	9	AVG
Styrene		1.2594	1.3997	1.2421	1.1309	1.1573	1.1615	1.2252	8	AVG
Bromoform	#0.1628	0.1649	0.1824	0.1678	0.1636	0.1731	0.1816	0.1709	5	AVG #
Isopropylbenzene		2.0360	2.2740	1.9839	1.7981	1.8278	1.8068	1.9545	9	AVG
1,1,2,2-Tetrachloroethane	#0.5477	0.6006	0.6822	0.6055	0.5394	0.5387	0.5375	0.5788	9	AVG #
Bromobenzene	0.8774	0.8795	1.0276	0.8801	0.7989	0.8174	0.8349	0.8737	9	AVG
trans-1,4-Dichloro-2-butene		3.3986	4.1342	4.0667	3.9054	4.4744	5.0873	4.1778	14	AVG
1,2,3-Trichloropropane	0.1702	0.1610	0.1946	0.1683	0.1506	0.1472	0.1478	0.1628	10	AVG
n-Propylbenzene	4.0469	4.3254	4.8588	4.2475	3.8299	3.8755	3.8666	4.1501	9	AVG
2-Chlorotoluene	0.8319	0.8468	0.9481	0.8357	0.7478	0.7572	0.7647	0.8189	9	AVG
1,3,5-Trimethylbenzene	2.9287	3.1042	3.5387	3.1030	2.7820	2.8404	2.8601	3.0224	9	AVG
4-Chlorotoluene	0.8832	0.8896	1.0024	0.8625	0.7847	0.7947	0.8044	0.8602	9	AVG
tert-Butylbenzene		0.6312	0.7249	0.6355	0.5833	0.5900	0.5954	0.6267	8	AVG
Pentachloroethane	0.4348	0.4721	0.5840	0.4799	0.4837	0.4815	0.5124	0.4926	9	AVG
1,2,4-Trimethylbenzene		3.1485	3.5967	3.1702	2.8591	2.9540	2.9805	3.1181	8	AVG
sec-Butylbenzene	3.7754	3.9543	4.4615	3.9011	3.5412	3.5898	3.5889	3.8303	8	AVG
1,3-Dichlorobenzene	1.6558	1.7493	1.9750	1.7344	1.5522	1.6062	1.6352	1.7011	8	AVG
p-Isopropyltoluene		3.4336	3.9155	3.4476	3.1563	3.2523	3.2982	3.4172	8	AVG
1,4-Dichlorobenzene	1.8393	1.9347	2.1070	1.8070	1.5899	1.6160	1.6408	1.7907	11	AVG
1,2,3-Trimethylbenzene	1.4467	1.3956	1.7118	1.3114	1.2710	1.2463	1.2895	1.3817	12	AVG
Benzyl Chloride		0.1970	0.2198	0.2185	0.2144	0.2299	0.2361	0.2193	6	AVG
n-Butylbenzene		1.7842	1.9172	1.6576	1.5371	1.5570	1.5738	1.6711	9	AVG
1,2-Dichlorobenzene	1.5251	1.6358	1.7897	1.5993	1.4324	1.4578	1.4504	1.5558	8	AVG
1,2-Dibromo-3-chloropropane		1.8989	2.2750	2.0418	1.9505	2.1282	2.2893	2.0973	8	AVG
1,2,4-Trichlorobenzene	1.1895	1.2597	1.4045	1.2122	1.1529	1.1672	1.1825	1.2241	7	AVG
Hexachlorobutadiene	0.6844	0.6830	0.7769	0.6576	0.6112	0.6248	0.6285	0.6666	8	AVG
Naphthalene	1.7567	1.8825	2.1071	1.8840	1.8331	1.8553	1.8419	1.8801	6	AVG
1,2,3-Trichlorobenzene	1.0214	1.0042	1.1419	0.9654	0.9505	0.9664	0.9477	0.9996	7	AVG
Dibromofluoromethane	0.2406	0.2388	0.2395	0.2393	0.2395	0.2376	0.2409	0.2394	0	AVG
Dibromofluoromethane(2)	0.2468	0.2459	0.2445	0.2453	0.2452	0.2455	0.2467	0.2457	0	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: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

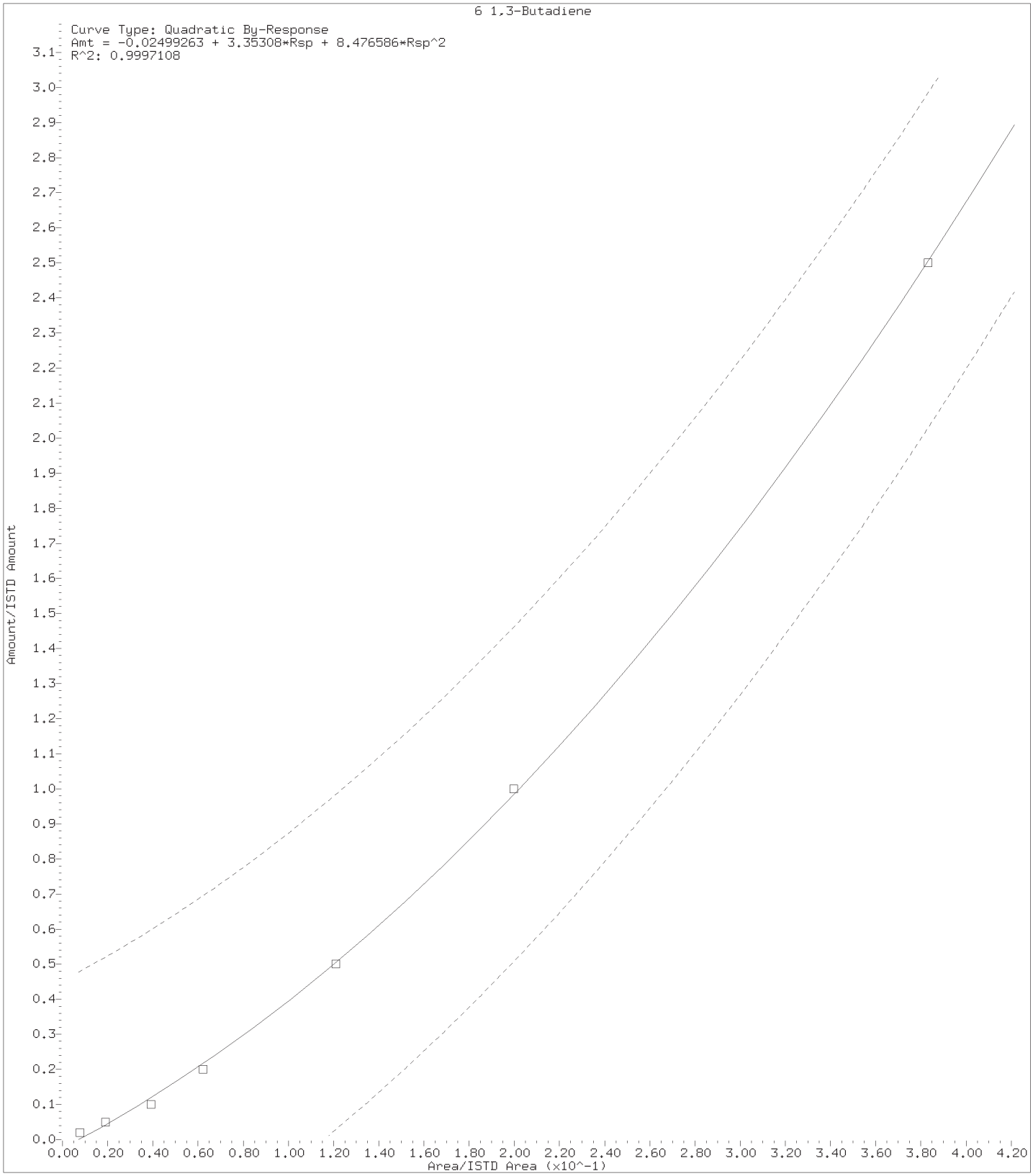
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

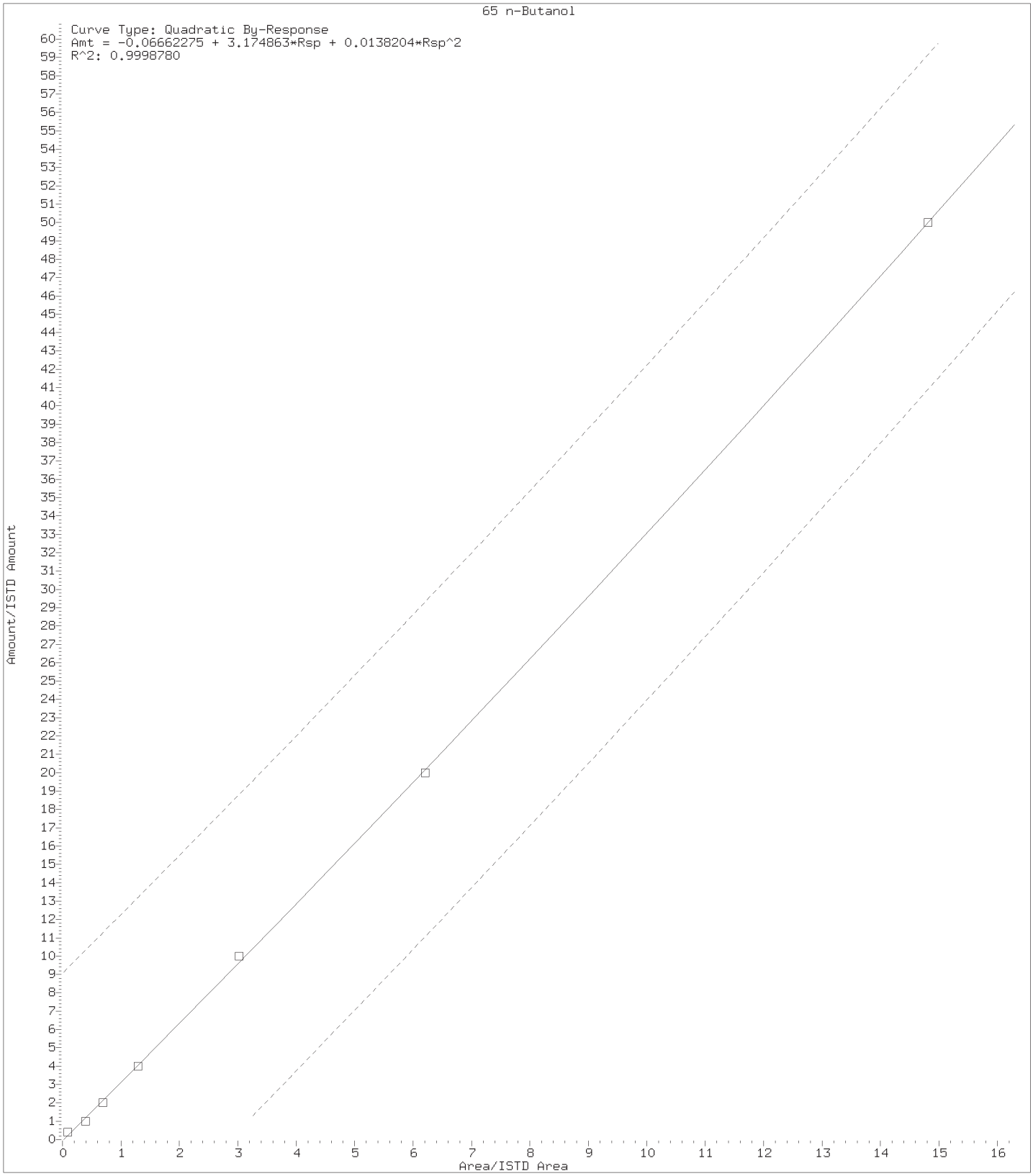
COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	___ RRF	% RSD	CAL. METHOD
1,2-Dichloroethane-d4	0.0492	0.0479	0.0485	0.0487	0.0478	0.0478	0.0467	0.0481	2	AVG
1,2-Dichloroethane-d4(2)	0.3042	0.3039	0.3030	0.3051	0.2968	0.2923	0.2926	0.2997	2	AVG
1,2-Dichloroethane-d4(3)	0.0312	0.0309	0.0303	0.0300	0.0305	0.0300	0.0306	0.0305	1	AVG
Toluene-d8	1.3895	1.3890	1.3924	1.3884	1.3907	1.3734	1.3603	1.3834	1	AVG
Toluene-d8(2)	0.8868	0.8867	0.8881	0.8917	0.8971	0.8884	0.8972	0.8909	1	AVG
4-Bromofluorobenzene	0.5311	0.5271	0.5249	0.5222	0.5235	0.5200	0.5153	0.5235	1	AVG
4-Bromofluorobenzene(2)	0.4504	0.4509	0.4512	0.4483	0.4531	0.4515	0.4416	0.4496	1	AVG

Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



Digitally signed by Kerri E. Koch Legerlotz on 07/31/2015 at 09:03.
Target 3.5 esignature user ID: kel01973



Digitally signed by Kerri E. Koch Legerlotz on 07/31/2015 at 09:03.
Target 3.5 esignature user ID: kel01973

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP10193.i/15jul30a.b/cl30i01.d VSTD025
/chem2/HP10193.i/15jul30a.b/cl30i02.d VSTD010
/chem2/HP10193.i/15jul30a.b/cl30i03.d VSTD005
/chem2/HP10193.i/15jul30a.b/cl30i04.d VSTD002
/chem2/HP10193.i/15jul30a.b/cl30i05.d VSTD001
/chem2/HP10193.i/15jul30a.b/cl30i06.d VSTD0.5
/chem2/HP10193.i/15jul30a.b/cl30i07.d VSTD0.2

Area Summary

File ID:
==========

Internal Standard Name	cl30i01.d	cl30i02.d	cl30i03.d	cl30i04.d	cl30i05.d	cl30i06.d	cl30i07.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	180317	187758	194916	188412	160636	196691	211307	188577	8	Yes
Fluorobenzene	2543511	2545570	2540711	2542391	2171028	2538050	2530714	2487425	6	Yes
Chlorobenzene-d5	1881187	1858517	1846997	1845629	1570456	1834071	1834388	1810178	6	Yes
1,4-Dichlorobenzene-d4	1051246	1048982	1039391	1022404	875553	1032225	1037286	1015298	6	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	cl30i01.d	cl30i02.d	cl30i03.d	cl30i04.d	cl30i05.d	cl30i06.d	cl30i07.d	Avg. RT
t-Butyl Alcohol-d10	3.932	3.926	3.926	3.920	3.938	3.932	3.932	3.929
Fluorobenzene	7.437	7.437	7.437	7.437	7.437	7.437	7.437	7.437
Chlorobenzene-d5	10.985	10.985	10.985	10.985	10.985	10.985	10.985	10.985
1,4-Dichlorobenzene-d4	12.887	12.887	12.887	12.887	12.887	12.887	12.887	12.887

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 07/31/2015 at 08:45.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4009	0.3505	4.37	5	-13
# Chloromethane	0.4084	0.3615	4.43	5	-11 #
* Vinyl Chloride	0.3539	0.3300	4.66	5	-7 *
1,3-Butadiene	0.2944	0.4602	11.95	5	139
Bromomethane	0.2269	0.2096	4.62	5	-8
Chloroethane	0.2068	0.1890	4.57	5	-9
Dichlorofluoromethane	0.5387	0.5150	4.78	5	-4
Trichlorofluoromethane	0.4715	0.4475	4.75	5	-5
Ethyl ether	0.2187	0.2009	4.59	5	-8
Freon 123a	0.3291	0.3049	4.63	5	-7
Acrolein	2.0625	1.6793	30.53	37.5	-19
* 1,1-Dichloroethene	0.2400	0.2125	4.43	5	-11 *
Freon 113	0.2524	0.2314	4.58	5	-8
Acetone	3.3833	2.8557	31.65	37.5	-16
Methyl Iodide	0.4333	0.3954	4.56	5	-9
Carbon Disulfide	0.7765	0.6682	4.30	5	-14
Allyl Chloride	0.5116	0.4915	4.80	5	-4
Methyl Acetate	0.1554	0.1448	4.66	5	-7
Methylene Chloride	0.2728	0.2416	4.43	5	-11
t-Butyl Alcohol	1.0906	1.0097	46.29	50	-7
Acrylonitrile	3.5999	3.4663	24.07	25	-4
trans-1,2-Dichloroethene	0.2682	0.2494	4.65	5	-7
Methyl Tertiary Butyl Ether	0.7583	0.6808	4.49	5	-10
n-Hexane	0.4666	0.4183	4.48	5	-10
# 1,1-Dichloroethane	0.5776	0.5181	4.48	5	-10 #
di-Isopropyl Ether	1.1236	1.0449	4.65	5	-7
2-Chloro-1,3-Butadiene	0.5211	0.4406	4.23	5	-15
Ethyl t-butyl ether	0.9719	0.8807	4.53	5	-9
cis-1,2-Dichloroethene	0.2962	0.2720	4.59	5	-8
2,2-Dichloropropane	0.4621	0.4203	4.55	5	-9
2-Butanone	5.7459	5.4170	35.35	37.5	-6
Propionitrile	1.2645	1.2413	36.81	37.5	-2
Methacrylonitrile	4.4588	4.4268	37.23	37.5	-1
Bromochloromethane	0.1263	0.1182	4.68	5	-6
Tetrahydrofuran	1.4248	1.2767	22.40	25	-10
* Chloroform	0.5222	0.4792	4.59	5	-8 *

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: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4550	0.4183	4.60	5	-8
Cyclohexane	0.5664	0.4984	4.40	5	-12
1,1-Dichloropropene	0.4276	0.3808	4.45	5	-11
Carbon Tetrachloride	0.3863	0.3679	4.76	5	-5
Isobutyl Alcohol	0.3938	0.3836	121.76	125	-3
Benzene	1.1496	1.0433	4.54	5	-9
1,2-Dichloroethane	0.4083	0.3599	4.41	5	-12
t-Amyl methyl ether	0.7931	0.7271	4.58	5	-8
n-Heptane	0.5569	0.4949	4.44	5	-11
n-Butanol	0.3132	0.2987	235.26	250	-6
Trichloroethene	0.3016	0.2855	4.73	5	-5
Methylcyclohexane	0.5144	0.4877	4.74	5	-5
* 1,2-Dichloropropane	0.3093	0.2878	4.65	5	-7 *
Methyl Methacrylate	9.4932	9.1000	4.79	5	-4
Dibromomethane	0.1344	0.1252	4.66	5	-7
1,4-Dioxane	0.0633	0.0618	122.06	125	-2
Bromodichloromethane	0.3643	0.3378	4.64	5	-7
2-Nitropropane	3.7823	3.4911	4.61	5	-8
1-Bromo-2-chloroethane	0.3277	0.2971	4.53	5	-9
cis-1,3-Dichloropropene	0.4412	0.4111	4.66	5	-7
4-Methyl-2-Pentanone	0.2314	0.2109	22.79	25	-9
* Toluene	0.9927	0.9078	4.57	5	-9 *
trans-1,3-Dichloropropene	0.5008	0.4811	4.80	5	-4
Ethyl Methacrylate	0.4264	0.3979	4.66	5	-7
1,1,2-Trichloroethane	0.2607	0.2387	4.58	5	-8
Tetrachloroethene	0.4561	0.4205	4.61	5	-8
1,3-Dichloropropane	0.4936	0.4473	4.53	5	-9
2-Hexanone	0.2262	0.2154	23.80	25	-5
Dibromochloromethane	0.3051	0.2877	4.71	5	-6
1,2-Dibromoethane	0.2512	0.2373	4.72	5	-6
# Chlorobenzene	1.1229	1.0281	4.58	5	-8 #
1,1,1,2-Tetrachloroethane	0.3727	0.3519	4.72	5	-6
* Ethylbenzene	1.9612	1.8161	4.63	5	-7 *
m+p-Xylene	0.7478	0.6905	9.23	10	-8
o-Xylene	0.7420	0.6686	4.51	5	-10
Styrene	1.2252	1.1409	4.66	5	-7

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: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
# Bromoform	0.1709	0.1563	4.57	5	-9	#
Isopropylbenzene	1.9545	1.8344	4.69	5	-6	
# 1,1,2,2-Tetrachloroethane	0.5788	0.5304	4.58	5	-8	#
Bromobenzene	0.8737	0.8083	4.63	5	-7	
trans-1,4-Dichloro-2-butene	4.1778	3.6780	22.01	25	-12	
1,2,3-Trichloropropane	0.1628	0.1522	4.67	5	-7	
n-Propylbenzene	4.1501	3.8682	4.66	5	-7	
2-Chlorotoluene	0.8189	0.7512	4.59	5	-8	
1,3,5-Trimethylbenzene	3.0224	2.8187	4.66	5	-7	
4-Chlorotoluene	0.8602	0.7830	4.55	5	-9	
tert-Butylbenzene	0.6267	0.5862	4.68	5	-6	
Pentachloroethane	0.4926	0.4778	4.85	5	-3	
1,2,4-Trimethylbenzene	3.1181	2.8754	4.61	5	-8	
sec-Butylbenzene	3.8303	3.5739	4.67	5	-7	
1,3-Dichlorobenzene	1.7011	1.5816	4.65	5	-7	
p-Isopropyltoluene	3.4172	3.1411	4.60	5	-8	
1,4-Dichlorobenzene	1.7907	1.6230	4.53	5	-9	
1,2,3-Trimethylbenzene	1.3817	1.2287	4.45	5	-11	
Benzyl Chloride	0.2193	0.2079	4.74	5	-5	
n-Butylbenzene	1.6711	1.5365	4.60	5	-8	
1,2-Dichlorobenzene	1.5558	1.4429	4.64	5	-7	
1,2-Dibromo-3-chloropropane	2.0973	1.9839	4.73	5	-5	
1,2,4-Trichlorobenzene	1.2241	1.1061	4.52	5	-10	
Hexachlorobutadiene	0.6666	0.6062	4.55	5	-9	
Naphthalene	1.8801	1.7472	4.65	5	-7	
1,2,3-Trichlorobenzene	0.9996	0.8715	4.36	5	-13	

Average %Drift 9

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP10193.i/15jul30a.b/cl30i07.d
/chem2/HP10193.i/15jul30a.b/cl30i06.d
/chem2/HP10193.i/15jul30a.b/cl30i05.d
/chem2/HP10193.i/15jul30a.b/cl30i04.d
/chem2/HP10193.i/15jul30a.b/cl30i03.d
/chem2/HP10193.i/15jul30a.b/cl30i02.d
/chem2/HP10193.i/15jul30a.b/cl30i01.d

File /chem2/HP10193.i/15jul30a.b/cl30i02.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP10193.i/15oct14a.b/cc14c01.d

RT Summary

File ID:

Internal Standard Name	cc14c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.889	3.926	Yes
Fluorobenzene	7.425	7.437	Yes
Chlorobenzene-d5	10.979	10.985	Yes
1,4-Dichlorobenzene-d4	12.881	12.887	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	cc14c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	214417	187758	93879	375516	Yes
Fluorobenzene	2583659	2545570	1272785	5091140	Yes
Chlorobenzene-d5	1899530	1858517	929258	3717034	Yes
1,4-Dichlorobenzene-d4	977820	1048982	524491	2097964	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 10/14/15 Time: 08:35

Lab File ID: cc14c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4009	0.3041	7.58	10	-24	
#	Chloromethane	0.4084	0.3279	8.03	10	-20	#
*	Vinyl Chloride	0.3539	0.3176	8.97	10	-10	*
	1,3-Butadiene	0.2944	0.7097	66.24	10	562	
	Bromomethane	0.2269	0.1955	8.62	10	-14	
	Chloroethane	0.2068	0.1808	8.74	10	-13	
	Dichlorofluoromethane	0.5387	0.4236	7.86	10	-21	
	Trichlorofluoromethane	0.4715	0.3925	8.32	10	-17	
	Ethyl ether	0.2187	0.2058	9.41	10	-6	
	Freon 123a	0.3291	0.2668	8.11	10	-19	
	Acrolein	2.0625	2.0092	487.07	500	-3	
*	1,1-Dichloroethene	0.2400	0.1999	8.33	10	-17	*
	Freon 113	0.2524	0.2175	8.62	10	-14	
	Acetone	3.3833	2.5548	75.51	100	-24	
	Methyl Iodide	0.4333	0.3630	8.38	10	-16	
	Carbon Disulfide	0.7765	0.6901	8.89	10	-11	
	Allyl Chloride	0.5116	0.4191	8.19	10	-18	
	Methyl Acetate	0.1554	0.1287	8.28	10	-17	
	Methylene Chloride	0.2728	0.2386	8.75	10	-13	
	t-Butyl Alcohol	1.0906	0.7138	130.91	200	-35	
	Acrylonitrile	3.5999	3.3056	45.91	50	-8	
	trans-1,2-Dichloroethene	0.2682	0.2348	8.75	10	-12	
	Methyl Tertiary Butyl Ether	0.7583	0.6707	8.84	10	-12	
	n-Hexane	0.4666	0.3961	8.49	10	-15	
#	1,1-Dichloroethane	0.5776	0.4947	8.57	10	-14	#
	di-Isopropyl Ether	1.1236	0.9256	8.24	10	-18	
	2-Chloro-1,3-Butadiene	0.5211	0.4257	8.17	10	-18	
	Ethyl t-butyl ether	0.9719	0.8144	8.38	10	-16	
	cis-1,2-Dichloroethene	0.2962	0.2664	8.99	10	-10	
	2,2-Dichloropropane	0.4621	0.3641	7.88	10	-21	
	2-Butanone	5.7459	5.0473	87.84	100	-12	
	Propionitrile	1.2645	1.2848	203.22	200	2	
	Methacrylonitrile	4.4588	4.3011	96.46	100	-4	
	Bromochloromethane	0.1263	0.1189	9.42	10	-6	
	Tetrahydrofuran	1.4248	1.3060	91.66	100	-8	
*	Chloroform	0.5222	0.4456	8.53	10	-15	*

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: HP10193 Calibration Date: 10/14/15 Time: 08:35

Lab File ID: cc14c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	1,1,1-Trichloroethane	0.4550	0.3665	8.06	10	-19	
	Cyclohexane	0.5664	0.4766	8.41	10	-16	
	Cyclohexane(2)	0.4292	0.3753	8.74	10	-13	
	Cyclohexane(3)	0.1649	0.1387	8.41	10	-16	
	1,1-Dichloropropene	0.4276	0.3778	8.83	10	-12	
	Carbon Tetrachloride	0.3863	0.3126	8.09	10	-19	
	Isobutyl Alcohol	0.3938	0.3606	457.76	500	-8	
	Benzene	1.1496	1.0523	9.15	10	-8	
	1,2-Dichloroethane	0.4083	0.3471	8.50	10	-15	
	1,2-Dichloroethane(2)	0.0317	0.0278	8.77	10	-12	
	t-Amyl methyl ether	0.7931	0.6935	8.74	10	-13	
	n-Heptane	0.5569	0.4737	8.51	10	-15	
	n-Butanol	0.3132	0.3128	1016.84	1000	2	
	Trichloroethene	0.3016	0.2727	9.04	10	-10	
	Methylcyclohexane	0.5144	0.4875	9.48	10	-5	
*	1,2-Dichloropropane	0.3093	0.2918	9.43	10	-6	*
	Methyl Methacrylate	9.4932	6.1798	6.51	10	-35	
	Dibromomethane	0.1344	0.1332	9.91	10	-1	
	1,4-Dioxane	0.0633	0.0630	498.26	500	0	
	Bromodichloromethane	0.3643	0.3366	9.24	10	-8	
	2-Nitropropane	3.7823	3.4645	91.60	100	-8	
	1-Bromo-2-chloroethane	0.3277	0.3289	10.04	10	0	
	cis-1,3-Dichloropropene	0.4412	0.4257	9.65	10	-4	
	4-Methyl-2-Pentanone	0.2314	0.2257	97.53	100	-2	
*	Toluene	0.9927	0.9118	9.19	10	-8	*
	trans-1,3-Dichloropropene	0.5008	0.4840	9.66	10	-3	
	Ethyl Methacrylate	0.4264	0.4344	10.19	10	2	
	1,1,2-Trichloroethane	0.2607	0.2629	10.08	10	1	
	Tetrachloroethene	0.4561	0.3889	8.53	10	-15	
	1,3-Dichloropropane	0.4936	0.4957	10.04	10	0	
	2-Hexanone	0.2262	0.2267	100.24	100	0	
	Dibromochloromethane	0.3051	0.2937	9.63	10	-4	
	1,2-Dibromoethane	0.2512	0.2581	10.28	10	3	
#	Chlorobenzene	1.1229	1.0328	9.20	10	-8	#
	1,1,1,2-Tetrachloroethane	0.3727	0.3340	8.96	10	-10	
*	Ethylbenzene	1.9612	1.8144	9.25	10	-7	*

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: HP10193 Calibration Date: 10/14/15 Time: 08:35

Lab File ID: cc14c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7478	0.6821	18.24	20	-9	
	o-Xylene	0.7420	0.6664	8.98	10	-10	
	Styrene	1.2252	1.1386	9.29	10	-7	
#	Bromoform	0.1709	0.1540	9.01	10	-10	#
	Isopropylbenzene	1.9545	1.7351	8.88	10	-11	
#	1,1,2,2-Tetrachloroethane	0.5788	0.6192	10.70	10	7	#
	Bromobenzene	0.8737	0.8308	9.51	10	-5	
	trans-1,4-Dichloro-2-butene	4.1778	1.3616	32.59	100	-67	
	1,2,3-Trichloropropane	0.1628	0.1671	10.26	10	3	
	n-Propylbenzene	4.1501	4.1224	9.93	10	-1	
	2-Chlorotoluene	0.8189	0.7876	9.62	10	-4	
	1,3,5-Trimethylbenzene	3.0224	2.8883	9.56	10	-4	
	4-Chlorotoluene	0.8602	0.8234	9.57	10	-4	
	tert-Butylbenzene	0.6267	0.5943	9.48	10	-5	
	Pentachloroethane	0.4926	0.4661	9.46	10	-5	
	1,2,4-Trimethylbenzene	3.1181	2.9692	9.52	10	-5	
	sec-Butylbenzene	3.8303	3.7111	9.69	10	-3	
	1,3-Dichlorobenzene	1.7011	1.5973	9.39	10	-6	
	p-Isopropyltoluene	3.4172	3.2303	9.45	10	-5	
	1,4-Dichlorobenzene	1.7907	1.6154	9.02	10	-10	
	1,2,3-Trimethylbenzene	1.3817	1.2797	9.26	10	-7	
	Benzyl Chloride	0.2193	0.2207	10.07	10	1	
	n-Butylbenzene	1.6711	1.6195	9.69	10	-3	
	1,2-Dichlorobenzene	1.5558	1.4549	9.35	10	-6	
	1,2-Dibromo-3-chloropropane	2.0973	1.6780	8.00	10	-20	
	1,2,4-Trichlorobenzene	1.2241	1.0558	8.63	10	-14	
	Hexachlorobutadiene	0.6666	0.5753	8.63	10	-14	
	Naphthalene	1.8801	1.7140	9.12	10	-9	
	1,2,3-Trichlorobenzene	0.9996	0.8104	8.11	10	-19	
	Dibromofluoromethane	0.2394	0.2270	9.48	10	-5	
	Dibromofluoromethane(2)	0.2457	0.2321	9.45	10	-6	
	1,2-Dichloroethane-d4	0.0481	0.0489	10.17	10	2	
	1,2-Dichloroethane-d4(2)	0.2997	0.2681	8.95	10	-11	
	1,2-Dichloroethane-d4(3)	0.0305	0.0326	10.68	10	7	
	Toluene-d8	1.3834	1.3802	9.98	10	0	

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: HP10193 Calibration Date: 10/14/15 Time: 08:35

Lab File ID: cc14c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT
Toluene-d8(2)	0.8909	0.9009	10.11	10	1
4-Bromofluorobenzene	0.5235	0.5004	9.56	10	-4
4-Bromofluorobenzene(2)	0.4496	0.4124	9.17	10	-8

Average %Drift 15

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR31___

Lab File ID (Standard): cc14c01.d Date Analyzed: 10/14/15

Instrument ID: HP10193 Time Analyzed: 08:35

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	214417	3.889	2583659	7.425	1899530	10.979	977820	12.881
UPPER LIMIT	428834	4.389	5167318	7.925	3799060	11.479	1955640	13.381
LOWER LIMIT	107208	3.389	1291830	6.925	949765	10.479	488910	12.381
LAB SAMPLE ID								
01 LCSC47	209418	3.913	2597314	7.431	1891500	10.985	978887	12.881
02 LCSC48	209418	3.913	2597314	7.431	1891500	10.985	978887	12.881
03 LCDC47	200542	3.919	2599518	7.431	1889774	10.985	978395	12.881
04 VBLKC47	200416	3.907	2530916	7.431	1845667	10.985	932863	12.887
05 VBLKC48	200416	3.907	2530916	7.431	1845667	10.985	932863	12.887
06 8074748	206250	3.901	2538011	7.431	1855541	10.985	948307	12.887
07 8074748DL	166115	3.913	2458471	7.431	1815238	10.985	905429	12.887
08 8064716DL	199978	3.913	2479562	7.431	1807268	10.985	923744	12.887
09 8074742	419687	3.864	2494460	7.431	1866099	10.985	970833	12.881
10 8074743	371001	3.858	2528667	7.431	1881700	10.985	968348	12.881
11 8076577	121037	3.968	2478349	7.425	1827016	10.985	939674	12.887
12 8076579	167881	3.907	2460627	7.431	1822074	10.985	905377	12.887
13 8076581	190077	3.932	2458996	7.431	1795812	10.985	910302	12.887
14 8083449	183543	3.907	2422523	7.431	1783535	10.985	902981	12.887
15 8086814	181806	3.926	2387994	7.431	1763745	10.985	899409	12.887
16 8083451	183197	3.901	2430064	7.431	1794213	10.985	908464	12.887
17 8083452MS	182849	3.919	2500164	7.431	1819047	10.985	955591	12.881
18 8083453MSD	208828	3.901	2487612	7.425	1819979	10.979	951430	12.881
19 8083446	195883	3.895	2453366	7.425	1796802	10.985	917334	12.887
20 8083447	210872	3.889	2451351	7.425	1810567	10.985	917515	12.887
21 8083448	211547	3.901	2455628	7.431	1808653	10.985	905366	12.887
22 8083450	196925	3.895	2431506	7.425	1785707	10.985	909363	12.887

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR31___

Lab File ID (Standard): cc14c01.d Date Analyzed: 10/14/15

Instrument ID: HP10193 Time Analyzed: 08:35

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	214417	3.889	2583659	7.425	1899530	10.979	977820	12.881
UPPER LIMIT	428834	4.389	5167318	7.925	3799060	11.479	1955640	13.381
LOWER LIMIT	107208	3.389	1291830	6.925	949765	10.479	488910	12.381
LAB SAMPLE ID								
23 8083454	174304	3.901	2403803	7.425	1765134	10.985	880152	12.887
24 8083455	165546	3.907	2372426	7.431	1737626	10.985	879276	12.887
25 8086808	159818	3.907	2353232	7.425	1744900	10.985	883580	12.887

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\15JUL30A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CL30T01.D	BFB MAR06-15	07/30/2015	11:30		
KEL01973	CL30I11.D	VSTD025	07/30/2015	12:20		
KEL01973	CL30I12.D	VSTD010	07/30/2015	12:43		
KEL01973	CL30I13.D	VSTD005	07/30/2015	13:06		
KEL01973	CL30I14.D	VSTD002	07/30/2015	13:30		
KEL01973	CL30I15.D	VSTD001	07/30/2015	13:53		
KEL01973	CL30I16.D	VSTD0.5	07/30/2015	14:16		
KEL01973	CL30I17.D	VSTD0.2	07/30/2015	14:38		
KEL01973	CL30M11.D	MDL0.1	07/30/2015	15:01		
KEL01973	CL30V11.D	LCSC02	07/30/2015	15:23		
KEL01973	CL30X02.D	BLK	07/30/2015	15:46		
KEL01973	CL30I02.D	VSTD010	07/30/2015	16:33		
KEL01973	CL30I03.D	VSTD005	07/30/2015	16:57		
KEL01973	CL30I04.D	VSTD002	07/30/2015	17:19		
KEL01973	CL30I05.D	VSTD001	07/30/2015	17:41		
KEL01973	CL30I06.D	VSTD0.5	07/30/2015	18:04		
KEL01973	CL30I07.D	VSTD0.2	07/30/2015	18:27		
KEL01973	CL30M01.D	MDL0.1	07/30/2015	18:50		
KEL01973	CL30M02.D	MDL0.4	07/30/2015	19:12		
KEL01973	CL30V01.D	LCSCLG	07/30/2015	19:34		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\15OCT14A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CC14T01.D	BFB AUG28-15	10/14/2015	07:48		
KEL01973	CC14X01.D	BLK	10/14/2015	08:13	C152871AA	
KEL01973	CC14C01.D	VSTD010	10/14/2015	08:35	C152871AA	
KEL01973	CC14L01.D	LCSC47	10/14/2015	08:58	C152871AA	
KEL01973	CC14L02.D	LCDC47	10/14/2015	09:20	C152871AA	
KEL01973	CC14B01.D	VBLKC47	10/14/2015	09:42	C152871AA	
KEL01973	CC14S01.D	8074748RE	10/14/2015	10:05	C152871AA	10
KEL01973	CC14S02.D	8074748DL2	10/14/2015	10:27	C152871AA	1000
KEL01973	CC14S03.D	8064716DL	10/14/2015	12:38	C152871AA	10
KEL01973	CC14S04.D	8074742	10/14/2015	13:00	C152871AA	10
KEL01973	CC14S05.D	8074743	10/14/2015	13:23	C152871AA	10
KEL01973	CC14X02.D	BLK	10/14/2015	13:45	C152871AA	
KEL01973	CC14S06.D	8076577	10/14/2015	14:07	C152871AA	
KEL01973	CC14S07.D	8076579	10/14/2015	14:30	C152871AA	
KEL01973	CC14S08.D	8076581	10/14/2015	14:52	C152871AA	
KEL01973	CC14S31.D	8083449	10/14/2015	15:15	C152872AA	
KEL01973	CC14S41.D	8086814	10/14/2015	15:37	C152872AA	
KEL01973	CC14S32.D	8083451	10/14/2015	15:59	C152872AA	
KEL01973	CC14S33.D	8083452MS	10/14/2015	16:22	C152872AA	
KEL01973	CC14S34.D	8083453MSD	10/14/2015	16:44	C152872AA	
KEL01973	CC14S35.D	8083446	10/14/2015	17:06	C152872AA	
KEL01973	CC14S36.D	8083447	10/14/2015	17:29	C152872AA	
KEL01973	CC14S37.D	8083448	10/14/2015	17:51	C152872AA	
KEL01973	CC14S38.D	8083450	10/14/2015	18:14	C152872AA	
KEL01973	CC14S39.D	8083454	10/14/2015	18:36	C152872AA	
KEL01973	CC14S40.D	8083455	10/14/2015	18:58	C152872AA	
KEL01973	CC14S42.D	8086808	10/14/2015	19:21	C152872AA	

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 | 717-656-2300 | Fax: 717-656-2681 | www.LancasterLabs.com

Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Groundwater, Soil and Water Samples
Collected on 10/09/15

SDG# DHR32

GROUP	SAMPLE NUMBERS
1599902	8084533-8084535

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:** **10/28/2015**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

2425 New Holland Pike, Lancaster, PA 17601 · 717-656-2300 · Fax: 717-656-2681 · www.LancasterLabs.com

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Sample Reference List for SDG Number DHR32
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
8084533	HRWS1	HGR-WS01-100915 Composite Soil
8084534	HRWL1	HGR-WL01-100915 Composite Groundwater
8084535	HRTB1	Trip Blank Water

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Sample pH Log

SDG: DHR32

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8084534	008A	<2	<2	PK	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084534	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084534	038B	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084534	038C	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084535	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key

PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

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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.

10335 VOCs- 5ml Water by 8260B

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

10237 VOCs- Solid by 8260B

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

01848 ICP-WW, 3005A (tot rec) - U3

The sample is digested with nitric acid and hydrochloric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3005A, 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 Hg-SW, 7471A - U3

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.

06935 Arsenic
07035 Arsenic
06946 Barium
07046 Barium
07049 Cadmium
06949 Cadmium
07051 Chromium
06951 Chromium
06955 Lead
07055 Lead
07036 Selenium
06936 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.

05708 ICP-ICPMS - SW, 3050B - U3

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 8270C Water

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

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-1997

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.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	CH2M Hill, Inc. PO Box 241329 Denver CO 80224

October 27, 2015

Project: Dow Hanging Rock, OH

Submittal Date: 10/10/2015
Group Number: 1599902
SDG: DHR32
PO Number: 10381-7-101541
Release Number: DHR32
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
HGR-WS01-100915 Composite Soil	8084533
HGR-WL01-100915 Composite Groundwater	8084534
Trip Blank Water	8084535

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: HGR-WS01-100915 Composite Soil
Dow Hanging Rock, OH

LL Sample # SW 8084533
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:15 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWS1 SDG#: DHR32-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	ug/kg	
10237	Acetone	67-64-1	22	U	22	8	0.97
10237	Benzene	71-43-2	6	U	6	0.6	0.97
10237	Bromodichloromethane	75-27-4	6	U	6	1	0.97
10237	Bromoform	75-25-2	6	U	6	1	0.97
10237	Bromomethane	74-83-9	6	U	6	2	0.97
10237	2-Butanone	78-93-3	11	U	11	4	0.97
10237	Carbon Disulfide	75-15-0	6	U	6	1	0.97
10237	Carbon Tetrachloride	56-23-5	6	U	6	1	0.97
10237	Chlorobenzene	108-90-7	6	U	6	1	0.97
10237	Chloroethane	75-00-3	6	U	6	2	0.97
10237	Chloroform	67-66-3	6	U	6	1	0.97
10237	Chloromethane	74-87-3	6	U	6	2	0.97
10237	Cyclohexane	110-82-7	6	U	6	1	0.97
10237	1,2-Dibromo-3-chloropropane	96-12-8	6	U	6	2	0.97
10237	Dibromochloromethane	124-48-1	6	U	6	1	0.97
10237	1,2-Dibromoethane	106-93-4	6	U	6	1	0.97
10237	1,2-Dichlorobenzene	95-50-1	6	U	6	1	0.97
10237	1,3-Dichlorobenzene	541-73-1	6	U	6	1	0.97
10237	1,4-Dichlorobenzene	106-46-7	6	U	6	1	0.97
10237	Dichlorodifluoromethane	75-71-8	6	U	6	2	0.97
10237	1,1-Dichloroethane	75-34-3	6	U	6	1	0.97
10237	1,2-Dichloroethane	107-06-2	6	U	6	1	0.97
10237	1,1-Dichloroethene	75-35-4	6	U	6	1	0.97
10237	cis-1,2-Dichloroethene	156-59-2	6	U	6	1	0.97
10237	trans-1,2-Dichloroethene	156-60-5	6	U	6	1	0.97
10237	1,2-Dichloropropane	78-87-5	6	U	6	1	0.97
10237	cis-1,3-Dichloropropene	10061-01-5	6	U	6	1	0.97
10237	trans-1,3-Dichloropropene	10061-02-6	6	U	6	1	0.97
10237	Ethylbenzene	100-41-4	15		6	1	0.97
10237	Freon 113	76-13-1	11	U	11	2	0.97
10237	2-Hexanone	591-78-6	11	U	11	3	0.97
10237	Isopropylbenzene	98-82-8	6	U	6	1	0.97
10237	Methyl Acetate	79-20-9	6	U	6	2	0.97
10237	Methyl Tertiary Butyl Ether	1634-04-4	6	U	6	0.6	0.97
10237	4-Methyl-2-pentanone	108-10-1	11	U	11	3	0.97
10237	Methylcyclohexane	108-87-2	6	U	6	1	0.97
10237	Methylene Chloride	75-09-2	6	U	6	2	0.97
10237	Styrene	100-42-5	6	U	6	1	0.97
10237	1,1,2,2-Tetrachloroethane	79-34-5	6	U	6	1	0.97
10237	Tetrachloroethene	127-18-4	6		6	1	0.97
10237	Toluene	108-88-3	6	U	6	1	0.97
10237	1,2,4-Trichlorobenzene	120-82-1	6	U	6	1	0.97
10237	1,1,1-Trichloroethane	71-55-6	6	U	6	1	0.97
10237	1,1,2-Trichloroethane	79-00-5	6	U	6	1	0.97
10237	Trichloroethene	79-01-6	6	U	6	1	0.97
10237	Trichlorofluoromethane	75-69-4	6	U	6	2	0.97
10237	Vinyl Chloride	75-01-4	6	U	6	1	0.97
10237	Xylene (Total)	1330-20-7	6	U	6	1	0.97

Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

*=This limit was used in the evaluation of the final result

Sample Description: HGR-WS01-100915 Composite Soil
Dow Hanging Rock, OH

LL Sample # SW 8084533
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:15 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWS1 SDG#: DHR32-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	19	U	19	4	1
10727	Acenaphthylene	208-96-8	49		19	4	1
10727	Acetophenone	98-86-2	38	U	38	19	1
10727	Anthracene	120-12-7	74		19	4	1
10727	Atrazine	1912-24-9	190	U	190	38	1
10727	Benzaldehyde	100-52-7	190	U	190	75	1
10727	Benzo(a)anthracene	56-55-3	210		19	4	1
10727	Benzo(a)pyrene	50-32-8	230		19	4	1
10727	Benzo(b)fluoranthene	205-99-2	360		19	4	1
10727	Benzo(g,h,i)perylene	191-24-2	190		19	4	1
10727	Benzo(k)fluoranthene	207-08-9	140		19	4	1
10727	1,1'-Biphenyl	92-52-4	38	U	38	19	1
10727	4-Bromophenyl-phenylether	101-55-3	38	U	38	19	1
10727	Butylbenzylphthalate	85-68-7	190	U	190	75	1
10727	Di-n-butylphthalate	84-74-2	190	U	190	75	1
10727	Caprolactam	105-60-2	190	U	190	38	1
10727	Carbazole	86-74-8	38	U	38	19	1
10727	4-Chloro-3-methylphenol	59-50-7	38	U	38	19	1
10727	4-Chloroaniline	106-47-8	75	U	75	38	1
10727	bis(2-Chloroethoxy)methane	111-91-1	38	U	38	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	38	U	38	19	1
10727	2-Chloronaphthalene	91-58-7	37	U	37	8	1
10727	2-Chlorophenol	95-57-8	38	U	38	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	38	U	38	19	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	38	U	38	19	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
10727	Chrysene	218-01-9	200		19	4	1
10727	Dibenz(a,h)anthracene	53-70-3	54		19	4	1
10727	Dibenzofuran	132-64-9	23	J	38	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	380	U	380	110	1
10727	2,4-Dichlorophenol	120-83-2	38	U	38	19	1
10727	Diethylphthalate	84-66-2	190	U	190	75	1
10727	2,4-Dimethylphenol	105-67-9	38	U	38	19	1
10727	Dimethylphthalate	131-11-3	190	U	190	75	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	570	U	570	190	1
10727	2,4-Dinitrophenol	51-28-5	1,100	U	1,100	340	1
10727	2,4-Dinitrotoluene	121-14-2	190	U	190	75	1
10727	2,6-Dinitrotoluene	606-20-2	38	U	38	19	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	190	U	190	75	1
10727	Fluoranthene	206-44-0	320		19	4	1
10727	Fluorene	86-73-7	8	J	19	4	1
10727	Hexachlorobenzene	118-74-1	19	U	19	4	1
10727	Hexachlorobutadiene	87-68-3	38	U	38	19	1
10727	Hexachlorocyclopentadiene	77-47-4	570	U	570	190	1
10727	Hexachloroethane	67-72-1	190	U	190	38	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	170		19	4	1
10727	Isophorone	78-59-1	38	U	38	19	1
10727	2-Methylnaphthalene	91-57-6	5	J	19	4	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WS01-100915 Composite Soil
Dow Hanging Rock, OH

LL Sample # SW 8084533
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:15 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWS1 SDG#: DHR32-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	**ug/kg**	
10727	2-Methylphenol	95-48-7	38	U	38	19	1
10727	4-Methylphenol	106-44-5	38	U	38	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	Naphthalene	91-20-3	8	J	19	4	1
10727	2-Nitroaniline	88-74-4	38	U	38	19	1
10727	3-Nitroaniline	99-09-2	190	U	190	75	1
10727	4-Nitroaniline	100-01-6	190	U	190	75	1
10727	Nitrobenzene	98-95-3	38	U	38	19	1
10727	2-Nitrophenol	88-75-5	38	U	38	19	1
10727	4-Nitrophenol	100-02-7	570	U	570	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	38	U	38	19	1
10727	N-Nitrosodiphenylamine	86-30-6	38	U	38	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	190	U	190	75	1
10727	Pentachlorophenol	87-86-5	190	U	190	38	1
10727	Phenanthrene	85-01-8	190		19	4	1
10727	Phenol	108-95-2	38	U	38	19	1
10727	Pyrene	129-00-0	310		19	4	1
10727	2,4,5-Trichlorophenol	95-95-4	38	U	38	19	1
10727	2,4,6-Trichlorophenol	88-06-2	38	U	38	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	**mg/kg**	
06935	Arsenic	7440-38-2	7.64		2.23	0.647	1
06946	Barium	7440-39-3	89.2		0.558	0.0747	1
06949	Cadmium	7440-43-9	0.514	J	0.558	0.0480	1
06951	Chromium	7440-47-3	12.4		1.67	0.109	1
06955	Lead	7439-92-1	5.84		1.67	0.357	1
06936	Selenium	7782-49-2	2.71		2.23	0.926	1
06966	Silver	7440-22-4	0.558	U	0.558	0.134	1
	SW-846 7471A		**mg/kg**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0178	J	0.109	0.0109	1
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	12.1		0.50	0.50	1
	Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported 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.

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: HGR-WS01-100915 Composite Soil
Dow Hanging Rock, OH

LL Sample # SW 8084533
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:15 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWS1 SDG#: DHR32-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time		Analyst	Dilution Factor
10237	VOCs- Solid by 8260B	SW-846 8260B	1	A152951AA	10/22/2015	10:14	Linda C Pape	0.97
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201528339077	10/10/2015	18:20	Mitchell R Washel	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201528339077	10/10/2015	18:20	Mitchell R Washel	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201528339077	10/10/2015	18:19	Mitchell R Washel	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15290SLG026	10/20/2015	19:12	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	15290SLG026	10/19/2015	18:35	Sally L Appleyard	1
06935	Arsenic	SW-846 6010B	1	152925708001	10/23/2015	06:13	Tara L Snyder	1
06946	Barium	SW-846 6010B	1	152925708001	10/22/2015	21:28	Suzanne M Will	1
06949	Cadmium	SW-846 6010B	1	152925708001	10/23/2015	06:13	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	152925708001	10/22/2015	21:28	Suzanne M Will	1
06955	Lead	SW-846 6010B	1	152925708001	10/22/2015	21:28	Suzanne M Will	1
06936	Selenium	SW-846 6010B	1	152925708001	10/23/2015	06:13	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	152925708001	10/22/2015	21:28	Suzanne M Will	1
00159	Mercury	SW-846 7471A	1	152885711001	10/18/2015	09:49	Damary Valentin	1
05708	ICP-ICPMS - SW, 3050B - U3	SW-846 3050B	1	152925708001	10/19/2015	22:36	Annamaria Kuhns	1
05711	Hg-SW, 7471A - U3	SW-846 7471A modified	1	152885711001	10/16/2015	14:03	Christopher M Klumpp	1
00111	Moisture	SM 2540 G-1997	1	15287820006A	10/14/2015	20:09	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: HGR-WL01-100915 Composite Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084534
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:20 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWL1 SDG#: DHR32-02

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	12	J	20	6	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromodichloromethane	75-27-4	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Bromomethane	74-83-9	1	U	1	0.5	1
10335	2-Butanone	78-93-3	10	U	10	3	1
10335	Carbon Disulfide	75-15-0	5	U	5	1	1
10335	Carbon Tetrachloride	56-23-5	1	U	1	0.5	1
10335	Chlorobenzene	108-90-7	1	U	1	0.5	1
10335	Chloroethane	75-00-3	1	U	1	0.5	1
10335	Chloroform	67-66-3	2		1	0.5	1
10335	Chloromethane	74-87-3	1	U	1	0.5	1
10335	Cyclohexane	110-82-7	5	U	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	5	U	5	2	1
10335	Dibromochloromethane	124-48-1	1	U	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	1	U	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	5	U	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	5	U	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	5	U	5	1	1
10335	Dichlorodifluoromethane	75-71-8	1	U	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	1	U	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	1	U	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	1	U	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	1	U	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Freon 113	76-13-1	10	U	10	2	1
10335	2-Hexanone	591-78-6	10	U	10	3	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methyl Acetate	79-20-9	5	U	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	1	U	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	10	U	10	3	1
10335	Methylcyclohexane	108-87-2	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.5	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	Toluene	108-88-3	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	1	U	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	1	U	1	0.5	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	1	U	1	0.5	1
10335	Vinyl Chloride	75-01-4	1	U	1	0.5	1
10335	Xylene (Total)	1330-20-7	1	U	1	0.5	1

Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

*=This limit was used in the evaluation of the final result

Sample Description: HGR-WL01-100915 Composite Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084534
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:20 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWL1 SDG#: DHR32-02

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	Acenaphthene	83-32-9	0.5	U	0.5	0.1	1
04678	Acenaphthylene	208-96-8	0.5	U	0.5	0.1	1
04678	Acetophenone	98-86-2	1	U	1	0.5	1
04678	Anthracene	120-12-7	0.5	U	0.5	0.1	1
04678	Atrazine	1912-24-9	5	U	5	2	1
04678	Benzaldehyde	100-52-7	5	U	5	1	1
04678	Benzo(a)anthracene	56-55-3	0.5	U	0.5	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.5	U	0.5	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.5	U	0.5	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.5	U	0.5	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.5	U	0.5	0.1	1
04678	1,1'-Biphenyl	92-52-4	12		1	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	1	U	1	0.5	1
04678	Butylbenzylphthalate	85-68-7	5	U	5	2	1
04678	Di-n-butylphthalate	84-74-2	2	J	5	2	1
04678	Caprolactam	105-60-2	16	U	16	5	1
04678	Carbazole	86-74-8	1	U	1	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	1	U	1	0.5	1
04678	4-Chloroaniline	106-47-8	4	U	4	2	1
04678	bis(2-Chloroethoxy)methane	111-91-1	1	U	1	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	1	U	1	0.5	1
04678	2-Chloronaphthalene	91-58-7	1	U	1	0.4	1
04678	2-Chlorophenol	95-57-8	1	U	1	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	1	U	1	0.5	1
04678	2,2'-oxybis(1-Chloropropane)	108-60-1	1	U	1	0.5	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.						
04678	Chrysene	218-01-9	0.5	U	0.5	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.5	U	0.5	0.1	1
04678	Dibenzofuran	132-64-9	1	U	1	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	5	U	5	2	1
04678	2,4-Dichlorophenol	120-83-2	1	U	1	0.5	1
04678	Diethylphthalate	84-66-2	5	U	5	2	1
04678	2,4-Dimethylphenol	105-67-9	1	U	1	0.5	1
04678	Dimethylphthalate	131-11-3	5	U	5	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	16	U	16	5	1
04678	2,4-Dinitrophenol	51-28-5	31	U	31	10	1
04678	2,4-Dinitrotoluene	121-14-2	5	U	5	1	1
04678	2,6-Dinitrotoluene	606-20-2	1	U	1	0.5	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	5	U	5	2	1
04678	Fluoranthene	206-44-0	0.5	U	0.5	0.1	1
04678	Fluorene	86-73-7	0.5	U	0.5	0.1	1
04678	Hexachlorobenzene	118-74-1	0.5	U	0.5	0.1	1
04678	Hexachlorobutadiene	87-68-3	1	U	1	0.5	1
04678	Hexachlorocyclopentadiene	77-47-4	16	U	16	5	1
04678	Hexachloroethane	67-72-1	5	U	5	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.5	U	0.5	0.1	1
04678	Isophorone	78-59-1	1	U	1	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.5	U	0.5	0.1	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: HGR-WL01-100915 Composite Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084534
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:20 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWL1 SDG#: DHR32-02

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	**ug/l**	
04678	2-Methylphenol	95-48-7	1	U	1	0.5	1
04678	4-Methylphenol	106-44-5	1	U	1	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	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
04678	2-Nitroaniline	88-74-4	1	U	1	0.5	1
04678	3-Nitroaniline	99-09-2	1	U	1	0.5	1
04678	4-Nitroaniline	100-01-6	1	U	1	0.5	1
04678	Nitrobenzene	98-95-3	1	U	1	0.5	1
04678	2-Nitrophenol	88-75-5	1	U	1	0.5	1
04678	4-Nitrophenol	100-02-7	31	U	31	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	1	U	1	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	1	U	1	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	5	U	5	2	1
04678	Pentachlorophenol	87-86-5	5	U	5	1	1
04678	Phenanthrene	85-01-8	0.5	U	0.5	0.1	1
04678	Phenol	108-95-2	1	U	1	0.5	1
04678	Pyrene	129-00-0	0.5	U	0.5	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	1	U	1	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	1	U	1	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	**mg/l**	
07035	Arsenic	7440-38-2	0.0200	U	0.0200	0.0070	1
07046	Barium	7440-39-3	0.0618		0.0050	0.00030	1
07049	Cadmium	7440-43-9	0.0050	U	0.0050	0.00030	1
07051	Chromium	7440-47-3	0.0286		0.0150	0.0015	1
07055	Lead	7439-92-1	0.0095	J	0.0150	0.0051	1
07036	Selenium	7782-49-2	0.0200	U	0.0200	0.0082	1
07066	Silver	7440-22-4	0.0050	U	0.0050	0.0014	1
	SW-846 7470A		**mg/l**		**mg/l**	**mg/l**	
00259	Mercury	7439-97-6	0.00020	U	0.00020	0.000050	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
10335	TCL 4.3 VOCs Water	SW-846 8260B	1	N152921AA	10/19/2015 14:39	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N152921AA	10/19/2015 14:39	Daniel H Heller	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-WL01-100915 Composite Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084534
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 14:20 by DR

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRWL1 SDG#: DHR32-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 8270C Water	SW-846 8270C	1	15288WAK026	10/20/2015 01:06	Catherine E Bachman	1
00813	BNA Water Extraction	SW-846 3510C	1	15288WAK026	10/16/2015 08:30	Jessica M Velez	1
07035	Arsenic	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
07046	Barium	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
07049	Cadmium	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
07051	Chromium	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
07055	Lead	SW-846 6010B	1	152931848003	10/27/2015 02:52	Tara L Snyder	1
07036	Selenium	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
07066	Silver	SW-846 6010B	1	152931848003	10/26/2015 13:08	Eric L Eby	1
00259	Mercury	SW-846 7470A	1	152935713005	10/22/2015 04:36	Damary Valentin	1
01848	ICP-WW, 3005A (tot rec) - U3	SW-846 3005A	1	152931848003	10/21/2015 11:13	Katlin N Cataldi	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	152935713005	10/21/2015 12:30	Katlin N Cataldi	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: Trip Blank Water
Dow Hanging Rock, OH

LL Sample # WW 8084535
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRTB1 SDG#: DHR32-03TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	20	U	20	6	1
10335	Benzene	71-43-2	1	U	1	0.5	1
10335	Bromodichloromethane	75-27-4	1	U	1	0.5	1
10335	Bromoform	75-25-2	4	U	4	0.5	1
10335	Bromomethane	74-83-9	1	U	1	0.5	1
10335	2-Butanone	78-93-3	10	U	10	3	1
10335	Carbon Disulfide	75-15-0	5	U	5	1	1
10335	Carbon Tetrachloride	56-23-5	1	U	1	0.5	1
10335	Chlorobenzene	108-90-7	1	U	1	0.5	1
10335	Chloroethane	75-00-3	1	U	1	0.5	1
10335	Chloroform	67-66-3	1	U	1	0.5	1
10335	Chloromethane	74-87-3	1	U	1	0.5	1
10335	Cyclohexane	110-82-7	5	U	5	2	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	5	U	5	2	1
10335	Dibromochloromethane	124-48-1	1	U	1	0.5	1
10335	1,2-Dibromoethane	106-93-4	1	U	1	0.5	1
10335	1,2-Dichlorobenzene	95-50-1	5	U	5	1	1
10335	1,3-Dichlorobenzene	541-73-1	5	U	5	1	1
10335	1,4-Dichlorobenzene	106-46-7	5	U	5	1	1
10335	Dichlorodifluoromethane	75-71-8	1	U	1	0.5	1
10335	1,1-Dichloroethane	75-34-3	1	U	1	0.5	1
10335	1,2-Dichloroethane	107-06-2	1	U	1	0.5	1
10335	1,1-Dichloroethene	75-35-4	1	U	1	0.5	1
10335	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.5	1
10335	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.5	1
10335	1,2-Dichloropropane	78-87-5	1	U	1	0.5	1
10335	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.5	1
10335	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.5	1
10335	Ethylbenzene	100-41-4	1	U	1	0.5	1
10335	Freon 113	76-13-1	10	U	10	2	1
10335	2-Hexanone	591-78-6	10	U	10	3	1
10335	Isopropylbenzene	98-82-8	5	U	5	1	1
10335	Methyl Acetate	79-20-9	5	U	5	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	1	U	1	0.5	1
10335	4-Methyl-2-pentanone	108-10-1	10	U	10	3	1
10335	Methylcyclohexane	108-87-2	5	U	5	1	1
10335	Methylene Chloride	75-09-2	4	U	4	2	1
10335	Styrene	100-42-5	5	U	5	1	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.5	1
10335	Tetrachloroethene	127-18-4	1	U	1	0.5	1
10335	Toluene	108-88-3	1	U	1	0.5	1
10335	1,2,4-Trichlorobenzene	120-82-1	5	U	5	1	1
10335	1,1,1-Trichloroethane	71-55-6	1	U	1	0.5	1
10335	1,1,2-Trichloroethane	79-00-5	1	U	1	0.5	1
10335	Trichloroethene	79-01-6	1	U	1	0.5	1
10335	Trichlorofluoromethane	75-69-4	1	U	1	0.5	1
10335	Vinyl Chloride	75-01-4	1	U	1	0.5	1
10335	Xylene (Total)	1330-20-7	1	U	1	0.5	1

*=This limit was used in the evaluation of the final result

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Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: Trip Blank Water
Dow Hanging Rock, OH

LL Sample # WW 8084535
LL Group # 1599902
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015

Submitted: 10/10/2015 09:55
Reported: 10/27/2015 09:12

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRTB1 SDG#: DHR32-03TB

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
10335	TCL 4.3 VOCs Water	SW-846 8260B	1	W152931AA	10/20/2015 12:39	Daniel H Heller	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W152931AA	10/20/2015 12:39	Daniel H Heller	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A152951AA	Sample number(s): 8084533									
Acetone	20	U	20.	7	ug/kg	92		46-139		
Benzene	5	U	5.	0.5	ug/kg	103		80-120		
Bromodichloromethane	5	U	5.	1	ug/kg	96		75-120		
Bromoform	5	U	5.	1	ug/kg	82		64-120		
Bromomethane	5	U	5.	2	ug/kg	70		21-192		
2-Butanone	10	U	10.	4	ug/kg	87		54-129		
Carbon Disulfide	5	U	5.	1	ug/kg	99		60-120		
Carbon Tetrachloride	5	U	5.	1	ug/kg	104		69-130		
Chlorobenzene	5	U	5.	1	ug/kg	102		80-120		
Chloroethane	5	U	5.	2	ug/kg	79		21-185		
Chloroform	5	U	5.	1	ug/kg	103		80-120		
Chloromethane	5	U	5.	2	ug/kg	94		56-120		
Cyclohexane	5	U	5.	1	ug/kg	105		58-120		
1,2-Dibromo-3-chloropropane	5	U	5.	2	ug/kg	77		59-122		
Dibromochloromethane	5	U	5.	1	ug/kg	91		77-120		
1,2-Dibromoethane	5	U	5.	1	ug/kg	94		80-120		
1,2-Dichlorobenzene	5	U	5.	1	ug/kg	102		80-120		
1,3-Dichlorobenzene	5	U	5.	1	ug/kg	104		80-120		
1,4-Dichlorobenzene	5	U	5.	1	ug/kg	104		80-120		
Dichlorodifluoromethane	5	U	5.	2	ug/kg	99		28-131		
1,1-Dichloroethane	5	U	5.	1	ug/kg	99		77-120		
1,2-Dichloroethane	5	U	5.	1	ug/kg	98		77-130		
1,1-Dichloroethene	5	U	5.	1	ug/kg	107		73-129		
cis-1,2-Dichloroethene	5	U	5.	1	ug/kg	104		80-120		
trans-1,2-Dichloroethene	5	U	5.	1	ug/kg	107		79-122		
1,2-Dichloropropane	5	U	5.	1	ug/kg	101		76-120		
cis-1,3-Dichloropropene	5	U	5.	1	ug/kg	92		74-120		
trans-1,3-Dichloropropene	5	U	5.	1	ug/kg	94		76-120		
Ethylbenzene	5	U	5.	1	ug/kg	105		80-120		
Freon 113	10	U	10.	2	ug/kg	112		54-123		
2-Hexanone	10	U	10.	3	ug/kg	68		47-133		
Isopropylbenzene	5	U	5.	1	ug/kg	106		76-120		
Methyl Acetate	5	U	5.	2	ug/kg	94		61-144		
Methyl Tertiary Butyl Ether	5	U	5.	0.5	ug/kg	95		72-120		
4-Methyl-2-pentanone	10	U	10.	3	ug/kg	68		57-123		
Methylcyclohexane	5	U	5.	1	ug/kg	111		59-120		
Methylene Chloride	5	U	5.	2	ug/kg	102		76-122		
Styrene	5	U	5.	1	ug/kg	103		76-120		
1,1,2,2-Tetrachloroethane	5	U	5.	1	ug/kg	90		67-121		
Tetrachloroethene	5	U	5.	1	ug/kg	105		78-120		
Toluene	5	U	5.	1	ug/kg	103		80-120		
1,2,4-Trichlorobenzene	5	U	5.	1	ug/kg	96		60-120		
1,1,1-Trichloroethane	5	U	5.	1	ug/kg	99		59-136		

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	5	U	5.	1	ug/kg	95		80-120		
Trichloroethene	5	U	5.	1	ug/kg	103		80-120		
Trichlorofluoromethane	5	U	5.	2	ug/kg	96		58-133		
Vinyl Chloride	5	U	5.	1	ug/kg	97		59-120		
Xylene (Total)	5	U	5.	1	ug/kg	106		80-120		
Batch number: N152921AA	Sample number(s): 8084534									
Acetone	20	U	20.	6	ug/l	103	107	58-138	4	30
Benzene	1	U	1.	0.5	ug/l	104	106	78-120	2	30
Bromodichloromethane	1	U	1.	0.5	ug/l	94	96	73-120	1	30
Bromoform	4	U	4.	0.5	ug/l	82	85	61-121	3	30
Bromomethane	1	U	1.	0.5	ug/l	87	91	53-130	5	30
2-Butanone	10	U	10.	3	ug/l	109	111	62-131	2	30
Carbon Disulfide	5	U	5.	1	ug/l	101	101	58-126	0	30
Carbon Tetrachloride	1	U	1.	0.5	ug/l	98	100	74-130	2	30
Chlorobenzene	1	U	1.	0.5	ug/l	95	96	80-120	1	30
Chloroethane	1	U	1.	0.5	ug/l	84	87	56-120	4	30
Chloroform	1	U	1.	0.5	ug/l	102	103	80-120	1	30
Chloromethane	1	U	1.	0.5	ug/l	92	96	65-129	4	30
Cyclohexane	5	U	5.	2	ug/l	96	97	60-129	1	30
1,2-Dibromo-3-chloropropane	5	U	5.	2	ug/l	72	77	55-131	7	30
Dibromochloromethane	1	U	1.	0.5	ug/l	87	89	72-120	1	30
1,2-Dibromoethane	1	U	1.	0.5	ug/l	94	95	80-120	1	30
1,2-Dichlorobenzene	5	U	5.	1	ug/l	90	90	80-120	0	30
1,3-Dichlorobenzene	5	U	5.	1	ug/l	90	91	80-120	1	30
1,4-Dichlorobenzene	5	U	5.	1	ug/l	92	92	80-120	1	30
Dichlorodifluoromethane	1	U	1.	0.5	ug/l	101	100	55-127	1	30
1,1-Dichloroethane	1	U	1.	0.5	ug/l	102	103	80-120	1	30
1,2-Dichloroethane	1	U	1.	0.5	ug/l	103	105	72-127	2	30
1,1-Dichloroethene	1	U	1.	0.5	ug/l	104	108	76-124	4	30
cis-1,2-Dichloroethene	1	U	1.	0.5	ug/l	103	103	80-120	0	30
trans-1,2-Dichloroethene	1	U	1.	0.5	ug/l	105	106	80-120	1	30
1,2-Dichloropropane	1	U	1.	0.5	ug/l	105	105	80-120	1	30
cis-1,3-Dichloropropene	1	U	1.	0.5	ug/l	95	95	80-120	0	30
trans-1,3-Dichloropropene	1	U	1.	0.5	ug/l	88	88	76-120	0	30
Ethylbenzene	1	U	1.	0.5	ug/l	95	96	78-120	1	30
Freon 113	10	U	10.	2	ug/l	112	118	67-127	4	30
2-Hexanone	10	U	10.	3	ug/l	67	69	59-127	3	30
Isopropylbenzene	5	U	5.	1	ug/l	91	94	80-120	3	30
Methyl Acetate	5	U	5.	1	ug/l	107	110	64-131	3	30
Methyl Tertiary Butyl Ether	1	U	1.	0.5	ug/l	99	97	75-120	2	30
4-Methyl-2-pentanone	10	U	10.	3	ug/l	98	101	59-130	3	30
Methylcyclohexane	5	U	5.	1	ug/l	94	94	66-126	1	30
Methylene Chloride	4	U	4.	2	ug/l	103	104	77-121	1	30
Styrene	5	U	5.	1	ug/l	90	90	80-120	0	30
1,1,2,2-Tetrachloroethane	1	U	1.	0.5	ug/l	90	92	65-131	2	30
Tetrachloroethene	1	U	1.	0.5	ug/l	95	95	80-122	0	30
Toluene	1	U	1.	0.5	ug/l	94	95	80-120	2	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/l	78	79	73-120	1	30
1,1,1-Trichloroethane	1	U	1.	0.5	ug/l	92	91	66-126	1	30
1,1,2-Trichloroethane	1	U	1.	0.5	ug/l	95	96	80-120	1	30
Trichloroethene	1	U	1.	0.5	ug/l	103	104	80-120	1	30
Trichlorofluoromethane	1	U	1.	0.5	ug/l	98	98	60-142	0	30
Vinyl Chloride	1	U	1.	0.5	ug/l	94	97	69-120	3	30
Xylene (Total)	1	U	1.	0.5	ug/l	91	92	80-120	1	30

*- Outside of specification
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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: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W152931AA	Sample number(s): 8084535									
Acetone	20	U	20.	6	ug/l	95	102	58-138	7	30
Benzene	1	U	1.	0.5	ug/l	104	103	78-120	2	30
Bromodichloromethane	1	U	1.	0.5	ug/l	91	89	73-120	3	30
Bromoform	4	U	4.	0.5	ug/l	97	94	61-121	3	30
Bromomethane	1	U	1.	0.5	ug/l	86	88	53-130	2	30
2-Butanone	10	U	10.	3	ug/l	104	105	62-131	1	30
Carbon Disulfide	5	U	5.	1	ug/l	80	88	58-126	9	30
Carbon Tetrachloride	1	U	1.	0.5	ug/l	98	97	74-130	1	30
Chlorobenzene	1	U	1.	0.5	ug/l	106	102	80-120	4	30
Chloroethane	1	U	1.	0.5	ug/l	76	79	56-120	3	30
Chloroform	1	U	1.	0.5	ug/l	98	97	80-120	0	30
Chloromethane	1	U	1.	0.5	ug/l	98	103	65-129	5	30
Cyclohexane	5	U	5.	2	ug/l	95	96	60-129	1	30
1,2-Dibromo-3-chloropropane	5	U	5.	2	ug/l	88	79	55-131	10	30
Dibromochloromethane	1	U	1.	0.5	ug/l	94	91	72-120	3	30
1,2-Dibromoethane	1	U	1.	0.5	ug/l	103	98	80-120	5	30
1,2-Dichlorobenzene	5	U	5.	1	ug/l	103	101	80-120	3	30
1,3-Dichlorobenzene	5	U	5.	1	ug/l	103	100	80-120	3	30
1,4-Dichlorobenzene	5	U	5.	1	ug/l	103	101	80-120	2	30
Dichlorodifluoromethane	1	U	1.	0.5	ug/l	73	71	55-127	3	30
1,1-Dichloroethane	1	U	1.	0.5	ug/l	100	99	80-120	1	30
1,2-Dichloroethane	1	U	1.	0.5	ug/l	98	95	72-127	3	30
1,1-Dichloroethene	1	U	1.	0.5	ug/l	93	94	76-124	0	30
cis-1,2-Dichloroethene	1	U	1.	0.5	ug/l	104	103	80-120	2	30
trans-1,2-Dichloroethene	1	U	1.	0.5	ug/l	106	106	80-120	0	30
1,2-Dichloropropane	1	U	1.	0.5	ug/l	103	98	80-120	5	30
cis-1,3-Dichloropropene	1	U	1.	0.5	ug/l	90	88	80-120	2	30
trans-1,3-Dichloropropene	1	U	1.	0.5	ug/l	91	86	76-120	6	30
Ethylbenzene	1	U	1.	0.5	ug/l	102	99	78-120	3	30
Freon 113	10	U	10.	2	ug/l	92	93	67-127	2	30
2-Hexanone	10	U	10.	3	ug/l	99	97	59-127	2	30
Isopropylbenzene	5	U	5.	1	ug/l	102	99	80-120	3	30
Methyl Acetate	5	U	5.	1	ug/l	107	103	64-131	4	30
Methyl Tertiary Butyl Ether	1	U	1.	0.5	ug/l	99	100	75-120	1	30
4-Methyl-2-pentanone	10	U	10.	3	ug/l	98	97	59-130	1	30
Methylcyclohexane	5	U	5.	1	ug/l	85	90	66-126	5	30
Methylene Chloride	4	U	4.	2	ug/l	98	99	77-121	1	30
Styrene	5	U	5.	1	ug/l	98	93	80-120	4	30
1,1,2,2-Tetrachloroethane	1	U	1.	0.5	ug/l	98	95	65-131	3	30
Tetrachloroethene	1	U	1.	0.5	ug/l	113	113	80-122	0	30
Toluene	1	U	1.	0.5	ug/l	105	102	80-120	3	30
1,2,4-Trichlorobenzene	5	U	5.	1	ug/l	99	94	73-120	5	30
1,1,1-Trichloroethane	1	U	1.	0.5	ug/l	103	103	66-126	0	30
1,1,2-Trichloroethane	1	U	1.	0.5	ug/l	101	98	80-120	3	30
Trichloroethene	1	U	1.	0.5	ug/l	100	99	80-120	2	30
Trichlorofluoromethane	1	U	1.	0.5	ug/l	79	77	60-142	2	30
Vinyl Chloride	1	U	1.	0.5	ug/l	78	78	69-120	1	30
Xylene (Total)	1	U	1.	0.5	ug/l	102	99	80-120	3	30
Batch number: 15288WAK026	Sample number(s): 8084534									
Acenaphthene	0.5	U	0.5	0.1	ug/l	102		75-111		
Acenaphthylene	0.5	U	0.5	0.1	ug/l	101		78-117		
Acetophenone	1	U	1.	0.5	ug/l	95		73-111		
Anthracene	0.5	U	0.5	0.1	ug/l	101		82-116		
Atrazine	5	U	5.	2	ug/l	110		79-129		

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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: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzaldehyde	5	U	5.	1	ug/l	60		10-123		
Benzo(a)anthracene	0.5	U	0.5	0.1	ug/l	111		76-122		
Benzo(a)pyrene	0.5	U	0.5	0.1	ug/l	96		73-115		
Benzo(b)fluoranthene	0.5	U	0.5	0.1	ug/l	103		75-123		
Benzo(g,h,i)perylene	0.5	U	0.5	0.1	ug/l	102		70-126		
Benzo(k)fluoranthene	0.5	U	0.5	0.1	ug/l	98		74-119		
1,1'-Biphenyl	1	U	1.	0.5	ug/l	97		76-112		
4-Bromophenyl-phenylether	1	U	1.	0.5	ug/l	119*		76-116		
Butylbenzylphthalate	5	U	5.	2	ug/l	89		56-124		
Di-n-butylphthalate	5	U	5.	2	ug/l	94		67-116		
Caprolactam	15	U	15.	5	ug/l	31		10-58		
Carbazole	1	U	1.	0.5	ug/l	98		79-115		
4-Chloro-3-methylphenol	1	U	1.	0.5	ug/l	91		67-119		
4-Chloroaniline	4	U	4.	2	ug/l	74		51-112		
bis(2-Chloroethoxy)methane	1	U	1.	0.5	ug/l	98		70-119		
bis(2-Chloroethyl)ether	1	U	1.	0.5	ug/l	97		71-112		
2-Chloronaphthalene	1	U	1.	0.4	ug/l	99		69-112		
2-Chlorophenol	1	U	1.	0.5	ug/l	94		61-114		
4-Chlorophenyl-phenylether	1	U	1.	0.5	ug/l	114*		76-113		
2,2'-oxybis(1-Chloropropane)	1	U	1.	0.5	ug/l	101		56-128		
Chrysene	0.5	U	0.5	0.1	ug/l	112		77-126		
Dibenz(a,h)anthracene	0.5	U	0.5	0.1	ug/l	104		72-127		
Dibenzofuran	1	U	1.	0.5	ug/l	100		75-109		
3,3'-Dichlorobenzidine	5	U	5.	2	ug/l	68		39-118		
2,4-Dichlorophenol	1	U	1.	0.5	ug/l	105		74-114		
Diethylphthalate	5	U	5.	2	ug/l	97		47-124		
2,4-Dimethylphenol	1	U	1.	0.5	ug/l	93		75-110		
Dimethylphthalate	5	U	5.	2	ug/l	91		43-128		
4,6-Dinitro-2-methylphenol	15	U	15.	5	ug/l	102		60-136		
2,4-Dinitrophenol	30	U	30.	10	ug/l	97		36-138		
2,4-Dinitrotoluene	5	U	5.	1	ug/l	104		77-124		
2,6-Dinitrotoluene	1	U	1.	0.5	ug/l	105		80-119		
bis(2-Ethylhexyl)phthalate	5	U	5.	2	ug/l	87		67-121		
Fluoranthene	0.5	U	0.5	0.1	ug/l	109		76-117		
Fluorene	0.5	U	0.5	0.1	ug/l	106		80-117		
Hexachlorobenzene	0.5	U	0.5	0.1	ug/l	118		73-118		
Hexachlorobutadiene	1	U	1.	0.5	ug/l	109		32-116		
Hexachlorocyclopentadiene	15	U	15.	5	ug/l	83		14-105		
Hexachloroethane	5	U	5.	1	ug/l	92		31-111		
Indeno(1,2,3-cd)pyrene	0.5	U	0.5	0.1	ug/l	100		70-121		
Isophorone	1	U	1.	0.5	ug/l	100		76-126		
2-Methylnaphthalene	0.5	U	0.5	0.1	ug/l	88		69-103		
2-Methylphenol	1	U	1.	0.5	ug/l	93		55-117		
4-Methylphenol	1	U	1.	0.5	ug/l	87		44-114		
Naphthalene	0.5	U	0.5	0.1	ug/l	96		69-109		
2-Nitroaniline	1	U	1.	0.5	ug/l	95		71-121		
3-Nitroaniline	1	U	1.	0.5	ug/l	87		58-111		
4-Nitroaniline	1	U	1.	0.5	ug/l	77		66-110		
Nitrobenzene	1	U	1.	0.5	ug/l	104		70-121		
2-Nitrophenol	1	U	1.	0.5	ug/l	104		71-118		
4-Nitrophenol	30	U	30.	10	ug/l	50		11-88		
N-Nitroso-di-n-propylamine	1	U	1.	0.5	ug/l	94		71-117		
N-Nitrosodiphenylamine	1	U	1.	0.5	ug/l	95		65-125		
Di-n-octylphthalate	5	U	5.	2	ug/l	84		61-127		
Pentachlorophenol	5	U	5.	1	ug/l	106		47-126		
Phenanthrene	0.5	U	0.5	0.1	ug/l	99		75-110		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Phenol	1	U	1.	0.5	ug/l	61		13-89		
Pyrene	0.5	U	0.5	0.1	ug/l	97		76-111		
2,4,5-Trichlorophenol	1	U	1.	0.5	ug/l	108		71-119		
2,4,6-Trichlorophenol	1	U	1.	0.5	ug/l	112		72-123		
Batch number: 15290SLG026	Sample number(s): 8084533									
Acenaphthene	17	U	17.	3	ug/kg	100		83-116		
Acenaphthylene	17	U	17.	3	ug/kg	104		83-127		
Acetophenone	33	U	33.	17	ug/kg	85		74-116		
Anthracene	17	U	17.	3	ug/kg	104		82-118		
Atrazine	170 U		170.	33	ug/kg	104		63-148		
Benzaldehyde	170 U		170.	67	ug/kg	39		10-69		
Benzo(a)anthracene	17	U	17.	3	ug/kg	102		76-119		
Benzo(a)pyrene	17	U	17.	3	ug/kg	99		85-117		
Benzo(b)fluoranthene	17	U	17.	3	ug/kg	101		78-129		
Benzo(g,h,i)perylene	17	U	17.	3	ug/kg	101		82-119		
Benzo(k)fluoranthene	17	U	17.	3	ug/kg	107		79-120		
1,1'-Biphenyl	33	U	33.	17	ug/kg	93		80-116		
4-Bromophenyl-phenylether	33	U	33.	17	ug/kg	115		84-120		
Butylbenzylphthalate	170 U		170.	67	ug/kg	103		80-118		
Di-n-butylphthalate	170 U		170.	67	ug/kg	105		84-120		
Caprolactam	170 U		170.	33	ug/kg	90		71-129		
Carbazole	33	U	33.	17	ug/kg	99		78-117		
4-Chloro-3-methylphenol	33	U	33.	17	ug/kg	98		79-127		
4-Chloroaniline	67	U	67.	33	ug/kg	17		10-103		
bis(2-Chloroethoxy)methane	33	U	33.	17	ug/kg	99		77-116		
bis(2-Chloroethyl)ether	33	U	33.	17	ug/kg	92		77-115		
2-Chloronaphthalene	33	U	33.	7	ug/kg	100		63-146		
2-Chlorophenol	33	U	33.	17	ug/kg	97		85-123		
4-Chlorophenyl-phenylether	33	U	33.	17	ug/kg	101		81-120		
2,2'-oxybis(1-Chloropropane)	33	U	33.	17	ug/kg	89		63-126		
Chrysene	17	U	17.	3	ug/kg	100		80-121		
Dibenz(a,h)anthracene	17	U	17.	3	ug/kg	101		81-123		
Dibenzofuran	33	U	33.	17	ug/kg	98		85-115		
3,3'-Dichlorobenzidine	330 U		330.	100	ug/kg	43		10-104		
2,4-Dichlorophenol	33	U	33.	17	ug/kg	106		81-123		
Diethylphthalate	170 U		170.	67	ug/kg	99		81-118		
2,4-Dimethylphenol	33	U	33.	17	ug/kg	99		83-120		
Dimethylphthalate	170 U		170.	67	ug/kg	98		82-113		
4,6-Dinitro-2-methylphenol	500 U		500.	170	ug/kg	88		59-131		
2,4-Dinitrophenol	1,000 U		1,000.	300	ug/kg	65		27-140		
2,4-Dinitrotoluene	170 U		170.	67	ug/kg	102		81-122		
2,6-Dinitrotoluene	33	U	33.	17	ug/kg	105		83-120		
bis(2-Ethylhexyl)phthalate	170 U		170.	67	ug/kg	101		81-121		

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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: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result		Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Fluoranthene	17	U	17.	3	ug/kg	99		81-117		
Fluorene	17	U	17.	3	ug/kg	103		86-118		
Hexachlorobenzene	17	U	17.	3	ug/kg	109		75-123		
Hexachlorobutadiene	33	U	33.	17	ug/kg	108		72-120		
Hexachlorocyclopentadiene	500 U		500.	170	ug/kg	111		68-145		
Hexachloroethane	170 U		170.	33	ug/kg	97		78-114		
Indeno(1,2,3-cd)pyrene	17	U	17.	3	ug/kg	98		81-118		
Isophorone	33	U	33.	17	ug/kg	95		78-125		
2-Methylnaphthalene	17	U	17.	3	ug/kg	98		83-109		
2-Methylphenol	33	U	33.	17	ug/kg	99		82-125		
4-Methylphenol	33	U	33.	17	ug/kg	95		75-119		
Naphthalene	17	U	17.	3	ug/kg	101		83-112		
2-Nitroaniline	33	U	33.	17	ug/kg	102		84-126		
3-Nitroaniline	170 U		170.	67	ug/kg	82		66-119		
4-Nitroaniline	170 U		170.	67	ug/kg	59		50-100		
Nitrobenzene	33	U	33.	17	ug/kg	95		70-122		
2-Nitrophenol	33	U	33.	17	ug/kg	107		83-120		
4-Nitrophenol	500 U		500.	170	ug/kg	78		60-129		
N-Nitroso-di-n-propylamine	33	U	33.	17	ug/kg	87		67-121		
N-Nitrosodiphenylamine	33	U	33.	17	ug/kg	106		83-118		
Di-n-octylphthalate	170 U		170.	67	ug/kg	113		74-146		
Pentachlorophenol	170 U		170.	33	ug/kg	74		57-126		
Phenanthrene	17	U	17.	3	ug/kg	100		80-114		
Phenol	33	U	33.	17	ug/kg	89		73-122		
Pyrene	17	U	17.	3	ug/kg	98		81-114		
2,4,5-Trichlorophenol	33	U	33.	17	ug/kg	103		86-123		
2,4,6-Trichlorophenol	33	U	33.	17	ug/kg	104		81-123		
Batch number: 152885711001	Sample number(s): 8084533									
Mercury	0.100	U	0.100	0.0100	mg/kg	102		80-120		
Batch number: 152925708001	Sample number(s): 8084533									
Arsenic	2.00	U	2.00	0.580	mg/kg	106		80-120		
Barium	0.500	U	0.500	0.0670	mg/kg	102		80-120		
Cadmium	0.500	U	0.500	0.0430	mg/kg	108		80-120		
Chromium	0.0990	J	1.50	0.0980	mg/kg	100		80-120		
Lead	1.50	U	1.50	0.320	mg/kg	103		80-120		
Selenium	2.00	U	2.00	0.830	mg/kg	105		80-120		
Silver	0.500	U	0.500	0.120	mg/kg	101		80-120		
Batch number: 152931848003	Sample number(s): 8084534									
Arsenic	0.0200	U	0.0200	0.0070	mg/l	103		80-120		
Barium	0.0050	U	0.0050	0.00030	mg/l	103		80-120		
Cadmium	0.0050	U	0.0050	0.00030	mg/l	105		80-120		
Chromium	0.0150	U	0.0150	0.0015	mg/l	104		80-120		
Lead	0.0150	U	0.0150	0.0051	mg/l	95		80-120		
Selenium	0.0200	U	0.0200	0.0082	mg/l	96		80-120		
Silver	0.0050	U	0.0050	0.0014	mg/l	88		80-120		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 152935713005	Sample number(s): 8084534								
Mercury	0.00020 U	0.00020	0.00005 0	mg/l	92		80-120		
Batch number: 15287820006A	Sample number(s): 8084533								
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: A152951AA	Sample number(s): 8084533 UNSPK: P088042								
Acetone	139	113	46-139	15	30				
Benzene	107	109	80-120	5	30				
Bromodichloromethane	93	92	75-120	3	30				
Bromoform	67	68	64-120	5	30				
Bromomethane	82	81	21-192	2	30				
2-Butanone	106	101	54-129	1	30				
Carbon Disulfide	102	100	60-120	1	30				
Carbon Tetrachloride	104	104	69-130	3	30				
Chlorobenzene	92	98	80-120	10	30				
Chloroethane	89	90	21-185	4	30				
Chloroform	109	111	80-120	5	30				
Chloromethane	114	112	56-120	1	30				
Cyclohexane	102	92	58-120	7	30				
1,2-Dibromo-3-chloropropane	95	91	59-122	0	30				
Dibromochloromethane	93	97	77-120	8	30				
1,2-Dibromoethane	96	96	80-120	3	30				
1,2-Dichlorobenzene	82	93	80-120	17	30				
1,3-Dichlorobenzene	91	103	80-120	15	30				
1,4-Dichlorobenzene	86	97	80-120	16	30				
Dichlorodifluoromethane	120	114	28-131	1	30				
1,1-Dichloroethane	110	112	77-120	6	30				
1,2-Dichloroethane	102	100	77-130	2	30				
1,1-Dichloroethene	117	116	73-129	3	30				
cis-1,2-Dichloroethene	108	108	80-120	4	30				
trans-1,2-Dichloroethene	110	109	79-122	3	30				
1,2-Dichloropropane	103	107	76-120	7	30				
cis-1,3-Dichloropropene	82	80	74-120	2	30				
trans-1,3-Dichloropropene	89	90	76-120	5	30				
Ethylbenzene	103	104	80-120	5	30				
Freon 113	118	114	54-123	0	30				
2-Hexanone	89	90	47-133	4	30				
Isopropylbenzene	100	94	76-120	2	30				
Methyl Acetate	107	101	61-144	2	30				
Methyl Tertiary Butyl Ether	114	114	72-120	4	30				
4-Methyl-2-pentanone	76	73	57-123	0	30				
Methylcyclohexane	106	94	59-120	8	30				
Methylene Chloride	113	116	76-122	6	30				
Styrene	80	83	76-120	7	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

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	149*	152*	67-121	6	30				
Tetrachloroethene	119	125*	78-120	9	30				
Toluene	117	126*	80-120	12	30				
1,2,4-Trichlorobenzene	48*	39*	60-120	18	30				
1,1,1-Trichloroethane	104	106	59-136	5	30				
1,1,2-Trichloroethane	123*	118	80-120	1	30				
Trichloroethene	97	94	80-120	1	30				
Trichlorofluoromethane	111	106	58-133	2	30				
Vinyl Chloride	117	111	59-120	2	30				
Xylene (Total)	104	99	80-120	2	30				
Batch number: N152921AA	Sample number(s): 8084534 UNSPK: 8084534								
Acetone	105	102	58-138	3	30				
Benzene	115	116	78-120	1	30				
Bromodichloromethane	103	104	73-120	1	30				
Bromoform	82	84	61-121	3	30				
Bromomethane	106	110	53-130	3	30				
2-Butanone	103	107	62-131	3	30				
Carbon Disulfide	115	109	58-126	5	30				
Carbon Tetrachloride	116	114	74-130	1	30				
Chlorobenzene	103	105	80-120	2	30				
Chloroethane	93	97	56-120	4	30				
Chloroform	111	111	80-120	0	30				
Chloromethane	97	100	65-129	3	30				
Cyclohexane	117	113	60-129	3	30				
1,2-Dibromo-3-chloropropane	73	76	55-131	3	30				
Dibromochloromethane	91	93	72-120	2	30				
1,2-Dibromoethane	96	99	80-120	3	30				
1,2-Dichlorobenzene	94	99	80-120	5	30				
1,3-Dichlorobenzene	94	98	80-120	3	30				
1,4-Dichlorobenzene	97	99	80-120	1	30				
Dichlorodifluoromethane	121	119	55-127	2	30				
1,1-Dichloroethane	112	113	80-120	1	30				
1,2-Dichloroethane	111	112	72-127	1	30				
1,1-Dichloroethene	118	117	76-124	1	30				
cis-1,2-Dichloroethene	111	112	80-120	1	30				
trans-1,2-Dichloroethene	116	115	80-120	1	30				
1,2-Dichloropropane	113	115	80-120	2	30				
cis-1,3-Dichloropropene	92	97	80-120	6	30				
trans-1,3-Dichloropropene	88	92	76-120	4	30				
Ethylbenzene	105	106	78-120	1	30				
Freon 113	140*	137*	67-127	3	30				
2-Hexanone	68	71	59-127	3	30				
Isopropylbenzene	98	101	80-120	3	30				
Methyl Acetate	114	119	64-131	4	30				
Methyl Tertiary Butyl Ether	99	103	75-120	3	30				
4-Methyl-2-pentanone	101	105	59-130	4	30				
Methylcyclohexane	118	117	66-126	1	30				
Methylene Chloride	109	109	77-121	0	30				
Styrene	96	99	80-120	3	30				
1,1,2,2-Tetrachloroethane	91	95	65-131	4	30				
Tetrachloroethene	106	107	80-122	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

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
Toluene	103	106	80-120	2	30				
1,2,4-Trichlorobenzene	77	81	73-120	5	30				
1,1,1-Trichloroethane	104	103	66-126	1	30				
1,1,2-Trichloroethane	98	101	80-120	4	30				
Trichloroethene	114	118	80-120	3	30				
Trichlorofluoromethane	115	110	60-142	4	30				
Vinyl Chloride	102	103	69-120	1	30				
Xylene (Total)	98	100	80-120	3	30				
Batch number: W152931AA	Sample number(s): 8084535 UNSPK: P087465								
Acetone	99	104	58-138	5	30				
Benzene	109	109	78-120	0	30				
Bromodichloromethane	96	94	73-120	3	30				
Bromoform	96	96	61-121	1	30				
Bromomethane	86	86	53-130	0	30				
2-Butanone	105	106	62-131	1	30				
Carbon Disulfide	85	87	58-126	3	30				
Carbon Tetrachloride	112	111	74-130	1	30				
Chlorobenzene	107	106	80-120	1	30				
Chloroethane	80	80	56-120	0	30				
Chloroform	102	104	80-120	2	30				
Chloromethane	102	98	65-129	4	30				
Cyclohexane	115	114	60-129	0	30				
1,2-Dibromo-3-chloropropane	80	81	55-131	1	30				
Dibromochloromethane	96	95	72-120	1	30				
1,2-Dibromoethane	101	101	80-120	0	30				
1,2-Dichlorobenzene	106	105	80-120	1	30				
1,3-Dichlorobenzene	106	105	80-120	1	30				
1,4-Dichlorobenzene	106	107	80-120	1	30				
Dichlorodifluoromethane	80	80	55-127	0	30				
1,1-Dichloroethane	105	105	80-120	1	30				
1,2-Dichloroethane	100	102	72-127	2	30				
1,1-Dichloroethene	105	103	76-124	2	30				
cis-1,2-Dichloroethene	110	109	80-120	1	30				
trans-1,2-Dichloroethene	113	111	80-120	1	30				
1,2-Dichloropropane	106	106	80-120	0	30				
cis-1,3-Dichloropropene	91	91	80-120	0	30				
trans-1,3-Dichloropropene	90	90	76-120	0	30				
Ethylbenzene	107	106	78-120	1	30				
Freon 113	115	112	67-127	2	30				
2-Hexanone	99	100	59-127	1	30				
Isopropylbenzene	106	106	80-120	1	30				
Methyl Acetate	108	109	64-131	1	30				
Methyl Tertiary Butyl Ether	100	101	75-120	1	30				
4-Methyl-2-pentanone	100	101	59-130	1	30				
Methylcyclohexane	110	114	66-126	3	30				
Methylene Chloride	101	102	77-121	1	30				
Styrene	99	99	80-120	0	30				
1,1,2,2-Tetrachloroethane	97	96	65-131	1	30				
Tetrachloroethene	124*	122	80-122	1	30				
Toluene	108	108	80-120	1	30				
1,2,4-Trichlorobenzene	99	100	73-120	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

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	110	113	66-126	2	30				
1,1,2-Trichloroethane	102	102	80-120	1	30				
Trichloroethene	110	108	80-120	1	30				
Trichlorofluoromethane	90	88	60-142	2	30				
Vinyl Chloride	82	81	69-120	1	30				
Xylene (Total)	105	105	80-120	0	30				
Batch number: 15288WAK026	Sample number(s): 8084534 UNSPK: P084481								
Acenaphthene	98	100	75-111	3	30				
Acenaphthylene	98	101	78-117	5	30				
Acetophenone	84	91	73-111	9	30				
Anthracene	96	100	82-116	5	30				
Atrazine	91	95	79-129	6	30				
Benzaldehyde	65	62	10-123	3	30				
Benzo(a)anthracene	108	110	76-122	4	30				
Benzo(a)pyrene	93	99	73-115	8	30				
Benzo(b)fluoranthene	96	101	75-123	7	30				
Benzo(g,h,i)perylene	96	103	70-126	9	30				
Benzo(k)fluoranthene	93	101	74-119	9	30				
1,1'-Biphenyl	92	97	76-112	7	30				
4-Bromophenyl-phenylether	110	115	76-116	6	30				
Butylbenzylphthalate	90	92	56-124	4	30				
Di-n-butylphthalate	89	93	67-116	6	30				
Caprolactam	37	36	10-58	0	30				
Carbazole	92	96	79-115	5	30				
4-Chloro-3-methylphenol	102	91	67-119	9	30				
4-Chloroaniline	66	69	51-112	7	30				
bis(2-Chloroethoxy)methane	99	105	70-119	8	30				
bis(2-Chloroethyl)ether	98	95	71-112	2	30				
2-Chloronaphthalene	97	99	69-112	3	30				
2-Chlorophenol	97	91	61-114	5	30				
4-Chlorophenyl-phenylether	105	110	76-113	6	30				
2,2'-oxybis(1-Chloropropane)	82	90	56-128	10	30				
Chrysene	107	112	77-126	6	30				
Dibenz(a,h)anthracene	97	105	72-127	10	30				
Dibenzofuran	96	100	75-109	7	30				
3,3'-Dichlorobenzidine	59	60	39-118	4	30				
2,4-Dichlorophenol	105	108	74-114	4	30				
Diethylphthalate	97	91	47-124	5	30				
2,4-Dimethylphenol	95	100	75-110	7	30				
Dimethylphthalate	99	101	43-128	3	30				
4,6-Dinitro-2-methylphenol	93	96	60-136	5	30				
2,4-Dinitrophenol	94	101	36-138	8	30				
2,4-Dinitrotoluene	101	107	77-124	7	30				
2,6-Dinitrotoluene	106	109	80-119	4	30				
bis(2-Ethylhexyl)phthalate	88	89	67-121	3	30				
Fluoranthene	99	107	76-117	9	30				
Fluorene	100	104	80-117	4	30				
Hexachlorobenzene	110	117	73-118	8	30				
Hexachlorobutadiene	112	99	32-116	11	30				
Hexachlorocyclopentadiene	95	99	14-105	5	30				
Hexachloroethane	80	79	31-111	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599902
Reported: 10/27/2015 09:12

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
Indeno(1,2,3-cd)pyrene	94	102	70-121	10	30				
Isophorone	98	106	76-126	9	30				
2-Methylnaphthalene	94	87	69-103	6	30				
2-Methylphenol	85	89	55-117	7	30				
4-Methylphenol	83	89	44-114	8	30				
Naphthalene	94	96	69-109	4	30				
2-Nitroaniline	99	100	71-121	3	30				
3-Nitroaniline	86	89	58-111	6	30				
4-Nitroaniline	68	69	66-110	3	30				
Nitrobenzene	96	100	70-121	6	30				
2-Nitrophenol	100	105	71-118	7	30				
4-Nitrophenol	56	57	11-88	3	30				
N-Nitroso-di-n-propylamine	81	92	71-117	14	30				
N-Nitrosodiphenylamine	95	97	65-125	4	30				
Di-n-octylphthalate	78	84	61-127	9	30				
Pentachlorophenol	111	113	47-126	3	30				
Phenanthrene	94	97	75-110	4	30				
Phenol	84	69	13-89	18	30				
Pyrene	91	95	76-111	5	30				
2,4,5-Trichlorophenol	104	107	71-119	5	30				
2,4,6-Trichlorophenol	108	113	72-123	6	30				
Batch number: 15290SLG026	Sample number(s): 8084533 UNSPK: P081289								
Acenaphthene	94	95	83-116	0	30				
Acenaphthylene	96	97	83-127	0	30				
Acetophenone	78	80	74-116	3	30				
Anthracene	96	98	82-118	1	30				
Atrazine	96	101	63-148	5	30				
Benzaldehyde	41	47	10-69	13	30				
Benzo(a)anthracene	90	92	76-119	1	30				
Benzo(a)pyrene	93	89	85-117	4	30				
Benzo(b)fluoranthene	100	93	78-129	8	30				
Benzo(g,h,i)perylene	100	97	82-119	4	30				
Benzo(k)fluoranthene	93	92	79-120	2	30				
1,1'-Biphenyl	88	90	80-116	1	30				
4-Bromophenyl-phenylether	107	109	84-120	2	30				
Butylbenzylphthalate	98	98	80-118	1	30				
Di-n-butylphthalate	98	101	84-120	2	30				
Caprolactam	77	83	71-129	7	30				
Carbazole	90	92	78-117	2	30				
4-Chloro-3-methylphenol	87	91	79-127	4	30				
4-Chloroaniline	16	24	10-103	38*	30				
bis(2-Chloroethoxy)methane	90	92	77-116	2	30				
bis(2-Chloroethyl)ether	88	88	77-115	1	30				
2-Chloronaphthalene	86	119	63-146	31*	30				
2-Chlorophenol	90	92	85-123	1	30				
4-Chlorophenyl-phenylether	93	96	81-120	3	30				
2,2'-oxybis(1-Chloropropane)	83	85	63-126	2	30				
Chrysene	86	89	80-121	3	30				
Dibenz(a,h)anthracene	97	99	81-123	1	30				
Dibenzofuran	90	92	85-115	2	30				
3,3'-Dichlorobenzidine	47	51	10-104	7	30				

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**-This limit was used in the evaluation of the final result for the blank
(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: 1599902
Reported: 10/27/2015 09:12

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
2,4-Dichlorophenol	95	97	81-123	2	30				
Diethylphthalate	92	94	81-118	2	30				
2,4-Dimethylphenol	89	87	83-120	4	30				
Dimethylphthalate	92	95	82-113	3	30				
4,6-Dinitro-2-methylphenol	73	82	59-131	11	30				
2,4-Dinitrophenol	43	65	27-140	39*	30				
2,4-Dinitrotoluene	92	96	81-122	3	30				
2,6-Dinitrotoluene	96	100	83-120	3	30				
bis(2-Ethylhexyl)phthalate	95	95	81-121	0	30				
Fluoranthene	90	88	81-117	2	30				
Fluorene	94	95	86-118	0	30				
Hexachlorobenzene	99	100	75-123	1	30				
Hexachlorobutadiene	101	102	72-120	1	30				
Hexachlorocyclopentadiene	80	84	68-145	4	30				
Hexachloroethane	91	93	78-114	2	30				
Indeno(1,2,3-cd)pyrene	97	95	81-118	2	30				
Isophorone	87	89	78-125	1	30				
2-Methylnaphthalene	89	91	83-109	2	30				
2-Methylphenol	91	93	82-125	1	30				
4-Methylphenol	85	89	75-119	4	30				
Naphthalene	93	95	83-112	1	30				
2-Nitroaniline	93	98	84-126	5	30				
3-Nitroaniline	76	87	66-119	13	30				
4-Nitroaniline	52	67	50-100	25	30				
Nitrobenzene	87	88	70-122	1	30				
2-Nitrophenol	94	101	83-120	7	30				
4-Nitrophenol	72	76	60-129	6	30				
N-Nitroso-di-n-propylamine	80	82	67-121	2	30				
N-Nitrosodiphenylamine	99	100	83-118	0	30				
Di-n-octylphthalate	112	103	74-146	9	30				
Pentachlorophenol	80	80	57-126	1	30				
Phenanthrene	91	95	80-114	3	30				
Phenol	82	84	73-122	2	30				
Pyrene	93	93	81-114	1	30				
2,4,5-Trichlorophenol	96	97	86-123	1	30				
2,4,6-Trichlorophenol	96	97	81-123	0	30				
Batch number: 152885711001	Sample number(s): 8084533 UNSPK: P081686 BKG: P081686								
Mercury	99	100	80-120	0	20	0.0428 J	0.0443 J	3 (1)	20
Batch number: 152925708001	Sample number(s): 8084533 UNSPK: P084777 BKG: P084777								
Arsenic	100	105	75-125	4	20	4.47	4.57	2 (1)	20
Barium	101	104	75-125	2	20	84.3	82.6	2	20
Cadmium	100	103	75-125	3	20	0.471 J	0.471 J	0 (1)	20
Chromium	117	121	75-125	2	20	14.7	15.0	2	20
Lead	91	96	75-125	3	20	13.0	12.6	3	20
Selenium	101	104	75-125	3	20	1.67 J	1.88 J	12 (1)	20
Silver	93	96	75-125	3	20	0.490 U	0.490 U	0 (1)	20
Batch number: 152931848003	Sample number(s): 8084534 UNSPK: P094051 BKG: P094051								
Arsenic	98	99	75-125	1	20	0.0200 U	0.0200 U	0 (1)	20
Barium	103	103	75-125	0	20	0.0399	0.0401	1	20

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599902
Reported: 10/27/2015 09:12

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
Cadmium	104	103	75-125	1	20	0.0050 U	0.0050 U	0 (1)	20
Chromium	115	115	75-125	0	20	0.0551	0.0551	0 (1)	20
Lead	102	101	75-125	2	20	0.0237	0.0244	3 (1)	20
Selenium	101	99	75-125	1	20	0.0200 U	0.0101 J	200* (1)	20
Silver	92	91	75-125	1	20	0.0050 U	0.0050 U	0 (1)	20
Batch number: 152935713005	Sample number(s): 8084534 UNSPK: P089884 BKG: P089884								
Mercury	97	93	80-120	4	20	0.00020 U	0.00020 U	0 (1)	20
Batch number: 15287820006A	Sample number(s): 8084533 BKG: P086772								
Moisture						16.4	14.9	10*	5

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: VOCs- Solid by 8260B
Batch number: A152951AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8084533	102	103	100	93
Blank	103	106	97	92
LCS	100	99	101	99
MS	105	105	115	81
MSD	105	103	121	76
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL 4.3 VOCs Water
Batch number: N152921AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8084534	108	106	96	94
Blank	105	105	95	94
LCS	103	101	97	101
LCSD	103	101	98	101
MS	106	101	98	99
MSD	103	102	98	102
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 4.3 VOCs Water
Batch number: W152931AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8084535	97	101	96	89
Blank	97	99	97	89
LCS	97	98	98	94
LCSD	98	97	99	93
MS	98	99	98	93
MSD	98	102	97	93
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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: 1599902
Reported: 10/27/2015 09:12

Surrogate Quality Control

Analysis Name: TCL SW846 8270C Water
Batch number: 15288WAK026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8084534	67	47	104	92	91	76
Blank	69	49	127	88	95	106
LCS	70	52	129	97	96	102
MS	79	75	127	90	91	95
MSD	70	62	132	92	95	99
Limits:	10-107	10-85	22-150	46-128	61-112	43-131

Analysis Name: TCL 8270 (microwave)
Batch number: 15290SLG026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8084533	90	95	93	92	102	105
Blank	86	90	100	88	92	98
LCS	92	96	104	92	96	105
MS	84	88	94	85	93	99
MSD	86	90	94	86	93	100
Limits:	58-122	49-134	36-142	54-123	63-117	59-129

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11372 Group # 1599902 Sample # 8084533-35

COC # 388776

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation 652109.01

PWSID #:

Project Manager: Rachel Grand

P.O.#:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

For Lab Use Only

FSC:

SCR#: 178326

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water (Ground)	Water (Potable)	Water (Surface)	Water (NPDES)	Sediment	Other:	Total # of Containers	VOC's (H)	SVOC's	RCRA 8 metals (N)								Remarks
HGR-WS01-100915	10/9/15	1415		✓	✓							2	✓	✓	✓								Drum #, Type
HGR-WL01-100915	10/9/15	1420		✓		✓						6	✓	✓	✓								1, soil
																							2, water

Turnaround Time (TAT) Requested (please circle)

Standard ~~Rush~~ DR

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ~~7 day TAT~~ DR

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	9/30/15	11:30			
Dee Roberts	10/9/15	1700			
			[signature]	10-10-15	955

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS ____ FedEx ✓ Other ____

Temperature upon receipt 2.1 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 113022

Group Number(s): 1599902

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/10/2015 9:55
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 15:06 on 10/10/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	2.1	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-5994
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) 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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Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

GC/MS Volatiles

Fraction: Volatiles by GC/MS

TCL 4.3 VOCs Water

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8084533	HGR-WS01-100915		X	0.97	
8084534	HGR-WL01-100915	X		1	
8084535	Trip Blank	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.

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.

Batch#: N152921AA (Sample number(s): 8084534, UNSPK: 8084534)
The recovery(ies) for the following analyte(s) in the MS and MSD is outside the acceptance window: Freon 113
Refer to the QC Summary forms for more information.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

GC/MS Volatiles

Fraction: Volatiles by GC/MS

SAMPLE ANALYSIS:

(Sample number(s): 8084534: Analysis: 10335)
Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

(Sample number(s): 8084533: Analysis: 10237)
Project defined calibration criteria are not met. The calibration is compliant with the method defined criteria.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR32

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 4.3 VOCs Water	N152921AA	VBLKN16	10/19/2015 10:35:00
		LCSN16	10/19/2015 09:49:00
		LCDN16	10/19/2015 12:21:00
		8084534 UNSPK	10/19/2015 14:39:00
		8084534 MS	10/19/2015 15:03:00
		8084534 MSD	10/19/2015 15:26:00
TCL 4.3 VOCs Water	W152931AA	VBLKW80	10/20/2015 11:39:00
		LCSW80	10/20/2015 10:52:00
		LCDW80	10/20/2015 11:16:00
		8084535	10/20/2015 12:39:00
VOCs- Solid by 8260B	A152951AA	VBLKA94	10/22/2015 09:11:00
		LCSA94	10/22/2015 09:34:00
		8084533	10/22/2015 10:14:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR32
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152951AA / VBLKA94 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Dichlorodifluoromethane	10/22/15	N.D.	ug/kg	2	5
Chloromethane	10/22/15	N.D.	ug/kg	2	5
Vinyl Chloride	10/22/15	N.D.	ug/kg	1	5
Bromomethane	10/22/15	N.D.	ug/kg	2	5
Chloroethane	10/22/15	N.D.	ug/kg	2	5
Trichlorofluoromethane	10/22/15	N.D.	ug/kg	2	5
1,1-Dichloroethene	10/22/15	N.D.	ug/kg	1	5
Acetone	10/22/15	N.D.	ug/kg	7	20
Carbon Disulfide	10/22/15	N.D.	ug/kg	1	5
Freon 113	10/22/15	N.D.	ug/kg	2	10
Methyl Acetate	10/22/15	N.D.	ug/kg	2	5
2-Butanone	10/22/15	N.D.	ug/kg	4	10
1,1-Dichloroethane	10/22/15	N.D.	ug/kg	1	5
cis-1,2-Dichloroethene	10/22/15	N.D.	ug/kg	1	5
trans-1,2-Dichloroethene	10/22/15	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	10/22/15	N.D.	ug/kg	0.5	5
Methylene Chloride	10/22/15	N.D.	ug/kg	2	5
Chloroform	10/22/15	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	10/22/15	N.D.	ug/kg	1	5
Benzene	10/22/15	N.D.	ug/kg	0.5	5
Carbon Tetrachloride	10/22/15	N.D.	ug/kg	1	5
Cyclohexane	10/22/15	N.D.	ug/kg	1	5
Bromodichloromethane	10/22/15	N.D.	ug/kg	1	5
1,2-Dichloroethane	10/22/15	N.D.	ug/kg	1	5
1,2-Dichloropropane	10/22/15	N.D.	ug/kg	1	5
Methylcyclohexane	10/22/15	N.D.	ug/kg	1	5
Trichloroethene	10/22/15	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	10/22/15	N.D.	ug/kg	1	5
4-Methyl-2-pentanone	10/22/15	N.D.	ug/kg	3	10
Toluene	10/22/15	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	10/22/15	N.D.	ug/kg	1	5
Dibromochloromethane	10/22/15	N.D.	ug/kg	1	5
1,2-Dibromoethane	10/22/15	N.D.	ug/kg	1	5
2-Hexanone	10/22/15	N.D.	ug/kg	3	10
Tetrachloroethene	10/22/15	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	10/22/15	N.D.	ug/kg	1	5
Bromoform	10/22/15	N.D.	ug/kg	1	5
Chlorobenzene	10/22/15	N.D.	ug/kg	1	5
Ethylbenzene	10/22/15	N.D.	ug/kg	1	5
Isopropylbenzene	10/22/15	N.D.	ug/kg	1	5
Styrene	10/22/15	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	10/22/15	N.D.	ug/kg	1	5
Xylene (Total)	10/22/15	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	10/22/15	N.D.	ug/kg	2	5
1,2-Dichlorobenzene	10/22/15	N.D.	ug/kg	1	5

Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR32
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152951AA / VBLKA94 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
1,3-Dichlorobenzene	10/22/15	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	10/22/15	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	10/22/15	N.D.	ug/kg	1	5

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Volatiles by GC/MS

N152921AA / VBLKN16 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Dichlorodifluoromethane	10/19/15	N.D.	ug/l	0.5	1
Chloromethane	10/19/15	N.D.	ug/l	0.5	1
Vinyl Chloride	10/19/15	N.D.	ug/l	0.5	1
Bromomethane	10/19/15	N.D.	ug/l	0.5	1
Chloroethane	10/19/15	N.D.	ug/l	0.5	1
Trichlorofluoromethane	10/19/15	N.D.	ug/l	0.5	1
1,1-Dichloroethene	10/19/15	N.D.	ug/l	0.5	1
Acetone	10/19/15	N.D.	ug/l	6	20
Freon 113	10/19/15	N.D.	ug/l	2	10
Carbon Disulfide	10/19/15	N.D.	ug/l	1	5
Methyl Acetate	10/19/15	N.D.	ug/l	1	5
Methylene Chloride	10/19/15	N.D.	ug/l	2	4
trans-1,2-Dichloroethene	10/19/15	N.D.	ug/l	0.5	1
Methyl Tertiary Butyl Ether	10/19/15	N.D.	ug/l	0.5	1
1,1-Dichloroethane	10/19/15	N.D.	ug/l	0.5	1
2-Butanone	10/19/15	N.D.	ug/l	3	10
cis-1,2-Dichloroethene	10/19/15	N.D.	ug/l	0.5	1
Chloroform	10/19/15	N.D.	ug/l	0.5	1
1,1,1-Trichloroethane	10/19/15	N.D.	ug/l	0.5	1
Cyclohexane	10/19/15	N.D.	ug/l	2	5
Carbon Tetrachloride	10/19/15	N.D.	ug/l	0.5	1
Benzene	10/19/15	N.D.	ug/l	0.5	1
1,2-Dichloroethane	10/19/15	N.D.	ug/l	0.5	1
Trichloroethene	10/19/15	N.D.	ug/l	0.5	1
Methylcyclohexane	10/19/15	N.D.	ug/l	1	5
1,2-Dichloropropane	10/19/15	N.D.	ug/l	0.5	1
Bromodichloromethane	10/19/15	N.D.	ug/l	0.5	1
cis-1,3-Dichloropropene	10/19/15	N.D.	ug/l	0.5	1
4-Methyl-2-pentanone	10/19/15	N.D.	ug/l	3	10
Toluene	10/19/15	N.D.	ug/l	0.5	1
trans-1,3-Dichloropropene	10/19/15	N.D.	ug/l	0.5	1
1,1,2-Trichloroethane	10/19/15	N.D.	ug/l	0.5	1
Tetrachloroethene	10/19/15	N.D.	ug/l	0.5	1
2-Hexanone	10/19/15	N.D.	ug/l	3	10
Dibromochloromethane	10/19/15	N.D.	ug/l	0.5	1
1,2-Dibromoethane	10/19/15	N.D.	ug/l	0.5	1
Chlorobenzene	10/19/15	N.D.	ug/l	0.5	1
Ethylbenzene	10/19/15	N.D.	ug/l	0.5	1
Xylene (Total)	10/19/15	N.D.	ug/l	0.5	1
Styrene	10/19/15	N.D.	ug/l	1	5
Bromoform	10/19/15	N.D.	ug/l	0.5	4
Isopropylbenzene	10/19/15	N.D.	ug/l	1	5
1,1,2,2-Tetrachloroethane	10/19/15	N.D.	ug/l	0.5	1
1,3-Dichlorobenzene	10/19/15	N.D.	ug/l	1	5
1,4-Dichlorobenzene	10/19/15	N.D.	ug/l	1	5

Fraction: Volatiles by GC/MS

N152921AA / VBLKN16 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
1,2-Dichlorobenzene	10/19/15	N.D.	ug/l	1	5
1,2-Dibromo-3-chloropropane	10/19/15	N.D.	ug/l	2	5
1,2,4-Trichlorobenzene	10/19/15	N.D.	ug/l	1	5

W152931AA / VBLKW80 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Dichlorodifluoromethane	10/20/15	N.D.	ug/l	0.5	1
Chloromethane	10/20/15	N.D.	ug/l	0.5	1
Vinyl Chloride	10/20/15	N.D.	ug/l	0.5	1
Bromomethane	10/20/15	N.D.	ug/l	0.5	1
Chloroethane	10/20/15	N.D.	ug/l	0.5	1
Trichlorofluoromethane	10/20/15	N.D.	ug/l	0.5	1
1,1-Dichloroethene	10/20/15	N.D.	ug/l	0.5	1
Acetone	10/20/15	N.D.	ug/l	6	20
Freon 113	10/20/15	N.D.	ug/l	2	10
Carbon Disulfide	10/20/15	N.D.	ug/l	1	5
Methyl Acetate	10/20/15	N.D.	ug/l	1	5
Methylene Chloride	10/20/15	N.D.	ug/l	2	4
trans-1,2-Dichloroethene	10/20/15	N.D.	ug/l	0.5	1
Methyl Tertiary Butyl Ether	10/20/15	N.D.	ug/l	0.5	1
1,1-Dichloroethane	10/20/15	N.D.	ug/l	0.5	1
2-Butanone	10/20/15	N.D.	ug/l	3	10
cis-1,2-Dichloroethene	10/20/15	N.D.	ug/l	0.5	1
Chloroform	10/20/15	N.D.	ug/l	0.5	1
1,1,1-Trichloroethane	10/20/15	N.D.	ug/l	0.5	1
Cyclohexane	10/20/15	N.D.	ug/l	2	5
Carbon Tetrachloride	10/20/15	N.D.	ug/l	0.5	1
Benzene	10/20/15	N.D.	ug/l	0.5	1
1,2-Dichloroethane	10/20/15	N.D.	ug/l	0.5	1
Trichloroethene	10/20/15	N.D.	ug/l	0.5	1
Methylcyclohexane	10/20/15	N.D.	ug/l	1	5
1,2-Dichloropropane	10/20/15	N.D.	ug/l	0.5	1
Bromodichloromethane	10/20/15	N.D.	ug/l	0.5	1
cis-1,3-Dichloropropene	10/20/15	N.D.	ug/l	0.5	1
4-Methyl-2-pentanone	10/20/15	N.D.	ug/l	3	10
Toluene	10/20/15	N.D.	ug/l	0.5	1
trans-1,3-Dichloropropene	10/20/15	N.D.	ug/l	0.5	1
1,1,2-Trichloroethane	10/20/15	N.D.	ug/l	0.5	1
Tetrachloroethene	10/20/15	N.D.	ug/l	0.5	1
2-Hexanone	10/20/15	N.D.	ug/l	3	10
Dibromochloromethane	10/20/15	N.D.	ug/l	0.5	1
1,2-Dibromoethane	10/20/15	N.D.	ug/l	0.5	1
Chlorobenzene	10/20/15	N.D.	ug/l	0.5	1
Ethylbenzene	10/20/15	N.D.	ug/l	0.5	1
Xylene (Total)	10/20/15	N.D.	ug/l	0.5	1

Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Volatiles by GC/MS

W152931AA / VBLKW80 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Styrene	10/20/15	N.D.	ug/l	1	5
Bromoform	10/20/15	N.D.	ug/l	0.5	4
Isopropylbenzene	10/20/15	N.D.	ug/l	1	5
1,1,2,2-Tetrachloroethane	10/20/15	N.D.	ug/l	0.5	1
1,3-Dichlorobenzene	10/20/15	N.D.	ug/l	1	5
1,4-Dichlorobenzene	10/20/15	N.D.	ug/l	1	5
1,2-Dichlorobenzene	10/20/15	N.D.	ug/l	1	5
1,2-Dibromo-3-chloropropane	10/20/15	N.D.	ug/l	2	5
1,2,4-Trichlorobenzene	10/20/15	N.D.	ug/l	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR32
Matrix: SOLID

Fraction: Volatiles by GC/MS

A152951AA	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
VBLKA94	103	50 - 141	106	54 - 135	97	52 - 141	92	50 - 131
LCSA94	100	50 - 141	99	54 - 135	101	52 - 141	99	50 - 131
8084533	102	50 - 141	103	54 - 135	100	52 - 141	93	50 - 131

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Volatiles by GC/MS

N152921AA	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
VBLKN16	105	80 - 116	105	77 - 113	95	80 - 113	94	78 - 113
LCSN16	103	80 - 116	101	77 - 113	97	80 - 113	101	78 - 113
LCDN16	103	80 - 116	101	77 - 113	98	80 - 113	101	78 - 113
8084534 UNSPK	108	80 - 116	106	77 - 113	96	80 - 113	94	78 - 113
8084534 MS	106	80 - 116	101	77 - 113	98	80 - 113	99	78 - 113
8084534 MSD	103	80 - 116	102	77 - 113	98	80 - 113	102	78 - 113

W152931AA	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
VBLKW80	97	80 - 116	99	77 - 113	97	80 - 113	89	78 - 113
LCSW80	97	80 - 116	98	77 - 113	98	80 - 113	94	78 - 113
LCDW80	98	80 - 116	97	77 - 113	99	80 - 113	93	78 - 113
8084535	97	80 - 116	101	77 - 113	96	80 - 113	89	78 - 113

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR32
Matrix: LIQUID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 8084534 MS: 8084534 MSD: 8084534 **Analyte**	Batch: **N152921AA** (Sample number(s): 8084534)								
	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**
Dichlorodifluoromethane	20	N.D.	24.18	23.75	121	119	55-127	2	30
Chloromethane	20	N.D.	19.43	20.09	97	100	65-129	3	30
Vinyl Chloride	20	N.D.	20.49	20.7	102	103	69-120	1	30
Bromomethane	20	N.D.	21.25	21.93	106	110	53-130	3	30
Chloroethane	20	N.D.	18.59	19.38	93	97	56-120	4	30
Trichlorofluoromethane	20	N.D.	23.08	22.09	115	110	60-142	4	30
1,1-Dichloroethene	20	N.D.	23.65	23.39	118	117	76-124	1	30
Acetone	150	11.92	169.87	164.35	105	102	58-138	3	30
Freon 113	20	N.D.	28.04	27.32	140 *	137 *	67-127	3	30
Carbon Disulfide	20	N.D.	22.95	21.88	115	109	58-126	5	30
Methyl Acetate	20	N.D.	22.86	23.73	114	119	64-131	4	30
Methylene Chloride	20	N.D.	21.7	21.76	109	109	77-121	0	30
trans-1,2-Dichloroethene	20	N.D.	23.26	23.05	116	115	80-120	1	30
Methyl Tertiary Butyl Ether	20	N.D.	19.86	20.5	99	103	75-120	3	30
1,1-Dichloroethane	20	N.D.	22.42	22.7	112	113	80-120	1	30
2-Butanone	150	N.D.	154.84	159.99	103	107	62-131	3	30
cis-1,2-Dichloroethene	20	N.D.	22.25	22.47	111	112	80-120	1	30
Chloroform	20	1.84	24.12	24.08	111	111	80-120	0	30
1,1,1-Trichloroethane	20	N.D.	20.75	20.63	104	103	66-126	1	30
Cyclohexane	20	N.D.	23.39	22.63	117	113	60-129	3	30
Carbon Tetrachloride	20	N.D.	23.12	22.84	116	114	74-130	1	30
Benzene	20	N.D.	23.07	23.22	115	116	78-120	1	30
1,2-Dichloroethane	20	N.D.	22.25	22.38	111	112	72-127	1	30
Trichloroethene	20	N.D.	22.88	23.56	114	118	80-120	3	30
Methylcyclohexane	20	N.D.	23.63	23.31	118	117	66-126	1	30
1,2-Dichloropropane	20	N.D.	22.58	22.99	113	115	80-120	2	30
Bromodichloromethane	20	N.D.	20.59	20.86	103	104	73-120	1	30
cis-1,3-Dichloropropene	20	N.D.	18.36	19.44	92	97	80-120	6	30
4-Methyl-2-pentanone	100	N.D.	101.46	105.16	101	105	59-130	4	30
Toluene	20	N.D.	20.65	21.12	103	106	80-120	2	30
trans-1,3-Dichloropropene	20	N.D.	17.62	18.37	88	92	76-120	4	30
1,1,2-Trichloroethane	20	N.D.	19.51	20.25	98	101	80-120	4	30
Tetrachloroethene	20	N.D.	21.13	21.35	106	107	80-122	1	30
2-Hexanone	100	N.D.	68.48	70.8	68	71	59-127	3	30
Dibromochloromethane	20	N.D.	18.3	18.58	91	93	72-120	2	30
1,2-Dibromoethane	20	N.D.	19.2	19.79	96	99	80-120	3	30
Chlorobenzene	20	N.D.	20.59	20.93	103	105	80-120	2	30
Ethylbenzene	20	N.D.	20.91	21.18	105	106	78-120	1	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

Results are being reported on an as received basis.

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 8084534 MS: 8084534 MSD: 8084534 **Analyte**	Batch: **N152921AA** (Sample number(s): 8084534)								
	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**
Xylene (Total)	60	N.D.	58.61	60.17	98	100	80-120	3	30
Styrene	20	N.D.	19.24	19.73	96	99	80-120	3	30
Bromoform	20	N.D.	16.44	16.87	82	84	61-121	3	30
Isopropylbenzene	20	N.D.	19.55	20.15	98	101	80-120	3	30
1,1,2,2-Tetrachloroethane	20	N.D.	18.25	19.	91	95	65-131	4	30
1,3-Dichlorobenzene	20	N.D.	18.87	19.5	94	98	80-120	3	30
1,4-Dichlorobenzene	20	N.D.	19.47	19.73	97	99	80-120	1	30
1,2-Dichlorobenzene	20	N.D.	18.75	19.71	94	99	80-120	5	30
1,2-Dibromo-3-chloropropane	20	N.D.	14.67	15.18	73	76	55-131	3	30
1,2,4-Trichlorobenzene	20	N.D.	15.48	16.23	77	81	73-120	5	30

Comments:
(2) The unspiked sample result is greater than four times the spike added.
* = Out of Specification

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: DHR32
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

LCS: LCSA94	Batch: **A152951AA** (Sample number(s): 8084533)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	19.8	NA	99	NA	28-131	NA	NA
Chloromethane	20	18.8	NA	94	NA	56-120	NA	NA
Vinyl Chloride	20	19.4	NA	97	NA	59-120	NA	NA
Bromomethane	20	14.07	NA	70	NA	21-192	NA	NA
Chloroethane	20	15.75	NA	79	NA	21-185	NA	NA
Trichlorofluoromethane	20	19.16	NA	96	NA	58-133	NA	NA
1,1-Dichloroethene	20	21.35	NA	107	NA	73-129	NA	NA
Acetone	150	138.04	NA	92	NA	46-139	NA	NA
Carbon Disulfide	20	19.86	NA	99	NA	60-120	NA	NA
Freon 113	20	22.49	NA	112	NA	54-123	NA	NA
Methyl Acetate	20	18.73	NA	94	NA	61-144	NA	NA
1,1-Dichloroethane	20	19.75	NA	99	NA	77-120	NA	NA
2-Butanone	150	129.9	NA	87	NA	54-129	NA	NA
cis-1,2-Dichloroethene	20	20.83	NA	104	NA	80-120	NA	NA
Methyl Tertiary Butyl Ether	20	18.9	NA	95	NA	72-120	NA	NA
Methylene Chloride	20	20.49	NA	102	NA	76-122	NA	NA
trans-1,2-Dichloroethene	20	21.47	NA	107	NA	79-122	NA	NA
Chloroform	20	20.54	NA	103	NA	80-120	NA	NA
1,1,1-Trichloroethane	20	19.88	NA	99	NA	59-136	NA	NA
Benzene	20	20.5	NA	103	NA	80-120	NA	NA
Carbon Tetrachloride	20	20.74	NA	104	NA	69-130	NA	NA
Cyclohexane	20	20.95	NA	105	NA	58-120	NA	NA
1,2-Dichloroethane	20	19.5	NA	98	NA	77-130	NA	NA
1,2-Dichloropropane	20	20.14	NA	101	NA	76-120	NA	NA
Bromodichloromethane	20	19.19	NA	96	NA	75-120	NA	NA
Methylcyclohexane	20	22.22	NA	111	NA	59-120	NA	NA
Trichloroethene	20	20.65	NA	103	NA	80-120	NA	NA
4-Methyl-2-pentanone	100	68.47	NA	68	NA	57-123	NA	NA
cis-1,3-Dichloropropene	20	18.44	NA	92	NA	74-120	NA	NA
Toluene	20	20.62	NA	103	NA	80-120	NA	NA
trans-1,3-Dichloropropene	20	18.79	NA	94	NA	76-120	NA	NA
1,1,2-Trichloroethane	20	18.94	NA	95	NA	80-120	NA	NA
1,2-Dibromoethane	20	18.85	NA	94	NA	80-120	NA	NA
2-Hexanone	100	67.55	NA	68	NA	47-133	NA	NA
Dibromochloromethane	20	18.13	NA	91	NA	77-120	NA	NA
Tetrachloroethene	20	20.95	NA	105	NA	78-120	NA	NA
1,1,2,2-Tetrachloroethane	20	17.9	NA	90	NA	67-121	NA	NA
Bromoform	20	16.36	NA	82	NA	64-120	NA	NA
Chlorobenzene	20	20.48	NA	102	NA	80-120	NA	NA
Ethylbenzene	20	20.94	NA	105	NA	80-120	NA	NA
Isopropylbenzene	20	21.29	NA	106	NA	76-120	NA	NA
Styrene	20	20.66	NA	103	NA	76-120	NA	NA

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR32
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSA94	Batch: **A152951AA** (Sample number(s): 8084533)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Xylene (Total)	60	63.32	NA	106	NA	80-120	NA	NA
1,2-Dibromo-3-chloropropane	20	15.46	NA	77	NA	59-122	NA	NA
1,2-Dichlorobenzene	20	20.41	NA	102	NA	80-120	NA	NA
1,3-Dichlorobenzene	20	20.76	NA	104	NA	80-120	NA	NA
1,4-Dichlorobenzene	20	20.88	NA	104	NA	80-120	NA	NA
1,2,4-Trichlorobenzene	20	19.2	NA	96	NA	60-120	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR32
Matrix: LIQUID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

LCS: LCSN16 LCSD: LCDN16	Batch: **N152921AA** (Sample number(s): 8084534)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	20.14	19.91	101	100	55-127	1	30
Chloromethane	20	18.35	19.17	92	96	65-129	4	30
Vinyl Chloride	20	18.8	19.33	94	97	69-120	3	30
Bromomethane	20	17.36	18.28	87	91	53-130	5	30
Chloroethane	20	16.89	17.49	84	87	56-120	4	30
Trichlorofluoromethane	20	19.63	19.56	98	98	60-142	0	30
1,1-Dichloroethene	20	20.7	21.5	104	108	76-124	4	30
Acetone	150	154.23	160.77	103	107	58-138	4	30
Freon 113	20	22.5	23.52	112	118	67-127	4	30
Carbon Disulfide	20	20.14	20.15	101	101	58-126	0	30
Methyl Acetate	20	21.36	21.96	107	110	64-131	3	30
Methylene Chloride	20	20.5	20.77	103	104	77-121	1	30
trans-1,2-Dichloroethene	20	20.95	21.24	105	106	80-120	1	30
Methyl Tertiary Butyl Ether	20	19.76	19.46	99	97	75-120	2	30
1,1-Dichloroethane	20	20.43	20.68	102	103	80-120	1	30
2-Butanone	150	164.15	167.04	109	111	62-131	2	30
cis-1,2-Dichloroethene	20	20.67	20.66	103	103	80-120	0	30
Chloroform	20	20.35	20.61	102	103	80-120	1	30
1,1,1-Trichloroethane	20	18.37	18.14	92	91	66-126	1	30
Cyclohexane	20	19.21	19.31	96	97	60-129	1	30
Carbon Tetrachloride	20	19.61	20.05	98	100	74-130	2	30
Benzene	20	20.89	21.21	104	106	78-120	2	30
1,2-Dichloroethane	20	20.51	20.97	103	105	72-127	2	30
Trichloroethene	20	20.57	20.71	103	104	80-120	1	30
Methylcyclohexane	20	18.72	18.87	94	94	66-126	1	30
1,2-Dichloropropane	20	20.91	21.03	105	105	80-120	1	30
Bromodichloromethane	20	18.85	19.1	94	96	73-120	1	30
cis-1,3-Dichloropropene	20	18.92	19.01	95	95	80-120	0	30
4-Methyl-2-pentanone	100	97.96	101.01	98	101	59-130	3	30
Toluene	20	18.75	19.05	94	95	80-120	2	30
trans-1,3-Dichloropropene	20	17.63	17.6	88	88	76-120	0	30
1,1,2-Trichloroethane	20	18.94	19.14	95	96	80-120	1	30
Tetrachloroethene	20	19.03	19.07	95	95	80-122	0	30
2-Hexanone	100	67.14	68.93	67	69	59-127	3	30
Dibromochloromethane	20	17.46	17.72	87	89	72-120	1	30
1,2-Dibromoethane	20	18.79	18.91	94	95	80-120	1	30
Chlorobenzene	20	19.01	19.19	95	96	80-120	1	30
Ethylbenzene	20	18.97	19.25	95	96	78-120	1	30
Xylene (Total)	60	54.4	55.22	91	92	80-120	1	30
Styrene	20	17.99	17.93	90	90	80-120	0	30
Bromoform	20	16.46	16.93	82	85	61-121	3	30
Isopropylbenzene	20	18.21	18.7	91	94	80-120	3	30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSN16 LCSD: LCDN16	Batch: **N152921AA** (Sample number(s): 8084534)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1,2,2-Tetrachloroethane	20	17.94	18.3	90	92	65-131	2	30
1,3-Dichlorobenzene	20	17.97	18.18	90	91	80-120	1	30
1,4-Dichlorobenzene	20	18.39	18.49	92	92	80-120	1	30
1,2-Dichlorobenzene	20	18.05	18.09	90	90	80-120	0	30
1,2-Dibromo-3-chloropropane	20	14.3	15.36	72	77	55-131	7	30
1,2,4-Trichlorobenzene	20	15.63	15.74	78	79	73-120	1	30

LCS: LCSW80 LCSD: LCDW80	Batch: **W152931AA** (Sample number(s): 8084535)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	14.56	14.1	73	71	55-127	3	30
Chloromethane	20	19.52	20.57	98	103	65-129	5	30
Vinyl Chloride	20	15.66	15.55	78	78	69-120	1	30
Bromomethane	20	17.2	17.57	86	88	53-130	2	30
Chloroethane	20	15.29	15.71	76	79	56-120	3	30
Trichlorofluoromethane	20	15.78	15.47	79	77	60-142	2	30
1,1-Dichloroethene	20	18.7	18.76	93	94	76-124	0	30
Acetone	150	143.08	153.49	95	102	58-138	7	30
Freon 113	20	18.32	18.6	92	93	67-127	2	30
Carbon Disulfide	20	15.95	17.53	80	88	58-126	9	30
Methyl Acetate	20	21.4	20.57	107	103	64-131	4	30
Methylene Chloride	20	19.57	19.73	98	99	77-121	1	30
trans-1,2-Dichloroethene	20	21.11	21.17	106	106	80-120	0	30
Methyl Tertiary Butyl Ether	20	19.84	20.04	99	100	75-120	1	30
1,1-Dichloroethane	20	19.97	19.82	100	99	80-120	1	30
2-Butanone	150	156.71	158.14	104	105	62-131	1	30
cis-1,2-Dichloroethene	20	20.84	20.52	104	103	80-120	2	30
Chloroform	20	19.53	19.46	98	97	80-120	0	30
1,1,1-Trichloroethane	20	20.61	20.54	103	103	66-126	0	30
Cyclohexane	20	19.07	19.28	95	96	60-129	1	30
Carbon Tetrachloride	20	19.52	19.32	98	97	74-130	1	30
Benzene	20	20.89	20.51	104	103	78-120	2	30
1,2-Dichloroethane	20	19.52	18.99	98	95	72-127	3	30
Trichloroethene	20	20.07	19.75	100	99	80-120	2	30
Methylcyclohexane	20	17.05	17.97	85	90	66-126	5	30
1,2-Dichloropropane	20	20.56	19.61	103	98	80-120	5	30
Bromodichloromethane	20	18.29	17.76	91	89	73-120	3	30
cis-1,3-Dichloropropene	20	17.95	17.58	90	88	80-120	2	30
4-Methyl-2-pentanone	100	98.25	96.9	98	97	59-130	1	30
Toluene	20	21.04	20.44	105	102	80-120	3	30
trans-1,3-Dichloropropene	20	18.29	17.18	91	86	76-120	6	30

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR32
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSW80 LCSD: LCDW80	Batch: **W152931AA** (Sample number(s): 8084535)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1,2-Trichloroethane	20	20.14	19.54	101	98	80-120	3	30
Tetrachloroethene	20	22.64	22.57	113	113	80-122	0	30
2-Hexanone	100	99.29	97.32	99	97	59-127	2	30
Dibromochloromethane	20	18.76	18.18	94	91	72-120	3	30
1,2-Dibromoethane	20	20.63	19.65	103	98	80-120	5	30
Chlorobenzene	20	21.12	20.37	106	102	80-120	4	30
Ethylbenzene	20	20.46	19.83	102	99	78-120	3	30
Xylene (Total)	60	61	59.32	102	99	80-120	3	30
Styrene	20	19.53	18.67	98	93	80-120	4	30
Bromoform	20	19.36	18.76	97	94	61-121	3	30
Isopropylbenzene	20	20.42	19.88	102	99	80-120	3	30
1,1,2,2-Tetrachloroethane	20	19.52	18.97	98	95	65-131	3	30
1,3-Dichlorobenzene	20	20.62	20.07	103	100	80-120	3	30
1,4-Dichlorobenzene	20	20.65	20.28	103	101	80-120	2	30
1,2-Dichlorobenzene	20	20.69	20.13	103	101	80-120	3	30
1,2-Dibromo-3-chloropropane	20	17.64	15.89	88	79	55-131	10	30
1,2,4-Trichlorobenzene	20	19.73	18.74	99	94	73-120	5	30

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: ac08t01.d BFB Injection Date: 10/08/15

Instrument ID: HP09685 BFB Injection Time: 11:07

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	15.66
75	30.0 - 60.0% of mass 95	46.34
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	0.00 (0.00)1
174	Greater than 50.0% of mass 95	84.91
175	5.0 - 9.0% of mass 174	6.23 (7.33)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.75 (96.28)1
177	5.0 - 9.0% of mass 176	5.43 (6.64)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	ac08i01.d	10/08/15	11:55
02	VSTD100	ac08i02.d	10/08/15	12:22
03	VSTD50	ac08i03.d	10/08/15	12:48
04	VSTD10	ac08i05.d	10/08/15	14:16
05	VSTD4	ac08i06.d	10/08/15	14:38
06	VSTD001	ac08m01.d	10/08/15	15:01
07	VSTD20	ac08i07.d	10/08/15	15:46
08	LCSAICV	al06v01.d	10/08/15	16:40

FORM V VOA

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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: ac22t01.d BFB Injection Date: 10/22/15

Instrument ID: HP09685 BFB Injection Time: 07:47

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	15.22
75	30.0 - 60.0% of mass 95	45.47
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.16
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	77.75
175	5.0 - 9.0% of mass 174	5.67 (7.30)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.79 (96.19)1
177	5.0 - 9.0% of mass 176	4.86 (6.50)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	ac22c01.d	10/22/15	08:14
02	VBLKA94	ac22b01.d	10/22/15	09:11
03	LCSA94	ac22s01.d	10/22/15	09:34
04	8084533	ac22s02.d	10/22/15	10:14
05	8088042	ac22s03.d	10/22/15	10:36
06	8088043MS	ac22s04.d	10/22/15	10:59
07	8088044MSD	ac22s05.d	10/22/15	11:21
08	8088045	ac22s06.d	10/22/15	11:44
09	8088028	ac22s07.d	10/22/15	12:06
10	8088033	ac22s12.d	10/22/15	13:59
11	8088034	ac22s13.d	10/22/15	14:22
12	8088035	ac22s14.d	10/22/15	14:44
13	8088036	ac22s15.d	10/22/15	15:07
14	8088037	ac22s16.d	10/22/15	15:29
15	8088038	ac22s17.d	10/22/15	15:52
16	8088041	ac22s19.d	10/22/15	16:37
17	8088025	ac22s20.d	10/22/15	17:00
18	8088040	ac22s21.d	10/22/15	17:22
19	8088029	ac22s22.d	10/22/15	17:45
20	8088030	ac22s23.d	10/22/15	18:07
21	8088031	ac22s24.d	10/22/15	18:30
22	8088032	ac22s25.d	10/22/15	18:53

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FORM V VOA

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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: ng27t01.d BFB Injection Date: 08/27/15

Instrument ID: HP07159 BFB Injection Time: 09:13

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	16.82
75	30.0 - 60.0% of mass 95	45.56
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.73
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	76.69
175	5.0 - 9.0% of mass 174	5.42 (7.07)1
176	Greater than 95.0%, but less than 101.0% of mass 174	73.15 (95.39)1
177	5.0 - 9.0% of mass 176	4.84 (6.61)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	ng27i01.d	08/27/15	10:22
02	VSTD100	ng27i02.d	08/27/15	10:45
03	VSTD50	ng27i03.d	08/27/15	11:08
04	VSTD20	ng27i04.d	08/27/15	11:42
05	VSTD10	ng27i05.d	08/27/15	12:05
06	VSTD4	ng27i06.d	08/27/15	12:28
07	MDL0.5 - MDL0.5	ng27i07.d	08/27/15	12:51
08	VSTD1	ng27m01.d	08/27/15	13:14
09	ICVN01	ng27v01.d	08/27/15	13:37

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FORM V VOA

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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: nc19t01.d BFB Injection Date: 10/19/15

Instrument ID: HP07159 BFB Injection Time: 09:03

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	17.31
75	30.0 - 60.0% of mass 95	47.13
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.06
173	Less than 2.0% of mass 174	0.20 (0.25)1
174	Greater than 50.0% of mass 95	79.56
175	5.0 - 9.0% of mass 174	5.94 (7.47)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.02 (96.80)1
177	5.0 - 9.0% of mass 176	5.08 (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	nc19c01.d	10/19/15	09:26
02	LCSN16	nc19s01.d	10/19/15	09:49
03	VBLKN16	nc19b01.d	10/19/15	10:35
04	LCDN16	nc19s02.d	10/19/15	12:21
05	8085581	nc19s03.d	10/19/15	12:44
06	8081809	nc19s04.d	10/19/15	13:07
07	8081808	nc19s05.d	10/19/15	13:30
08	8080978	nc19s06.d	10/19/15	13:53
09	8080978MS	nc19s07.d	10/19/15	14:16
10	8084534	nc19s08.d	10/19/15	14:39
11	8084534MS	nc19s09.d	10/19/15	15:03
12	8084534MSD	nc19s10.d	10/19/15	15:26
13	8085591	nc19s11.d	10/19/15	15:49
14	8085603	nc19s12.d	10/19/15	16:12
15	8085605	nc19s13.d	10/19/15	16:35
16	8085607	nc19s14.d	10/19/15	16:58
17	8085609	nc19s15.d	10/19/15	17:21
18	8085610	nc19s16.d	10/19/15	17:44
19	8085611	nc19s17.d	10/19/15	18:07
20	8086745	nc19s18.d	10/19/15	18:30
21	8086754	nc19s19.d	10/19/15	18:53
22	8086755	nc19s20.d	10/19/15	19:17

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.:_DHR32___

Lab File ID: nc19t01.d BFB Injection Date: 10/19/15

Instrument ID: HP07159 BFB Injection Time: 09:03

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	17.31
75	30.0 - 60.0% of mass 95	47.13
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.06
173	Less than 2.0% of mass 174	0.20 (0.25)1
174	Greater than 50.0% of mass 95	79.56
175	5.0 - 9.0% of mass 174	5.94 (7.47)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.02 (96.80)1
177	5.0 - 9.0% of mass 176	5.08 (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	8086756	nc19s21.d	10/19/15	19:40
24	8086757	nc19s22.d	10/19/15	20:02
25	8086758	nc19s23.d	10/19/15	20:26
26	8086759	nc19s24.d	10/19/15	20:49

FORM V VOA

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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: wu23t05.d BFB Injection Date: 06/23/15

Instrument ID: HP09137 BFB Injection Time: 21:25

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	15.94
75	30.0 - 60.0% of mass 95	44.46
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.54
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	85.82
175	5.0 - 9.0% of mass 174	6.29 (7.33)1
176	Greater than 95.0%, but less than 101.0% of mass 174	82.34 (95.95)1
177	5.0 - 9.0% of mass 176	5.35 (6.49)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	wu23i01.d	06/23/15	22:27
02	VSTD100	wu23i02.d	06/23/15	22:51
03	VSTD50	wu23i03.d	06/23/15	23:15
04	VSTD20	wu23i04.d	06/23/15	23:39
05	VSTD10	wu23i05.d	06/24/15	00:02
06	VSTD4	wu23i06.d	06/24/15	00:26
07	VSTD1	wu23i07.d	06/24/15	00:50
08	VSTD0.5	wu23m01.d	06/24/15	01:14
09	LCSWICV	wu23v01.d	06/24/15	01:38

FORM V VOA

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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID: wc20t01.d BFB Injection Date: 10/20/15

Instrument ID: HP09137 BFB Injection Time: 10:13

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	16.59
75	30.0 - 60.0% of mass 95	45.01
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	97.62
175	5.0 - 9.0% of mass 174	7.56 (7.75)1
176	Greater than 95.0%, but less than 101.0% of mass 174	94.34 (96.64)1
177	5.0 - 9.0% of mass 176	6.37 (6.75)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	wc20c01.d	10/20/15	10:28
02	LCSW80	wc20s01.d	10/20/15	10:52
03	LCDW80	wc20s02.d	10/20/15	11:16
04	VBLKW80	wc20b01.d	10/20/15	11:39
05	8084535	wc20s03.d	10/20/15	12:39
06	8083992	wc20s04.d	10/20/15	13:03
07	8083991DL	wc20s05.d	10/20/15	13:26
08	8087451	wc20s06.d	10/20/15	13:50
09	8087465	wc20s07.d	10/20/15	14:13
10	8087466MS	wc20s08.d	10/20/15	14:37
11	8087467MSD	wc20s09.d	10/20/15	15:01
12	8087452	wc20s10.d	10/20/15	15:25
13	8087453	wc20s11.d	10/20/15	15:48
14	8087454	wc20s12.d	10/20/15	16:12
15	8087455	wc20s13.d	10/20/15	16:36
16	8087456	wc20s14.d	10/20/15	16:59
17	8087457	wc20s15.d	10/20/15	17:23
18	8087458	wc20s16.d	10/20/15	17:47
19	8087459	wc20s17.d	10/20/15	18:10
20	8087460	wc20s18.d	10/20/15	18:34
21	8087461	wc20s19.d	10/20/15	18:58
22	8087462	wc20s20.d	10/20/15	19:21

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.:_DHR32___

Lab File ID: wc20t01.d BFB Injection Date: 10/20/15

Instrument ID: HP09137 BFB Injection Time: 10:13

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	16.59
75	30.0 - 60.0% of mass 95	45.01
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	97.62
175	5.0 - 9.0% of mass 174	7.56 (7.75)1
176	Greater than 95.0%, but less than 101.0% of mass 174	94.34 (96.64)1
177	5.0 - 9.0% of mass 176	6.37 (6.75)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	8087463	wc20s21.d	10/20/15	19:45
24	8087464	wc20s22.d	10/20/15	20:09
25	8087468	wc20s23.d	10/20/15	20:32
26	8087469	wc20s24.d	10/20/15	20:56
27	8087470	wc20s25.d	10/20/15	21:20

FORM V VOA

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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane		0.4439	0.4642	0.4484	0.3385	0.4216	0.4045	0.4202	11	AVG
Chloromethane	#	0.3428	0.3604	0.3484	0.2419	0.2950	0.2821	0.3118	15	AVG #
Vinyl Chloride	*	0.2994	0.3290	0.3162	0.2234	0.2660	0.2571	0.2819	14	AVG *
Bromomethane		0.2139	0.2297	0.2179	0.1585	0.1859	0.1506	0.1928	17	2NDDEG
Chloroethane		0.1690	0.1767	0.1666	0.1215	0.1462	0.1220	0.1504	16	2NDDEG
Dichlorofluoromethane		0.4103	0.4108	0.4017	0.3422	0.3600	0.3366	0.3769	9	AVG
Trichlorofluoromethane		0.4327	0.4596	0.4485	0.3350	0.4206	0.3885	0.4142	11	AVG
Ethanol		0.2170	0.2079	0.2062	0.1957	0.2037	0.1876	0.2030	5	AVG
Freon 123a		0.3377	0.3417	0.3385	0.2885	0.2996	0.2873	0.3155	8	AVG
Acrolein		3.0663	2.8469	2.7579	2.9448	3.1038	2.7852	2.9175	5	AVG
1,1-Dichloroethene	*	0.2588	0.2444	0.2576	0.2368	0.2444	0.2244	0.2444	5	AVG *
Acetone		0.0221	0.0255	0.0229	0.0231	0.0241	0.0190	0.0228	10	AVG
Freon 113		0.2712	0.2622	0.2700	0.2499	0.2496	0.2149	0.2530	8	AVG
2-Propanol		1.1437	1.2707	1.1282	1.0421	1.0867	0.9510	1.1037	10	AVG
Methyl Iodide		0.4798	0.4578	0.4904	0.4518	0.4767	0.4413	0.4663	4	AVG
Carbon Disulfide		0.8358	0.7838	0.8386	0.7745	0.8094	0.7521	0.7990	4	AVG
Methyl Acetate		0.1435	0.1807	0.1700	0.1420	0.1630	0.1369	0.1560	11	AVG
Allyl Chloride		0.3295	0.3738	0.3513	0.3129	0.3682	0.3346	0.3450	7	AVG
Methylene Chloride		0.3112	0.2887	0.2909	0.2647	0.2791	0.2547	0.2815	7	AVG
t-Butyl alcohol		1.3376	1.6399	1.5221	1.4757	1.6276	1.4694	1.5121	7	AVG
Acrylonitrile		0.0652	0.0845	0.0827	0.0870	0.0950	0.0781	0.0821	12	AVG
Methyl Tertiary Butyl Ether		0.5640	0.6233	0.6416	0.6165	0.6685	0.5932	0.6178	6	AVG
trans-1,2-Dichloroethene		0.2921	0.2788	0.2891	0.2719	0.2838	0.2615	0.2795	4	AVG
n-Hexane		0.3495	0.3571	0.3575	0.3504	0.3602	0.2539	0.3381	12	AVG
1,1-Dichloroethane	#	0.5097	0.4851	0.5011	0.4697	0.4950	0.4549	0.4859	4	AVG #
di-Isopropyl ether		0.7219	0.7439	0.7685	0.7407	0.7902	0.7059	0.7452	4	AVG
2-Chloro-1,3-butadiene		0.3347	0.3320	0.3613	0.3509	0.3744	0.3489	0.3503	5	AVG
Ethyl t-butyl ether		0.4207	0.4490	0.4773	0.4803	0.5302	0.4947	0.4754	8	AVG
2-Butanone		0.0826	0.1006	0.0993	0.1135	0.1211	0.0931	0.1017	14	AVG
cis-1,2-Dichloroethene		0.3158	0.3043	0.3187	0.2995	0.3191	0.2894	0.3078	4	AVG
2,2-Dichloropropane		0.3853	0.3768	0.4016	0.3917	0.4210	0.3949	0.3952	4	AVG
Propionitrile		2.1236	2.1326	2.0860	1.9178	2.0715	1.9391	2.0451	5	AVG
Methacrylonitrile		0.0807	0.0991	0.0996	0.0929	0.1005	0.0839	0.0928	9	AVG
Bromochloromethane		0.1534	0.1721	0.1598	0.1401	0.1655	0.1484	0.1566	7	AVG
Tetrahydrofuran		1.8379	1.9430	1.8273	1.9489	2.1640	1.9803	1.9502	6	AVG
Chloroform	*	0.5064	0.4777	0.4988	0.4692	0.4975	0.4584	0.4847	4	AVG *
1,1,1-Trichloroethane		0.5612	0.4782	0.4996	0.4482	0.4811	0.4550	0.4872	8	AVG
Cyclohexane		0.4199	0.4212	0.4273	0.4262	0.4406	0.3589	0.4157	7	AVG
Cyclohexane(2)		0.3923	0.4031	0.4016	0.3977	0.4129	0.3376	0.3909	7	AVG
Cyclohexane(3)		0.1324	0.1357	0.1362	0.1371	0.1434	0.1169	0.1336	7	AVG
1,1-Dichloropropene		0.3975	0.3843	0.4005	0.3829	0.4082	0.3744	0.3913	3	AVG
Carbon Tetrachloride		0.3871	0.3750	0.3944	0.3804	0.4127	0.3836	0.3889	3	AVG
Isobutyl Alcohol		0.5356	0.6658	0.5939	0.5537	0.6020	0.5429	0.5823	8	AVG
Benzene		1.1920	1.1199	1.1615	1.0856	1.1434	1.0422	1.1241	5	AVG
1,2-Dichloroethane		0.3613	0.3518	0.3572	0.3397	0.3633	0.3282	0.3502	4	AVG
1,2-Dichloroethane(2)		0.0335	0.0337	0.0361	0.0329	0.0354	0.0328	0.0341	4	AVG
t-Amyl methyl ether		0.3314	0.3651	0.3946	0.4045	0.4493	0.4265	0.3952	11	AVG
n-Heptane		0.3929	0.3869	0.3565	0.3692	0.3801		0.3771	4	AVG
n-Butanol		0.4056	0.5254	0.4934	0.4731	0.5340	0.4806	0.4854	9	AVG
Trichloroethene		0.3241	0.3065	0.3167	0.2979	0.3181	0.2950	0.3097	4	AVG
Methylcyclohexane		0.4173	0.5388	0.4890	0.4573	0.5397	0.4766	0.4864	10	AVG
1,2-Dichloropropane	*	0.2844	0.2753	0.2847	0.2727	0.2897	0.2628	0.2783	4	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Methyl Methacrylate		0.1307	0.1610	0.1785	0.1742	0.1932	0.1661	0.1673	13	AVG
1,4-Dioxane		0.1998	0.2213	0.2130	0.2027	0.2164	0.2001	0.2089	4	AVG
Dibromomethane		0.1645	0.1703	0.1772	0.1661	0.1805	0.1611	0.1699	4	AVG
Bromodichloromethane		0.3353	0.3350	0.3598	0.3541	0.3868	0.3639	0.3558	5	AVG
2-Nitropropane		3.1699	3.3407	3.1989	4.2677	4.7365	4.4486	3.8604	18	1STDEG
cis-1,3-Dichloropropene		0.3732	0.3956	0.4354	0.4393	0.4819	0.4407	0.4277	9	AVG
4-Methyl-2-pentanone		0.1453	0.2021	0.2084	0.2782	0.2893		0.2247	26	1STDEG
Toluene	*	1.0864	1.0042	1.0378	0.9700	1.0257	0.9193	1.0072	6	AVG *
trans-1,3-Dichloropropene		0.4517	0.4853	0.5312	0.5354	0.5902	0.5380	0.5220	9	AVG
Ethyl Methacrylate		0.2789	0.3644	0.4264	0.4444	0.4969	0.4320	0.4072	19	AVG
1,1,2-Trichloroethane		0.3367	0.3446	0.3540	0.3317	0.3546	0.3125	0.3390	5	AVG
Tetrachloroethene		0.4761	0.4461	0.4571	0.4325	0.4683	0.4159	0.4493	5	AVG
1,3-Dichloropropane		0.5483	0.5619	0.5821	0.5509	0.5938	0.5261	0.5605	4	AVG
2-Hexanone		0.1372	0.1981	0.2001	0.2817	0.2921		0.2218	29	1STDEG
Dibromochloromethane		0.3425	0.3603	0.4008	0.3973	0.4431	0.4138	0.3930	9	AVG
1,2-Dibromoethane		0.3214	0.3410	0.3528	0.3412	0.3740	0.3355	0.3443	5	AVG
1-Chlorohexane		0.5419	0.5250	0.5359	0.5217	0.5564	0.4280	0.5182	9	AVG
Chlorobenzene	#	1.3121	1.2236	1.2592	1.1682	1.2137	1.0377	1.2024	8	AVG #
1,1,1,2-Tetrachloroethane		0.3864	0.3921	0.4171	0.4039	0.4282	0.3635	0.3985	6	AVG
Ethylbenzene	*	1.9712	1.9142	1.9716	1.8800	1.9909	1.5759	1.8840	8	AVG *
m+p-Xylene		0.8082	0.7839	0.8093	0.7679	0.8052	0.6327	0.7678	9	AVG
o-Xylene		0.7369	0.7450	0.7803	0.7516	0.7925	0.6456	0.7420	7	AVG
Styrene		1.0465	1.1401	1.2440	1.2065	1.2732	1.0530	1.1605	8	AVG
Bromoform	#	0.1906	0.2205	0.2345	0.2375	0.2706	0.2524	0.2343	12	AVG #
Isopropylbenzene		1.8860	1.8957	1.9781	1.8995	2.0275	1.5945	1.8802	8	AVG
Cyclohexanone		0.6078	0.6454	0.6754	0.6454	0.7341	0.8009	0.6848	10	AVG
1,1,2,2-Tetrachloroethane	#	0.8218	0.9224	0.9237	0.8348	0.8892	0.7127	0.8508	9	AVG #
Bromobenzene		1.0813	1.0059	1.0294	0.9603	0.9956	0.8314	0.9840	9	AVG
trans-1,4-Dichloro-2-butene		0.1862	0.2457	0.2422	0.2286	0.2457	0.2038	0.2254	11	AVG
1,2,3-Trichloropropane		0.2533	0.2870	0.2830	0.2562	0.2719	0.2308	0.2637	8	AVG
n-Propylbenzene		4.7131	4.4191	4.5444	4.2861	4.4580	3.3304	4.2918	11	AVG
2-Chlorotoluene		1.0279	0.9672	0.9975	0.9374	0.9787	0.8341	0.9571	7	AVG
1,3,5-Trimethylbenzene		3.2925	3.2596	3.3603	3.2146	3.3694	2.6110	3.1846	9	AVG
4-Chlorotoluene		1.0817	1.0200	1.0347	0.9692	1.0125	0.8542	0.9954	8	AVG
tert-Butylbenzene		0.7092	0.7009	0.7253	0.6929	0.7489	0.5758	0.6922	9	AVG
Pentachloroethane		0.5403	0.6439	0.6065	0.5114	0.6263	0.5159	0.5740	10	AVG
1,2,4-Trimethylbenzene		3.4009	3.3616	3.4649	3.3043	3.4867	2.5712	3.2649	11	AVG
sec-Butylbenzene		4.2340	4.1335	4.2369	4.1031	4.1816	2.9663	3.9759	13	AVG
1,3-Dichlorobenzene		2.0929	1.9406	1.9678	1.8472	1.8770	1.4531	1.8631	12	AVG
p-Isopropyltoluene		3.6427	3.6484	3.7423	3.6319	3.7149	2.5525	3.4888	13	AVG
1,4-Dichlorobenzene		2.1176	1.9799	1.9602	1.8476	1.8785	1.3947	1.8631	13	AVG
1,2,3-Trimethylbenzene		3.5482	3.9956	3.6913	3.0907	3.6203	2.7206	3.4444	13	AVG
Benzyl Chloride		0.2522	0.3280	0.3620	0.3747	0.4234	0.3866	0.3545	17	1STDEG
1,3-Diethylbenzene		2.1029	2.5030	2.3433	2.0101	2.3695	1.9054	2.2057	11	AVG
1,4-Diethylbenzene		2.1805	2.5638	2.3948	2.0590	2.4153	1.8761	2.2482	11	AVG
n-Butylbenzene		1.7978	1.7880	1.7702	1.7207	1.7922	1.2452	1.6857	13	AVG
1,2-Dichlorobenzene		1.9344	1.8599	1.8711	1.7386	1.7987	1.4420	1.7741	10	AVG
1,2-Diethylbenzene		1.8985	2.1592	1.9659	1.6789	1.9634	1.5641	1.8717	12	AVG
1,2-Dibromo-3-chloropropane		0.1212	0.1477	0.1526	0.1519	0.1716	0.1538	0.1498	11	AVG
1,3,5-Trichlorobenzene		1.3702	1.3620	1.3583	1.3182	1.4111	1.0814	1.3168	9	AVG
1,2,4-Trichlorobenzene		1.0626	1.1312	1.1272	1.1607	1.2792	0.9989	1.1266	8	AVG
Hexachlorobutadiene		0.6188	0.5790	0.5326	0.5785	0.5948		0.5807	5	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): 10/08/15 10/08/15

Heated Purge: (Y/N) Y Calibration Times: 11:55 15:46

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

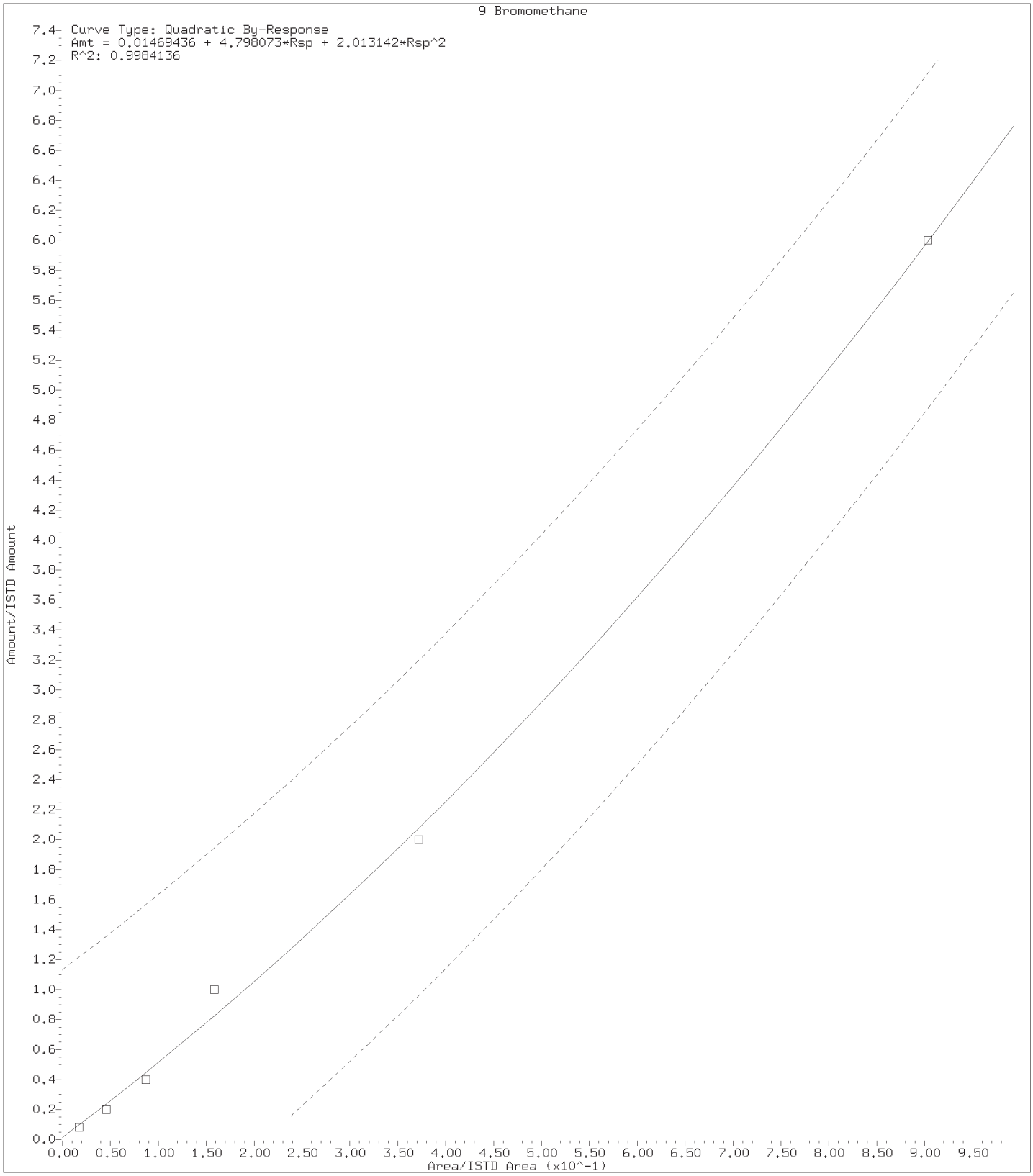
LAB FILE ID: RRF = RRF 4 = ac08i06.d RRF 10= ac08i05.d
RRF 20= ac08i07.d RRF 50= ac08i03.d RRF100= ac08i02.d RRF300= ac08i01.d

COMPOUND	RRF	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene		1.9624	2.5889	2.6715	2.8125	3.1292	2.5002	2.6108	15	AVG
1,2,3-Trichlorobenzene		1.0142	1.0765	1.0590	1.0634	1.1626	0.9178	1.0489	8	AVG
2-Methylnaphthalene		0.3946	0.8331	0.9373	1.2004	1.6786	1.4457	1.0816	43	1STDEG
Dibromofluoromethane		0.2376	0.2397	0.2397	0.2422	0.2441	0.2465	0.2416	1	AVG
Dibromofluoromethane(2)		0.2426	0.2458	0.2458	0.2460	0.2498	0.2510	0.2468	1	AVG
1,2-Dichloroethane-d4		0.0527	0.0554	0.0536	0.0546	0.0543	0.0523	0.0538	2	AVG
1,2-Dichloroethane-d4(2)		0.2391	0.2511	0.2519	0.2472	0.2475	0.2458	0.2471	2	AVG
1,2-Dichloroethane-d4(3)		0.0333	0.0343	0.0343	0.0343	0.0343	0.0338	0.0340	1	AVG
Toluene-d8		1.3473	1.3376	1.3379	1.3375	1.3558	1.3813	1.3496	1	AVG
Toluene-d8(2)		0.8781	0.8733	0.8729	0.8774	0.8880	0.9141	0.8840	2	AVG
4-Bromofluorobenzene		0.4799	0.4821	0.4778	0.4842	0.4936	0.5088	0.4877	2	AVG
4-Bromofluorobenzene(2)		0.3957	0.3966	0.3963	0.3978	0.4047	0.4179	0.4015	2	AVG

Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

FORM VI VOA



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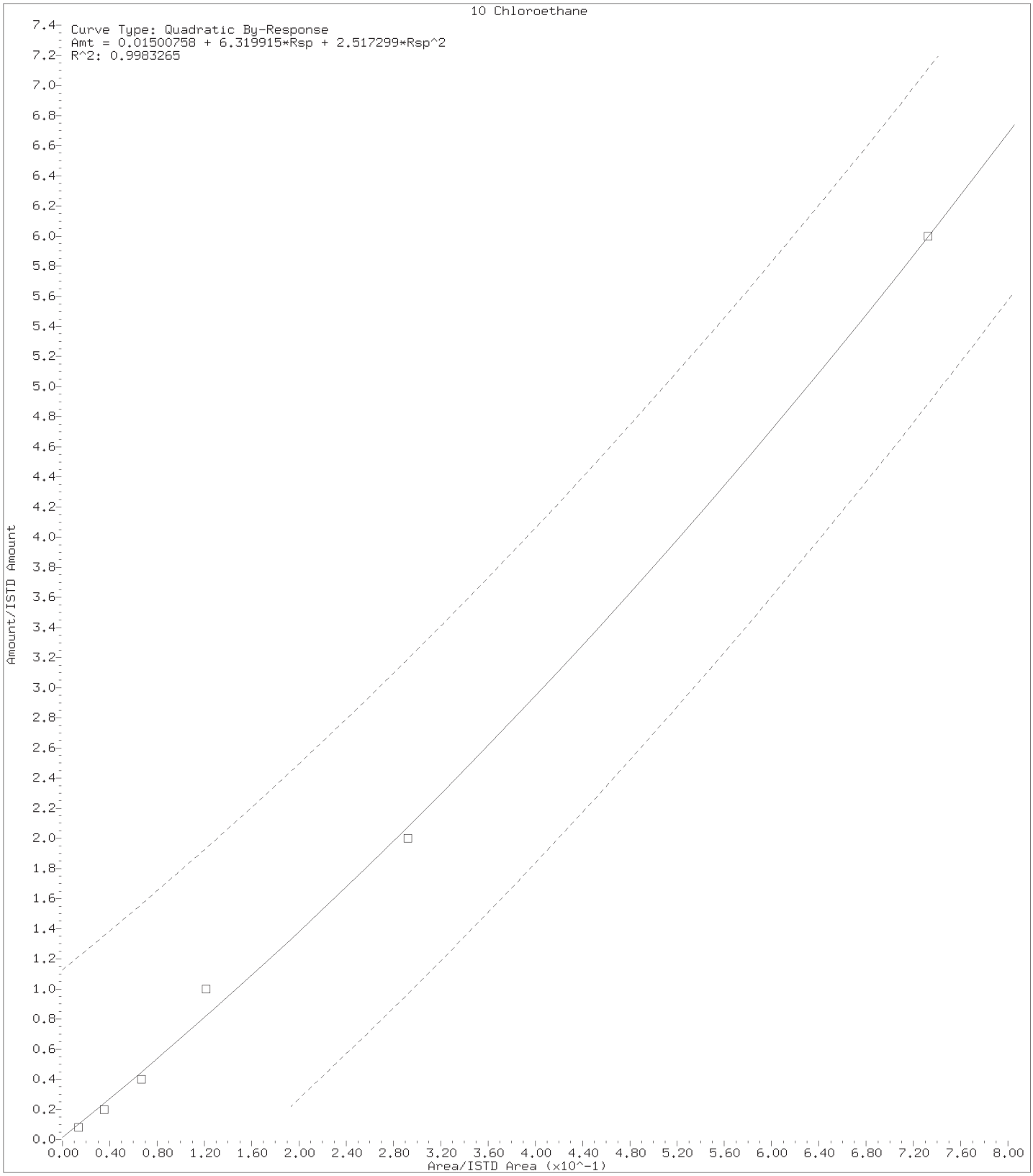
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
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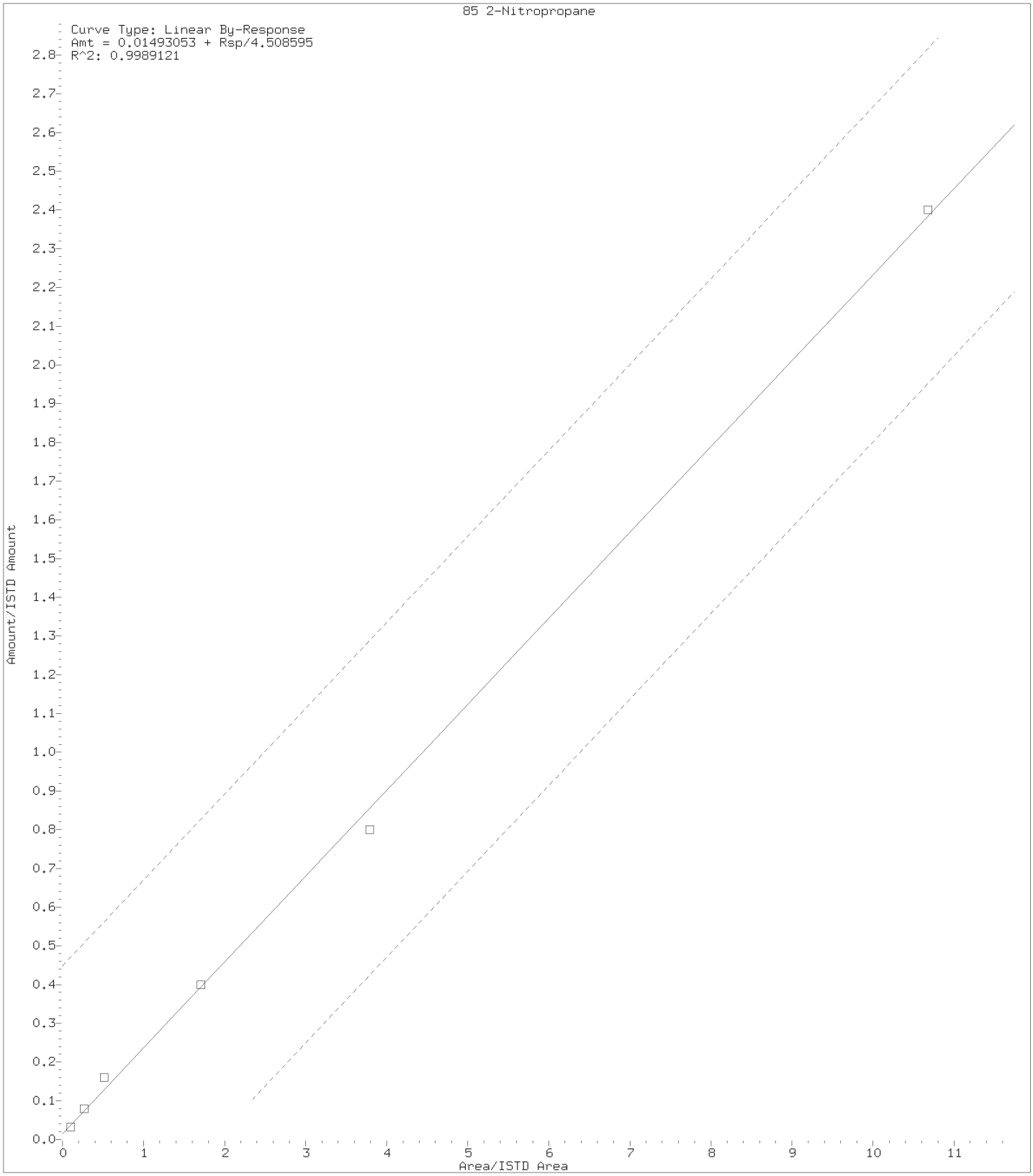
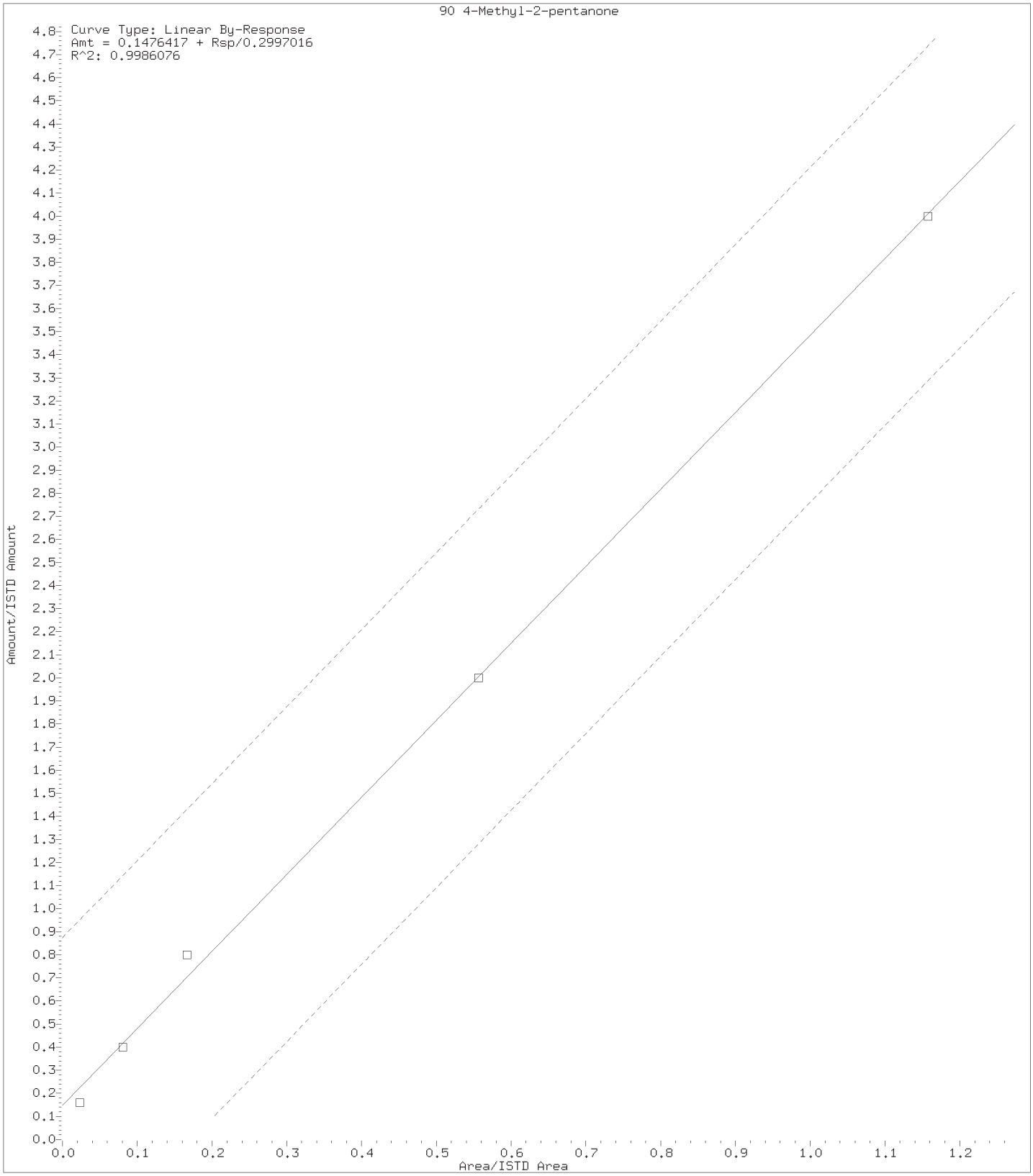
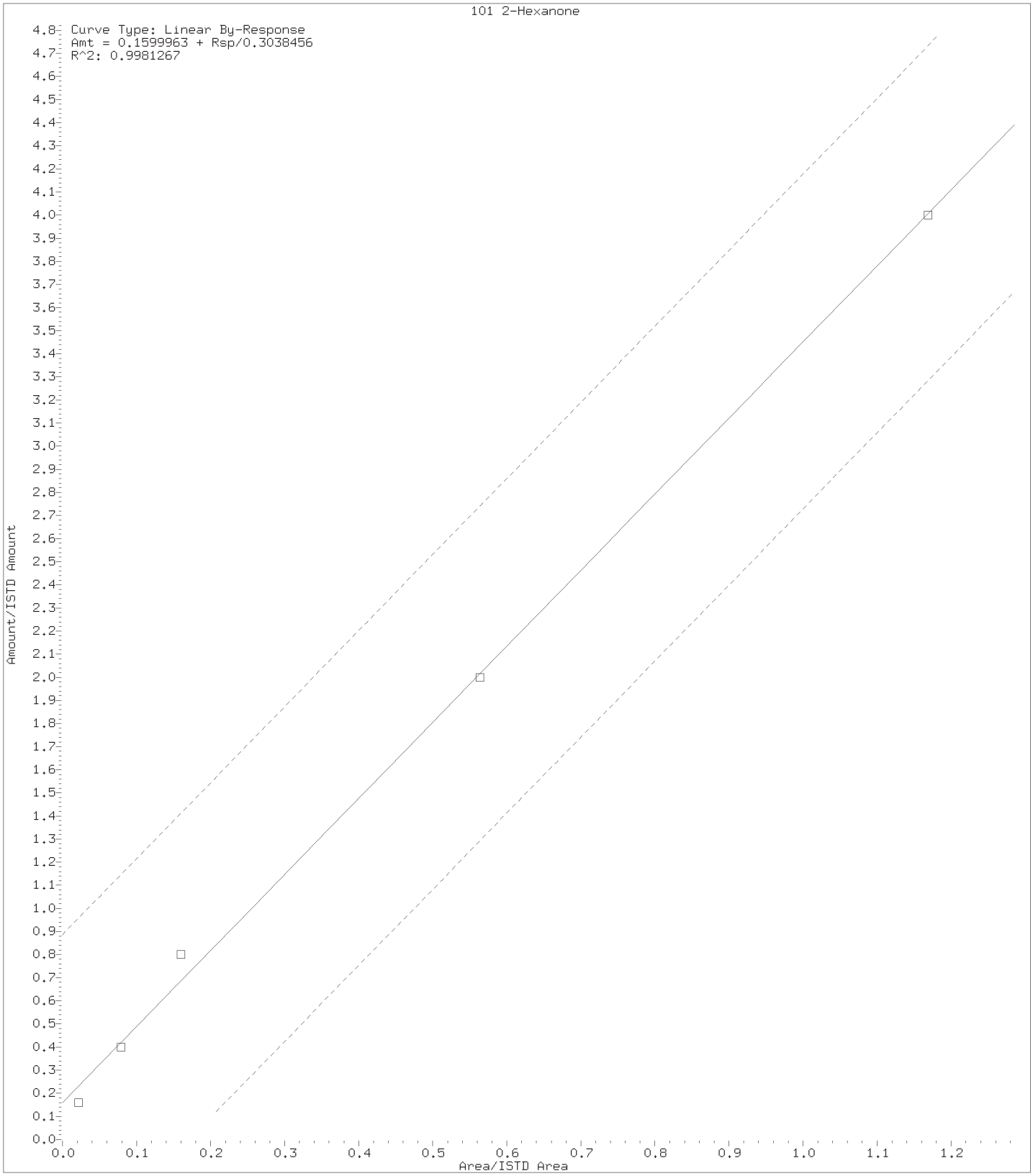


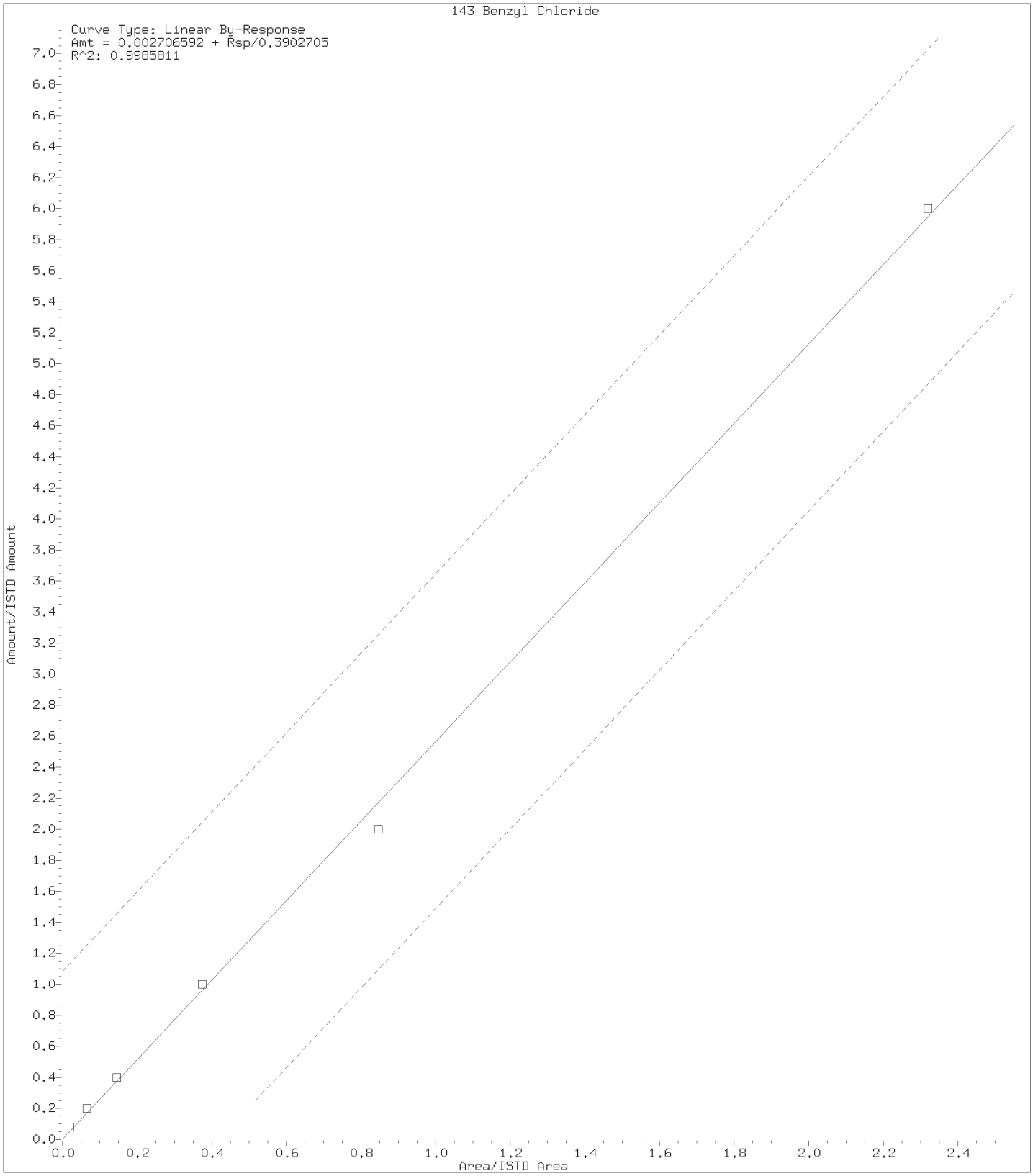
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



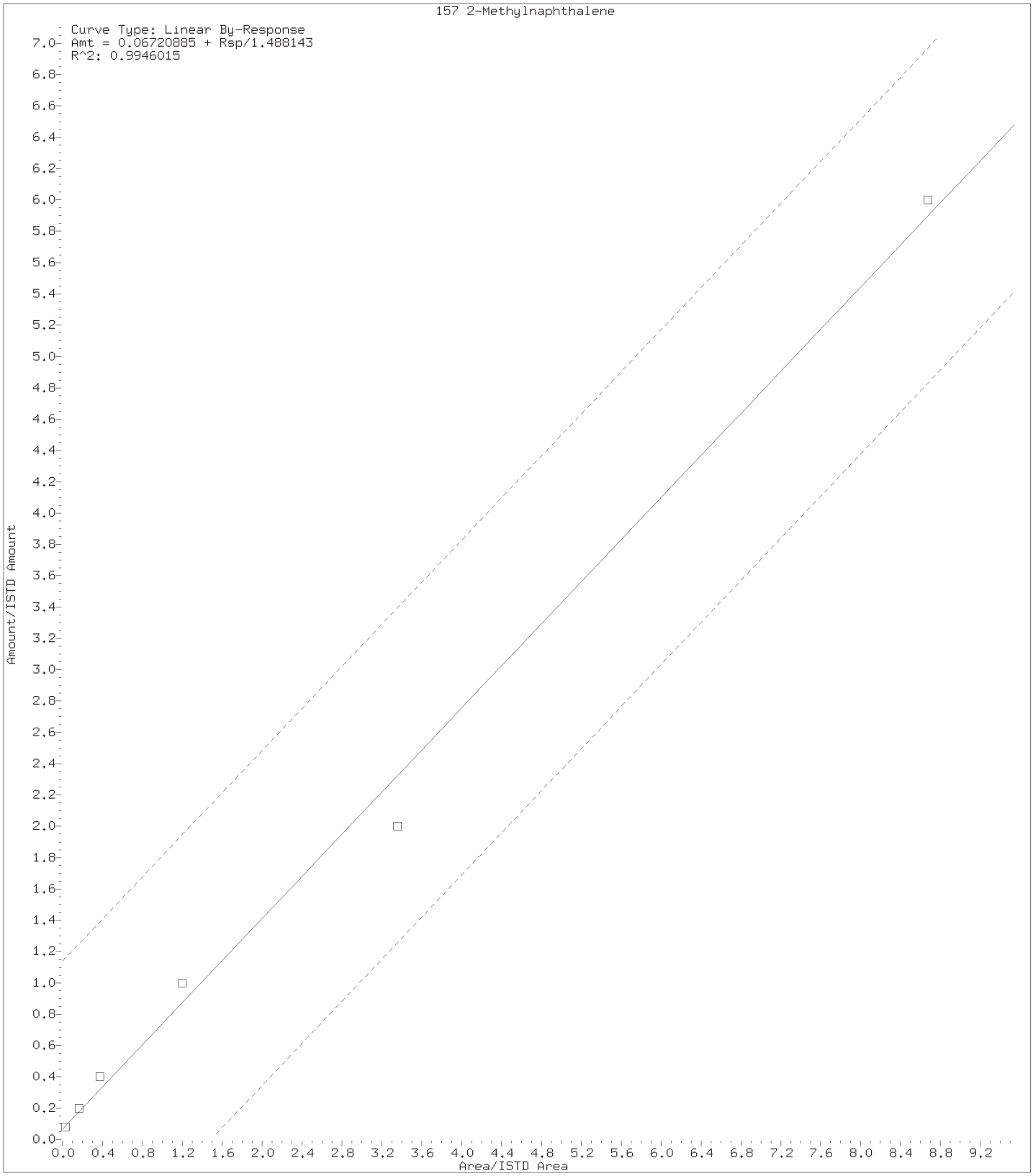
Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731



Digitally signed by Angela D. Sneeringer on 10/08/2015 at 16:42.
Target 3.5 esignature user ID: ads01731

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/15oct08a.b/ac08i01.d	VSTD300
/chem2/HP09685.i/15oct08a.b/ac08i02.d	VSTD100
/chem2/HP09685.i/15oct08a.b/ac08i03.d	VSTD050
/chem2/HP09685.i/15oct08a.b/ac08i07.d	VSTD020
/chem2/HP09685.i/15oct08a.b/ac08i05.d	VSTD010
/chem2/HP09685.i/15oct08a.b/ac08i06.d	VSTD004

Area Summary

File ID:

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	107368	132111	134640	132515	128801	98110	122258	13	Yes
Fluorobenzene	1523541	1610311	1615131	1600991	1608372	1559575	1586320	2	Yes
Chlorobenzene-d5	1112636	1189320	1200791	1190748	1188032	1145867	1171232	3	Yes
1,4-Dichlorobenzene-d4	594568	634667	625879	612087	616048	581685	610822	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ac08i01.d	ac08i02.d	ac08i03.d	ac08i07.d	ac08i05.d	ac08i06.d	Avg. RT
t-Butyl alcohol-d10	3.970	3.958	3.976	3.970	3.976	3.964	3.969
Fluorobenzene	7.462	7.462	7.462	7.456	7.462	7.462	7.461
Chlorobenzene-d5	11.015	11.015	11.015	11.014	11.014	11.015	11.015
1,4-Dichlorobenzene-d4	12.919	12.919	12.919	12.919	12.919	12.919	12.919

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 10/08/2015 at 16:42.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4202	0.4031	19.19	20	-4
# Chloromethane	0.3118	0.3029	19.43	20	-3 #
* Vinyl Chloride	0.2819	0.2811	19.95	20	0 *
Bromomethane	0.1928	0.1325	13.73	20	-31
Chloroethane	0.1504	0.1143	15.47	20	-23
Dichlorofluoromethane	0.3769	0.3725	19.76	20	-1
Trichlorofluoromethane	0.4142	0.4004	19.34	20	-3
Ethanol	0.2030	0.2128	1048.30	1000	5
Freon 123a	0.3155	0.3183	20.18	20	1
Acrolein	2.9175	2.6819	137.89	150	-8
* 1,1-Dichloroethene	0.2444	0.2530	20.71	20	4 *
Acetone	0.0228	0.0214	140.77	150	-6
Freon 113	0.2530	0.2665	21.07	20	5
2-Propanol	1.1037	1.0162	138.10	150	-8
Methyl Iodide	0.4663	0.4825	20.70	20	3
Carbon Disulfide	0.7990	0.7889	19.75	20	-1
Methyl Acetate	0.1560	0.1643	21.06	20	5
Allyl Chloride	0.3450	0.3566	20.67	20	3
Methylene Chloride	0.2815	0.2827	20.08	20	0
t-Butyl alcohol	1.5121	1.4548	192.42	200	-4
Acrylonitrile	0.0821	0.0815	99.31	100	-1
Methyl Tertiary Butyl Ether	0.6178	0.6377	20.64	20	3
trans-1,2-Dichloroethene	0.2795	0.2934	20.99	20	5
n-Hexane	0.3381	0.3696	21.86	20	9
# 1,1-Dichloroethane	0.4859	0.4750	19.55	20	-2 #
di-Isopropyl ether	0.7452	0.7746	20.79	20	4
2-Chloro-1,3-butadiene	0.3503	0.3236	18.48	20	-8
Ethyl t-butyl ether	0.4754	0.5000	21.04	20	5
2-Butanone	0.1017	0.1037	152.87	150	2
cis-1,2-Dichloroethene	0.3078	0.3118	20.26	20	1
2,2-Dichloropropane	0.3952	0.3851	19.49	20	-3
Propionitrile	2.0451	1.9443	142.61	150	-5
Methacrylonitrile	0.0928	0.1006	162.63	150	8
Bromochloromethane	0.1566	0.1571	20.07	20	0
Tetrahydrofuran	1.9502	1.7895	91.76	100	-8
* Chloroform	0.4847	0.4833	19.94	20	0 *

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4872	0.4761	19.55	20	-2
Cyclohexane	0.4157	0.4328	20.82	20	4
1,1-Dichloropropene	0.3913	0.3718	19.00	20	-5
Carbon Tetrachloride	0.3889	0.3884	19.98	20	0
Isobutyl Alcohol	0.5823	0.5226	448.71	500	-10
Benzene	1.1241	1.1237	19.99	20	0
1,2-Dichloroethane	0.3502	0.3456	19.73	20	-1
t-Amyl methyl ether	0.3952	0.4285	21.69	20	8
n-Heptane	0.3771	0.3674	19.48	20	-3
n-Butanol	0.4854	0.4366	899.59	1000	-10
Trichloroethene	0.3097	0.3061	19.76	20	-1
Methylcyclohexane	0.4864	0.5093	20.94	20	5
* 1,2-Dichloropropane	0.2783	0.2824	20.30	20	1 *
Methyl Methacrylate	0.1673	0.1663	19.88	20	-1
1,4-Dioxane	0.2089	0.1877	449.34	500	-10
Dibromomethane	0.1699	0.1687	19.86	20	-1
Bromodichloromethane	0.3558	0.3396	19.09	20	-5
2-Nitropropane	3.8604	3.0206	17.13	20	-14
cis-1,3-Dichloropropene	0.4277	0.4154	19.42	20	-3
4-Methyl-2-pentanone	0.2247	0.2255	82.61	100	-17
* Toluene	1.0072	1.0124	20.10	20	1 *
trans-1,3-Dichloropropene	0.5220	0.5155	19.75	20	-1
Ethyl Methacrylate	0.4072	0.4070	19.99	20	0
1,1,2-Trichloroethane	0.3390	0.3300	19.47	20	-3
Tetrachloroethene	0.4493	0.4554	20.27	20	1
1,3-Dichloropropane	0.5605	0.5461	19.48	20	-3
2-Hexanone	0.2218	0.2188	80.02	100	-20
Dibromochloromethane	0.3930	0.3648	18.57	20	-7
1,2-Dibromoethane	0.3443	0.3445	20.01	20	0
1-Chlorohexane	0.5182	0.5396	20.83	20	4
# Chlorobenzene	1.2024	1.1968	19.91	20	0 #
1,1,1,2-Tetrachloroethane	0.3985	0.3897	19.56	20	-2
* Ethylbenzene	1.8840	1.9314	20.50	20	3 *
m+p-Xylene	0.7678	0.7920	41.26	40	3
o-Xylene	0.7420	0.7521	20.27	20	1
Styrene	1.1605	1.1881	20.48	20	2

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: 10/08/15 Time: 16:40

Lab File ID: al06v01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2343	0.2115	18.05	20	-10 #
Isopropylbenzene	1.8802	1.9758	21.02	20	5
Cyclohexanone	0.6848	0.4800	350.48	500	-30
# 1,1,2,2-Tetrachloroethane	0.8508	0.8261	19.42	20	-3 #
Bromobenzene	0.9840	0.9607	19.53	20	-2
trans-1,4-Dichloro-2-butene	0.2254	0.2264	100.47	100	0
1,2,3-Trichloropropane	0.2637	0.2642	20.04	20	0
n-Propylbenzene	4.2918	4.3778	20.40	20	2
2-Chlorotoluene	0.9571	0.9449	19.75	20	-1
1,3,5-Trimethylbenzene	3.1846	3.2713	20.54	20	3
4-Chlorotoluene	0.9954	0.9867	19.83	20	-1
tert-Butylbenzene	0.6922	0.7113	20.55	20	3
Pentachloroethane	0.5740	0.5624	19.59	20	-2
1,2,4-Trimethylbenzene	3.2649	3.3255	20.37	20	2
sec-Butylbenzene	3.9759	4.1472	20.86	20	4
1,3-Dichlorobenzene	1.8631	1.8802	20.18	20	1
p-Isopropyltoluene	3.4888	3.6504	20.93	20	5
1,4-Dichlorobenzene	1.8631	1.9087	20.49	20	2
1,2,3-Trimethylbenzene	3.4444	3.4003	19.74	20	-1
Benzyl Chloride	0.3545	0.3301	17.05	20	-15
1,3-Diethylbenzene	2.2057	2.1987	19.94	20	0
1,4-Diethylbenzene	2.2482	2.3171	20.61	20	3
n-Butylbenzene	1.6857	1.7512	20.78	20	4
1,2-Dichlorobenzene	1.7741	1.7589	19.83	20	-1
1,2-Diethylbenzene	1.8717	1.8817	20.11	20	1
1,2-Dibromo-3-chloropropane	0.1498	0.1381	18.44	20	-8
1,3,5-Trichlorobenzene	1.3168	1.3304	20.21	20	1
1,2,4-Trichlorobenzene	1.1266	1.1318	20.09	20	0
Hexachlorobutadiene	0.5807	0.5593	19.26	20	-4
Naphthalene	2.6108	2.6046	19.95	20	0
1,2,3-Trichlorobenzene	1.0489	1.0383	19.80	20	-1
2-Methylnaphthalene	1.0816	0.8859	15.27	20	-24

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 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: HP07159 Calibration Date(s): 08/27/15 08/27/15

Heated Purge: (Y/N) Y Calibration Times: 10:22 13:14

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = ng27m01.d RRF 4 = ng27i06.d RRF 10= ng27i05.d
RRF 20= ng27i04.d RRF 50= ng27i03.d RRF100= ng27i02.d RRF300= ng27i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.2529	0.3542	0.2825	0.2793	0.3157	0.3214	0.2269	0.2904	15	AVG
Chloromethane	#0.3270	0.3420	0.2970	0.2832	0.3312	0.3171	0.2786	0.3109	8	AVG #
Vinyl Chloride	*0.2755	0.3574	0.2949	0.2824	0.3192	0.3101	0.2704	0.3014	10	AVG *
Bromomethane	0.2570	0.2321	0.2047	0.1951	0.2213	0.2068	0.1823	0.2142	12	AVG
Chloroethane	0.1669	0.1967	0.1704	0.1576	0.1775	0.1665	0.1466	0.1689	9	AVG
Trichlorofluoromethane	0.3446	0.4515	0.3842	0.3674	0.4150	0.4085	0.3385	0.3871	11	AVG
Ethanol	0.0773	0.1136	0.0918	0.0908	0.0999	0.1058	0.0743	0.0934	15	AVG
Acrolein	1.9735	1.9105	1.7732	1.7243	2.2433	2.1654	1.9051	1.9565	10	AVG
1,1-Dichloroethene	*0.2181	0.2502	0.2831	0.2448	0.2384	0.2341	0.2209	0.2414	9	AVG *
1,1-Dichloroethene(2)	*0.1036	0.1232	0.1350	0.1220	0.1168	0.1159	0.1081	0.1178	9	AVG *
Acetone	1.2970	1.0197	0.8856	0.8790	1.0428	1.0174	0.8854	1.0038	15	AVG
Freon 113	0.1648	0.2294	0.2513	0.2299	0.2181	0.2255	0.1761	0.2136	15	AVG
2-Propanol	0.6684	0.6802	0.8611	0.6830	0.7121	0.6946	0.5684	0.6954	12	AVG
Methyl Iodide	0.3641	0.4287	0.5055	0.4442	0.4415	0.4349	0.4076	0.4324	10	AVG
Carbon Disulfide	0.6070	0.7808	0.8886	0.7904	0.7871	0.7800	0.7300	0.7663	11	AVG
Allyl Chloride	0.5012	0.4063	0.4210	0.4100	0.4077	0.3784	0.3679	0.4132	10	AVG
Methyl Acetate	0.4088	0.3643	0.3778	0.3473	0.3429	0.3243	0.3046	0.3528	10	AVG
Methylene Chloride	0.3040	0.2956	0.3301	0.2894	0.2823	0.2794	0.2624	0.2919	7	AVG
t-Butyl alcohol	1.3218	1.2856	1.6263	1.3066	1.3431	1.3402	1.1430	1.3381	11	AVG
Acrylonitrile	0.1755	0.1829	0.1583	0.1652	0.2032	0.1936	0.1629	0.1774	9	AVG
trans-1,2-Dichloroethene	0.2517	0.2889	0.3190	0.2878	0.2778	0.2759	0.2609	0.2803	8	AVG
Methyl Tertiary Butyl Ether	0.8783	0.8997	1.0471	0.9371	0.9097	0.9002	0.8354	0.9153	7	AVG
n-Hexane	0.3334	0.3648	0.3800	0.3547	0.3341	0.3594	0.2653	0.3417	11	AVG
1,1-Dichloroethane	#0.4253	0.5120	0.5757	0.5166	0.5069	0.5008	0.4714	0.5012	9	AVG #
di-Isopropyl ether	0.8826	0.9145	1.0376	0.9318	0.9116	0.8998	0.8320	0.9157	7	AVG
2-Chloro-1,3-butadiene	0.3568	0.4191	0.4630	0.4113	0.4011	0.3952	0.3697	0.4023	9	AVG
Ethyl t-butyl ether	0.8475	0.9007	1.0453	0.9263	0.9105	0.8971	0.8313	0.9084	8	AVG
cis-1,2-Dichloroethene	0.2790	0.3159	0.3600	0.3217	0.3151	0.3112	0.2942	0.3139	8	AVG
2-Butanone	0.2757	0.2429	0.2206	0.2268	0.2881	0.2828	0.2244	0.2516	12	AVG
2,2-Dichloropropane	0.3555	0.4284	0.4804	0.4276	0.4208	0.4133	0.3844	0.4158	9	AVG
Propionitrile	1.4609	1.4439	1.7477	1.4514	1.4515	1.4774	1.3883	1.4887	8	AVG
Methacrylonitrile	0.1889	0.1913	0.2215	0.1940	0.1889	0.1865	0.1717	0.1918	8	AVG
Bromochloromethane	0.1490	0.1641	0.1740	0.1644	0.1632	0.1549	0.1516	0.1602	5	AVG
Tetrahydrofuran	1.6002	1.5483	1.2647	1.2798	1.6070	1.6183	1.4203	1.4769	11	AVG
Chloroform	*0.4786	0.4847	0.5573	0.4904	0.4836	0.4767	0.4472	0.4883	7	AVG *
1,1,1-Trichloroethane	0.4100	0.5184	0.5151	0.4661	0.4348	0.4293	0.4068	0.4543	10	AVG
Cyclohexane	0.4286	0.4790	0.5074	0.4582	0.4385	0.4559	0.3707	0.4483	10	AVG
Cyclohexane(2)	0.3100	0.4110	0.4495	0.4023	0.3857	0.4037	0.3359	0.3854	12	AVG
Cyclohexane(3)	0.1809	0.1633	0.1628	0.1466	0.1378	0.1437	0.1165	0.1502	14	AVG
1,1-Dichloropropene	0.3113	0.4045	0.4484	0.4053	0.3963	0.3950	0.3667	0.3896	11	AVG
Carbon Tetrachloride	0.2838	0.3540	0.4098	0.3663	0.3600	0.3594	0.3422	0.3537	11	AVG
Isobutyl Alcohol	0.4237	0.4065	0.5371	0.4176	0.4427	0.4449	0.3907	0.4376	11	AVG
Benzene	1.0064	1.1725	1.3353	1.1869	1.1615	1.1447	1.0430	1.1500	9	AVG
1,2-Dichloroethane	0.4117	0.3923	0.4505	0.3996	0.3933	0.3900	0.3650	0.4003	7	AVG
1,2-Dichloroethane(2)	0.0499	0.0421	0.0500	0.0422	0.0407	0.0400	0.0376	0.0432	11	AVG
t-Amyl methyl ether	0.8752	0.9042	1.0593	0.9376	0.9219	0.9054	0.8451	0.9212	7	AVG
n-Heptane	0.3343	0.3431	0.3510	0.3700	0.3205	0.3475	0.2664	0.3333	10	AVG
n-Butanol		0.3739	0.4915	0.3734	0.4090	0.4124	0.3409	0.4002	13	AVG
Trichloroethene	0.2497	0.2997	0.3440	0.3107	0.3043	0.2990	0.2810	0.2983	10	AVG
Methylcyclohexane	0.3761	0.4828	0.4583	0.4550	0.4363	0.4293	0.3462	0.4263	11	AVG
Methylcyclohexane(2)	0.1722	0.2273	0.2187	0.2146	0.2088	0.2048	0.1656	0.2017	12	AVG
1,2-Dichloropropane	*0.2720	0.3037	0.3490	0.3106	0.3087	0.3033	0.2844	0.3045	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: HP07159 Calibration Date(s): 08/27/15 08/27/15

Heated Purge: (Y/N) Y Calibration Times: 10:22 13:14

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = ng27m01.d RRF 4 = ng27i06.d RRF 10= ng27i05.d
RRF 20= ng27i04.d RRF 50= ng27i03.d RRF100= ng27i02.d RRF300= ng27i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dibromomethane	0.1901	0.1985	0.2320	0.2074	0.2031	0.2029	0.1910	0.2036	7	AVG
1,4-Dioxane	0.0816	0.1040	0.1307	0.1004	0.1175	0.1199	0.0830	0.1053	18	2NDDEG
Methyl Methacrylate	0.3361	0.3215	0.3729	0.3309	0.3270	0.3206	0.2983	0.3296	7	AVG
Bromodichloromethane	0.3417	0.3786	0.4396	0.3887	0.3877	0.3900	0.3678	0.3849	8	AVG
2-Nitropropane	0.1360	0.1317	0.1171	0.1205	0.1564	0.1615	0.1259	0.1356	13	AVG
2-Chloroethyl Vinyl Ether	0.2600	0.2835	0.3180	0.2711	0.2648	0.2610	0.2365	0.2707	9	AVG
cis-1,3-Dichloropropene	0.4340	0.4892	0.5765	0.5212	0.5161	0.5141	0.4828	0.5048	9	AVG
4-Methyl-2-pentanone	0.5122	0.4997	0.4459	0.4638	0.6196	0.6243	0.4536	0.5170	15	AVG
Toluene	*0.8974	1.0249	1.1525	1.0236	0.9971	0.9855	0.8899	0.9958	9	AVG *
trans-1,3-Dichloropropene	0.5355	0.6147	0.7300	0.6523	0.6448	0.6481	0.5938	0.6313	9	AVG
Ethyl Methacrylate	0.6764	0.6911	0.8396	0.7258	0.7206	0.7078	0.6368	0.7140	9	AVG
1,1,2-Trichloroethane	0.3665	0.3928	0.4501	0.4014	0.3953	0.3922	0.3605	0.3941	7	AVG
Tetrachloroethene	0.3347	0.4154	0.4767	0.4281	0.4188	0.4166	0.3978	0.4126	10	AVG
1,3-Dichloropropane	0.6016	0.6635	0.7795	0.6935	0.6782	0.6755	0.6141	0.6723	9	AVG
2-Hexanone	0.5184	0.5098	0.4532	0.4727	0.6571	0.6556	0.4626	0.5328	16	2NDDEG
Dibromochloromethane	0.3471	0.3945	0.4844	0.4378	0.4460	0.4499	0.4233	0.4261	10	AVG
1,2-Dibromoethane	0.4024	0.4248	0.4984	0.4486	0.4450	0.4452	0.4097	0.4392	7	AVG
Chlorobenzene	#1.0305	1.1435	1.3361	1.1796	1.1610	1.1433	1.0138	1.1440	9	AVG #
1,1,1,2-Tetrachloroethane	0.3266	0.3776	0.4502	0.4046	0.4041	0.4081	0.3834	0.3935	10	AVG
Ethylbenzene	*1.6399	1.8994	2.1608	1.9331	1.8932	1.8452	1.3669	1.8198	14	AVG *
m+p-Xylene	0.6273	0.7782	0.8834	0.7903	0.7716	0.7672	0.6608	0.7541	11	AVG
o-Xylene	0.6445	0.7650	0.8799	0.7782	0.7630	0.7652	0.6897	0.7551	10	AVG
Styrene	1.0627	1.2592	1.4964	1.3286	1.3086	1.2961	1.1125	1.2663	11	AVG
Bromoform	#0.2868	0.2843	0.3565	0.3220	0.3351	0.3420	0.3263	0.3219	8	AVG #
Isopropylbenzene	1.6054	1.8860	2.1257	1.9092	1.8607	1.8200	1.3172	1.7892	14	AVG
Cyclohexanone	0.4999	0.5401	0.5499	0.4970	0.5303	0.5232	0.4511	0.5131	7	AVG
Bromobenzene	0.8189	0.9237	1.0712	0.9576	0.9517	0.9466	0.8924	0.9374	8	AVG
1,1,2,2-Tetrachloroethane	#1.1994	1.2504	1.4959	1.2739	1.2576	1.2157	1.0750	1.2526	10	AVG #
1,2,3-Trichloropropane	0.3522	0.3829	0.4591	0.3911	0.3904	0.3784	0.3510	0.3864	9	AVG
trans-1,4-Dichloro-2-butene		0.3582	0.4385	0.3825	0.3834	0.3742	0.3260	0.3771	10	AVG
n-Propylbenzene	3.5451	4.2203	4.7867	4.2552	4.0733	3.9084	2.4946	3.8977	19	2NDDEG
2-Chlorotoluene	0.7711	0.8798	1.0535	0.9124	0.8969	0.8848	0.8228	0.8888	10	AVG
4-Chlorotoluene	0.7633	0.9487	1.0836	0.9818	0.9450	0.9393	0.8671	0.9327	11	AVG
1,3,5-Trimethylbenzene	2.6170	3.0812	3.4756	3.0937	2.9938	2.9383	2.2414	2.9201	13	AVG
tert-Butylbenzene	0.5533	0.6964	0.7615	0.6903	0.6771	0.6658	0.6118	0.6652	10	AVG
Pentachloroethane	0.4583	0.5360	0.6085	0.5747	0.5918	0.5555	0.5321	0.5510	9	AVG
1,2,4-Trimethylbenzene	3.2929	3.1411	3.5981	3.2261	3.1170	3.0560	2.2562	3.0982	13	AVG
sec-Butylbenzene	2.9892	3.7363	4.1853	3.8128	3.6301	3.5348	2.3949	3.4691	17	2NDDEG
1,3-Dichlorobenzene	1.5318	1.7457	2.0189	1.7916	1.7696	1.7549	1.5554	1.7383	9	AVG
p-Isopropyltoluene	2.7296	3.2721	3.6818	3.3931	3.2540	3.2142	2.2552	3.1143	15	AVG
1,4-Dichlorobenzene	1.6330	1.8024	2.1051	1.8484	1.8271	1.8057	1.5929	1.8021	9	AVG
1,2,3-Trimethylbenzene	3.0106	3.3080	3.5113	3.3313	3.2908	3.0212	2.2651	3.1055	13	AVG
Benzyl Chloride	2.1982	2.4208	3.0320	2.6745	2.6682	2.6180	2.1081	2.5314	12	AVG
1,3-Diethylbenzene	1.6271	1.9689	2.0921	2.0369	1.9840	1.8348	1.6233	1.8810	10	AVG
1,4-Diethylbenzene	1.7388	2.0606	2.1472	2.0866	2.0224	1.8893	1.6581	1.9433	10	AVG
1,2-Dichlorobenzene	1.5964	1.7357	2.0379	1.7792	1.7494	1.7158	1.5285	1.7347	9	AVG
n-Butylbenzene	1.3284	1.5959	1.7762	1.6349	1.5442	1.5348	1.3174	1.5331	11	AVG
1,2-Diethylbenzene	1.4981	1.7138	1.7871	1.7286	1.7070	1.5812	1.4127	1.6326	8	AVG
1,2-Dibromo-3-chloropropane	0.2803	0.2909	0.3625	0.3093	0.3107	0.3035	0.2693	0.3038	10	AVG
1,3,5-Trichlorobenzene	1.1704	1.2404	1.4139	1.2844	1.2407	1.2335	1.0930	1.2395	8	AVG
1,2,4-Trichlorobenzene	1.0997	1.2046	1.3886	1.2629	1.2145	1.1848	1.0679	1.2033	9	AVG
Hexachlorobutadiene	0.3825	0.4228	0.4498	0.4921	0.3956	0.3988	0.3561	0.4139	11	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: HP07159 Calibration Date(s): 08/27/15 08/27/15

Heated Purge: (Y/N) Y Calibration Times: 10:22 13:14

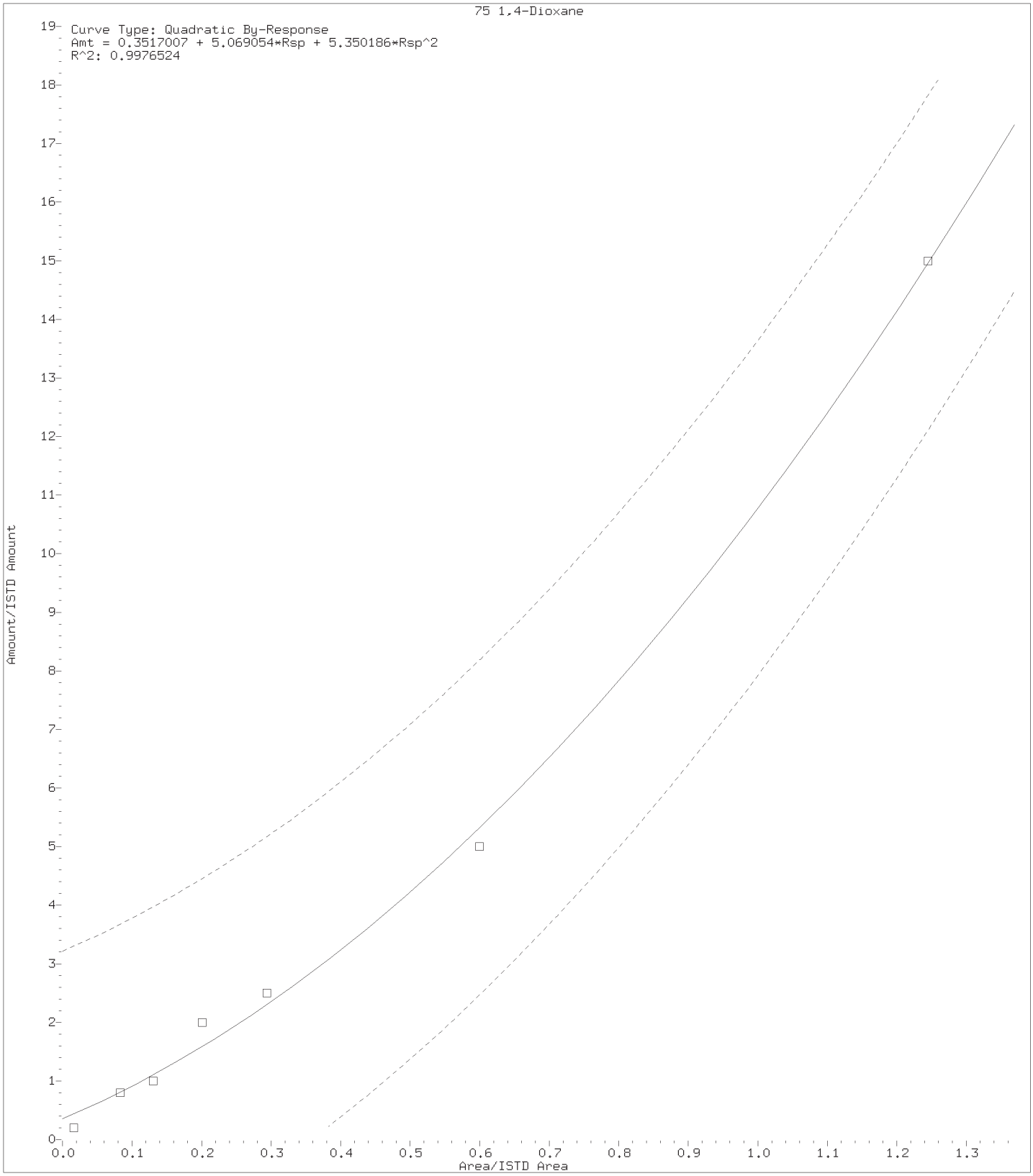
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF 1 = ng27m01.d RRF 4 = ng27i06.d RRF 10= ng27i05.d
RRF 20= ng27i04.d RRF 50= ng27i03.d RRF100= ng27i02.d RRF300= ng27i01.d

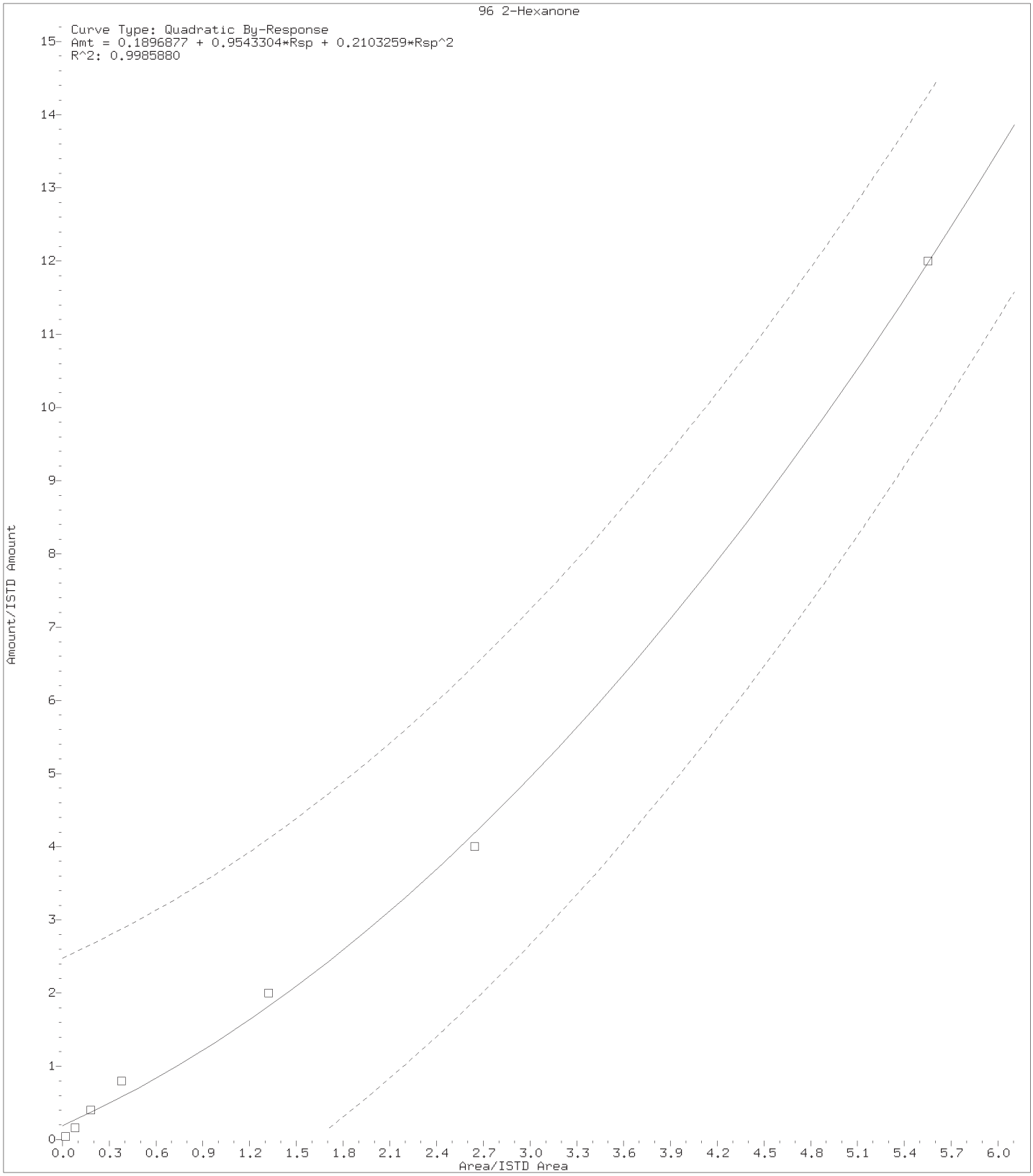
COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene	4.1944	4.3101	4.8518	4.2774	4.0731	3.8792	2.4641	4.0072	19	2NDDEG
1,2,3-Trichlorobenzene	1.0737	1.1492	1.3200	1.1875	1.1448	1.1182	0.9940	1.1410	9	AVG
2-Methylnaphthalene	2.2137	2.3193	2.2925	2.2435	2.0789	2.0060	1.5564	2.1015	13	AVG
Dibromofluoromethane	0.2366	0.2359	0.2351	0.2358	0.2357	0.2348	0.2378	0.2360	0	AVG
Dibromofluoromethane(2)	0.2391	0.2400	0.2423	0.2415	0.2402	0.2399	0.2428	0.2408	1	AVG
1,2-Dichloroethane-d4	0.0623	0.0633	0.0644	0.0637	0.0619	0.0630	0.0632	0.0631	1	AVG
1,2-Dichloroethane-d4(2)	0.2813	0.2783	0.2785	0.2774	0.2794	0.2767	0.2794	0.2787	1	AVG
1,2-Dichloroethane-d4(3)	0.0408	0.0404	0.0405	0.0402	0.0411	0.0408	0.0409	0.0406	1	AVG
Toluene-d8	1.2926	1.2955	1.2929	1.2909	1.2855	1.2904	1.2692	1.2881	1	AVG
Toluene-d8(2)	0.8637	0.8679	0.8691	0.8645	0.8621	0.8676	0.8642	0.8656	0	AVG
4-Bromofluorobenzene	0.4888	0.4895	0.4889	0.4864	0.4917	0.4949	0.4831	0.4891	1	AVG
4-Bromofluorobenzene(2)	0.3934	0.3918	0.3950	0.3948	0.3970	0.3946	0.3896	0.3938	1	AVG

Average %RSD 10

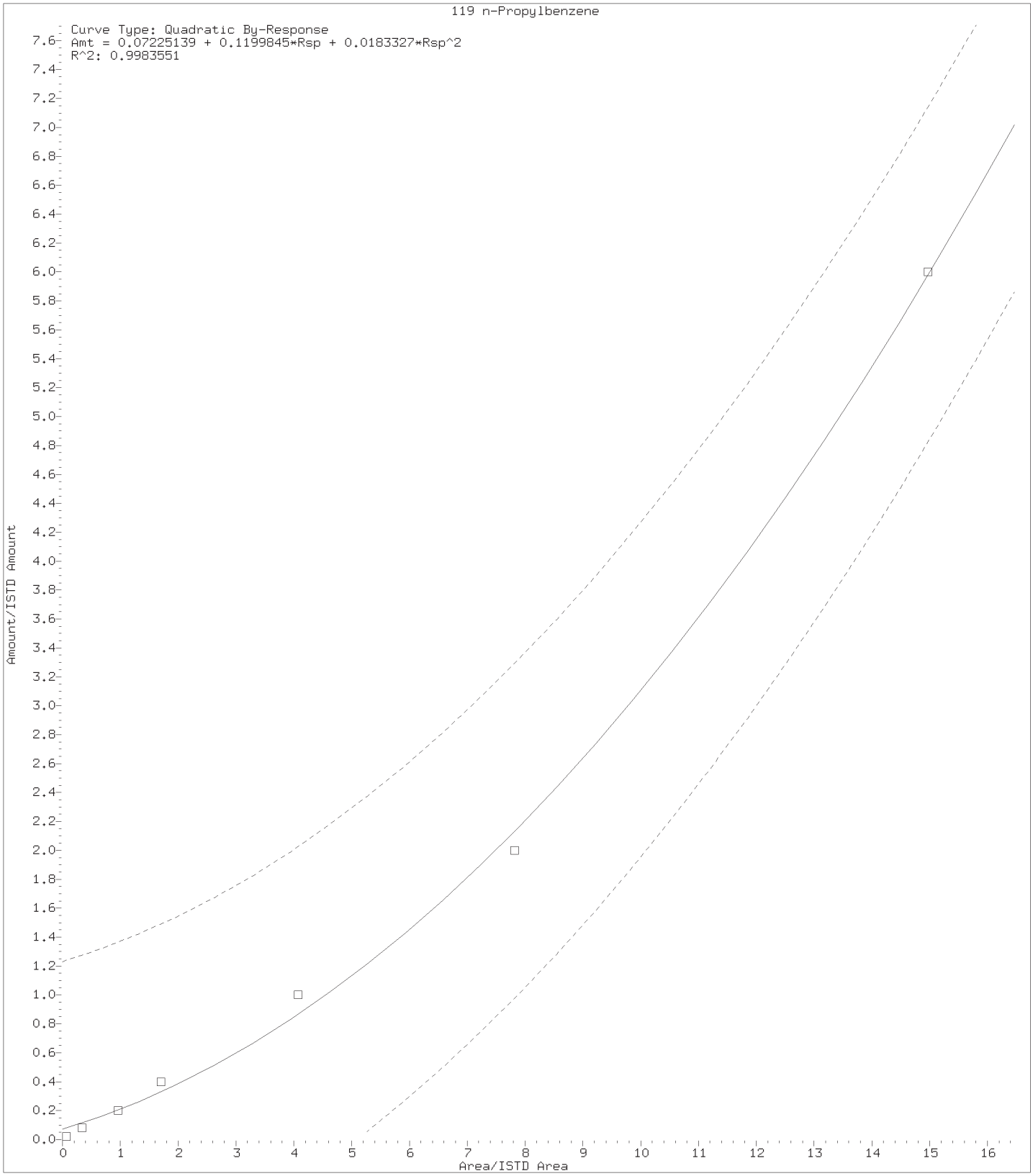
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



Digitally signed by Daniel H. Heller on 08/27/2015 at 15:37.
Target 3.5 esignature user ID: dhh02035



Digitally signed by Daniel H. Heller on 08/27/2015 at 15:37.
Target 3.5 esignature user ID: dhh02035



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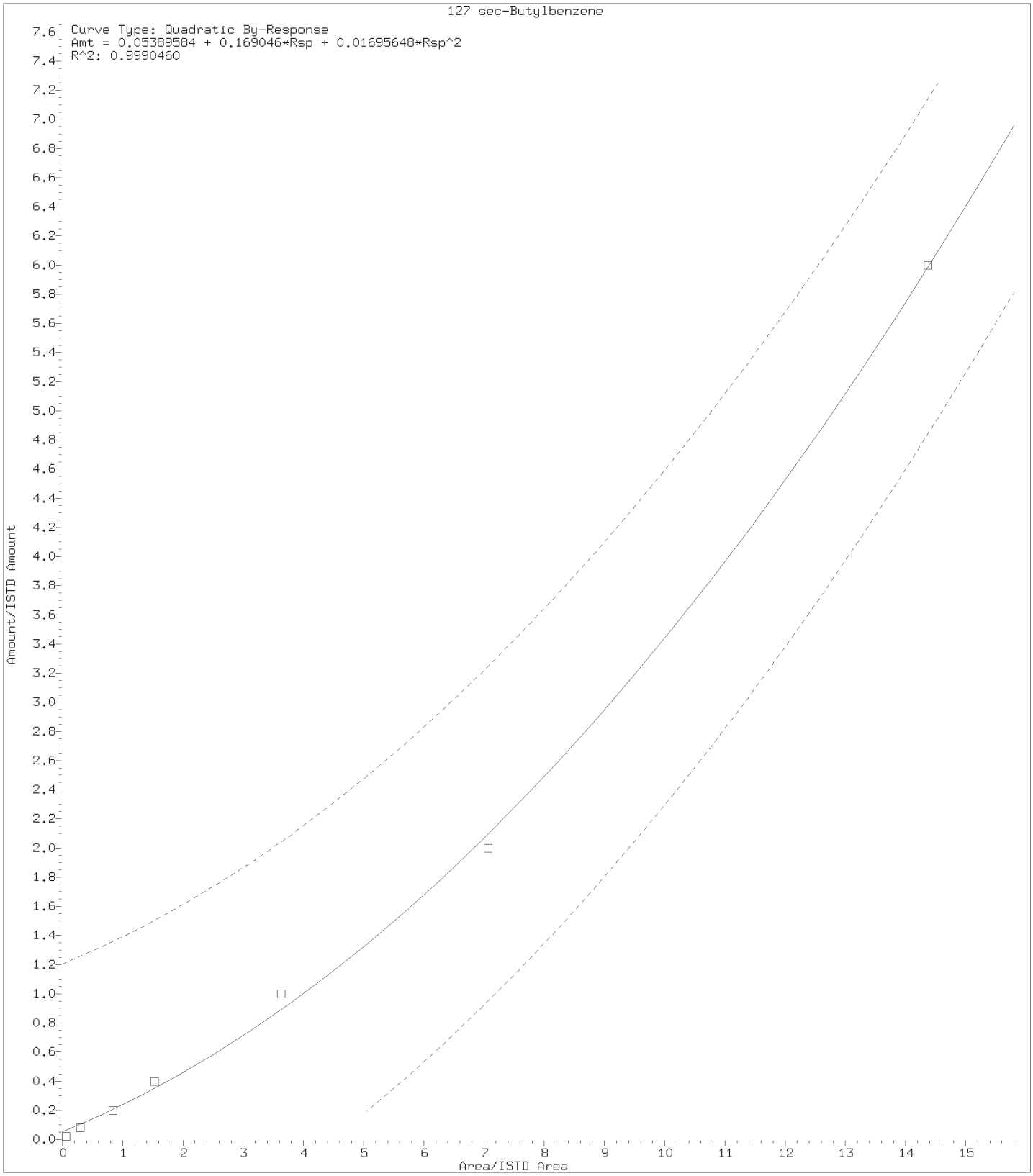
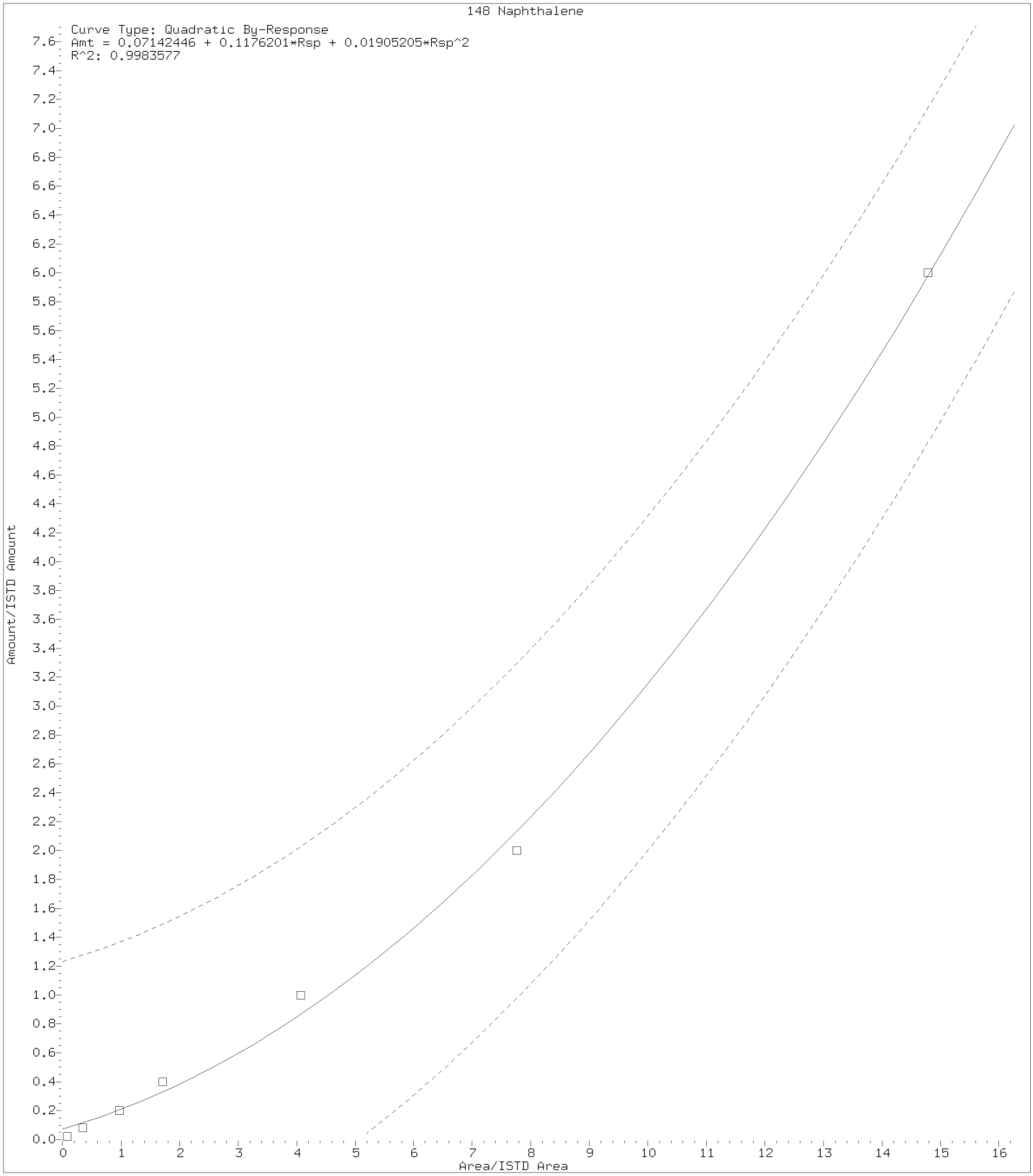
Target 3.5 esignature user ID: dhh02035



Digitally signed by Daniel H. Heller on 08/27/2015 at 15:37.
Target 3.5 esignature user ID: dhh02035



Digitally signed by Daniel H. Heller on 08/27/2015 at 15:37.
Target 3.5 esignature user ID: dhh02035

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07159.i/15aug27i.b/ng27i01.d	VSTD300
/chem/HP07159.i/15aug27i.b/ng27i02.d	VSTD100
/chem/HP07159.i/15aug27i.b/ng27i03.d	VSTD050
/chem/HP07159.i/15aug27i.b/ng27i04.d	VSTD020
/chem/HP07159.i/15aug27i.b/ng27i05.d	VSTD010
/chem/HP07159.i/15aug27i.b/ng27i06.d	VSTD004
/chem/HP07159.i/15aug27i.b/ng27m01.d	VSTD001

Area Summary

File ID:
==========

Internal Standard Name	ng27i01.d	ng27i02.d	ng27i03.d	ng27i04.d	ng27i05.d	ng27i06.d	ng27m01.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	578823	615013	632938	646329	629454	635800	647959	626617	4	Yes
Fluorobenzene	2575417	2567618	2511679	2517838	2530159	2559198	2529479	2541627	1	Yes
Chlorobenzene-d5	1992009	1948975	1918004	1921020	1924747	1941912	1924183	1938693	1	Yes
1,4-Dichlorobenzene-d4	1064914	1044650	1015820	1010530	1014316	1014222	998394	1023264	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	ng27i01.d	ng27i02.d	ng27i03.d	ng27i04.d	ng27i05.d	ng27i06.d	ng27m01.d	Avg. RT
t-Butyl alcohol-d10	4.059	4.082	4.066	4.075	4.077	4.076	4.089	4.075
Fluorobenzene	7.556	7.555	7.557	7.555	7.557	7.556	7.556	7.556
Chlorobenzene-d5	11.073	11.072	11.074	11.071	11.073	11.072	11.073	11.072
1,4-Dichlorobenzene-d4	12.971	12.970	12.972	12.969	12.971	12.970	12.971	12.971

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/27/2015 at 15:34.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07159 ICV Date: 08/27/15 Time: 13:37

Lab File ID: ng27v01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.2904	0.2484	17.11	20	-14
# Chloromethane	0.3109	0.2644	17.01	20	-15 #
* Vinyl Chloride	0.3014	0.2686	17.82	20	-11 *
Bromomethane	0.2142	0.1804	16.84	20	-16
Chloroethane	0.1689	0.1367	16.19	20	-19
Trichlorofluoromethane	0.3871	0.3506	18.11	20	-9
Ethanol	0.0934	0.0794	425.25	500	-15
Acrolein	1.9565	1.9013	145.77	150	-3
* 1,1-Dichloroethene	0.2414	0.2307	19.12	20	-4 *
Acetone	1.0038	1.0527	157.31	150	5
Freon 113	0.2136	0.2204	20.63	20	3
2-Propanol	0.6954	0.5992	129.25	150	-14
Methyl Iodide	0.4324	0.4377	20.24	20	1
Carbon Disulfide	0.7663	0.7389	19.29	20	-4
Allyl Chloride	0.4132	0.4166	20.17	20	1
Methyl Acetate	0.3528	0.3499	19.83	20	-1
Methylene Chloride	0.2919	0.2718	18.62	20	-7
t-Butyl alcohol	1.3381	1.2255	183.18	200	-8
Acrylonitrile	0.1774	0.1631	91.94	100	-8
trans-1,2-Dichloroethene	0.2803	0.2759	19.69	20	-2
Methyl Tertiary Butyl Ether	0.9153	0.8613	18.82	20	-6
n-Hexane	0.3417	0.3346	19.58	20	-2
# 1,1-Dichloroethane	0.5012	0.4728	18.86	20	-6 #
di-Isopropyl ether	0.9157	0.8923	19.49	20	-3
2-Chloro-1,3-butadiene	0.4023	0.3547	17.63	20	-12
Ethyl t-butyl ether	0.9084	0.8564	18.86	20	-6
cis-1,2-Dichloroethene	0.3139	0.3014	19.20	20	-4
2-Butanone	0.2516	0.2459	146.60	150	-2
2,2-Dichloropropane	0.4158	0.3923	18.87	20	-6
Propionitrile	1.4887	1.4770	148.82	150	-1
Methacrylonitrile	0.1918	0.1833	143.32	150	-4
Bromochloromethane	0.1602	0.1556	19.43	20	-3
Tetrahydrofuran	1.4769	1.4435	97.74	100	-2
* Chloroform	0.4883	0.4580	18.76	20	-6 *
1,1,1-Trichloroethane	0.4543	0.4040	17.78	20	-11
Cyclohexane	0.4483	0.4342	19.37	20	-3

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: HP07159 ICV Date: 08/27/15 Time: 13:37

Lab File ID: ng27v01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1-Dichloropropene	0.3896	0.3549	18.22	20	-9
Carbon Tetrachloride	0.3537	0.3371	19.06	20	-5
Isobutyl Alcohol	0.4376	0.4047	462.38	500	-8
Benzene	1.1500	1.1150	19.39	20	-3
1,2-Dichloroethane	0.4003	0.3720	18.58	20	-7
t-Amyl methyl ether	0.9212	0.8709	18.91	20	-5
n-Heptane	0.3333	0.2921	17.53	20	-12
n-Butanol	0.4002	0.3569	891.86	1000	-11
Trichloroethene	0.2983	0.2921	19.58	20	-2
Methylcyclohexane	0.4263	0.4341	20.37	20	2
* 1,2-Dichloropropane	0.3045	0.2966	19.48	20	-3 *
Dibromomethane	0.2036	0.1905	18.72	20	-6
1,4-Dioxane	0.1053	0.0841	338.84	500	-32
Methyl Methacrylate	0.3296	0.3013	18.28	20	-9
Bromodichloromethane	0.3849	0.3563	18.52	20	-7
2-Nitropropane	0.1356	0.1192	17.59	20	-12
2-Chloroethyl Vinyl Ether	0.2707	0.2416	17.85	20	-11
cis-1,3-Dichloropropene	0.5048	0.4858	19.25	20	-4
4-Methyl-2-pentanone	0.5170	0.4700	90.91	100	-9
* Toluene	0.9958	0.9578	19.24	20	-4 *
trans-1,3-Dichloropropene	0.6313	0.6181	19.58	20	-2
Ethyl Methacrylate	0.7140	0.6776	18.98	20	-5
1,1,2-Trichloroethane	0.3941	0.3698	18.77	20	-6
Tetrachloroethene	0.4126	0.3930	19.05	20	-5
1,3-Dichloropropane	0.6723	0.6413	19.08	20	-5
2-Hexanone	0.5328	0.5124	70.33	100	-30
Dibromochloromethane	0.4261	0.3975	18.66	20	-7
1,2-Dibromoethane	0.4392	0.4206	19.16	20	-4
# Chlorobenzene	1.1440	1.0975	19.19	20	-4 #
1,1,1,2-Tetrachloroethane	0.3935	0.3727	18.94	20	-5
* Ethylbenzene	1.8198	1.7887	19.66	20	-2 *
m+p-Xylene	0.7541	0.7238	38.39	40	-4
o-Xylene	0.7551	0.7137	18.90	20	-5
Styrene	1.2663	1.2427	19.63	20	-2
# Bromoform	0.3219	0.2890	17.96	20	-10 #
Isopropylbenzene	1.7892	1.7598	19.67	20	-2

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: HP07159 ICV Date: 08/27/15 Time: 13:37

Lab File ID: ng27v01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Cyclohexanone	0.5131	0.3983	388.14	500	-22
Bromobenzene	0.9374	0.9006	19.21	20	-4
# 1,1,2,2-Tetrachloroethane	1.2526	1.1826	18.88	20	-6 #
1,2,3-Trichloropropane	0.3864	0.3781	19.57	20	-2
trans-1,4-Dichloro-2-butene	0.3771	0.3637	96.45	100	-4
n-Propylbenzene	3.8977	3.9475	15.37	20	-23
2-Chlorotoluene	0.8888	0.8568	19.28	20	-4
4-Chlorotoluene	0.9327	0.8963	19.22	20	-4
1,3,5-Trimethylbenzene	2.9201	2.9085	19.92	20	0
tert-Butylbenzene	0.6652	0.6327	19.02	20	-5
Pentachloroethane	0.5510	0.5300	19.24	20	-4
1,2,4-Trimethylbenzene	3.0982	3.0017	19.38	20	-3
sec-Butylbenzene	3.4691	3.4808	16.11	20	-19
1,3-Dichlorobenzene	1.7383	1.6724	19.24	20	-4
p-Isopropyltoluene	3.1143	3.0489	19.58	20	-2
1,4-Dichlorobenzene	1.8021	1.7607	19.54	20	-2
1,2,3-Trimethylbenzene	3.1055	3.0501	19.64	20	-2
Benzyl Chloride	2.5314	2.4752	19.56	20	-2
1,3-Diethylbenzene	1.8810	1.8188	19.34	20	-3
1,4-Diethylbenzene	1.9433	1.8982	19.54	20	-2
1,2-Dichlorobenzene	1.7347	1.6698	19.25	20	-4
n-Butylbenzene	1.5331	1.4472	18.88	20	-6
1,2-Diethylbenzene	1.6326	1.5693	19.22	20	-4
1,2-Dibromo-3-chloropropane	0.3038	0.2734	18.00	20	-10
1,3,5-Trichlorobenzene	1.2395	1.1642	18.78	20	-6
1,2,4-Trichlorobenzene	1.2033	1.1140	18.52	20	-7
Hexachlorobutadiene	0.4139	0.3520	17.01	20	-15
Naphthalene	4.0072	3.7133	14.41	20	-28
1,2,3-Trichlorobenzene	1.1410	1.0160	17.81	20	-11
2-Methylnaphthalene	2.1015	1.4170	13.49	20	-33

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: HP09137 Calibration Date(s): 06/23/15 06/24/15

Heated Purge: (Y/N) Y Calibration Times: 22:27 00:50

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 1 = wu23i07.d RRF 4 = wu23i06.d RRF 10= wu23i05.d
RRF 20= wu23i04.d RRF 50= wu23i03.d RRF100= wu23i02.d RRF300= wu23i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.3849	0.3698	0.3455	0.3211	0.2960	0.3274	0.4145	0.3513	12	AVG
Chloromethane	#0.4232	0.4684	0.4557	0.4230	0.4116	0.4225	0.4852	0.4414	6	AVG #
Vinyl Chloride	*0.3739	0.4579	0.4394	0.4082	0.3844	0.3971	0.4761	0.4196	9	AVG *
Bromomethane	0.2735	0.2678	0.2604	0.2441	0.2282	0.2340	0.2806	0.2555	8	AVG
Chloroethane	0.2358	0.2583	0.2556	0.2438	0.2285	0.2345	0.2780	0.2478	7	AVG
Trichlorofluoromethane	0.3463	0.4218	0.4027	0.3874	0.3571	0.3887	0.4748	0.3970	11	AVG
Ethanol		0.0840	0.0681	0.0789	0.0807	0.0737	0.0880	0.0789	9	AVG
Acrolein	2.5755	2.0871	2.3440	1.8658	1.8211	2.0091	2.1759	2.1255	13	AVG
1,1-Dichloroethene	*0.2374	0.2533	0.2584	0.2258	0.2393	0.2484	0.2999	0.2518	9	AVG *
1,1-Dichloroethene(2)	*0.1112	0.1229	0.1298	0.1127	0.1216	0.1235	0.1498	0.1245	10	AVG *
Acetone	1.2000	1.0084	0.9313	0.9348	0.8981	0.9610	1.0238	0.9939	10	AVG
Freon 113		0.1945	0.2219	0.1935	0.2109	0.2192	0.2823	0.2204	15	AVG
2-Propanol		0.5521	0.4422	0.6044	0.6261	0.6037	0.7090	0.5896	15	AVG
Methyl Iodide	0.3566	0.3989	0.4332	0.3838	0.4006	0.4167	0.4817	0.4102	10	AVG
Carbon Disulfide		0.7670	0.8086	0.7134	0.7525	0.7760	0.8983	0.7860	8	AVG
Allyl Chloride		0.4483	0.4464	0.4108	0.4229	0.4238	0.4830	0.4392	6	AVG
Methyl Acetate		0.3512	0.3372	0.3314	0.3430	0.3465	0.3293	0.3398	3	AVG
Methylene Chloride	0.2962	0.2796	0.2981	0.2586	0.2692	0.2814	0.3175	0.2858	7	AVG
t-Butyl alcohol	1.3140	1.1882	1.0070	1.1574	1.1944	1.2020	1.3559	1.2027	9	AVG
Acrylonitrile		0.1757	0.2111	0.1744	0.1713	0.1858	0.1664	0.1808	9	AVG
trans-1,2-Dichloroethene	0.2381	0.2630	0.2759	0.2463	0.2602	0.2684	0.3020	0.2648	8	AVG
Methyl Tertiary Butyl Ether	0.8554	0.8358	0.9467	0.8510	0.8919	0.9315	1.0045	0.9024	7	AVG
n-Hexane		0.3037	0.3347	0.2668	0.3032	0.3177	0.3881	0.3190	13	AVG
1,1-Dichloroethane	#0.4473	0.4850	0.5194	0.4459	0.4928	0.5073	0.5632	0.4944	8	AVG #
di-Isopropyl ether	0.8586	0.9122	0.9708	0.8580	0.9015	0.9360	1.0336	0.9244	7	AVG
2-Chloro-1,3-butadiene		0.3675	0.4026	0.3465	0.3767	0.3868	0.4392	0.3865	8	AVG
Ethyl t-butyl ether	0.8351	0.8974	0.9444	0.8500	0.8634	0.8899	0.9817	0.8946	6	AVG
cis-1,2-Dichloroethene	0.2785	0.2898	0.3130	0.2747	0.2925	0.3012	0.3403	0.2986	8	AVG
2-Butanone	0.2540	0.2558	0.2529	0.2334	0.2344	0.2539	0.2226	0.2438	6	AVG
2,2-Dichloropropane	0.2291	0.2589	0.2648	0.2305	0.2430	0.2435	0.2478	0.2454	5	AVG
Propionitrile	1.5276	1.4913	1.4240	1.3306	1.3465	1.4049	1.5429	1.4382	6	AVG
Methacrylonitrile	0.1858	0.1818	0.1837	0.1707	0.1750	0.1827	0.1780	0.1797	3	AVG
Bromochloromethane		0.1546	0.1533	0.1480	0.1520	0.1558	0.1771	0.1568	7	AVG
Tetrahydrofuran	1.9745	1.6617	1.8152	1.3551	1.3125	1.4093	1.5335	1.5803	16	2NDDEG
Chloroform	*0.4608	0.4541	0.4736	0.4215	0.4442	0.4591	0.5150	0.4612	6	AVG *
1,1,1-Trichloroethane	0.3845	0.4220	0.4102	0.3577	0.3645	0.3798	0.4191	0.3911	7	AVG
Cyclohexane		0.4329	0.4571	0.3769	0.4187	0.4402	0.5438	0.4449	12	AVG
Cyclohexane(2)		0.3451	0.3831	0.3176	0.3588	0.3762	0.4673	0.3747	14	AVG
Cyclohexane(3)		0.1322	0.1430	0.1179	0.1287	0.1340	0.1666	0.1371	12	AVG
1,1-Dichloropropene	0.3190	0.3645	0.3893	0.3429	0.3738	0.3810	0.4407	0.3730	10	AVG
Carbon Tetrachloride	0.2404	0.2865	0.3231	0.2802	0.3034	0.3211	0.3695	0.3034	13	AVG
Isobutyl Alcohol	0.4562	0.3927	0.4165	0.3755	0.3821	0.4039	0.4339	0.4087	7	AVG
Benzene	1.0197	1.1047	1.1874	1.0454	1.1035	1.1379	1.2562	1.1221	7	AVG
1,2-Dichloroethane	0.4049	0.3799	0.3925	0.3544	0.3689	0.3841	0.4224	0.3867	6	AVG
1,2-Dichloroethane(2)	0.0368	0.0392	0.0406	0.0369	0.0374	0.0389	0.0435	0.0390	6	AVG
t-Amyl methyl ether	0.8733	0.8805	0.9336	0.8430	0.8766	0.9299	1.0233	0.9086	7	AVG
n-Heptane		0.3351	0.3402	0.2273	0.2746	0.2944	0.3370	0.3014	15	AVG
n-Butanol	0.3653	0.3506	0.4087	0.3373	0.3512	0.3778	0.3875	0.3683	7	AVG
Trichloroethene	0.2734	0.2781	0.2986	0.2648	0.2788	0.2880	0.3262	0.2868	7	AVG
Methylcyclohexane		0.4070	0.4217	0.3933	0.3917	0.3889	0.4964	0.4165	10	AVG
Methylcyclohexane(2)		0.1937	0.1981	0.1866	0.1841	0.1826	0.2352	0.1967	10	AVG
1,2-Dichloropropane	*0.2744	0.3046	0.3232	0.2854	0.2996	0.3137	0.3545	0.3079	9	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: HP09137 Calibration Date(s): 06/23/15 06/24/15

Heated Purge: (Y/N) Y Calibration Times: 22:27 00:50

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 1 = wu23i07.d RRF 4 = wu23i06.d RRF 10= wu23i05.d
RRF 20= wu23i04.d RRF 50= wu23i03.d RRF100= wu23i02.d RRF300= wu23i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Dibromomethane	0.1785	0.1836	0.1942	0.1740	0.1838	0.1928	0.2141	0.1887	7	AVG
1,4-Dioxane		0.0838	0.0880	0.0782	0.0801	0.0852	0.0833	0.0831	4	AVG
Methyl Methacrylate		0.3204	0.3220	0.2961	0.3076	0.3244	0.3301	0.3168	4	AVG
Bromodichloromethane	0.3071	0.3355	0.3651	0.3316	0.3554	0.3697	0.4190	0.3548	10	AVG
2-Nitropropane	0.1764	0.1268	0.1371	0.1179	0.1202	0.1296	0.1158	0.1319	16	2NDDEG
2-Chloroethyl Vinyl Ether		0.2242	0.2577	0.2396	0.2465	0.2600	0.2759	0.2506	7	AVG
cis-1,3-Dichloropropene	0.4451	0.4677	0.5107	0.4658	0.4933	0.5148	0.5788	0.4966	9	AVG
4-Methyl-2-pentanone	0.5153	0.4738	0.5585	0.4815	0.4895	0.5225	0.4682	0.5013	6	AVG
Toluene	*0.9084	0.9436	1.0071	0.9032	0.9464	0.9660	1.0831	0.9654	6	AVG *
trans-1,3-Dichloropropene	0.5709	0.5893	0.6381	0.5862	0.6159	0.6411	0.7229	0.6235	8	AVG
Ethyl Methacrylate		0.6690	0.7181	0.6672	0.6906	0.7213	0.7673	0.7056	5	AVG
1,1,2-Trichloroethane	0.3903	0.3752	0.4000	0.3641	0.3702	0.3835	0.4233	0.3866	5	AVG
Tetrachloroethene	0.3273	0.3799	0.4101	0.3508	0.3792	0.3874	0.4430	0.3825	10	AVG
1,3-Dichloropropane	0.6316	0.6503	0.6894	0.6353	0.6565	0.6785	0.7521	0.6705	6	AVG
2-Hexanone	0.5248	0.4955	0.5828	0.4959	0.4930	0.5320	0.4692	0.5133	7	AVG
Dibromochloromethane	0.2472	0.3277	0.3674	0.3571	0.3886	0.4166	0.4792	0.3691	20	2NDDEG
1,2-Dibromoethane	0.3971	0.3992	0.4197	0.3921	0.4061	0.4211	0.4587	0.4134	6	AVG
Chlorobenzene	#0.9837	1.0574	1.1413	1.0189	1.0715	1.1015	1.2418	1.0880	8	AVG #
1,1,1,2-Tetrachloroethane	0.3064	0.3321	0.3771	0.3417	0.3652	0.3781	0.4402	0.3629	12	AVG
Ethylbenzene	*1.6561	1.7398	1.8960	1.6608	1.7732	1.8058	1.9445	1.7823	6	AVG *
m+p-Xylene	0.6407	0.6866	0.7532	0.6620	0.7097	0.7361	0.8195	0.7154	8	AVG
o-Xylene	0.6475	0.7028	0.7461	0.6608	0.7024	0.7322	0.8490	0.7201	9	AVG
Styrene		1.1547	1.2457	1.1354	1.2070	1.2568	1.4246	1.2374	8	AVG
Bromoform	#	0.2044	0.2503	0.2507	0.2867	0.3138	0.3635	0.2782	20	2NDDEG #
Isopropylbenzene		1.6219	1.7901	1.5182	1.6585	1.7056	1.8733	1.6946	7	AVG
Cyclohexanone	0.5097	0.5133	0.5320	0.5051	0.5118	0.5105	0.3645	0.4924	12	AVG
Bromobenzene		0.8650	0.9320	0.8252	0.8626	0.8881	0.9921	0.8942	7	AVG
1,1,2,2-Tetrachloroethane	#1.2394	1.1937	1.2864	1.1543	1.1862	1.2140	1.2495	1.2177	4	AVG #
1,2,3-Trichloropropane		0.3692	0.3847	0.3452	0.3522	0.3646	0.3635	0.3632	4	AVG
trans-1,4-Dichloro-2-butene	0.3455	0.3721	0.3886	0.3627	0.3738	0.3821	0.3773	0.3717	4	AVG
n-Propylbenzene		3.7420	4.0949	3.3947	3.7131	3.7640	3.7629	3.7453	6	AVG
2-Chlorotoluene		0.7831	0.8579	0.7551	0.8102	0.8260	0.9255	0.8263	7	AVG
4-Chlorotoluene		0.8556	0.9257	0.7916	0.8501	0.8786	0.9982	0.8833	8	AVG
1,3,5-Trimethylbenzene		2.6648	2.9191	2.4349	2.6864	2.7615	2.9655	2.7387	7	AVG
tert-Butylbenzene		0.5937	0.6407	0.5312	0.6032	0.6331	0.7215	0.6205	10	AVG
Pentachloroethane		0.4923	0.5022	0.4947	0.5254	0.5364	0.6399	0.5318	10	AVG
1,2,4-Trimethylbenzene		2.7491	3.0356	2.5877	2.8057	2.8910	3.1033	2.8621	7	AVG
sec-Butylbenzene		3.0961	3.3332	2.6404	3.0453	3.1123	3.2286	3.0760	8	AVG
1,3-Dichlorobenzene		1.6224	1.6877	1.4621	1.5675	1.6193	1.8039	1.6272	7	AVG
p-Isopropyltoluene		2.7601	2.9927	2.4053	2.7626	2.8552	3.0476	2.8039	8	AVG
1,4-Dichlorobenzene		1.6323	1.7564	1.5394	1.6213	1.6655	1.8576	1.6787	7	AVG
1,2,3-Trimethylbenzene		3.1917	3.1822	3.0074	3.0246	2.9974	3.1959	3.0999	3	AVG
Benzyl Chloride		2.3711	2.5712	2.4035	2.4813	2.6164	2.5934	2.5062	4	AVG
1,3-Diethylbenzene		1.8413	1.8015	1.7104	1.7114	1.7014	1.9140	1.7800	5	AVG
1,4-Diethylbenzene		1.8546	1.8482	1.7460	1.7429	1.7240	1.9362	1.8087	5	AVG
1,2-Dichlorobenzene		1.5966	1.6960	1.4878	1.5628	1.6178	1.7953	1.6260	7	AVG
n-Butylbenzene		1.3389	1.4196	1.1342	1.3029	1.3396	1.4785	1.3356	9	AVG
1,2-Diethylbenzene		1.5914	1.5554	1.4637	1.4595	1.4442	1.6257	1.5233	5	AVG
1,2-Dibromo-3-chloropropane		0.2494	0.2977	0.2569	0.2716	0.2923	0.2572	0.2708	7	AVG
1,3,5-Trichlorobenzene		1.0878	1.1620	0.9512	1.0545	1.1157	1.1206	1.0819	7	AVG
1,2,4-Trichlorobenzene		1.0824	1.1522	0.9718	1.0650	1.1327	1.0838	1.0813	6	AVG
Hexachlorobutadiene		0.3741	0.3756	0.2974	0.3482	0.3779	0.3552	0.3547	9	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: HP09137 Calibration Date(s): 06/23/15 06/24/15

Heated Purge: (Y/N) Y Calibration Times: 22:27 00:50

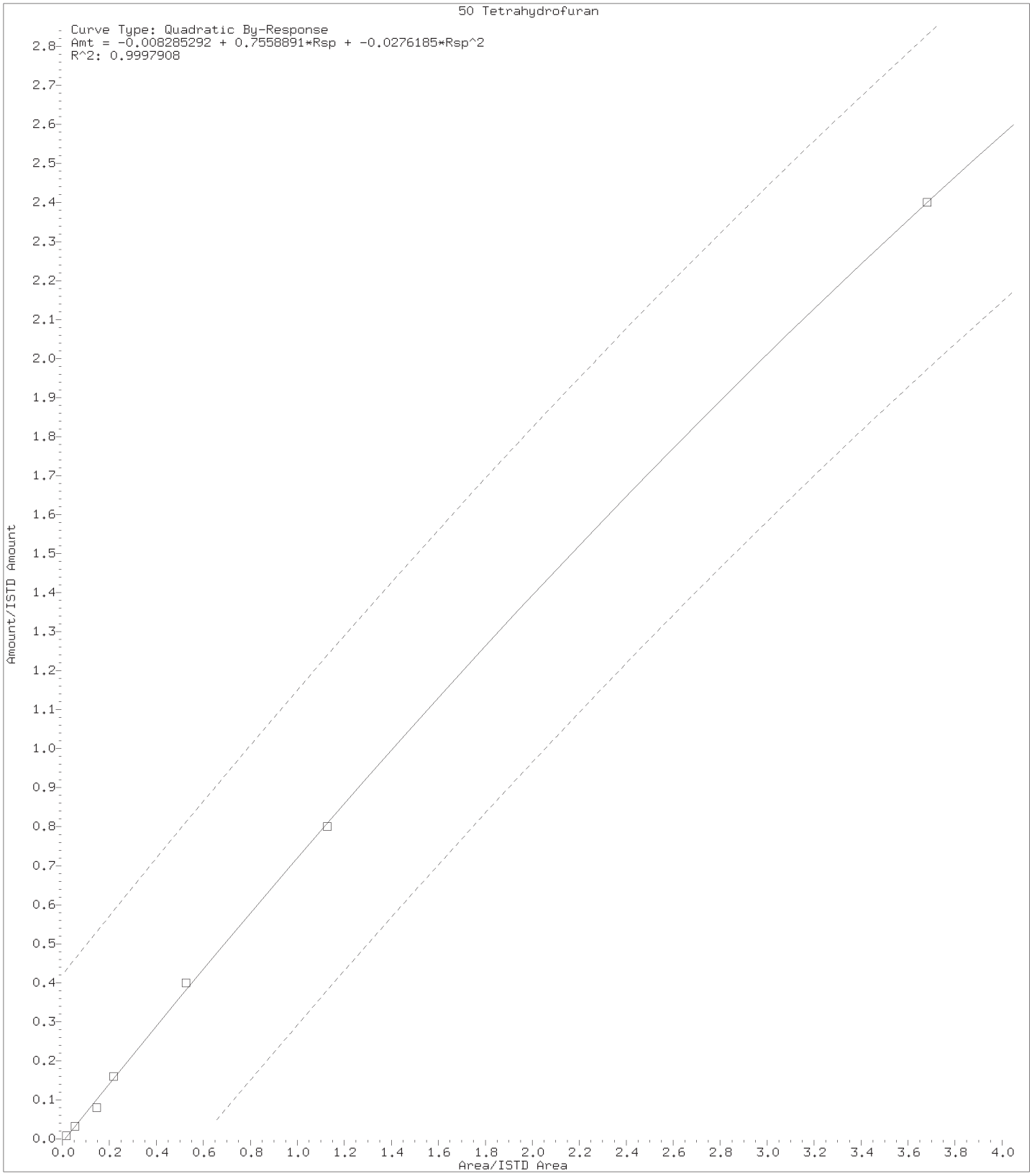
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 1 = wu23i07.d RRF 4 = wu23i06.d RRF 10= wu23i05.d
RRF 20= wu23i04.d RRF 50= wu23i03.d RRF100= wu23i02.d RRF300= wu23i01.d

COMPOUND	RRF 1	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	% RSD	CAL. METHOD
Naphthalene		3.7770	4.2092	3.6599	3.8179	4.0398	3.3472	3.8085	8	AVG
1,2,3-Trichlorobenzene		1.0518	1.1258	0.9448	1.0340	1.0828	1.0149	1.0424	6	AVG
2-Methylnaphthalene		2.1473	2.1378	2.0569	2.1899	2.2520	1.8943	2.1130	6	AVG
Dibromofluoromethane	0.2279	0.2283	0.2267	0.2260	0.2312	0.2289	0.2275	0.2281	1	AVG
Dibromofluoromethane(2)	0.2320	0.2349	0.2330	0.2341	0.2320	0.2335	0.2326	0.2332	0	AVG
1,2-Dichloroethane-d4	0.0637	0.0632	0.0626	0.0639	0.0622	0.0622	0.0612	0.0627	2	AVG
1,2-Dichloroethane-d4(2)	0.2782	0.2804	0.2739	0.2813	0.2723	0.2729	0.2665	0.2751	2	AVG
1,2-Dichloroethane-d4(3)	0.0392	0.0408	0.0405	0.0407	0.0400	0.0408	0.0404	0.0403	1	AVG
Toluene-d8	1.3246	1.3492	1.3489	1.3553	1.3455	1.3291	1.3091	1.3374	1	AVG
Toluene-d8(2)	0.8778	0.8908	0.8919	0.8989	0.8934	0.8937	0.8938	0.8914	1	AVG
4-Bromofluorobenzene	0.4956	0.5041	0.5026	0.5045	0.5002	0.4989	0.5174	0.5033	1	AVG
4-Bromofluorobenzene(2)	0.3985	0.4070	0.4058	0.4102	0.4027	0.4056	0.4161	0.4065	1	AVG

Average %RSD 8

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



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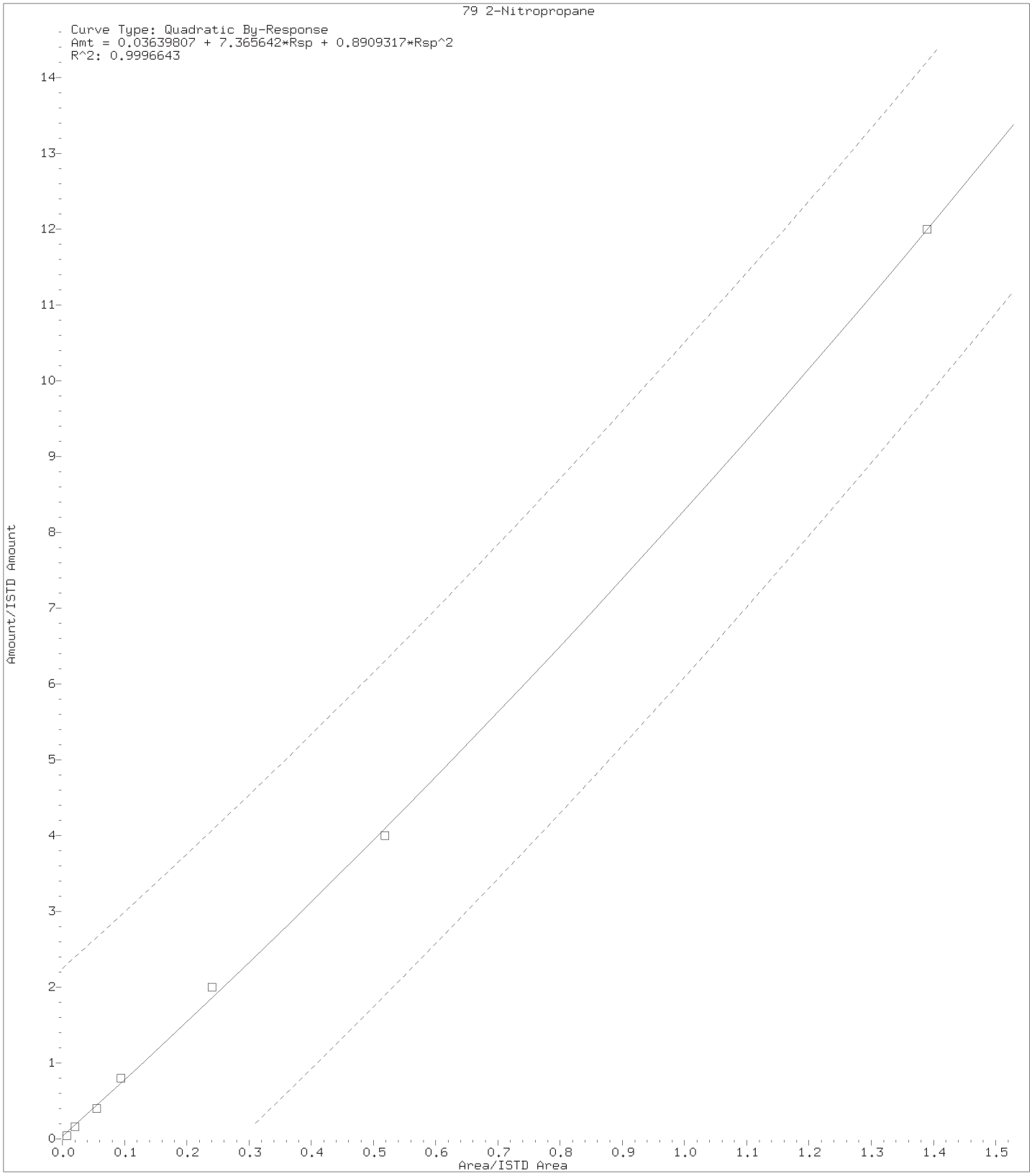
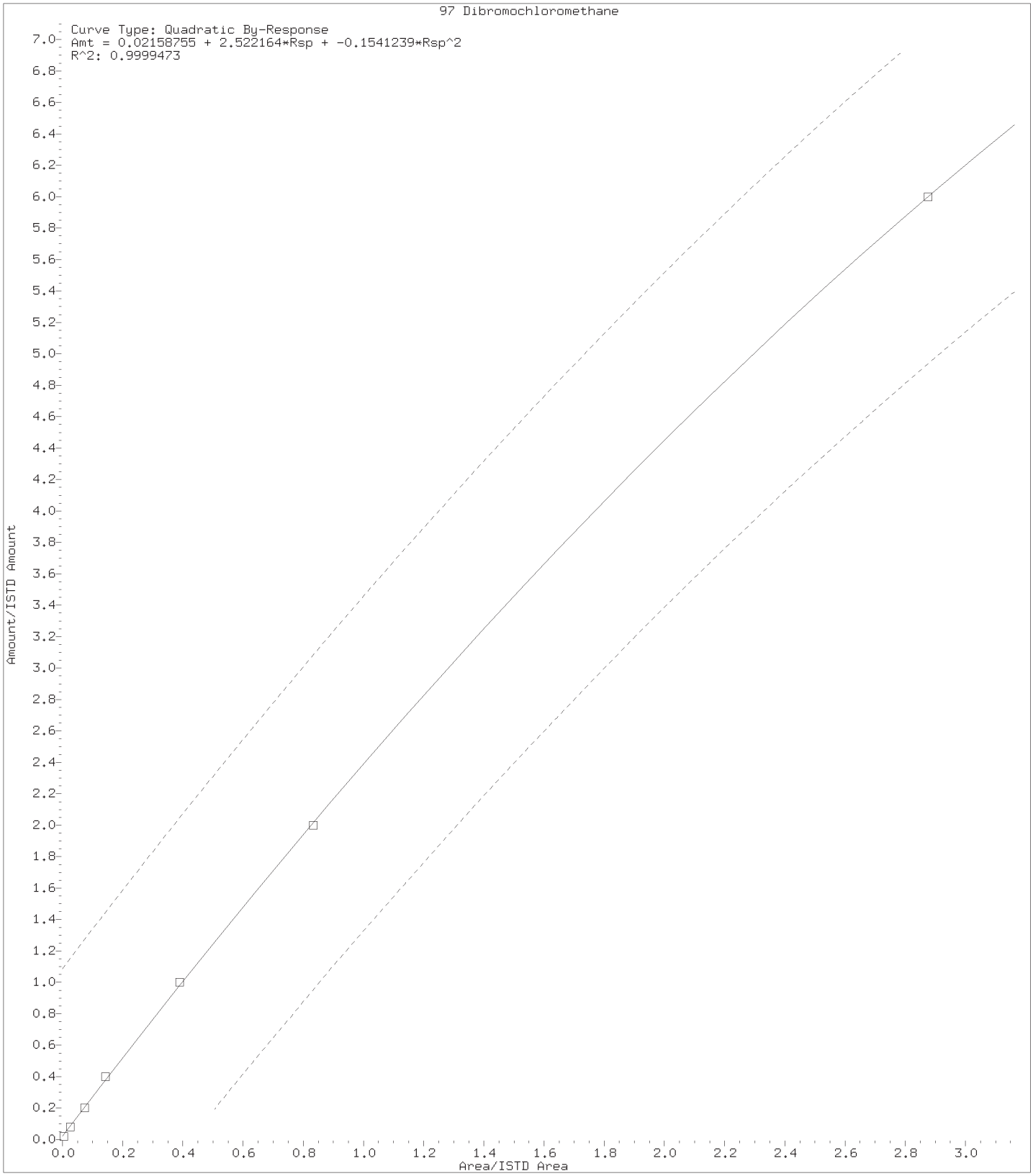
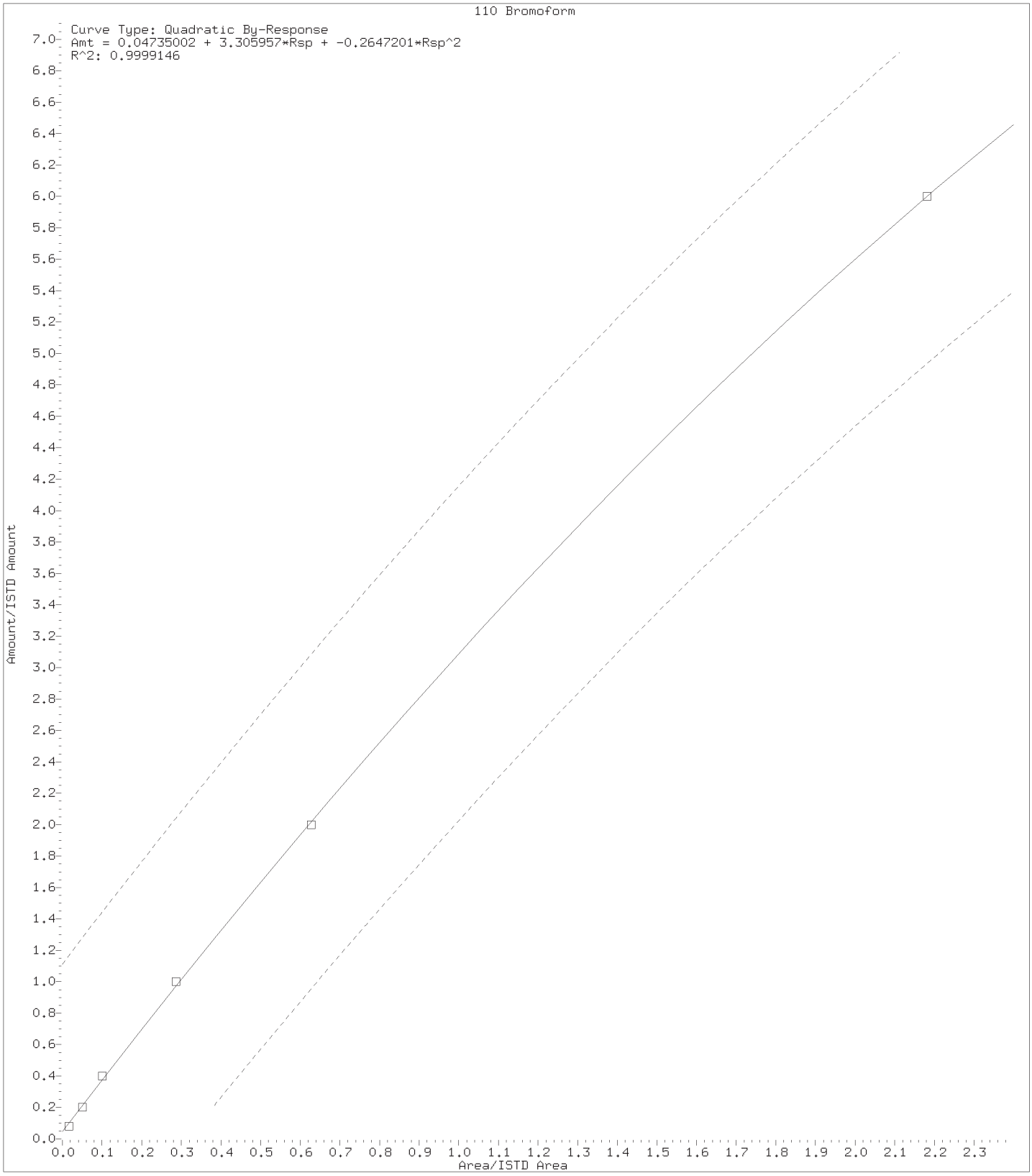
Target 3.5 esignature user ID: lcp00895



Digitally signed by Linda C. Pape on 06/24/2015 at 07:15.
Target 3.5 esignature user ID: lcp00895



Digitally signed by Linda C. Pape on 06/24/2015 at 07:15.
Target 3.5 esignature user ID: lcp00895



Digitally signed by Linda C. Pape on 06/24/2015 at 07:15.
Target 3.5 esignature user ID: lcp00895

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09137.i/15jun23b.b/wu23i01.d VSTD300
/chem2/HP09137.i/15jun23b.b/wu23i02.d VSTD100
/chem2/HP09137.i/15jun23b.b/wu23i03.d VSTD050
/chem2/HP09137.i/15jun23b.b/wu23i04.d VSTD020
/chem2/HP09137.i/15jun23b.b/wu23i05.d VSTD010
/chem2/HP09137.i/15jun23b.b/wu23i06.d VSTD004
/chem2/HP09137.i/15jun23b.b/wu23i07.d VSTD001

Area Summary

File ID:
==========

Internal Standard Name	wu23i01.d	wu23i02.d	wu23i03.d	wu23i04.d	wu23i05.d	wu23i06.d	wu23i07.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	217088	305894	330534	328222	288884	287395	292920	292991	13	Yes
Fluorobenzene	1084473	1251318	1322159	1349372	1285130	1309462	1314503	1273774	7	Yes
Chlorobenzene-d5	821511	950593	996662	1009313	967749	978766	996096	960099	7	Yes
1,4-Dichlorobenzene-d4	462585	509001	524878	530618	503984	510968	512085	507731	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	wu23i01.d	wu23i02.d	wu23i03.d	wu23i04.d	wu23i05.d	wu23i06.d	wu23i07.d	Avg. RT
t-Butyl alcohol-d10	2.850	2.850	2.850	2.850	2.847	2.850	2.850	2.850
Fluorobenzene	5.170	5.174	5.170	5.170	5.173	5.170	5.170	5.171
Chlorobenzene-d5	8.276	8.277	8.277	8.277	8.277	8.276	8.276	8.277
1,4-Dichlorobenzene-d4	10.134	10.131	10.135	10.131	10.131	10.131	10.131	10.132

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 06/24/2015 at 07:17.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09137 ICV Date: 06/24/15 Time: 01:38

Lab File ID: wu23v01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.3513	0.2813	16.01	20	-20
# Chloromethane	0.4414	0.3888	17.62	20	-12 #
* Vinyl Chloride	0.4196	0.3742	17.84	20	-11 *
Bromomethane	0.2555	0.2291	17.93	20	-10
Chloroethane	0.2478	0.2267	18.30	20	-8
Trichlorofluoromethane	0.3970	0.3579	18.03	20	-10
Ethanol	0.0789	0.0835	529.00	500	6
Acrolein	2.1255	1.8784	132.56	150	-12
* 1,1-Dichloroethene	0.2518	0.2631	20.90	20	5 *
Acetone	0.9939	0.9057	136.69	150	-9
Freon 113	0.2204	0.2291	20.79	20	4
2-Propanol	0.5896	0.5945	151.26	150	1
Methyl Iodide	0.4102	0.4323	21.08	20	5
Carbon Disulfide	0.7860	0.7744	19.71	20	-1
Allyl Chloride	0.4392	0.3977	18.11	20	-9
Methyl Acetate	0.3398	0.3141	18.49	20	-8
Methylene Chloride	0.2858	0.2806	19.64	20	-2
t-Butyl alcohol	1.2027	1.2392	206.06	200	3
Acrylonitrile	0.1808	0.1689	93.42	100	-7
trans-1,2-Dichloroethene	0.2648	0.2735	20.65	20	3
Methyl Tertiary Butyl Ether	0.9024	0.9022	19.99	20	0
n-Hexane	0.3190	0.3287	20.61	20	3
# 1,1-Dichloroethane	0.4944	0.4923	19.91	20	0 #
di-Isopropyl ether	0.9244	0.9566	20.70	20	3
2-Chloro-1,3-butadiene	0.3865	0.3755	19.43	20	-3
Ethyl t-butyl ether	0.8946	0.9023	20.17	20	1
cis-1,2-Dichloroethene	0.2986	0.3015	20.20	20	1
2-Butanone	0.2438	0.2348	144.44	150	-4
2,2-Dichloropropane	0.2454	0.2501	20.38	20	2
Propionitrile	1.4382	1.4051	146.54	150	-2
Methacrylonitrile	0.1797	0.1832	152.91	150	2
Bromochloromethane	0.1568	0.1467	18.70	20	-6
Tetrahydrofuran	1.5803	1.3352	96.88	100	-3
* Chloroform	0.4612	0.4588	19.90	20	-1 *
1,1,1-Trichloroethane	0.3911	0.3820	19.53	20	-2
Cyclohexane	0.4449	0.4458	20.04	20	0

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: HP09137 ICV Date: 06/24/15 Time: 01:38

Lab File ID: wu23v01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1-Dichloropropene	0.3730	0.3615	19.38	20	-3
Carbon Tetrachloride	0.3034	0.3082	20.31	20	2
Isobutyl Alcohol	0.4087	0.3863	472.64	500	-5
Benzene	1.1221	1.1460	20.43	20	2
1,2-Dichloroethane	0.3867	0.3715	19.21	20	-4
t-Amyl methyl ether	0.9086	0.9027	19.87	20	-1
n-Heptane	0.3014	0.2800	18.58	20	-7
n-Butanol	0.3683	0.3430	931.19	1000	-7
Trichloroethene	0.2868	0.2982	20.80	20	4
Methylcyclohexane	0.4165	0.3755	18.03	20	-10
* 1,2-Dichloropropane	0.3079	0.3139	20.39	20	2 *
Dibromomethane	0.1887	0.1886	19.99	20	0
1,4-Dioxane	0.0831	0.0761	458.08	500	-8
Methyl Methacrylate	0.3168	0.3147	19.87	20	-1
Bromodichloromethane	0.3548	0.3564	20.09	20	0
2-Nitropropane	0.1319	0.1169	19.13	20	-4
2-Chloroethyl Vinyl Ether	0.2506	0.2485	19.83	20	-1
cis-1,3-Dichloropropene	0.4966	0.4989	20.09	20	0
4-Methyl-2-pentanone	0.5013	0.4707	93.89	100	-6
* Toluene	0.9654	0.9858	20.42	20	2 *
trans-1,3-Dichloropropene	0.6235	0.6377	20.45	20	2
Ethyl Methacrylate	0.7056	0.7072	20.05	20	0
1,1,2-Trichloroethane	0.3866	0.3815	19.74	20	-1
Tetrachloroethene	0.3825	0.3955	20.68	20	3
1,3-Dichloropropane	0.6705	0.6633	19.79	20	-1
2-Hexanone	0.5133	0.4889	95.25	100	-5
Dibromochloromethane	0.3691	0.3714	19.64	20	-2
1,2-Dibromoethane	0.4134	0.4181	20.23	20	1
# Chlorobenzene	1.0880	1.1071	20.35	20	2 #
1,1,1,2-Tetrachloroethane	0.3629	0.3665	20.20	20	1
* Ethylbenzene	1.7823	1.8402	20.65	20	3 *
m+p-Xylene	0.7154	0.7311	40.88	40	2
o-Xylene	0.7201	0.7187	19.96	20	0
Styrene	1.2374	1.2530	20.25	20	1
# Bromoform	0.2782	0.2519	18.89	20	-6 #
Isopropylbenzene	1.6946	1.7738	20.94	20	5

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: HP09137 ICV Date: 06/24/15 Time: 01:38

Lab File ID: wu23v01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Cyclohexanone	0.4924	0.4062	412.48	500	-18
Bromobenzene	0.8942	0.8878	19.86	20	-1
# 1,1,2,2-Tetrachloroethane	1.2177	1.1987	19.69	20	-2 #
1,2,3-Trichloropropane	0.3632	0.3595	19.80	20	-1
trans-1,4-Dichloro-2-butene	0.3717	0.3684	99.09	100	-1
n-Propylbenzene	3.7453	3.9023	20.84	20	4
2-Chlorotoluene	0.8263	0.8204	19.86	20	-1
4-Chlorotoluene	0.8833	0.8815	19.96	20	0
1,3,5-Trimethylbenzene	2.7387	2.7746	20.26	20	1
tert-Butylbenzene	0.6205	0.6280	20.24	20	1
Pentachloroethane	0.5318	0.5044	18.97	20	-5
1,2,4-Trimethylbenzene	2.8621	2.9159	20.38	20	2
sec-Butylbenzene	3.0760	3.2043	20.83	20	4
1,3-Dichlorobenzene	1.6272	1.6155	19.86	20	-1
p-Isopropyltoluene	2.8039	2.8505	20.33	20	2
1,4-Dichlorobenzene	1.6787	1.6929	20.17	20	1
1,2,3-Trimethylbenzene	3.0999	2.9449	19.00	20	-5
Benzyl Chloride	2.5062	2.5226	20.13	20	1
1,3-Diethylbenzene	1.7800	1.7134	19.25	20	-4
1,4-Diethylbenzene	1.8087	1.7895	19.79	20	-1
1,2-Dichlorobenzene	1.6260	1.6254	19.99	20	0
n-Butylbenzene	1.3356	1.3504	20.22	20	1
1,2-Diethylbenzene	1.5233	1.4683	19.28	20	-4
1,2-Dibromo-3-chloropropane	0.2708	0.2591	19.13	20	-4
1,3,5-Trichlorobenzene	1.0819	1.1022	20.37	20	2
1,2,4-Trichlorobenzene	1.0813	1.0989	20.33	20	2
Hexachlorobutadiene	0.3547	0.3516	19.82	20	-1
Naphthalene	3.8085	3.8377	20.15	20	1
1,2,3-Trichlorobenzene	1.0424	1.0301	19.76	20	-1
2-Methylnaphthalene	2.1130	1.9617	18.57	20	-7

Average %Drift 4

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/15oct08a.b/ac08i06.d
/chem2/HP09685.i/15oct08a.b/ac08i05.d
/chem2/HP09685.i/15oct08a.b/ac08i07.d
/chem2/HP09685.i/15oct08a.b/ac08i03.d
/chem2/HP09685.i/15oct08a.b/ac08i02.d
/chem2/HP09685.i/15oct08a.b/ac08i01.d

File /chem2/HP09685.i/15oct08a.b/ac08i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/15oct22a.b/ac22c01.d

RT Summary

File ID:

Internal Standard Name	ac22c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	3.970	3.976	Yes
Fluorobenzene	7.462	7.462	Yes
Chlorobenzene-d5	11.014	11.015	Yes
1,4-Dichlorobenzene-d4	12.919	12.919	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	ac22c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	122450	134640	67320	269280	Yes
Fluorobenzene	1814927	1615131	807566	3230262	Yes
Chlorobenzene-d5	1341747	1200791	600396	2401582	Yes
1,4-Dichlorobenzene-d4	707198	625879	312940	1251758	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

report generated on 10/22/2015 at 08:37

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 10/22/15 Time: 08:14

Lab File ID: ac22c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4202	0.4348	51.75	50	3	
#	Chloromethane	0.3118	0.2978	47.76	50	-4	#
*	Vinyl Chloride	0.2819	0.2749	48.76	50	-2	*
	Bromomethane	0.1928	0.1875	49.26	50	-1	
	Chloroethane	0.1504	0.1417	48.04	50	-4	
	Trichlorofluoromethane	0.4142	0.4198	50.68	50	1	
	Ethanol	0.2030	0.2172	2674.78	2500	7	
	Acrolein	2.9175	3.4803	596.46	500	19	
*	1,1-Dichloroethene	0.2444	0.2632	53.86	50	8	*
	Acetone	0.0228	0.0203	89.13	100	-11	
	Freon 113	0.2530	0.2906	57.44	50	15	
	2-Propanol	1.1037	0.9784	221.61	250	-11	
	Methyl Iodide	0.4663	0.4939	52.97	50	6	
	Carbon Disulfide	0.7990	0.8573	53.65	50	7	
	Methyl Acetate	0.1560	0.1377	44.13	50	-12	
	Allyl Chloride	0.3450	0.3440	49.85	50	0	
	Methylene Chloride	0.2815	0.2812	49.94	50	0	
	t-Butyl alcohol	1.5121	1.3123	216.96	250	-13	
	Acrylonitrile	0.0821	0.0753	45.87	50	-8	
	Methyl Tertiary Butyl Ether	0.6178	0.5785	46.82	50	-6	
	trans-1,2-Dichloroethene	0.2795	0.2941	52.60	50	5	
	n-Hexane	0.3381	0.3861	57.09	50	14	
#	1,1-Dichloroethane	0.4859	0.4854	49.95	50	0	#
	di-Isopropyl ether	0.7452	0.7216	48.42	50	-3	
	2-Chloro-1,3-butadiene	0.3503	0.3649	52.08	50	4	
	Ethyl t-butyl ether	0.4754	0.4265	44.86	50	-10	
	2-Butanone	0.1017	0.0873	85.85	100	-14	
	cis-1,2-Dichloroethene	0.3078	0.3158	51.29	50	3	
	2,2-Dichloropropane	0.3952	0.4022	50.88	50	2	
	Propionitrile	2.0451	2.0796	254.22	250	2	
	Methacrylonitrile	0.0928	0.0856	115.26	125	-8	
	Bromochloromethane	0.1566	0.1567	50.04	50	0	
	Tetrahydrofuran	1.9502	1.9716	101.10	100	1	
*	Chloroform	0.4847	0.4846	49.99	50	0	*
	1,1,1-Trichloroethane	0.4872	0.4394	45.10	50	-10	
	Cyclohexane	0.4157	0.4588	55.18	50	10	

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: 10/22/15 Time: 08:14

Lab File ID: ac22c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane(2)	0.3909	0.4386	56.10	50	12	
	Cyclohexane(3)	0.1336	0.1494	55.92	50	12	
	1,1-Dichloropropene	0.3913	0.4009	51.23	50	2	
	Carbon Tetrachloride	0.3889	0.4118	52.95	50	6	
	Isobutyl Alcohol	0.5823	0.5356	574.90	625	-8	
	Benzene	1.1241	1.1338	50.43	50	1	
	1,2-Dichloroethane	0.3502	0.3336	47.62	50	-5	
	1,2-Dichloroethane(2)	0.0341	0.0340	49.88	50	0	
	t-Amyl methyl ether	0.3952	0.3447	43.61	50	-13	
	n-Heptane	0.3771	0.3907	51.80	50	4	
	n-Butanol	0.4854	0.4248	1094.03	1250	-12	
	Trichloroethene	0.3097	0.3118	50.34	50	1	
	Methylcyclohexane	0.4864	0.5402	55.53	50	11	
*	1,2-Dichloropropane	0.2783	0.2752	49.45	50	-1	*
	Methyl Methacrylate	0.1673	0.1570	46.94	50	-6	
	1,4-Dioxane	0.2089	0.2056	615.22	625	-2	
	Dibromomethane	0.1699	0.1671	49.16	50	-2	
	Bromodichloromethane	0.3558	0.3549	49.87	50	0	
	2-Nitropropane	3.8604	3.6894	85.56	100	-14	
	cis-1,3-Dichloropropene	0.4277	0.4208	49.19	50	-2	
	4-Methyl-2-pentanone	0.2247	0.1903	70.86	100	-29	
*	Toluene	1.0072	1.0021	49.75	50	-1	*
	trans-1,3-Dichloropropene	0.5220	0.5013	48.02	50	-4	
	Ethyl Methacrylate	0.4072	0.3938	48.36	50	-3	
	1,1,2-Trichloroethane	0.3390	0.3167	46.71	50	-7	
	Tetrachloroethene	0.4493	0.4593	51.11	50	2	
	1,3-Dichloropropane	0.5605	0.5299	47.27	50	-5	
	2-Hexanone	0.2218	0.1887	70.11	100	-30	
	Dibromochloromethane	0.3930	0.3780	48.10	50	-4	
	1,2-Dibromoethane	0.3443	0.3221	46.78	50	-6	
#	Chlorobenzene	1.2024	1.1881	49.41	50	-1	#
	1,1,1,2-Tetrachloroethane	0.3985	0.4016	50.38	50	1	
*	Ethylbenzene	1.8840	1.9419	51.54	50	3	*
	m+p-Xylene	0.7678	0.7972	103.82	100	4	
	o-Xylene	0.7420	0.7656	51.59	50	3	
	Styrene	1.1605	1.1983	51.63	50	3	

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: 10/22/15 Time: 08:14

Lab File ID: ac22c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.2343	0.2128	45.41	50	-9 #
Isopropylbenzene	1.8802	1.9799	52.65	50	5
Cyclohexanone	0.6848	0.5188	473.51	625	-24
# 1,1,2,2-Tetrachloroethane	0.8508	0.7482	43.97	50	-12 #
Bromobenzene	0.9840	0.9316	47.34	50	-5
trans-1,4-Dichloro-2-butene	0.2254	0.1966	109.05	125	-13
1,2,3-Trichloropropane	0.2637	0.2307	43.75	50	-13
n-Propylbenzene	4.2918	4.4007	51.27	50	3
2-Chlorotoluene	0.9571	0.9446	49.35	50	-1
1,3,5-Trimethylbenzene	3.1846	3.3217	52.15	50	4
4-Chlorotoluene	0.9954	0.9817	49.31	50	-1
tert-Butylbenzene	0.6922	0.7341	53.03	50	6
Pentachloroethane	0.5740	0.5496	47.88	50	-4
1,2,4-Trimethylbenzene	3.2649	3.3898	51.91	50	4
sec-Butylbenzene	3.9759	4.2520	53.47	50	7
1,3-Dichlorobenzene	1.8631	1.8364	49.28	50	-1
p-Isopropyltoluene	3.4888	3.8194	54.74	50	9
1,4-Dichlorobenzene	1.8631	1.8376	49.31	50	-1
1,2,3-Trimethylbenzene	3.4444	3.3895	49.20	50	-2
Benzyl Chloride	0.3545	0.3336	42.88	50	-14
1,3-Diethylbenzene	2.2057	2.2588	51.20	50	2
1,4-Diethylbenzene	2.2482	2.2895	50.92	50	2
n-Butylbenzene	1.6857	1.8117	53.74	50	7
1,2-Dichlorobenzene	1.7741	1.7065	48.09	50	-4
1,2-Diethylbenzene	1.8717	1.8675	49.89	50	0
1,2-Dibromo-3-chloropropane	0.1498	0.1285	42.89	50	-14
1,3,5-Trichlorobenzene	1.3168	1.3321	50.58	50	1
1,2,4-Trichlorobenzene	1.1266	1.1415	50.66	50	1
Hexachlorobutadiene	0.5807	0.5936	51.11	50	2
Naphthalene	2.6108	2.6119	50.02	50	0
1,2,3-Trichlorobenzene	1.0489	1.0547	50.28	50	1
2-Methylnaphthalene	1.0816	1.1869	43.24	50	-14
Dibromofluoromethane	0.2416	0.2437	50.42	50	1
Dibromofluoromethane(2)	0.2468	0.2495	50.54	50	1
1,2-Dichloroethane-d4	0.0538	0.0534	49.61	50	-1

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: 10/22/15 Time: 08:14

Lab File ID: ac22c01.d Init. Calib. Date(s): 10/08/15 10/08/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,2-Dichloroethane-d4(2)	0.2471	0.2407	48.71	50	-3
1,2-Dichloroethane-d4(3)	0.0340	0.0349	51.22	50	2
Toluene-d8	1.3496	1.3418	49.71	50	-1
Toluene-d8(2)	0.8840	0.8761	49.55	50	-1
4-Bromofluorobenzene	0.4877	0.4817	49.38	50	-1
4-Bromofluorobenzene(2)	0.4015	0.3884	48.37	50	-3

Average %Drift 6

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:

/chem/HP07159.i/15aug27i.b/ng27m01.d
/chem/HP07159.i/15aug27i.b/ng27i06.d
/chem/HP07159.i/15aug27i.b/ng27i05.d
/chem/HP07159.i/15aug27i.b/ng27i04.d
/chem/HP07159.i/15aug27i.b/ng27i03.d
/chem/HP07159.i/15aug27i.b/ng27i02.d
/chem/HP07159.i/15aug27i.b/ng27i01.d

File /chem/HP07159.i/15aug27i.b/ng27i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07159.i/15oct19a.b/nc19c01.d

RT Summary

Internal Standard Name	File ID: nc19c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	4.063	4.066	Yes
Fluorobenzene	7.561	7.557	Yes
Chlorobenzene-d5	11.077	11.074	Yes
1,4-Dichlorobenzene-d4	12.969	12.972	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: nc19c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	827823	632938	316469	1265876	Yes
Fluorobenzene	2875087	2511679	1255840	5023358	Yes
Chlorobenzene-d5	2361039	1918004	959002	3836008	Yes
1,4-Dichlorobenzene-d4	1286521	1015820	507910	2031640	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/19/2015 at 10:52

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07159 Calibration Date: 10/19/15 Time: 09:26

Lab File ID: nc19c01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.2904	0.3456	59.50	50	19	
#	Chloromethane	0.3109	0.3195	51.39	50	3	#
*	Vinyl Chloride	0.3014	0.3219	53.40	50	7	*
	Bromomethane	0.2142	0.2437	56.88	50	14	
	Chloroethane	0.1689	0.1847	54.69	50	9	
	Trichlorofluoromethane	0.3871	0.4391	56.72	50	13	
	Ethanol	0.0934	0.1256	1681.59	1250	35	
	Acrolein	1.9565	2.1615	552.41	500	10	
*	1,1-Dichloroethene	0.2414	0.2425	50.22	50	0	*
*	1,1-Dichloroethene(2)	0.1178	0.1212	51.43	50	3	*
	Acetone	1.0038	0.9897	98.59	100	-1	
	Freon 113	0.2136	0.2248	52.63	50	5	
	2-Propanol	0.6954	0.7066	254.03	250	2	
	Methyl Iodide	0.4324	0.4461	51.59	50	3	
	Carbon Disulfide	0.7663	0.8103	52.87	50	6	
	Allyl Chloride	0.4132	0.4165	50.40	50	1	
	Methyl Acetate	0.3528	0.3736	52.94	50	6	
	Methylene Chloride	0.2919	0.2898	49.64	50	-1	
	t-Butyl alcohol	1.3381	1.1953	223.33	250	-11	
	Acrylonitrile	0.1774	0.2184	61.55	50	23	
	trans-1,2-Dichloroethene	0.2803	0.2827	50.43	50	1	
	Methyl Tertiary Butyl Ether	0.9153	0.8974	49.02	50	-2	
	n-Hexane	0.3417	0.3300	48.29	50	-3	
#	1,1-Dichloroethane	0.5012	0.5187	51.74	50	3	#
	di-Isopropyl ether	0.9157	0.9190	50.18	50	0	
	2-Chloro-1,3-butadiene	0.4023	0.3992	49.61	50	-1	
	Ethyl t-butyl ether	0.9084	0.8522	46.91	50	-6	
	cis-1,2-Dichloroethene	0.3139	0.3181	50.67	50	1	
	2-Butanone	0.2516	0.2984	118.58	100	19	
	2,2-Dichloropropane	0.4158	0.3981	47.87	50	-4	
	Propionitrile	1.4887	1.3962	234.47	250	-6	
	Methacrylonitrile	0.1918	0.1962	127.86	125	2	
	Bromochloromethane	0.1602	0.1654	51.65	50	3	
	Tetrahydrofuran	1.4769	1.4265	96.58	100	-3	
*	Chloroform	0.4883	0.4916	50.33	50	1	*
	1,1,1-Trichloroethane	0.4543	0.4150	45.67	50	-9	

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: HP07159 Calibration Date: 10/19/15 Time: 09:26

Lab File ID: nc19c01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.4483	0.4203	46.87	50	-6	
	Cyclohexane(2)	0.3854	0.3673	47.65	50	-5	
	Cyclohexane(3)	0.1502	0.1298	43.20	50	-14	
	1,1-Dichloropropene	0.3896	0.3968	50.92	50	2	
	Carbon Tetrachloride	0.3537	0.3568	50.45	50	1	
	Isobutyl Alcohol	0.4376	0.4202	600.09	625	-4	
	Benzene	1.1500	1.1863	51.58	50	3	
	1,2-Dichloroethane	0.4003	0.4104	51.26	50	3	
	1,2-Dichloroethane(2)	0.0432	0.0403	46.65	50	-7	
	t-Amyl methyl ether	0.9212	0.8457	45.90	50	-8	
	n-Heptane	0.3333	0.3233	48.51	50	-3	
	n-Butanol	0.4002	0.3517	1098.46	1250	-12	
	Trichloroethene	0.2983	0.3022	50.66	50	1	
	Methylcyclohexane	0.4263	0.4060	47.62	50	-5	
	Methylcyclohexane(2)	0.2017	0.1931	47.86	50	-4	
*	1,2-Dichloropropane	0.3045	0.3143	51.60	50	3	*
	Dibromomethane	0.2036	0.2082	51.14	50	2	
	1,4-Dioxane	0.1053	0.1215	596.25	625	-5	
	Methyl Methacrylate	0.3296	0.3195	48.47	50	-3	
	Bromodichloromethane	0.3849	0.3877	50.37	50	1	
	2-Nitropropane	0.1356	0.1485	109.55	100	10	
	2-Chloroethyl Vinyl Ether	0.2707	0.2739	50.59	50	1	
	cis-1,3-Dichloropropene	0.5048	0.4993	49.45	50	-1	
	4-Methyl-2-pentanone	0.5170	0.5817	112.50	100	13	
*	Toluene	0.9958	0.9332	46.86	50	-6	*
	trans-1,3-Dichloropropene	0.6313	0.5697	45.12	50	-10	
	Ethyl Methacrylate	0.7140	0.6334	44.36	50	-11	
	1,1,2-Trichloroethane	0.3941	0.3716	47.14	50	-6	
	Tetrachloroethene	0.4126	0.3862	46.80	50	-6	
	1,3-Dichloropropane	0.6723	0.6427	47.80	50	-4	
	2-Hexanone	0.5328	0.5510	75.80	100	-24	
	Dibromochloromethane	0.4261	0.4063	47.67	50	-5	
	1,2-Dibromoethane	0.4392	0.4102	46.70	50	-7	
#	Chlorobenzene	1.1440	1.0836	47.36	50	-5	#
	1,1,1,2-Tetrachloroethane	0.3935	0.3711	47.15	50	-6	
*	Ethylbenzene	1.8198	1.7590	48.33	50	-3	*

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: HP07159 Calibration Date: 10/19/15 Time: 09:26

Lab File ID: nc19c01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7541	0.7066	93.70	100	-6	
	o-Xylene	0.7551	0.6885	45.59	50	-9	
	Styrene	1.2663	1.1818	46.66	50	-7	
#	Bromoform	0.3219	0.3051	47.40	50	-5	#
	Isopropylbenzene	1.7892	1.6684	46.63	50	-7	
	Cyclohexanone	0.5131	0.5269	641.85	625	3	
	Bromobenzene	0.9374	0.8728	46.55	50	-7	
#	1,1,2,2-Tetrachloroethane	1.2526	1.1361	45.35	50	-9	#
	1,2,3-Trichloropropane	0.3864	0.3620	46.83	50	-6	
	trans-1,4-Dichloro-2-butene	0.3771	0.3621	120.01	125	-4	
	n-Propylbenzene	3.8977	3.6822	38.13	50	-24	
	2-Chlorotoluene	0.8888	0.8002	45.02	50	-10	
	4-Chlorotoluene	0.9327	0.8583	46.01	50	-8	
	1,3,5-Trimethylbenzene	2.9201	2.6132	44.74	50	-11	
	tert-Butylbenzene	0.6652	0.5836	43.87	50	-12	
	Pentachloroethane	0.5510	0.5368	48.71	50	-3	
	1,2,4-Trimethylbenzene	3.0982	2.7435	44.28	50	-11	
	sec-Butylbenzene	3.4691	3.1027	37.08	50	-26	
	1,3-Dichlorobenzene	1.7383	1.5831	45.54	50	-9	
	p-Isopropyltoluene	3.1143	2.7606	44.32	50	-11	
	1,4-Dichlorobenzene	1.8021	1.6398	45.50	50	-9	
	1,2,3-Trimethylbenzene	3.1055	2.9984	48.28	50	-3	
	Benzyl Chloride	2.5314	2.2128	43.71	50	-13	
	1,3-Diethylbenzene	1.8810	1.7224	45.79	50	-8	
	1,4-Diethylbenzene	1.9433	1.7294	44.50	50	-11	
	1,2-Dichlorobenzene	1.7347	1.5534	44.77	50	-10	
	n-Butylbenzene	1.5331	1.3394	43.68	50	-13	
	1,2-Diethylbenzene	1.6326	1.4716	45.07	50	-10	
	1,2-Dibromo-3-chloropropane	0.3038	0.2497	41.10	50	-18	
	1,3,5-Trichlorobenzene	1.2395	1.0473	42.25	50	-16	
	1,2,4-Trichlorobenzene	1.2033	0.9642	40.06	50	-20	
	Hexachlorobutadiene	0.4139	0.3681	44.46	50	-11	
	Naphthalene	4.0072	3.2513	32.76	50	-34	
	1,2,3-Trichlorobenzene	1.1410	0.9057	39.69	50	-21	
	2-Methylnaphthalene	2.1015	1.2859	30.59	50	-39	
	Dibromofluoromethane	0.2360	0.2456	52.04	50	4	

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: HP07159 Calibration Date: 10/19/15 Time: 09:26

Lab File ID: nc19c01.d Init. Calib. Date(s): 08/27/15 08/27/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2408	0.2521	52.34	50	5
1,2-Dichloroethane-d4	0.0631	0.0644	51.00	50	2
1,2-Dichloroethane-d4(2)	0.2787	0.2976	53.40	50	7
1,2-Dichloroethane-d4(3)	0.0406	0.0410	50.39	50	1
Toluene-d8	1.2881	1.2472	48.41	50	-3
Toluene-d8(2)	0.8656	0.8313	48.02	50	-4
4-Bromofluorobenzene	0.4891	0.4913	50.23	50	0
4-Bromofluorobenzene(2)	0.3938	0.4167	52.91	50	6

Average %Drift 8

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/HP09137.i/15jun23b.b/wu23i07.d
/chem2/HP09137.i/15jun23b.b/wu23i06.d
/chem2/HP09137.i/15jun23b.b/wu23i05.d
/chem2/HP09137.i/15jun23b.b/wu23i04.d
/chem2/HP09137.i/15jun23b.b/wu23i03.d
/chem2/HP09137.i/15jun23b.b/wu23i02.d
/chem2/HP09137.i/15jun23b.b/wu23i01.d

File /chem2/HP09137.i/15jun23b.b/wu23i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09137.i/15oct20a.b/wc20c01.d

RT Summary

Internal Standard Name	File ID: wc20c01.d	ICAL RT	In Spec
t-Butyl alcohol-d10	2.821	2.850	Yes
Fluorobenzene	5.081	5.170	Yes
Chlorobenzene-d5	8.190	8.277	Yes
1,4-Dichlorobenzene-d4	10.058	10.135	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: wc20c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl alcohol-d10	303363	330534	165267	661068	Yes
Fluorobenzene	1207549	1322159	661080	2644318	Yes
Chlorobenzene-d5	898796	996662	498331	1993324	Yes
1,4-Dichlorobenzene-d4	482908	524878	262439	1049756	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

report generated on 10/20/2015 at 11:05

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09137 Calibration Date: 10/20/15 Time: 10:28

Lab File ID: wc20c01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3513	0.2834	40.34	50	-19	
#	Chloromethane	0.4414	0.4152	47.03	50	-6	#
*	Vinyl Chloride	0.4196	0.3640	43.38	50	-13	*
	Bromomethane	0.2555	0.2465	48.25	50	-4	
	Chloroethane	0.2478	0.2166	43.71	50	-13	
	Trichlorofluoromethane	0.3970	0.3327	41.91	50	-16	
	Ethanol	0.0789	0.0958	1517.36	1250	21	
	Acrolein	2.1255	2.4504	576.43	500	15	
*	1,1-Dichloroethene	0.2518	0.2462	48.89	50	-2	*
*	1,1-Dichloroethene(2)	0.1245	0.1184	47.54	50	-5	*
	Acetone	0.9939	1.1799	118.71	100	19	
	Freon 113	0.2204	0.2201	49.94	50	0	
	2-Propanol	0.5896	0.8129	344.69	250	38	
	Methyl Iodide	0.4102	0.4608	56.17	50	12	
	Carbon Disulfide	0.7860	0.7157	45.53	50	-9	
	Allyl Chloride	0.4392	0.4044	46.04	50	-8	
	Methyl Acetate	0.3398	0.3530	51.94	50	4	
	Methylene Chloride	0.2858	0.2905	50.81	50	2	
	t-Butyl alcohol	1.2027	1.3737	285.55	250	14	
	Acrylonitrile	0.1808	0.2142	59.25	50	18	
	trans-1,2-Dichloroethene	0.2648	0.2835	53.52	50	7	
	Methyl Tertiary Butyl Ether	0.9024	0.9365	51.89	50	4	
	n-Hexane	0.3190	0.3224	50.52	50	1	
#	1,1-Dichloroethane	0.4944	0.5144	52.02	50	4	#
	di-Isopropyl ether	0.9244	1.0014	54.17	50	8	
	2-Chloro-1,3-butadiene	0.3865	0.4017	51.96	50	4	
	Ethyl t-butyl ether	0.8946	0.9028	50.46	50	1	
	cis-1,2-Dichloroethene	0.2986	0.3178	53.23	50	6	
	2-Butanone	0.2438	0.2960	121.41	100	21	
	2,2-Dichloropropane	0.2454	0.3856	78.57	50	57	
	Propionitrile	1.4382	1.5905	276.47	250	11	
	Methacrylonitrile	0.1797	0.1935	134.60	125	8	
	Bromochloromethane	0.1568	0.1528	48.73	50	-3	
	Tetrahydrofuran	1.5803	1.5368	111.49	100	11	
*	Chloroform	0.4612	0.4703	50.99	50	2	*
	1,1,1-Trichloroethane	0.3911	0.3861	49.36	50	-1	

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: HP09137 Calibration Date: 10/20/15 Time: 10:28

Lab File ID: wc20c01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.4449	0.4433	49.81	50	0	
	Cyclohexane(2)	0.3747	0.4381	58.46	50	17	
	Cyclohexane(3)	0.1371	0.1330	48.51	50	-3	
	1,1-Dichloropropene	0.3730	0.3848	51.57	50	3	
	Carbon Tetrachloride	0.3034	0.3245	53.46	50	7	
	Isobutyl Alcohol	0.4087	0.4920	752.44	625	20	
	Benzene	1.1221	1.1927	53.15	50	6	
	1,2-Dichloroethane	0.3867	0.3885	50.24	50	0	
	1,2-Dichloroethane(2)	0.0390	0.0399	51.12	50	2	
	t-Amyl methyl ether	0.9086	0.8979	49.41	50	-1	
	n-Heptane	0.3014	0.3076	51.03	50	2	
	n-Butanol	0.3683	0.4249	1442.03	1250	15	
	Trichloroethene	0.2868	0.2957	51.55	50	3	
	Methylcyclohexane	0.4165	0.3721	44.67	50	-11	
	Methylcyclohexane(2)	0.1967	0.1773	45.06	50	-10	
*	1,2-Dichloropropane	0.3079	0.3135	50.91	50	2	*
	Dibromomethane	0.1887	0.1947	51.58	50	3	
	1,4-Dioxane	0.0831	0.1161	873.00	625	40	
	Methyl Methacrylate	0.3168	0.3182	50.22	50	0	
	Bromodichloromethane	0.3548	0.3650	51.44	50	3	
	2-Nitropropane	0.1319	0.1415	109.57	100	10	
	2-Chloroethyl Vinyl Ether	0.2506	0.2636	52.58	50	5	
	cis-1,3-Dichloropropene	0.4966	0.4886	49.19	50	-2	
	4-Methyl-2-pentanone	0.5013	0.6413	127.93	100	28	
*	Toluene	0.9654	1.0295	53.32	50	7	*
	trans-1,3-Dichloropropene	0.6235	0.6098	48.90	50	-2	
	Ethyl Methacrylate	0.7056	0.7039	49.88	50	0	
	1,1,2-Trichloroethane	0.3866	0.4134	53.46	50	7	
	Tetrachloroethene	0.3825	0.4449	58.16	50	16	
	1,3-Dichloropropane	0.6705	0.6982	52.06	50	4	
	2-Hexanone	0.5133	0.6862	133.67	100	34	
	Dibromochloromethane	0.3691	0.4112	51.63	50	3	
	1,2-Dibromoethane	0.4134	0.4402	53.23	50	6	
#	Chlorobenzene	1.0880	1.1677	53.66	50	7	#
	1,1,1,2-Tetrachloroethane	0.3629	0.3911	53.88	50	8	
*	Ethylbenzene	1.7823	1.8993	53.28	50	7	*

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: HP09137 Calibration Date: 10/20/15 Time: 10:28

Lab File ID: wc20c01.d Init. Calib. Date(s): 06/23/15 06/24/15

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	0.7154	0.7665	107.14	100	7	
	o-Xylene	0.7201	0.7631	52.98	50	6	
	Styrene	1.2374	1.2873	52.02	50	4	
#	Bromoform	0.2782	0.3236	54.48	50	9	#
	Isopropylbenzene	1.6946	1.7966	53.01	50	6	
	Cyclohexanone	0.4924	0.3657	464.24	625	-26	
	Bromobenzene	0.8942	0.9749	54.52	50	9	
#	1,1,2,2-Tetrachloroethane	1.2177	1.2900	52.97	50	6	#
	1,2,3-Trichloropropane	0.3632	0.3855	53.07	50	6	
	trans-1,4-Dichloro-2-butene	0.3717	0.3206	107.79	125	-14	
	n-Propylbenzene	3.7453	3.8844	51.86	50	4	
	2-Chlorotoluene	0.8263	0.8551	51.75	50	3	
	4-Chlorotoluene	0.8833	0.9155	51.83	50	4	
	1,3,5-Trimethylbenzene	2.7387	2.7892	50.92	50	2	
	tert-Butylbenzene	0.6205	0.6505	52.41	50	5	
	Pentachloroethane	0.5318	0.5293	49.76	50	0	
	1,2,4-Trimethylbenzene	2.8621	2.9362	51.30	50	3	
	sec-Butylbenzene	3.0760	3.2428	52.71	50	5	
	1,3-Dichlorobenzene	1.6272	1.7319	53.22	50	6	
	p-Isopropyltoluene	2.8039	2.9237	52.14	50	4	
	1,4-Dichlorobenzene	1.6787	1.7913	53.35	50	7	
	1,2,3-Trimethylbenzene	3.0999	3.0067	48.50	50	-3	
	Benzyl Chloride	2.5062	2.4919	49.72	50	-1	
	1,3-Diethylbenzene	1.7800	1.6895	47.46	50	-5	
	1,4-Diethylbenzene	1.8087	1.7090	47.25	50	-6	
	1,2-Dichlorobenzene	1.6260	1.7394	53.48	50	7	
	n-Butylbenzene	1.3356	1.3604	50.93	50	2	
	1,2-Diethylbenzene	1.5233	1.4457	47.45	50	-5	
	1,2-Dibromo-3-chloropropane	0.2708	0.2728	50.36	50	1	
	1,3,5-Trichlorobenzene	1.0819	1.2016	55.53	50	11	
	1,2,4-Trichlorobenzene	1.0813	1.1358	52.52	50	5	
	Hexachlorobutadiene	0.3547	0.4341	61.19	50	22	
	Naphthalene	3.8085	3.9174	51.43	50	3	
	1,2,3-Trichlorobenzene	1.0424	1.0776	51.69	50	3	
	2-Methylnaphthalene	2.1130	1.6866	39.91	50	-20	
	Dibromofluoromethane	0.2281	0.2240	49.11	50	-2	

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: HP09137 Calibration Date: 10/20/15 Time: 10:28

Lab File ID: wc20c01.d Init. Calib. Date(s): 06/23/15 06/24/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(2)	0.2332	0.2299	49.31	50	-1
1,2-Dichloroethane-d4	0.0627	0.0636	50.72	50	1
1,2-Dichloroethane-d4(2)	0.2751	0.2630	47.80	50	-4
1,2-Dichloroethane-d4(3)	0.0403	0.0409	50.67	50	1
Toluene-d8	1.3374	1.3041	48.76	50	-2
Toluene-d8(2)	0.8914	0.8774	49.21	50	-2
4-Bromofluorobenzene	0.5033	0.4669	46.38	50	-7
4-Bromofluorobenzene(2)	0.4065	0.4324	53.18	50	6

Average %Drift 8

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID (Standard): nc19c01.d Date Analyzed: 10/19/15

Instrument ID: HP07159 Time Analyzed: 09:26

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	827823	4.063	2875087	7.561	2361039	11.077	1286521	12.969
UPPER LIMIT	1655646	4.563	5750174	8.061	4722078	11.577	2573042	13.469
LOWER LIMIT	413912	3.563	1437544	7.061	1180520	10.577	643260	12.469
LAB SAMPLE ID								
01 LCSN16	801864	4.081	2913504	7.555	2383901	11.077	1305571	12.969
02 VBLKN16	714020	4.091	2686313	7.558	2170763	11.075	1107673	12.973
03 LCDN16	768569	4.072	2838431	7.558	2307629	11.074	1255066	12.972
04 8085581	590108	4.072	2879981	7.558	2384043	11.074	1271303	12.972
05 8081809	672705	4.106	2801984	7.561	2274446	11.078	1175491	12.970
06 8081808	677392	4.093	2774348	7.561	2245358	11.077	1144488	12.975
07 8080978	621826	4.233	2713809	7.561	2223011	11.077	1183823	12.969
08 8080978MS	502526	4.246	2553786	7.556	2088521	11.078	1156684	12.970
09 8084534	492895	4.179	2460064	7.555	1982199	11.078	1017374	12.970
10 8084534MS	560780	4.157	2638578	7.558	2151497	11.074	1184671	12.972
11 8084534MSD	600827	4.221	2700056	7.560	2203433	11.077	1203759	12.969
12 8085591	603549	4.082	2617014	7.555	2090652	11.078	1066561	12.970
13 8085603	600473	4.119	2539448	7.556	2054951	11.078	1064505	12.970
14 8085605	556100	4.118	2490404	7.561	2057762	11.077	1086815	12.969
15 8085607	625728	4.093	2510306	7.561	2044318	11.077	1027703	12.969
16 8085609	600871	4.087	2460605	7.561	1981771	11.077	1020759	12.969
17 8085610	589134	4.059	2376622	7.557	1939665	11.073	977068	12.971
18 8085611	606453	4.106	2338236	7.556	1904178	11.078	940116	12.970
19 8086745	610087	4.137	2245087	7.556	1807535	11.072	914864	12.970
20 8086754	601672	4.076	2170745	7.562	1757085	11.078	874158	12.970
21 8086755	574636	4.087	2197980	7.561	1773598	11.077	887833	12.969
22 8086756	613534	4.082	2213399	7.562	1784898	11.078	892298	12.970

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID (Standard): nc19c01.d Date Analyzed: 10/19/15

Instrument ID: HP07159 Time Analyzed: 09:26

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	827823	4.063	2875087	7.561	2361039	11.077	1286521	12.969
UPPER LIMIT	1655646	4.563	5750174	8.061	4722078	11.577	2573042	13.469
LOWER LIMIT	413912	3.563	1437544	7.061	1180520	10.577	643260	12.469
LAB SAMPLE ID								
23 8086757	572406	4.118	2150223	7.562	1749842	11.072	869036	12.970
24 8086758	546149	4.064	2066852	7.556	1662890	11.078	827295	12.970
25 8086759	545973	4.076	2041687	7.562	1653076	11.072	810830	12.970

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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of internal standard area.
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of internal standard area.

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page 2 of 2

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.:_DHR32___

Lab File ID (Standard): wc20c01.d Date Analyzed: 10/20/15

Instrument ID: HP09137 Time Analyzed: 10:28

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	303363	2.821	1207549	5.080	898796	8.190	482908	10.058
UPPER LIMIT	606726	3.321	2415098	5.580	1797592	8.690	965816	10.558
LOWER LIMIT	151682	2.321	603774	4.580	449398	7.690	241454	9.558
LAB SAMPLE ID								
01 LCSW80	294879	2.824	1227162	5.084	901725	8.190	483226	10.057
02 LCDW80	283012	2.818	1195332	5.077	888374	8.187	477935	10.058
03 VBLKW80	280417	2.834	1195087	5.080	892905	8.187	459747	10.058
04 8084535	300786	2.824	1191720	5.084	886360	8.190	455116	10.057
05 8083992	284056	2.828	1182703	5.084	886804	8.190	453134	10.057
06 8083991DL	277423	2.821	1152966	5.080	860439	8.190	449591	10.057
07 8087451	280324	2.818	1135523	5.083	849854	8.190	436160	10.057
08 8087465	287492	2.831	1169389	5.087	871371	8.190	443580	10.058
09 8087466MS	272283	2.828	1164582	5.087	867162	8.190	464433	10.057
10 8087467MSD	270860	2.825	1169958	5.087	882052	8.190	469431	10.054
11 8087452	277398	2.818	1138180	5.084	855064	8.190	438262	10.054
12 8087453	268967	2.818	1121472	5.080	848797	8.187	438595	10.057
13 8087454	282509	2.825	1137878	5.087	846909	8.190	436261	10.058
14 8087455	288059	2.825	1117920	5.080	833822	8.190	430262	10.058
15 8087456	281325	2.818	1114000	5.080	847017	8.187	435722	10.058
16 8087457	266329	2.818	1126337	5.080	837894	8.190	428359	10.057
17 8087458	262800	2.824	1107008	5.083	832477	8.190	438308	10.057
18 8087459	259626	2.828	1102198	5.084	828167	8.190	427124	10.057
19 8087460	239000	2.828	1094310	5.080	825263	8.187	426873	10.058
20 8087461	261226	2.828	1093732	5.080	820365	8.190	421127	10.057
21 8087462	259660	2.828	1088850	5.080	817805	8.190	418939	10.058
22 8087463	257922	2.828	1109809	5.083	821752	8.190	421713	10.057

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR32___

Lab File ID (Standard): wc20c01.d Date Analyzed: 10/20/15

Instrument ID: HP09137 Time Analyzed: 10:28

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	303363	2.821	1207549	5.080	898796	8.190	482908	10.058
	UPPER LIMIT	606726	3.321	2415098	5.580	1797592	8.690	965816	10.558
	LOWER LIMIT	151682	2.321	603774	4.580	449398	7.690	241454	9.558
	LAB SAMPLE ID								
23	8087464	248743	2.822	1088122	5.084	804292	8.190	417428	10.058
24	8087468	262810	2.828	1079219	5.080	808660	8.190	418113	10.058
25	8087469	259657	2.818	1089316	5.084	816062	8.187	421744	10.057
26	8087470	262239	2.831	1088078	5.087	808131	8.190	415322	10.057

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

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.:_DHR32___

Lab File ID (Standard): ac22c01.d Date Analyzed: 10/22/15

Instrument ID: HP09685 Time Analyzed: 08:14

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	122450	3.970	1814927	7.462	1341747	11.014	707198	12.919
UPPER LIMIT	244900	4.470	3629854	7.962	2683494	11.514	1414396	13.419
LOWER LIMIT	61225	3.470	907464	6.962	670874	10.514	353599	12.419
LAB SAMPLE ID								
01 VBLKA94	129297	3.970	1712921	7.462	1274631	11.014	638418	12.925
02 LCSA94	110445	3.976	1720667	7.462	1271995	11.014	660873	12.919
03 8084533	110308	3.970	1729477	7.462	1243513	11.015	596009	12.925
04 8088042	95808	3.976	1525645	7.462	914041	11.015	286234 *	12.925
05 8088043MS	104145	3.982	1457404	7.468	853174	11.014	266591 *	12.925
06 8088044MSD	89863	3.970	1525295	7.462	828458	11.014	225894 *	12.924
07 8088045	99523	3.970	1706901	7.462	1220393	11.014	539940	12.925
08 8088028	89391	3.982	1559194	7.462	909168	11.014	273175 *	12.925
09 8088033	75062	3.988	1355027	7.468	608489 *	11.015	113300 *	12.925
10 8088034	79583	3.976	1598954	7.468	1130608	11.021	481483	12.925
11 8088035	86069	3.964	1588622	7.462	1127566	11.014	495078	12.925
12 8088036	92325	3.970	1624588	7.468	1143500	11.014	500402	12.925
13 8088037	104168	3.970	1638161	7.462	1174640	11.014	540130	12.925
14 8088038	87924	3.970	1551904	7.468	1075333	11.015	477354	12.925
15 8088041	94692	3.970	1439581	7.462	796928	11.015	205355 *	12.925
16 8088025	97204	3.982	1580397	7.468	984881	11.014	294861 *	12.925
17 8088040	100305	3.970	1641155	7.468	1194571	11.014	562114	12.925
18 8088029	85392	3.976	1382861	7.468	871478	11.021	290326 *	12.925
19 8088030	90496	3.982	1344214	7.468	675724	11.014	154202 *	12.925
20 8088031	98265	3.970	1592073	7.462	1159188	11.015	526011	12.925
21 8088032	84315	3.964	1389237	7.462	783101	11.014	194300 *	12.925

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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
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page 1 of 1

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15OCT08A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ADS01731	AC08T01.D	BFBAUG28-15	10/08/2015	11:07		
ADS01731	AC08X01.D	CBLK	10/08/2015	11:32		
ADS01731	AC08I01.D	VSTD300	10/08/2015	11:55		
ADS01731	AC08I02.D	VSTD100	10/08/2015	12:22		
ADS01731	AC08I03.D	VSTD050	10/08/2015	12:48		
ADS01731	AC08I04.D	VSTD020	10/08/2015	13:43		
ADS01731	AC08I05.D	VSTD010	10/08/2015	14:16		
ADS01731	AC08I06.D	VSTD004	10/08/2015	14:38		
ADS01731	AC08M01.D	VSTD001	10/08/2015	15:01		
ADS01731	AC08I07.D	VSTD020	10/08/2015	15:46		
ADS01731	AL06V01.D	LCSAICV	10/08/2015	16:40		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09685 **HP #22**

Data Directory Path is - d:\data\15OCT22A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
LCP00895	AC22T01.D	50NGBFB	10/22/2015	07:47	A152871AA	
LCP00895	AC22C01.D	VSTD050	10/22/2015	08:14	A152951AA	
LCP00895	AC22B00.D	VBLKA94	10/22/2015	08:37	A152951AA	
LCP00895	AC22B01.D	VBLKA94	10/22/2015	09:11	A152951AA	
LCP00895	AC22S01.D	LCSA94	10/22/2015	09:34	A152951AA	
LCP00895	AC22S02.D	8084533	10/22/2015	10:14	A152951AA	
LCP00895	AC22S03.D	8088042	10/22/2015	10:36	A152951AA	
LCP00895	AC22S04.D	8088043MS	10/22/2015	10:59	A152951AA	
LCP00895	AC22S05.D	8088044MSD	10/22/2015	11:21	A152951AA	
LCP00895	AC22S06.D	8088045	10/22/2015	11:44	A152951AA	
LCP00895	AC22S07.D	8088028	10/22/2015	12:06	A152951AA	
LCP00895	AC22S08.D	8088029	10/22/2015	12:29	A152951AA	
LCP00895	AC22S09.D	8088030	10/22/2015	12:52	A152951AA	
LCP00895	AC22S10.D	8088031	10/22/2015	13:14	A152951AA	
LCP00895	AC22S11.D	8088032	10/22/2015	13:37	A152951AA	
LCP00895	AC22S12.D	8088033	10/22/2015	13:59	A152951AA	
LCP00895	AC22S13.D	8088034	10/22/2015	14:22	A152951AA	
LCP00895	AC22S14.D	8088035	10/22/2015	14:44	A152951AA	
LCP00895	AC22S15.D	8088036	10/22/2015	15:07	A152951AA	
LCP00895	AC22S16.D	8088037	10/22/2015	15:29	A152951AA	
LCP00895	AC22S17.D	8088038	10/22/2015	15:52	A152951AA	
LCP00895	AC22S18.D	8088039	10/22/2015	16:15	A152951AA	
LCP00895	AC22S19.D	8088041	10/22/2015	16:37	A152951AA	
LCP00895	AC22S20.D	8088025	10/22/2015	17:00	A152951AA	
LCP00895	AC22S21.D	8088040	10/22/2015	17:22	A152951AA	
LCP00895	AC22S22.D	8088029	10/22/2015	17:45	A152951AA	
LCP00895	AC22S23.D	8088030	10/22/2015	18:07	A152951AA	
LCP00895	AC22S24.D	8088031	10/22/2015	18:30	A152951AA	
LCP00895	AC22S25.D	8088032	10/22/2015	18:53	A152951AA	

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Volatiles
Runlog for Hewlett Packard GC/MS System HP07159 **HP #11**

Data Directory Path is - d:\DATA\15AUG27I\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
DHH02035	NG27T01.D	50ng bfb	08/27/2015	09:13		
DHH02035	NG27X21.D	CBLK	08/27/2015	09:58		
DHH02035	NG27I01.D	VSTD300	08/27/2015	10:22		
DHH02035	NG27I02.D	VSTD100	08/27/2015	10:45		
DHH02035	NG27I03.D	VSTD050	08/27/2015	11:08		
DHH02035	NG27I04.D	VSTD020	08/27/2015	11:42		
DHH02035	NG27I05.D	VSTD010	08/27/2015	12:05		
DHH02035	NG27I06.D	VSTD004	08/27/2015	12:28		
DHH02035	NG27I07.D	MDL0.5	08/27/2015	12:51		
DHH02035	NG27M01.D	VSTD001	08/27/2015	13:14		
DHH02035	NG27V01.D	ICVN01	08/27/2015	13:37		

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Volatiles
Runlog for Hewlett Packard GC/MS System HP07159 **HP #11**

Data Directory Path is - D:\DATA\15oct19a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
dhh02035	NC19X01.D	VBLKN16	10/19/2015	08:21	N152921AA	
dhh02035	NC19T01.D	50NGBFB	10/19/2015	09:03	N152921AA	
dhh02035	NC19C01.D	VSTD050	10/19/2015	09:26	N152921AA	
dhh02035	NC19S01.D	LCSN16	10/19/2015	09:49	N152921AA	
dhh02035	NC19X02.D	VBLKN16	10/19/2015	10:12	N152921AA	
dhh02035	NC19B01.D	VBLKN16	10/19/2015	10:35	N152921AA	
dhh02035	NC19S02.D	LCDN16	10/19/2015	12:21	N152921AA	
dhh02035	NC19S03.D	8085581RE	10/19/2015	12:44	N152921AA	
dhh02035	NC19S04.D	8081809	10/19/2015	13:07	N152921AA	
dhh02035	NC19S05.D	8081808	10/19/2015	13:30	N152921AA	
dhh02035	NC19S06.D	8080978	10/19/2015	13:53	N152921AA	40
dhh02035	NC19S07.D	8080978MS	10/19/2015	14:16	N152921AA	40
dhh02035	NC19S08.D	8084534	10/19/2015	14:39	N152921AA	
dhh02035	NC19S09.D	8084534MS	10/19/2015	15:03	N152921AA	
dhh02035	NC19S10.D	8084534MSD	10/19/2015	15:26	N152921AA	
dhh02035	NC19S11.D	8085591	10/19/2015	15:49	N152921AA	
dhh02035	NC19S12.D	8085603	10/19/2015	16:12	N152921AA	
dhh02035	NC19S13.D	8085605	10/19/2015	16:35	N152921AA	
dhh02035	NC19S14.D	8085607	10/19/2015	16:58	N152921AA	
dhh02035	NC19S15.D	8085609	10/19/2015	17:21	N152921AA	
dhh02035	NC19S16.D	8085610	10/19/2015	17:44	N152921AA	
dhh02035	NC19S17.D	8085611	10/19/2015	18:07	N152921AA	
dhh02035	NC19S18.D	8086745	10/19/2015	18:30	N152921AA	
dhh02035	NC19S19.D	8086754	10/19/2015	18:53	N152921AA	
dhh02035	NC19S20.D	8086755	10/19/2015	19:17	N152921AA	
dhh02035	NC19S21.D	8086756	10/19/2015	19:40	N152921AA	
dhh02035	NC19S22.D	8086757	10/19/2015	20:02	N152921AA	
dhh02035	NC19S23.D	8086758	10/19/2015	20:26	N152921AA	
dhh02035	NC19S24.D	8086759	10/19/2015	20:49	N152921AA	

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Volatiles
Runlog for Agilent GC/MS System HP09137 **HP #18**

Data Directory Path is - d:\data\15JUN23B\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
CGT03258	WU23T05.D	50NGBFB	06/23/2015	21:25		
CGT03258	WU23X05.D	CLNBLK	06/23/2015	22:03		
CGT03258	WU23I01.D	VSTD300	06/23/2015	22:27		
CGT03258	WU23I02.D	VSTD100	06/23/2015	22:51		
CGT03258	WU23I03.D	VSTD050	06/23/2015	23:15		
CGT03258	WU23I04.D	VSTD020	06/23/2015	23:39		
CGT03258	WU23I05.D	VSTD010	06/24/2015	00:02		
CGT03258	WU23I06.D	VSTD004	06/24/2015	00:26		
CGT03258	WU23I07.D	VSTD001	06/24/2015	00:50		
CGT03258	WU23M01.D	VSTD0.5	06/24/2015	01:14		
CGT03258	WU23V01.D	LCSWICV	06/24/2015	01:38		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP09137 **HP #18**

Data Directory Path is - d:\data\15OCT20A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
DHH02035	WC20T01.D	50NGBFB	10/20/2015	10:13	W152931AA	
DHH02035	WC20C01.D	VSTD050	10/20/2015	10:28	W152931AA	
DHH02035	WC20S01.D	LCSW80	10/20/2015	10:52	W152931AA	
DHH02035	WC20S02.D	LCDW80	10/20/2015	11:16	W152931AA	
DHH02035	WC20B01.D	VBLKW80	10/20/2015	11:39	W152931AA	
DHH02035	WC20S03.D	8084535	10/20/2015	12:39	W152931AA	
DHH02035	WC20S04.D	8083992	10/20/2015	13:03	W152931AA	
DHH02035	WC20S05.D	8083991DL	10/20/2015	13:26	W152931AA	20
DHH02035	WC20S06.D	8087451	10/20/2015	13:50	W152931AA	
DHH02035	WC20S07.D	8087465	10/20/2015	14:13	W152931AA	
DHH02035	WC20S08.D	8087466MS	10/20/2015	14:37	W152931AA	
DHH02035	WC20S09.D	8087467MSD	10/20/2015	15:01	W152931AA	
DHH02035	WC20S10.D	8087452	10/20/2015	15:25	W152931AA	
DHH02035	WC20S11.D	8087453	10/20/2015	15:48	W152931AA	
DHH02035	WC20S12.D	8087454	10/20/2015	16:12	W152931AA	
DHH02035	WC20S13.D	8087455	10/20/2015	16:36	W152931AA	
DHH02035	WC20S14.D	8087456	10/20/2015	16:59	W152931AA	
DHH02035	WC20S15.D	8087457	10/20/2015	17:23	W152931AA	
DHH02035	WC20S16.D	8087458	10/20/2015	17:47	W152931AA	
DHH02035	WC20S17.D	8087459	10/20/2015	18:10	W152931AA	
DHH02035	WC20S18.D	8087460	10/20/2015	18:34	W152931AA	
DHH02035	WC20S19.D	8087461	10/20/2015	18:58	W152931AA	
DHH02035	WC20S20.D	8087462	10/20/2015	19:21	W152931AA	
DHH02035	WC20S21.D	8087463	10/20/2015	19:45	W152931AA	
DHH02035	WC20S22.D	8087464	10/20/2015	20:09	W152931AA	
DHH02035	WC20S23.D	8087468	10/20/2015	20:32	W152931AA	
DHH02035	WC20S24.D	8087469	10/20/2015	20:56	W152931AA	
DHH02035	WC20S25.D	8087470	10/20/2015	21:20	W152931AA	

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VOA Prep Summary by SDG: DHR32

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
8084533	150A	00374	15648294	Y	10/09/15 14:15	10/10/15 18:20	0.00 g	5.14 g	5.14 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8084533	150B	00374	15648295	N	10/09/15 14:15	10/10/15 18:20	0.00 g	4.79 g	4.79 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8084533	169A	06646	15648296	N	10/09/15 14:15	10/10/15 18:19	0.00 g	4.98 g	4.98 g	4.50 g - 5.50 g	Y	1527802	MeOH w/surrogate (5 mL)	5.000	
8081289	150A	07320	15645945	N	10/07/15 14:05	10/08/15 18:35	31.62 g	36.14 g	4.52 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081289	150B	07320	15645951	N	10/07/15 14:05	10/08/15 18:35	31.78 g	36.96 g	5.18 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081289	169A	07578	15645770	Y	10/07/15 14:05	10/08/15 18:16	29.60 g	33.90 g	4.30 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8081290	150A	07320	15645946	N	10/07/15 14:05	10/08/15 18:35	32.04 g	36.27 g	4.23 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081290	150B	07320	15645952	N	10/07/15 14:05	10/08/15 18:35	31.81 g	37.42 g	5.61 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8081290	169A	07578	15645777	Y	10/07/15 14:05	10/08/15 18:18	29.82 g	34.61 g	4.79 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081291	150A	07320	15645947	N	10/07/15 14:05	10/08/15 18:35	31.82 g	36.62 g	4.80 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081291	150B	07320	15645941	N	10/07/15 14:05	10/08/15 18:35	32.03 g	37.44 g	5.41 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8081291	169A	07578	15645775	Y	10/07/15 14:05	10/08/15 18:20	29.64 g	34.81 g	5.17 g	4.50 g - 5.50 g	Y	15252	MeOH w/surrogate (5 mL)	5.000	
8081686	150A	00374	15647918	Y	10/06/15 17:15	10/08/15 23:09	0.00 g	5.03 g	5.03 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081686	150B	00374	15647919	N	10/06/15 17:15	10/08/15 23:09	0.00 g	5.40 g	5.40 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081686	169A	06646	15647920	N	10/06/15 17:15	10/08/15 23:01	0.00 g	4.79 g	4.79 g	4.50 g - 5.50 g	Y	1527802	MeOH w/surrogate (5 mL)	5.000	
8081687	150A	00374	15647910	N	10/06/15 17:15	10/08/15 23:09	0.00 g	4.93 g	4.93 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081687	150B	00374	15647911	Y	10/06/15 17:15	10/08/15 23:09	0.00 g	5.02 g	5.02 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081687	169A	06646	15647912	N	10/06/15 17:15	10/08/15 22:56	0.00 g	4.83 g	4.83 g	4.50 g - 5.50 g	Y	1527802	MeOH w/surrogate (5 mL)	5.000	
8081688	150A	00374	15647914	Y	10/06/15 17:15	10/08/15 23:09	0.00 g	5.06 g	5.06 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081688	150B	00374	15647915	N	10/06/15 17:15	10/08/15 23:09	0.00 g	4.77 g	4.77 g	4.50 g - 5.50 g	Y	1527801	DI Water (5 mL)	5.000	
8081688	169A	06646	15647916	N	10/06/15 17:15	10/08/15 22:58	0.00 g	4.99 g	4.99 g	4.50 g - 5.50 g	Y	1527802	MeOH w/surrogate (5 mL)	5.000	
8086772	169A	07578	15646553	N	10/13/15 11:10	10/14/15 00:20	29.41 g	34.98 g	5.57 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8086772	193A	08389	15646001	N	10/13/15 11:10	10/14/15 00:20	32.43 g	38.62 g	6.19 g	4.50 g - 5.50 g	N	YB0680	NaHSO4 (5 mL)	5.000	A
8086772	193B	08389	15646000	Y	10/13/15 11:10	10/14/15 00:21	32.27 g	37.48 g	5.21 g	4.50 g - 5.50 g	Y	YB0680	NaHSO4 (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: DHR32

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
8086773	169A	07578	15646558	N	10/13/15 11:10	10/14/15 00:23	29.32 g	34.99 g	5.67 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8086773	193A	08389	15646002	N	10/13/15 11:10	10/14/15 00:23	32.09 g	38.52 g	6.43 g	4.50 g - 5.50 g	N	YB0680	NaHSO4 (5 mL)	5.000	A
8086773	193B	08389	15646003	Y	10/13/15 11:10	10/14/15 00:24	32.32 g	38.44 g	6.12 g	4.50 g - 5.50 g	N	YB0680	NaHSO4 (5 mL)	5.000	A
8086774	169A	07578	15646560	N	10/13/15 11:10	10/14/15 00:27	29.37 g	35.94 g	6.57 g	4.50 g - 5.50 g	N	15252	MeOH w/surrogate (5 mL)	5.000	A
8086774	193A	08389	15646004	Y	10/13/15 11:10	10/14/15 00:27	32.02 g	37.95 g	5.93 g	4.50 g - 5.50 g	N	YB0680	NaHSO4 (5 mL)	5.000	A
8086774	193B	08389	15646010	N	10/13/15 11:10	10/14/15 00:28	32.29 g	38.75 g	6.46 g	4.50 g - 5.50 g	N	YB0680	NaHSO4 (5 mL)	5.000	A
8088042	014A	07579	15648925	N	10/13/15 12:35	10/13/15 12:35	29.37 g	35.72 g	6.35 g	4.50 g - 5.50 g	N	14120201	MeOH (5 mL)	5.000	A
8088042	050A	06176	15648867	N	10/13/15 12:35	10/14/15 16:12	31.57 g	38.08 g	6.51 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8088042	050B	06176	15648868	Y	10/13/15 12:35	10/14/15 16:12	31.47 g	37.37 g	5.90 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8088043	014A	07579	15648922	N	10/13/15 12:35	10/13/15 12:35	29.20 g	34.33 g	5.13 g	4.50 g - 5.50 g	Y	14120201	MeOH (5 mL)	5.000	
8088043	050A	06176	15648869	N	10/13/15 12:35	10/14/15 16:12	32.08 g	37.93 g	5.85 g	4.50 g - 5.50 g	N	11515	DI Water (5 mL)	5.000	A
8088043	050B	06176	15648870	Y	10/13/15 12:35	10/14/15 16:12	32.06 g	37.42 g	5.36 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8088044	014A	07579	15648921	N	10/13/15 12:35	10/13/15 12:35	29.57 g	35.83 g	6.26 g	4.50 g - 5.50 g	N	14120201	MeOH (5 mL)	5.000	A
8088044	050A	06176	15648871	Y	10/13/15 12:35	10/14/15 16:12	31.90 g	37.07 g	5.17 g	4.50 g - 5.50 g	Y	11515	DI Water (5 mL)	5.000	
8088044	050B	06176	15648872	N	10/13/15 12:35	10/14/15 16:12	31.74 g	37.93 g	6.19 g	4.50 g - 5.50 g	N	11515	DI Water (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

Semivolatiles by GC/MS Data

Case Narrative/Conformance Summary

Semivolatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

TCL 8270 (microwave)

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8084533	HGR-WS01-100915		X	1	
8084534	HGR-WL01-100915	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

Batch#: 15288WAK026 (Sample number(s): 8084534)
The recovery(ies) for the following analyte(s) in the LCS exceeds the acceptance window indicating a positive bias: 4-Bromophenyl-phenylether, 4-Chlorophenyl-phenylether

(Sample number(s): 8084534: Analysis: 04678)
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

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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

Quality Control and Calibration Summary Forms

Semivolatiles by GC/MS

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR32

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	15290SLG026	SBLKLG290	10/20/2015 12:00:00
		290LGLCS	10/20/2015 13:27:00
		8084533	10/20/2015 19:12:00
TCL SW846 8270C Water	15288WAK026	SBLKWK288	10/19/2015 11:39:00
		288WKLCS	10/19/2015 12:07:00
		8084534	10/20/2015 01:06:00

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
Benzaldehyde	67	170	ug/kg
Phenol	17	33	ug/kg
bis(2-Chloroethyl)ether	17	33	ug/kg
2-Chlorophenol	17	33	ug/kg
2-Methylphenol	17	33	ug/kg
2,2'-oxybis(1-Chloropropane)	17	33	ug/kg
Acetophenone	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
Naphthalene	3	17	ug/kg
4-Chloroaniline	33	67	ug/kg
Hexachlorobutadiene	17	33	ug/kg
Caprolactam	33	170	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
Atrazine	33	170	ug/kg
Pentachlorophenol	33	170	ug/kg

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
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
Pyrene	3	17	ug/kg
Butylbenzylphthalate	67	170	ug/kg
3,3'-Dichlorobenzidine	100	330	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Chrysene	3	17	ug/kg
bis(2-Ethylhexyl)phthalate	67	170	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 8270C Water Analyte Name	Default MDL	Default LOQ	Units
Benzaldehyde	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
2-Methylphenol	0.5	1	ug/l
2,2'-oxybis(1-Chloropropane)	0.5	1	ug/l
Acetophenone	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
Naphthalene	0.1	0.5	ug/l
4-Chloroaniline	2	4	ug/l
Hexachlorobutadiene	0.5	1	ug/l
Caprolactam	5	15	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

Fraction: Semivolatiles by GC/MS

04678: TCL SW846 8270C Water Analyte Name	Default MDL	Default LOQ	Units
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
4-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
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
4,6-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
Atrazine	2	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
3,3'-Dichlorobenzidine	2	5	ug/l
Benzo(a)anthracene	0.1	0.5	ug/l
Chrysene	0.1	0.5	ug/l
bis(2-Ethylhexyl)phthalate	2	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 Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

15288WAK026 / SBLKWK288 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Benzaldehyde	10/19/15	N.D.	ug/l	1	5
Phenol	10/19/15	N.D.	ug/l	0.5	1
bis(2-Chloroethyl)ether	10/19/15	N.D.	ug/l	0.5	1
2-Chlorophenol	10/19/15	N.D.	ug/l	0.5	1
2-Methylphenol	10/19/15	N.D.	ug/l	0.5	1
2,2'-oxybis(1-Chloropropane)	10/19/15	N.D.	ug/l	0.5	1
Acetophenone	10/19/15	N.D.	ug/l	0.5	1
4-Methylphenol	10/19/15	N.D.	ug/l	0.5	1
N-Nitroso-di-n-propylamine	10/19/15	N.D.	ug/l	0.5	1
Hexachloroethane	10/19/15	N.D.	ug/l	1	5
Isophorone	10/19/15	N.D.	ug/l	0.5	1
Nitrobenzene	10/19/15	N.D.	ug/l	0.5	1
2-Nitrophenol	10/19/15	N.D.	ug/l	0.5	1
2,4-Dimethylphenol	10/19/15	N.D.	ug/l	0.5	1
bis(2-Chloroethoxy)methane	10/19/15	N.D.	ug/l	0.5	1
2,4-Dichlorophenol	10/19/15	N.D.	ug/l	0.5	1
1,1'-Biphenyl	10/19/15	N.D.	ug/l	0.5	1
Caprolactam	10/19/15	N.D.	ug/l	5	15
4-Chloro-3-methylphenol	10/19/15	N.D.	ug/l	0.5	1
4-Chloroaniline	10/19/15	N.D.	ug/l	2	4
2-Chloronaphthalene	10/19/15	N.D.	ug/l	0.4	1
Hexachlorobutadiene	10/19/15	N.D.	ug/l	0.5	1
Hexachlorocyclopentadiene	10/19/15	N.D.	ug/l	5	15
2-Methylnaphthalene	10/19/15	N.D.	ug/l	0.1	0.5
Naphthalene	10/19/15	N.D.	ug/l	0.1	0.5
2,4,5-Trichlorophenol	10/19/15	N.D.	ug/l	0.5	1
2,4,6-Trichlorophenol	10/19/15	N.D.	ug/l	0.5	1
Acenaphthene	10/19/15	N.D.	ug/l	0.1	0.5
Acenaphthylene	10/19/15	N.D.	ug/l	0.1	0.5
Anthracene	10/19/15	N.D.	ug/l	0.1	0.5
Atrazine	10/19/15	N.D.	ug/l	2	5
Benzo(a)anthracene	10/19/15	N.D.	ug/l	0.1	0.5
Benzo(a)pyrene	10/19/15	N.D.	ug/l	0.1	0.5
Benzo(b)fluoranthene	10/19/15	N.D.	ug/l	0.1	0.5
Benzo(g,h,i)perylene	10/19/15	N.D.	ug/l	0.1	0.5
Benzo(k)fluoranthene	10/19/15	N.D.	ug/l	0.1	0.5
4-Bromophenyl-phenylether	10/19/15	N.D.	ug/l	0.5	1
Butylbenzylphthalate	10/19/15	N.D.	ug/l	2	5
Di-n-butylphthalate	10/19/15	N.D.	ug/l	2	5
Carbazole	10/19/15	N.D.	ug/l	0.5	1
4-Chlorophenyl-phenylether	10/19/15	N.D.	ug/l	0.5	1
Chrysene	10/19/15	N.D.	ug/l	0.1	0.5
Dibenz(a,h)anthracene	10/19/15	N.D.	ug/l	0.1	0.5
Dibenzofuran	10/19/15	N.D.	ug/l	0.5	1
3,3'-Dichlorobenzidine	10/19/15	N.D.	ug/l	2	5

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

15288WAK026 / SBLKWK288 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Diethylphthalate	10/19/15	N.D.	ug/l	2	5
Dimethylphthalate	10/19/15	N.D.	ug/l	2	5
4,6-Dinitro-2-methylphenol	10/19/15	N.D.	ug/l	5	15
2,4-Dinitrophenol	10/19/15	N.D.	ug/l	10	30
2,4-Dinitrotoluene	10/19/15	N.D.	ug/l	1	5
2,6-Dinitrotoluene	10/19/15	N.D.	ug/l	0.5	1
bis(2-Ethylhexyl)phthalate	10/19/15	N.D.	ug/l	2	5
Fluoranthene	10/19/15	N.D.	ug/l	0.1	0.5
Fluorene	10/19/15	N.D.	ug/l	0.1	0.5
Hexachlorobenzene	10/19/15	N.D.	ug/l	0.1	0.5
Indeno(1,2,3-cd)pyrene	10/19/15	N.D.	ug/l	0.1	0.5
2-Nitroaniline	10/19/15	N.D.	ug/l	0.5	1
3-Nitroaniline	10/19/15	N.D.	ug/l	0.5	1
4-Nitroaniline	10/19/15	N.D.	ug/l	0.5	1
4-Nitrophenol	10/19/15	N.D.	ug/l	10	30
N-Nitrosodiphenylamine	10/19/15	N.D.	ug/l	0.5	1
Di-n-octylphthalate	10/19/15	N.D.	ug/l	2	5
Pentachlorophenol	10/19/15	N.D.	ug/l	1	5
Phenanthrene	10/19/15	N.D.	ug/l	0.1	0.5
Pyrene	10/19/15	N.D.	ug/l	0.1	0.5

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR32
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15290SLG026 / SBLKLG290 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Benzaldehyde	10/20/15	N.D.	ug/kg	67	170
Phenol	10/20/15	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	10/20/15	N.D.	ug/kg	17	33
2-Chlorophenol	10/20/15	N.D.	ug/kg	17	33
2-Methylphenol	10/20/15	N.D.	ug/kg	17	33
2,2'-oxybis(1-Chloropropane)	10/20/15	N.D.	ug/kg	17	33
Acetophenone	10/20/15	N.D.	ug/kg	17	33
Acenaphthene	10/20/15	N.D.	ug/kg	3	17
Acenaphthylene	10/20/15	N.D.	ug/kg	3	17
Anthracene	10/20/15	N.D.	ug/kg	3	17
Atrazine	10/20/15	N.D.	ug/kg	33	170
Benzo(a)anthracene	10/20/15	N.D.	ug/kg	3	17
Benzo(a)pyrene	10/20/15	N.D.	ug/kg	3	17
Benzo(b)fluoranthene	10/20/15	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	10/20/15	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	10/20/15	N.D.	ug/kg	3	17
1,1'-Biphenyl	10/20/15	N.D.	ug/kg	17	33
4-Bromophenyl-phenylether	10/20/15	N.D.	ug/kg	17	33
Butylbenzylphthalate	10/20/15	N.D.	ug/kg	67	170
Di-n-butylphthalate	10/20/15	N.D.	ug/kg	67	170
Caprolactam	10/20/15	N.D.	ug/kg	33	170
Carbazole	10/20/15	N.D.	ug/kg	17	33
4-Chloro-3-methylphenol	10/20/15	N.D.	ug/kg	17	33
4-Chloroaniline	10/20/15	N.D.	ug/kg	33	67
bis(2-Chloroethoxy)methane	10/20/15	N.D.	ug/kg	17	33
2-Chloronaphthalene	10/20/15	N.D.	ug/kg	7	33
4-Chlorophenyl-phenylether	10/20/15	N.D.	ug/kg	17	33
Chrysene	10/20/15	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	10/20/15	N.D.	ug/kg	3	17
Dibenzofuran	10/20/15	N.D.	ug/kg	17	33
3,3'-Dichlorobenzidine	10/20/15	N.D.	ug/kg	100	330
2,4-Dichlorophenol	10/20/15	N.D.	ug/kg	17	33
Diethylphthalate	10/20/15	N.D.	ug/kg	67	170
2,4-Dimethylphenol	10/20/15	N.D.	ug/kg	17	33
Dimethylphthalate	10/20/15	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	10/20/15	N.D.	ug/kg	170	500
2,4-Dinitrophenol	10/20/15	N.D.	ug/kg	300	1000
2,4-Dinitrotoluene	10/20/15	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	10/20/15	N.D.	ug/kg	17	33
bis(2-Ethylhexyl)phthalate	10/20/15	N.D.	ug/kg	67	170
Fluoranthene	10/20/15	N.D.	ug/kg	3	17
Fluorene	10/20/15	N.D.	ug/kg	3	17
Hexachlorobenzene	10/20/15	N.D.	ug/kg	3	17
Hexachlorobutadiene	10/20/15	N.D.	ug/kg	17	33
Hexachlorocyclopentadiene	10/20/15	N.D.	ug/kg	170	500

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR32
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15290SLG026 / SBLKLG290 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Hexachloroethane	10/20/15	N.D.	ug/kg	33	170
Indeno(1,2,3-cd)pyrene	10/20/15	N.D.	ug/kg	3	17
Isophorone	10/20/15	N.D.	ug/kg	17	33
2-Methylnaphthalene	10/20/15	N.D.	ug/kg	3	17
4-Methylphenol	10/20/15	N.D.	ug/kg	17	33
Naphthalene	10/20/15	N.D.	ug/kg	3	17
2-Nitroaniline	10/20/15	N.D.	ug/kg	17	33
3-Nitroaniline	10/20/15	N.D.	ug/kg	67	170
4-Nitroaniline	10/20/15	N.D.	ug/kg	67	170
Nitrobenzene	10/20/15	N.D.	ug/kg	17	33
2-Nitrophenol	10/20/15	N.D.	ug/kg	17	33
4-Nitrophenol	10/20/15	N.D.	ug/kg	170	500
N-Nitroso-di-n-propylamine	10/20/15	N.D.	ug/kg	17	33
N-Nitrosodiphenylamine	10/20/15	N.D.	ug/kg	17	33
Di-n-octylphthalate	10/20/15	N.D.	ug/kg	67	170
Pentachlorophenol	10/20/15	N.D.	ug/kg	33	170
Phenanthrene	10/20/15	N.D.	ug/kg	3	17
Pyrene	10/20/15	N.D.	ug/kg	3	17
2,4,5-Trichlorophenol	10/20/15	N.D.	ug/kg	17	33
2,4,6-Trichlorophenol	10/20/15	N.D.	ug/kg	17	33

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR32
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

15288WAK026	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
SBLKWK288	69	10 - 107	49	10 - 85	127	22 - 150	88	46 - 128	95	61 - 112	106	43 - 131
288WKLCS	70	10 - 107	52	10 - 85	129	22 - 150	97	46 - 128	96	61 - 112	102	43 - 131
8084534	67	10 - 107	47	10 - 85	104	22 - 150	92	46 - 128	91	61 - 112	76	43 - 131

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR32
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

15290SLG026	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
SBLKLG290	86	58 - 122	90	49 - 134	100	36 - 142	88	54 - 123	92	63 - 117	98	59 - 129
290LGLCS	92	58 - 122	96	49 - 134	104	36 - 142	92	54 - 123	96	63 - 117	105	59 - 129
8084533	90	58 - 122	95	49 - 134	93	36 - 142	92	54 - 123	102	63 - 117	105	59 - 129

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR32
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 288WKLCS	Batch: **15288WAK026** (Sample number(s): 8084534)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Benzaldehyde	50	30.2	NA	60	NA	10-123	NA	NA
Phenol	50	30.47	NA	61	NA	13-89	NA	NA
bis(2-Chloroethyl)ether	50	48.4	NA	97	NA	71-112	NA	NA
2-Chlorophenol	50	47.18	NA	94	NA	61-114	NA	NA
2-Methylphenol	50	46.71	NA	93	NA	55-117	NA	NA
2,2'-oxybis(1-Chloropropane)	50	50.55	NA	101	NA	56-128	NA	NA
Acetophenone	50	47.71	NA	95	NA	73-111	NA	NA
4-Methylphenol	50	43.68	NA	87	NA	44-114	NA	NA
N-Nitroso-di-n-propylamine	50	46.95	NA	94	NA	71-117	NA	NA
Hexachloroethane	50	45.91	NA	92	NA	31-111	NA	NA
Isophorone	50	50.04	NA	100	NA	76-126	NA	NA
Nitrobenzene	50	52.13	NA	104	NA	70-121	NA	NA
2-Nitrophenol	50	52.19	NA	104	NA	71-118	NA	NA
2,4-Dimethylphenol	50	46.33	NA	93	NA	75-110	NA	NA
bis(2-Chloroethoxy)methane	50	48.76	NA	98	NA	70-119	NA	NA
2,4-Dichlorophenol	50	52.28	NA	105	NA	74-114	NA	NA
1,1'-Biphenyl	50	48.33	NA	97	NA	76-112	NA	NA
2,4,5-Trichlorophenol	50	53.86	NA	108	NA	71-119	NA	NA
2,4,6-Trichlorophenol	50	55.97	NA	112	NA	72-123	NA	NA
2-Chloronaphthalene	50	49.57	NA	99	NA	69-112	NA	NA
2-Methylnaphthalene	50	43.91	NA	88	NA	69-103	NA	NA
4-Chloro-3-methylphenol	50	45.44	NA	91	NA	67-119	NA	NA
4-Chloroaniline	50	37.16	NA	74	NA	51-112	NA	NA
Caprolactam	50	15.68	NA	31	NA	10-58	NA	NA
Hexachlorobutadiene	50	54.44	NA	109	NA	32-116	NA	NA
Hexachlorocyclopentadiene	100	82.98	NA	83	NA	14-105	NA	NA
Naphthalene	50	48.22	NA	96	NA	69-109	NA	NA
2,4-Dinitrophenol	100	96.89	NA	97	NA	36-138	NA	NA
2,4-Dinitrotoluene	50	52	NA	104	NA	77-124	NA	NA
2,6-Dinitrotoluene	50	52.67	NA	105	NA	80-119	NA	NA
2-Nitroaniline	50	47.36	NA	95	NA	71-121	NA	NA
3,3'-Dichlorobenzidine	50	33.86	NA	68	NA	39-118	NA	NA
3-Nitroaniline	50	43.61	NA	87	NA	58-111	NA	NA
4,6-Dinitro-2-methylphenol	50	51.12	NA	102	NA	60-136	NA	NA
4-Bromophenyl-phenylether	50	59.54	NA	119 *	NA	76-116	NA	NA
4-Chlorophenyl-phenylether	50	56.93	NA	114 *	NA	76-113	NA	NA
4-Nitroaniline	50	38.54	NA	77	NA	66-110	NA	NA
4-Nitrophenol	50	25.1	NA	50	NA	11-88	NA	NA
Acenaphthene	50	50.96	NA	102	NA	75-111	NA	NA
Acenaphthylene	50	50.51	NA	101	NA	78-117	NA	NA
Anthracene	50	50.37	NA	101	NA	82-116	NA	NA
Atrazine	50	55.24	NA	110	NA	79-129	NA	NA

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR32
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 288WKLCS	Batch: **15288WAK026** (Sample number(s): 8084534)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Benzo(a)anthracene	50	55.6	NA	111	NA	76-122	NA	NA
Benzo(a)pyrene	50	48.22	NA	96	NA	73-115	NA	NA
Benzo(b)fluoranthene	50	51.28	NA	103	NA	75-123	NA	NA
Benzo(g,h,i)perylene	50	51.04	NA	102	NA	70-126	NA	NA
Benzo(k)fluoranthene	50	49.22	NA	98	NA	74-119	NA	NA
bis(2-Ethylhexyl)phthalate	50	43.74	NA	87	NA	67-121	NA	NA
Butylbenzylphthalate	50	44.37	NA	89	NA	56-124	NA	NA
Carbazole	50	48.89	NA	98	NA	79-115	NA	NA
Chrysene	50	56.11	NA	112	NA	77-126	NA	NA
Dibenz(a,h)anthracene	50	51.97	NA	104	NA	72-127	NA	NA
Dibenzofuran	50	50.18	NA	100	NA	75-109	NA	NA
Diethylphthalate	50	48.48	NA	97	NA	47-124	NA	NA
Dimethylphthalate	50	45.61	NA	91	NA	43-128	NA	NA
Di-n-butylphthalate	50	46.78	NA	94	NA	67-116	NA	NA
Di-n-octylphthalate	50	41.91	NA	84	NA	61-127	NA	NA
Fluoranthene	50	54.66	NA	109	NA	76-117	NA	NA
Fluorene	50	52.89	NA	106	NA	80-117	NA	NA
Hexachlorobenzene	50	59.23	NA	118	NA	73-118	NA	NA
Indeno(1,2,3-cd)pyrene	50	49.81	NA	100	NA	70-121	NA	NA
N-Nitrosodiphenylamine	50	47.46	NA	95	NA	65-125	NA	NA
Pentachlorophenol	50	52.82	NA	106	NA	47-126	NA	NA
Phenanthrene	50	49.34	NA	99	NA	75-110	NA	NA
Pyrene	50	48.59	NA	97	NA	76-111	NA	NA

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR32
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 290LGLCS	Batch: **15290SLG026** (Sample number(s): 8084533)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Benzaldehyde	1666.67	655.06	NA	39	NA	10-69	NA	NA
Phenol	1666.67	1489.89	NA	89	NA	73-122	NA	NA
bis(2-Chloroethyl)ether	1666.67	1538.94	NA	92	NA	77-115	NA	NA
2-Chlorophenol	1666.67	1622.75	NA	97	NA	85-123	NA	NA
2-Methylphenol	1666.67	1651.61	NA	99	NA	82-125	NA	NA
2,2'-oxybis(1-Chloropropane)	1666.67	1477.82	NA	89	NA	63-126	NA	NA
Acetophenone	1666.67	1410.63	NA	85	NA	74-116	NA	NA
1,1'-Biphenyl	1666.67	1550.41	NA	93	NA	80-116	NA	NA
2,4,5-Trichlorophenol	1666.67	1718.67	NA	103	NA	86-123	NA	NA
2,4,6-Trichlorophenol	1666.67	1738.27	NA	104	NA	81-123	NA	NA
2,4-Dichlorophenol	1666.67	1758.95	NA	106	NA	81-123	NA	NA
2,4-Dimethylphenol	1666.67	1657.84	NA	99	NA	83-120	NA	NA
2,4-Dinitrophenol	3333.33	2177.4	NA	65	NA	27-140	NA	NA
2,4-Dinitrotoluene	1666.67	1696.35	NA	102	NA	81-122	NA	NA
2,6-Dinitrotoluene	1666.67	1750.32	NA	105	NA	83-120	NA	NA
2-Chloronaphthalene	1666.67	1661.49	NA	100	NA	63-146	NA	NA
2-Methylnaphthalene	1666.67	1635.05	NA	98	NA	83-109	NA	NA
2-Nitroaniline	1666.67	1697.24	NA	102	NA	84-126	NA	NA
2-Nitrophenol	1666.67	1789.69	NA	107	NA	83-120	NA	NA
3,3'-Dichlorobenzidine	1666.67	717.03	NA	43	NA	10-104	NA	NA
3-Nitroaniline	1666.67	1362.7	NA	82	NA	66-119	NA	NA
4,6-Dinitro-2-methylphenol	1666.67	1460.96	NA	88	NA	59-131	NA	NA
4-Bromophenyl-phenylether	1666.67	1909.77	NA	115	NA	84-120	NA	NA
4-Chloro-3-methylphenol	1666.67	1640.53	NA	98	NA	79-127	NA	NA
4-Chloroaniline	1666.67	289.52	NA	17	NA	10-103	NA	NA
4-Chlorophenyl-phenylether	1666.67	1685.29	NA	101	NA	81-120	NA	NA
4-Methylphenol	1666.67	1575.84	NA	95	NA	75-119	NA	NA
4-Nitroaniline	1666.67	977.73	NA	59	NA	50-100	NA	NA
4-Nitrophenol	1666.67	1304.6	NA	78	NA	60-129	NA	NA
Acenaphthene	1666.67	1673.52	NA	100	NA	83-116	NA	NA
Acenaphthylene	1666.67	1725.22	NA	104	NA	83-127	NA	NA
Anthracene	1666.67	1738.57	NA	104	NA	82-118	NA	NA
Atrazine	1666.67	1735.94	NA	104	NA	63-148	NA	NA
Benzo(a)anthracene	1666.67	1699.81	NA	102	NA	76-119	NA	NA
Benzo(a)pyrene	1666.67	1653.76	NA	99	NA	85-117	NA	NA
Benzo(b)fluoranthene	1666.67	1689.52	NA	101	NA	78-129	NA	NA
Benzo(g,h,i)perylene	1666.67	1676.45	NA	101	NA	82-119	NA	NA
Benzo(k)fluoranthene	1666.67	1775.81	NA	107	NA	79-120	NA	NA
bis(2-Chloroethoxy)methane	1666.67	1644.47	NA	99	NA	77-116	NA	NA
bis(2-Ethylhexyl)phthalate	1666.67	1689.31	NA	101	NA	81-121	NA	NA
Butylbenzylphthalate	1666.67	1713.84	NA	103	NA	80-118	NA	NA
Caprolactam	1666.67	1507.97	NA	90	NA	71-129	NA	NA

Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR32
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 290LGLCS	Batch: **15290SLG026** (Sample number(s): 8084533)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Carbazole	1666.67	1645.78	NA	99	NA	78-117	NA	NA
Chrysene	1666.67	1666.99	NA	100	NA	80-121	NA	NA
Dibenz(a,h)anthracene	1666.67	1683.18	NA	101	NA	81-123	NA	NA
Dibenzofuran	1666.67	1629.53	NA	98	NA	85-115	NA	NA
Diethylphthalate	1666.67	1643.1	NA	99	NA	81-118	NA	NA
Dimethylphthalate	1666.67	1641.56	NA	98	NA	82-113	NA	NA
Di-n-butylphthalate	1666.67	1748.22	NA	105	NA	84-120	NA	NA
Di-n-octylphthalate	1666.67	1882.62	NA	113	NA	74-146	NA	NA
Fluoranthene	1666.67	1653.52	NA	99	NA	81-117	NA	NA
Fluorene	1666.67	1722.78	NA	103	NA	86-118	NA	NA
Hexachlorobenzene	1666.67	1813.29	NA	109	NA	75-123	NA	NA
Hexachlorobutadiene	1666.67	1801.04	NA	108	NA	72-120	NA	NA
Hexachlorocyclopentadiene	3333.33	3715.08	NA	111	NA	68-145	NA	NA
Hexachloroethane	1666.67	1616.64	NA	97	NA	78-114	NA	NA
Indeno(1,2,3-cd)pyrene	1666.67	1636.3	NA	98	NA	81-118	NA	NA
Isophorone	1666.67	1582.58	NA	95	NA	78-125	NA	NA
Naphthalene	1666.67	1678.7	NA	101	NA	83-112	NA	NA
Nitrobenzene	1666.67	1576.42	NA	95	NA	70-122	NA	NA
N-Nitroso-di-n-propylamine	1666.67	1456.66	NA	87	NA	67-121	NA	NA
N-Nitrosodiphenylamine	1666.67	1769.44	NA	106	NA	83-118	NA	NA
Pentachlorophenol	1666.67	1238.45	NA	74	NA	57-126	NA	NA
Phenanthrene	1666.67	1665.6	NA	100	NA	80-114	NA	NA
Pyrene	1666.67	1627.18	NA	98	NA	81-114	NA	NA

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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	STD2735 - SSTD30	bj0601.d	10/12/15	19:56
02	STD2735 - SSTD.5	bj0602.d	10/12/15	20:26
03	STD2735 - SSTD120	bj0603.d	10/12/15	20:48
04	STD2735 - SSTD80	bj0604.d	10/12/15	21:10
05	STD2735 - SSTD50	bj0605.d	10/12/15	21:32
06	STD2735 - SSTD15	bj0606.d	10/12/15	21:54
07	STD2735 - SSTD5	bj0607.d	10/12/15	22:15
08	STD2735 - SSTD1	bj0608.d	10/12/15	22:37
09	8270MDL2735 - SSTD0.5	bj0609.d	10/12/15	22:59
10	PAHMDL2735 - SSTD0.1	bj0610.d	10/12/15	23:21
11	ICV2465 - SSTD050	bj0611.d	10/12/15	23:42
12	BAS2735 - SSTD50	bj0612.d	10/13/15	00:04
13	BAS2735 - SSTD120	bj0613.d	10/13/15	00:26
14	BAS2735 - SSTD80	bj0614.d	10/13/15	00:48
15	BAS2735 - SSTD30	bj0615.d	10/13/15	01:10
16	BAS2735 - SSTD15	bj0616.d	10/13/15	01:32
17	BAS2735 - SSTD5	bj0617.d	10/13/15	01:54
18	BAS2735 - SSTD001	bj0618.d	10/13/15	02:15

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj0600.d DFTPP Injection Date: 10/12/15

Instrument ID: HP18444 DFTPP Injection Time: 19:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.6
68	Less than 2.0% of mass 69	0.95 (1.6)1
69	Mass 69 relative abundance	59.2
70	Less than 2.0% of mass 69	0.4 (0.67)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.8
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.88
275	10.0 - 30.0% of mass 198	25.0
365	Greater than 1.00% of mass 198	3.1
441	Present, and less than mass 443	10.4
442	Greater than 40.0 % of mass 198	67.1
443	17.0 - 23.0% of mass 442	12.4 (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
19	BASICV2475 - SSTD050	bj0619.d	10/13/15	02:37

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj1000z.d DFTPP Injection Date: 10/20/15

Instrument ID: HP18444 DFTPP Injection Time: 10:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.3
68	Less than 2.0% of mass 69	0.27 (0.67)1
69	Mass 69 relative abundance	40.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.07
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.59
275	10.0 - 30.0% of mass 198	25.1
365	Greater than 1.00% of mass 198	2.32
441	Present, and less than mass 443	8.14
442	Greater than 40.0 % of mass 198	53.5
443	17.0 - 23.0% of mass 442	9.78 (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	STD2735 - SSTD30	bj1001a.d	10/20/15	10:31
02	BAS2735 - SSTD50	bj1002a.d	10/20/15	10:58
03	SBLKLG290	bj1004.d	10/20/15	12:00
04	PDA2225 - SSTD50	bj1002b.d	10/20/15	12:22
05	SBLKLE290	bj1022.d	10/20/15	12:43
06	290LELCS	bj1023.d	10/20/15	13:05
07	290LGLCS	bj1005.d	10/20/15	13:27
08	8081281	bj1006.d	10/20/15	13:48
09	8081282	bj1007.d	10/20/15	14:10
10	8081283	bj1008.d	10/20/15	14:31
11	8081284	bj1009.d	10/20/15	14:53
12	8081285	bj1010.d	10/20/15	15:14
13	8081286	bj1011.d	10/20/15	15:36
14	8081287	bj1012.d	10/20/15	15:57
15	8081288	bj1013.d	10/20/15	16:19
16	8081289	bj1014.d	10/20/15	16:41
17	8081290MS	bj1015.d	10/20/15	17:02
18	8081291MSD	bj1016.d	10/20/15	17:24

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bj1000z.d DFTPP Injection Date: 10/20/15

Instrument ID: HP18444 DFTPP Injection Time: 10:17

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.3
68	Less than 2.0% of mass 69	0.27 (0.67)1
69	Mass 69 relative abundance	40.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.07
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.59
275	10.0 - 30.0% of mass 198	25.1
365	Greater than 1.00% of mass 198	2.32
441	Present, and less than mass 443	8.14
442	Greater than 40.0 % of mass 198	53.5
443	17.0 - 23.0% of mass 442	9.78 (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	8081292	bj1017.d	10/20/15	17:46
20	8081293	bj1018.d	10/20/15	18:07
21	8081294	bj1019.d	10/20/15	18:29
22	8081295	bj1020.d	10/20/15	18:51
23	8084533	bj1021.d	10/20/15	19:12
24	8082030	bj1024.d	10/20/15	19:35
25	8082030MS	bj1025.d	10/20/15	19:56
26	8082030MSD	bj1026.d	10/20/15	20:18

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: lj0530.d DFTPP Injection Date: 10/15/15

Instrument ID: HP20296 DFTPP Injection Time: 11:57

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.8
68	Less than 2.0% of mass 69	0.97 (1.92)1
69	Mass 69 relative abundance	50.3
70	Less than 2.0% of mass 69	0.15 (0.3)1
127	40.0 - 60.0% of mass 198	47.2
197	Less than 1.0% of mass 198	0.39
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.3
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1.00% of mass 198	2.05
441	Present, and less than mass 443	9.92
442	Greater than 40.0 % of mass 198	60.3
443	17.0 - 23.0% of mass 442	11.0 (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	RVSTD2745 - SSTD7.5	lj0531.d	10/15/15	13:06
02	RVSTD2745 - SSTD.125	lj0532.d	10/15/15	14:04
03	RVSTD2745 - SSTD30	lj0533.d	10/15/15	14:32
04	RVSTD2745 - SSTD20	lj0534.d	10/15/15	15:00
05	RVSTD2745 - SSTD12.5	lj0535.d	10/15/15	15:28
06	RVSTD2745 - SSTD3.75	lj0536.d	10/15/15	15:56
07	RVSTD2745 - SSTD1.25	lj0537.d	10/15/15	16:23
08	RVSTD2745 - SSTD.25	lj0538.d	10/15/15	16:51
09	RVMDL2745 - SSTD0.125	lj0539.d	10/15/15	17:19
10	PAHMDL2745 - SSTD0.025	lj0540.d	10/15/15	17:47
11	RVICV2465 - SSTD12.5	lj0541.d	10/15/15	18:15
12	RVBASICV2475 - SSTD12.5	lj0542.d	10/15/15	18:43

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SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: lj0640z.d DFTPP Injection Date: 10/19/15

Instrument ID: HP20296 DFTPP Injection Time: 09:51

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	55.6
68	Less than 2.0% of mass 69	0.77 (1.55)1
69	Mass 69 relative abundance	50.0
70	Less than 2.0% of mass 69	0.29 (0.58)1
127	40.0 - 60.0% of mass 198	48.7
197	Less than 1.0% of mass 198	0.59
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.07
275	10.0 - 30.0% of mass 198	22.0
365	Greater than 1.00% of mass 198	2.12
441	Present, and less than mass 443	8.99
442	Greater than 40.0 % of mass 198	58.6
443	17.0 - 23.0% of mass 442	11.2 (19.1)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	SSTD7.5	lj0641.d	10/19/15	10:08
02	SBLKWK288	lj0642.d	10/19/15	11:39
03	288WKLCS	lj0643.d	10/19/15	12:07
04	8083931DL	lj0647.d	10/19/15	13:58
05	8083933DL	lj0648.d	10/19/15	14:27
06	8083935DL	lj0649.d	10/19/15	14:55
07	8083942	lj0650.d	10/19/15	15:23
08	8083942DL	lj0651.d	10/19/15	15:51
09	8083943	lj0652.d	10/19/15	16:19
10	8083943DL	lj0653.d	10/19/15	16:46
11	8083944	lj0654.d	10/19/15	17:14
12	8083945	lj0655.d	10/19/15	17:42

FORM V SV

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: lj0660.d DFTPP Injection Date: 10/19/15

Instrument ID: HP20296 DFTPP Injection Time: 19:34

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.4
68	Less than 2.0% of mass 69	0.71 (1.58)1
69	Mass 69 relative abundance	45.1
70	Less than 2.0% of mass 69	0.29 (0.65)1
127	40.0 - 60.0% of mass 198	43.2
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	6.51
275	10.0 - 30.0% of mass 198	23.3
365	Greater than 1.00% of mass 198	2.49
441	Present, and less than mass 443	11.1
442	Greater than 40.0 % of mass 198	71.1
443	17.0 - 23.0% of mass 442	14.0 (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	RVSTD2745 - SSTD7.5	lj0661.d	10/19/15	19:47
02	SBLKWA288	lj0662.d	10/19/15	20:27
03	288WALCS	lj0663.d	10/19/15	20:54
04	8084481	lj0664.d	10/19/15	21:22
05	8084482MS	lj0665.d	10/19/15	21:50
06	8084483MSD	lj0666.d	10/19/15	22:18
07	8084480	lj0667.d	10/19/15	22:46
08	8084485	lj0668.d	10/19/15	23:14
09	8084486	lj0669.d	10/19/15	23:42
10	8084487	lj0670.d	10/20/15	00:10
11	8084488	lj0671.d	10/20/15	00:38
12	8084534	lj0672.d	10/20/15	01:06
13	8084460	lj0673.d	10/20/15	01:34
14	8084461MS	lj0674.d	10/20/15	02:02
15	8084462MSD	lj0675.d	10/20/15	02:30
16	8084459	lj0676.d	10/20/15	02:58
17	8084464	lj0677.d	10/20/15	03:26
18	8084465	lj0678.d	10/20/15	03:54

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: lj0660.d DFTPP Injection Date: 10/19/15

Instrument ID: HP20296 DFTPP Injection Time: 19:34

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.4
68	Less than 2.0% of mass 69	0.71 (1.58)1
69	Mass 69 relative abundance	45.1
70	Less than 2.0% of mass 69	0.29 (0.65)1
127	40.0 - 60.0% of mass 198	43.2
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	6.51
275	10.0 - 30.0% of mass 198	23.3
365	Greater than 1.00% of mass 198	2.49
441	Present, and less than mass 443	11.1
442	Greater than 40.0 % of mass 198	71.1
443	17.0 - 23.0% of mass 442	14.0 (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	8084466	lj0679.d	10/20/15	04:22
20	8084467	lj0680.d	10/20/15	04:50
21	8084468	lj0681.d	10/20/15	05:18
22	8084469	lj0682.d	10/20/15	05:46
23	8084470	lj0683.d	10/20/15	06:14
24	8084471	lj0684.d	10/20/15	06:42
25	8084472	lj0685.d	10/20/15	07:10

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane			0.731	0.702	0.704	0.729	0.667	0.669	0.700	4	AVG
N-Nitrosodimethylamine			1.025	1.113	1.240	1.222	1.173	1.174	1.158	7	AVG
Pyridine			1.900	1.958	1.914	2.083	1.922	1.859	1.939	4	AVG
2-Picoline			1.890	1.900	1.980	2.020	1.905	1.867	1.927	3	AVG
N-Nitrosomethylethylamine			0.968	0.842	0.900	0.906	0.857	0.846	0.886	5	AVG
Methyl methanesulfonate			0.962	0.972	1.044	1.000	0.960	0.950	0.981	4	AVG
N-Nitrosodiethylamine		0.876	0.808	0.810	0.874	0.845	0.799	0.802	0.831	4	AVG
Ethyl methanesulfonate		0.821	0.797	0.829	0.852	0.859	0.783	0.782	0.818	4	AVG
Phenol *		2.231	2.344	2.394	2.494	2.532	2.337	2.300	2.376	4	AVG *
Aniline		2.753	2.780	2.742	2.884	2.872	2.682	2.645	2.765	3	AVG
a-methylstyrene			1.723	1.547	1.618	1.625	1.509	1.498	1.587	5	AVG
bis(2-Chloroethyl)ether		1.801	1.774	1.759	1.808	1.785	1.698	1.686	1.759	3	AVG
2-Chlorophenol		1.558	1.446	1.443	1.481	1.516	1.425	1.404	1.468	4	AVG
1,3-Dichlorobenzene		1.689	1.603	1.582	1.580	1.603	1.472	1.451	1.569	5	AVG
1,4-Dichlorobenzene *		1.620	1.585	1.587	1.615	1.639	1.497	1.480	1.575	4	AVG *
Benzyl alcohol			1.189	1.122	1.163	1.162	1.092	1.098	1.138	3	AVG
1,2-Dichlorobenzene		1.583	1.479	1.476	1.515	1.547	1.412	1.394	1.487	5	AVG
Indene			2.956	2.741	2.852	2.838	2.669	2.649	2.784	4	AVG
2-Methylphenol		1.474	1.471	1.482	1.532	1.559	1.461	1.441	1.488	3	AVG
2,2'-oxybis(1-Chloropropane)		2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
bis(2-Chloroisopropyl)ether		2.881	2.600	2.580	2.690	2.617	2.482	2.487	2.620	5	AVG
N-Nitrosopyrrolidine		0.957	0.877	0.910	0.968	0.942	0.913	0.912	0.926	3	AVG
Acetophenone		3.036	2.813	2.522	2.599	2.470	2.363	2.356	2.594	10	AVG
4-Methylphenol		1.618	1.561	1.610	1.822	1.674	1.738	1.686	1.673	5	AVG
Total Cresols		1.546	1.516	1.546	1.677	1.617	1.600	1.563	1.581	3	AVG
N-Nitroso-di-n-propylamine #		1.625	1.476	1.445	1.508	1.475	1.426	1.415	1.481	5	AVG #
N-Nitrosomorpholine			1.258	1.267	1.318	1.270	1.198	1.180	1.249	4	AVG
o-Toluidine		2.824	2.705	2.709	2.755	2.746	2.525	2.511	2.682	4	AVG
Hexachloroethane			0.615	0.604	0.636	0.635	0.595	0.597	0.614	3	AVG
Nitrobenzene		0.533	0.507	0.501	0.521	0.514	0.493	0.486	0.508	3	AVG
N-Nitrosopiperidine		0.214	0.195	0.208	0.214	0.211	0.201	0.199	0.206	4	AVG
Isophorone		1.003	0.926	0.936	0.982	0.956	0.930	0.915	0.950	3	AVG
2-Nitrophenol *		0.188	0.183	0.191	0.204	0.205	0.197	0.194	0.195	4	AVG *
2,4-Dimethylphenol		0.397	0.416	0.422	0.442	0.434	0.422	0.413	0.421	4	AVG
O,O,O-Triethylphosphorothioate			0.206	0.195	0.203	0.202	0.197	0.191	0.199	3	AVG
bis(2-Chloroethoxy)methane		0.544	0.503	0.527	0.563	0.563	0.541	0.511	0.536	4	AVG
Benzoic acid			0.350	0.404	0.442	0.435	0.437	0.437	0.418	9	AVG
1,2,3,4-Tetrahydronaphthalene			0.655	0.607	0.634	0.624	0.593	0.593	0.618	4	AVG
2,4-Dichlorophenol *		0.306	0.296	0.310	0.324	0.319	0.314	0.304	0.310	3	AVG *
1,2,4-Trichlorobenzene			0.343	0.342	0.354	0.346	0.346	0.336	0.344	2	AVG
Naphthalene	1.114	1.112	1.072	1.080	1.098	1.104	1.056	1.014	1.081	3	AVG
4-Chloroaniline		0.487	0.475	0.471	0.493	0.481	0.455	0.458	0.474	3	AVG
2,6-Dichlorophenol		0.295	0.296	0.303	0.315	0.311	0.306	0.301	0.304	2	AVG
Hexachloropropene			0.199	0.215	0.222	0.229	0.220	0.217	0.217	5	AVG
Hexachlorobutadiene *		0.198	0.196	0.191	0.203	0.203	0.202	0.196	0.199	2	AVG *
Quinoline			0.747	0.739	0.757	0.747	0.720	0.698	0.734	3	AVG
Caprolactam			0.155	0.148	0.145	0.144	0.139	0.135	0.144	5	AVG
N-Nitrosodi-n-butylamine		0.390	0.332	0.438	0.455	0.451	0.432	0.343	0.406	13	AVG
4-Chloro-3-methylphenol *		0.411	0.363	0.370	0.393	0.383	0.376	0.369	0.381	4	AVG *
Safrole			0.281	0.281	0.305	0.293	0.293	0.289	0.290	3	AVG
2-Methylnaphthalene	0.754	0.762	0.705	0.725	0.744	0.739	0.724	0.708	0.733	3	AVG
1-Methylnaphthalene	0.655	0.658	0.655	0.659	0.686	0.671	0.658	0.650	0.661	2	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
Hexachlorocyclopentadiene	#			0.311	0.331	0.370	0.365	0.359	0.354	0.348	7	AVG	#
1,2,4,5-Tetrachlorobenzene			0.588	0.589	0.580	0.587	0.601	0.574	0.554	0.582	3	AVG	
cis-Isosafrole				0.519	0.485	0.504	0.515	0.505	0.505	0.505	2	AVG	
2,4,6-Trichlorophenol	*		0.374	0.377	0.400	0.407	0.414	0.399	0.379	0.393	4	AVG	*
2,4,5-Trichlorophenol			0.385	0.407	0.439	0.434	0.442	0.422	0.409	0.420	5	AVG	
trans-Isosafrole				0.538	0.554	0.577	0.569	0.562	0.560	0.560	2	AVG	
Isosafrole				0.535	0.542	0.564	0.560	0.552	0.551	0.551	2	AVG	
1,1'-Biphenyl			1.809	1.738	1.533	1.556	1.507	1.459	1.406	1.573	9	AVG	
2-Chloronaphthalene			1.111	1.081	1.032	1.235	1.152	1.330	1.076	1.146	9	AVG	
1-Chloronaphthalene			1.143	1.170	1.283	1.047	1.113	1.058	1.077	1.127	7	AVG	
Diphenyl ether			0.877	0.800	0.812	0.813	0.816	0.811	0.782	0.816	4	AVG	
2-Nitroaniline			0.378	0.380	0.394	0.406	0.417	0.410	0.392	0.397	4	AVG	
1,4-Naphthoquinone				0.501	0.508	0.531	0.538	0.526	0.494	0.516	3	AVG	
1,4-Dinitrobenzene				0.191	0.210	0.208	0.229	0.226	0.215	0.213	6	AVG	
Dimethylphthalate				1.417	1.402	1.401	1.418	1.384	1.310	1.389	3	AVG	
1,3-Dinitrobenzene				0.213	0.226	0.236	0.254	0.250	0.238	0.236	6	AVG	
2,6-Dinitrotoluene			0.276	0.297	0.321	0.329	0.334	0.335	0.324	0.317	7	AVG	
Acenaphthylene		1.898	1.861	1.739	1.798	1.861	1.889	1.816	1.770	1.829	3	AVG	
3-Nitroaniline			0.315	0.334	0.349	0.363	0.369	0.361	0.346	0.348	5	AVG	
Acenaphthene	*	1.260	1.294	1.220	1.227	1.223	1.253	1.220	1.168	1.233	3	AVG	*
2,4-Dinitrophenol	#			0.184	0.209	0.219	0.229	0.229	0.223	0.216	8	AVG	#
4-Nitrophenol	#			0.203	0.213	0.210	0.218	0.208	0.200	0.209	3	AVG	#
Pentachlorobenzene			0.599	0.522	0.547	0.533	0.558	0.545	0.523	0.547	5	AVG	
2,4-Dinitrotoluene				0.403	0.433	0.450	0.463	0.456	0.436	0.440	5	AVG	
2,4_2,6-Dinitrotoluenes				0.350	0.377	0.389	0.398	0.396	0.380	0.382	5	AVG	
Dibenzofuran			1.869	1.729	1.728	1.695	1.748	1.687	1.585	1.720	5	AVG	
1-Naphthylamine				1.263	1.284	1.278	1.345	1.285	1.208	1.277	3	AVG	
2,3,4,6-Tetrachlorophenol			0.367	0.348	0.375	0.379	0.387	0.383	0.375	0.373	3	AVG	
2-Naphthylamine				1.264	1.312	1.289	1.330	1.264	1.160	1.270	5	AVG	
Diethylphthalate				1.360	1.366	1.387	1.373	1.340	1.308	1.356	2	AVG	
Thionazin				0.270	0.243	0.261	0.252	0.253	0.286	0.261	6	AVG	
Fluorene		1.414	1.503	1.387	1.412	1.408	1.443	1.365	1.297	1.404	4	AVG	
4-Chlorophenyl-phenylether			0.731	0.713	0.693	0.692	0.695	0.675	0.650	0.693	4	AVG	
5-Nitro-o-toluidine			0.476	0.390	0.411	0.416	0.421	0.401	0.388	0.415	7	AVG	
4-Nitroaniline			0.389	0.370	0.396	0.391	0.401	0.387	0.346	0.383	5	AVG	
4,6-Dinitro-2-methylphenol				0.125	0.125	0.138	0.144	0.143	0.139	0.136	6	AVG	
N-Nitrosodiphenylamine (1)	*		0.556	0.564	0.564	0.604	0.585	0.550	0.569	0.571	3	AVG	*
NDPA as diphenylamine				0.564	0.564	0.604	0.585	0.550	0.569	0.573	3	AVG	
1,2-Diphenylhydrazine			0.817	0.836	0.828	0.901	0.864	0.841	0.846	0.848	3	AVG	
Tetraethyldithiopyrophosphate				0.123	0.124	0.141	0.133	0.132	0.136	0.132	5	AVG	
1,3,5-Trinitrobenzene				0.064	0.077	0.082	0.093	0.090	0.086	0.082	13	AVG	
Diallate (peak 1)				0.365	0.377	0.410	0.394	0.390	0.398	0.389	4	AVG	
Phorate			0.496	0.497	0.526	0.586	0.565	0.556	0.572	0.543	7	AVG	
Phenacetin			0.379	0.380	0.392	0.407	0.410	0.392	0.388	0.393	3	AVG	
4-Bromophenyl-phenylether				0.196	0.192	0.203	0.202	0.192	0.190	0.196	3	AVG	
Diallate (peak 2)				0.349	0.387	0.393	0.375	0.386	0.391	0.380	4	AVG	
Diallate trans/cis				0.362	0.378	0.407	0.391	0.389	0.397	0.387	4	AVG	
Hexachlorobenzene		0.234	0.216	0.207	0.201	0.214	0.205	0.199	0.205	0.210	5	AVG	
Dimethoate				0.335	0.348	0.362	0.360	0.338	0.323	0.344	4	AVG	
Pentachlorophenol	*			0.138	0.139	0.155	0.150	0.142	0.143	0.145	5	AVG	*
4-Aminobiphenyl			0.650	0.648	0.649	0.645	0.599	0.515		0.618	9	AVG	
Pentachloronitrobenzene				0.088	0.088	0.096	0.095	0.092	0.094	0.092	4	AVG	

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/12/15 10/12/15

Calibration Times: 19:56 22:37

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.5 = bj0602.d RRF1 = bj0608.d RRF5 = bj0607.d RRF15 = bj0606.d
RRF30 = bj0601.d RRF50 = bj0605.d RRF80 = bj0604.d RRF120 = bj0603.d

COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Pronamide		0.286	0.285	0.310	0.324	0.333	0.326	0.322	0.312	6	AVG
Dinoseb			0.153	0.179	0.210	0.211	0.212	0.216	0.197	13	AVG
Phenanthrene	1.111	1.091	1.023	1.014	1.032	1.037	0.982	0.954	1.031	5	AVG
Anthracene	1.030	1.011	1.005	1.019	1.047	1.054	1.005	0.963	1.017	3	AVG
Carbazole		1.002	0.945	0.947	0.983	0.990	0.922	0.912	0.957	4	AVG
Methyl parathion			0.216	0.247	0.264	0.269	0.255	0.243	0.249	8	AVG
Di-n-butylphthalate			1.035	1.096	1.175	1.161	1.109	1.083	1.110	5	AVG
Parathion			0.122	0.139	0.154	0.159	0.156	0.153	0.147	10	AVG
4-Nitroquinoline-1-oxide				0.093	0.098	0.119	0.114	0.110	0.107	10	AVG
Octachlorostyrene			0.089	0.083	0.082	0.084	0.079	0.079	0.083	4	AVG
Isodrin		0.115	0.120	0.122	0.124	0.126	0.121	0.122	0.122	3	AVG
Fluoranthene	* 1.236	1.122	1.132	1.162	1.150	1.190	1.101	1.071	1.145	5	AVG *
Benzidine			0.573	0.630	0.636	0.632	0.535	0.482	0.581	11	AVG
Pyrene	1.158	1.134	1.051	1.061	1.064	1.059	0.998	0.963	1.061	6	AVG
p-Dimethylaminoazobenzene		0.183	0.190	0.202	0.206	0.216	0.212	0.202	0.202	6	AVG
Chlorobenzilate		0.258	0.274	0.292	0.307	0.306	0.297	0.285	0.289	6	AVG
3,3'-Dimethylbenzidine			0.549	0.593	0.610	0.619	0.553	0.520	0.574	7	AVG
Butylbenzylphthalate			0.407	0.441	0.456	0.469	0.441	0.419	0.439	5	AVG
2-Acetylaminofluorene			0.355	0.402	0.401	0.436	0.400	0.369	0.394	7	AVG
3,3'-Dichlorobenzidine			0.345	0.375	0.376	0.391	0.361	0.342	0.365	5	AVG
4,4'-Methylenebis(2-chloroanil			0.184	0.198	0.204	0.211	0.191	0.179	0.195	6	AVG
Benzo(a)anthracene	0.908	0.921	0.930	0.985	0.959	1.011	0.940	0.840	0.937	6	AVG
Chrysene	0.908	0.955	0.927	0.965	0.894	0.954	0.862	0.781	0.906	7	AVG
bis(2-Ethylhexyl)phthalate			0.567	0.618	0.636	0.657	0.627	0.599	0.617	5	AVG
6-Methylchrysene			0.623	0.663	0.644	0.677	0.625	0.603	0.639	4	AVG
Di-n-octylphthalate	*		1.139	1.302	1.478	1.467	1.488	1.401	1.379	10	AVG *
Benzo(b)fluoranthene	1.206	1.180	1.256	1.249	1.307	1.280	1.277	1.235	1.249	3	AVG
7,12-Dimethylbenz[a]anthracene		0.526	0.514	0.577	0.606	0.615	0.588	0.564	0.570	7	AVG
Benzo(k)fluoranthene	1.183	1.285	1.181	1.254	1.239	1.313	1.249	1.155	1.232	4	AVG
Benzo(a)pyrene	* 1.227	1.090	1.116	1.161	1.192	1.226	1.186	1.128	1.166	4	AVG *
3-Methylcholanthrene		0.521	0.516	0.553	0.555	0.581	0.563	0.519	0.544	5	AVG
Dibenz(a,h)acridine			0.803	0.879	0.912	0.928	0.904	0.899	0.888	5	AVG
Dibenz(a,j)acridine			0.912	0.950	0.956	0.972	0.957	0.923	0.945	2	AVG
Indeno(1,2,3-cd)pyrene	1.241	1.239	1.216	1.275	1.293	1.317	1.252	1.213	1.256	3	AVG
Dibenz(a,h)anthracene	0.967	0.999	1.007	1.071	1.061	1.095	1.044	0.960	1.025	5	AVG
Benzo(g,h,i)perylene	1.022	0.966	1.019	1.054	1.056	1.076	1.039	1.005	1.030	3	AVG
Total PAHs	0.941	0.911	0.890	0.889	1.004	0.955	0.980	0.948	0.940	4	AVG
2-Fluorophenol			1.487	1.467	1.536	1.519	1.427	1.420	1.476	3	AVG
Phenol-d6			2.067	2.077	2.177	2.152	1.997	1.988	2.076	4	AVG
Nitrobenzene-d5			0.486	0.493	0.518	0.507	0.486	0.473	0.494	3	AVG
2-Fluorobiphenyl			1.375	1.368	1.400	1.377	1.328	1.257	1.351	4	AVG
2,4,6-Tribromophenol			0.190	0.198	0.190	0.200	0.192	0.179	0.192	4	AVG
Terphenyl-d14			0.697	0.700	0.737	0.710	0.670	0.644	0.693	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 and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d SSTD030
/chem/HP18444.i/15oct12a.b/bj0602.d SSTD0.5
/chem/HP18444.i/15oct12a.b/bj0603.d SSTD120
/chem/HP18444.i/15oct12a.b/bj0604.d SSTD080
/chem/HP18444.i/15oct12a.b/bj0605.d SSTD050
/chem/HP18444.i/15oct12a.b/bj0606.d SSTD015
/chem/HP18444.i/15oct12a.b/bj0607.d SSTD005
/chem/HP18444.i/15oct12a.b/bj0608.d SSTD001

Area Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	198560	177577	197363	186165	169174	156895	156087	140449	172784	12
Naphthalene-d8	799113	692251	787344	731353	678498	633266	635273	580853	692244	11
Acenaphthene-d10	498506	421976	480824	446481	411488	390070	392148	373146	426830	11
Phenanthrene-d10	983616	877740	946298	918441	843644	815462	813504	819423	877266	7
Pyrene-d10	1112950	1048500	1076847	1030998	982436	959534	949803	960310	1015172	6
Perylene-d12	792924	781837	745690	721722	747844	767704	735876	722121	751965	4

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bj0601.d	bj0602.d	bj0603.d	bj0604.d	bj0605.d	bj0606.d	bj0607.d	bj0608.d
1,4-Dichlorobenzene-d4	5.718	5.712	5.718	5.718	5.718	5.718	5.718	5.718
Naphthalene-d8	6.948	6.948	6.954	6.948	6.948	6.948	6.948	6.948
Acenaphthene-d10	8.661	8.662	8.667	8.662	8.662	8.661	8.662	8.662
Phenanthrene-d10	10.113	10.113	10.119	10.119	10.113	10.113	10.113	10.113
Pyrene-d10	11.506	11.500	11.506	11.506	11.506	11.500	11.500	11.500
Perylene-d12	14.175	14.175	14.175	14.175	14.175	14.170	14.170	14.170

Comments: _____

_____

Report generated on 10/13/2015 at 08:42

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	47.39	-5	20	YES
N-Nitrosodimethylamine	50.00	48.09	-4	20	YES
Pyridine	50.00	48.22	-4	20	YES
2-Picoline	50.00	48.68	-3	20	YES
N-Nitrosomethylethylamine	50.00	46.71	-7	20	YES
Methyl methanesulfonate	50.00	49.27	-1	20	YES
N-Nitrosodiethylamine	50.00	48.14	-4	20	YES
Ethyl methanesulfonate	50.00	49.66	-1	20	YES
Phenol	50.00	50.34	1	20	YES
Aniline	50.00	49.28	-1	20	YES
bis(2-Chloroethyl)ether	50.00	48.92	-2	20	YES
2-Chlorophenol	50.00	48.99	-2	20	YES
1,3-Dichlorobenzene	50.00	50.75	2	20	YES
1,4-Dichlorobenzene	50.00	50.93	2	20	YES
Benzyl alcohol	50.00	48.12	-4	20	YES
1,2-Dichlorobenzene	50.00	51.74	3	20	YES
Indene	50.00	48.66	-3	20	YES
2-Methylphenol	50.00	51.54	3	20	YES
2,2'-oxybis(1-Chloropropane	50.00	50.67	1	20	YES
bis(2-Chloroisopropyl)ether	50.00	50.67	1	20	YES
N-Nitrosopyrrolidine	50.00	48.01	-4	20	YES
Acetophenone	50.00	44.96	-10	20	YES
4-Methylphenol	50.00	48.23	-4	20	YES
N-Nitroso-di-n-propylamine	50.00	48.58	-3	20	YES
N-Nitrosomorpholine	50.00	47.46	-5	20	YES
o-Toluidine	50.00	49.44	-1	20	YES
Total Cresols	100.00	99.77	0	20	YES
Hexachloroethane	50.00	51.04	2	20	YES
Nitrobenzene	50.00	47.91	-4	20	YES
N-Nitrosopiperidine	50.00	47.24	-6	20	YES
Isophorone	50.00	49.98	0	20	YES
2-Nitrophenol	50.00	51.15	2	20	YES
2,4-Dimethylphenol	50.00	48.08	-4	20	YES
bis(2-Chloroethoxy)methane	50.00	52.85	6	20	YES
Benzoic acid	100.00	89.68	-10	20	YES
O,O,O-Triethylphosphorothio	50.00	50.03	0	20	YES
2,4-Dichlorophenol	50.00	50.65	1	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	50.00	50.29	1	20	YES
Naphthalene	50.00	50.55	1	20	YES
4-Chloroaniline	50.00	49.60	-1	20	YES
2,6-Dichlorophenol	50.00	50.28	1	20	YES
Hexachloropropene	50.00	52.14	4	20	YES
Hexachlorobutadiene	50.00	51.31	3	20	YES
Quinoline	50.00	50.11	0	20	YES
N-Nitrosodi-n-butylamine	50.00	40.82	-18	20	YES
4-Chloro-3-methylphenol	50.00	49.45	-1	20	YES
Safrole	50.00	49.58	-1	20	YES
2-Methylnaphthalene	50.00	48.15	-4	20	YES
1-Methylnaphthalene	50.00	50.63	1	20	YES
Hexachlorocyclopentadiene	100.00	97.34	-3	20	YES
1,2,4,5-Tetrachlorobenzene	50.00	50.08	0	20	YES
cis-Isosafrole	6.00	6.21	3	20	YES
2,4,6-Trichlorophenol	50.00	49.53	-1	20	YES
2,4,5-Trichlorophenol	50.00	50.84	2	20	YES
trans-Isosafrole	44.00	45.47	3	20	YES
1,1'-Biphenyl	50.00	46.10	-8	20	YES
2-Chloronaphthalene	50.00	50.49	1	20	YES
Isosafrole	50.00	51.68	3	20	YES
1-Chloronaphthalene	50.00	46.81	-6	20	YES
Diphenyl ether	50.00	47.79	-4	20	YES
2-Nitroaniline	50.00	49.97	0	20	YES
1,4-Naphthoquinone	62.50	61.10	-2	20	YES
1,4-Dinitrobenzene	50.00	48.97	-2	20	YES
Dimethylphthalate	50.00	49.62	-1	20	YES
1,3-Dinitrobenzene	50.00	50.08	0	20	YES
2,6-Dinitrotoluene	50.00	51.39	3	20	YES
Acenaphthylene	50.00	49.92	0	20	YES
3-Nitroaniline	50.00	51.24	2	20	YES
Acenaphthene	50.00	50.37	1	20	YES
2,4-Dinitrophenol	100.00	101.26	1	20	YES
4-Nitrophenol	50.00	50.37	1	20	YES
Pentachlorobenzene	50.00	48.54	-3	20	YES
2,4-Dinitrotoluene	50.00	50.58	1	20	YES
Dibenzofuran	50.00	48.81	-2	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	100.00	101.97	2	20	YES
1-Naphthylamine	100.00	97.04	-3	20	YES
2,3,4,6-Tetrachlorophenol	50.00	50.37	1	20	YES
2-Naphthylamine	100.00	96.00	-4	20	YES
Diethylphthalate	50.00	50.58	1	20	YES
Thionazin	50.00	48.34	-3	20	YES
Fluorene	50.00	50.83	2	20	YES
4-Chlorophenyl-phenylether	50.00	50.18	0	20	YES
5-Nitro-o-toluidine	50.00	49.81	0	20	YES
4-Nitroaniline	50.00	50.11	0	20	YES
4,6-Dinitro-2-methylphenol	50.00	50.26	1	20	YES
N-Nitrosodiphenylamine	50.00	49.80	0	20	YES
NDPA as diphenylamine	50.00	49.59	-1	20	YES
1,2-Diphenylhydrazine	50.00	50.99	2	20	YES
Tetraethyldithiopyrophospha	50.00	48.34	-3	20	YES
1,3,5-Trinitrobenzene	50.00	48.56	-3	20	YES
Diallate (peak 1)	37.50	34.32	-8	20	YES
Phorate	50.00	50.26	1	20	YES
Phenacetin	50.00	48.92	-2	20	YES
4-Bromophenyl-phenylether	50.00	51.59	3	20	YES
Diallate (peak 2)	12.50	11.56	-7	20	YES
Hexachlorobenzene	50.00	48.32	-3	20	YES
Diallate trans/cis	50.00	45.89	-8	20	YES
Dimethoate	50.00	46.06	-8	20	YES
Pentachlorophenol	50.00	53.94	8	20	YES
4-Aminobiphenyl	50.00	60.03	20	20	YES
Pentachloronitrobenzene	50.00	49.78	0	20	YES
Pronamide	50.00	50.54	1	20	YES
Dinoseb	50.00	52.95	6	20	YES
Phenanthrene	50.00	48.60	-3	20	YES
Anthracene	50.00	51.27	3	20	YES
Carbazole	50.00	48.96	-2	20	YES
Methyl parathion	50.00	46.81	-6	20	YES
Di-n-butylphthalate	50.00	52.94	6	20	YES
Parathion	50.00	51.74	3	20	YES
4-Nitroquinoline-1-oxide	600.00	739.65	23	20	NO *
Isodrin	50.00	48.68	-3	20	YES

NC = Could not calculate

Comments:

* non-CCC, OK if greater than 20% D

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0611.d

ICV SAMPLE ID: ICV1465 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	49.16	-2	20	YES
Benzidine	250.00	251.86	1	20	YES
Pyrene	50.00	48.89	-2	20	YES
p-Dimethylaminoazobenzene	50.00	56.48	13	20	YES
Chlorobenzilate	50.00	51.83	4	20	YES
3,3'-Dimethylbenzidine	100.00	101.19	1	20	YES
Butylbenzylphthalate	50.00	53.20	6	20	YES
2-Acetylaminofluorene	50.00	50.48	1	20	YES
3,3'-Dichlorobenzidine	50.00	47.50	-5	20	YES
Benzo(a)anthracene	50.00	52.14	4	20	YES
Chrysene	50.00	52.77	6	20	YES
4,4'-Methylenebis(2-chloroa	50.00	48.13	-4	20	YES
bis(2-Ethylhexyl)phthalate	50.00	54.31	9	20	YES
6-Methylchrysene	50.00	50.28	1	20	YES
Di-n-octylphthalate	50.00	55.44	11	20	YES
Benzo(b)fluoranthene	50.00	51.32	3	20	YES
7,12-Dimethylbenz[a]anthrac	50.00	51.43	3	20	YES
Benzo(k)fluoranthene	50.00	53.09	6	20	YES
Benzo(a)pyrene	50.00	49.72	-1	20	YES
3-Methylcholanthrene	50.00	56.83	14	20	YES
Dibenz(a,h)acridine	50.00	49.63	-1	20	YES
Dibenz(a,j)acridine	50.00	48.01	-4	20	YES
Indeno(1,2,3-cd)pyrene	50.00	50.66	1	20	YES
Dibenz(a,h)anthracene	50.00	52.50	5	20	YES
Benzo(g,h,i)perylene	50.00	51.88	4	20	YES
Total PAHs	900.00	808.05	-10	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP18444

Method: SW-846 8270C File ID: bj0619.d

ICV SAMPLE ID: BASICV2475 BATCH: 15OCT12A026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	50.00	53.60	7	20	YES
Caprolactam	50.00	47.59	-5	20	YES
Atrazine	50.00	52.08	4	20	YES

NC = Could not calculate

Comments:

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date(s): 10/13/15 10/13/15

Calibration Times: 00:04 01:54

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF5 = bj0617.d RRF15 = bj0616.d
RRF30 = bj0615.d RRF50 = bj0612.d RRF80 = bj0614.d RRF120 = bj0613.d

COMPOUND	RRF	RRF	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Benzaldehyde			1.740	1.549	1.574	1.573	1.555	1.628	1.603	5	AVG
Atrazine			0.182	0.203	0.206	0.222	0.214	0.237	0.211	9	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 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

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0612.d SSTD050
/chem/HP18444.i/15oct12a.b/bj0613.d SSTD120
/chem/HP18444.i/15oct12a.b/bj0614.d SSTD080
/chem/HP18444.i/15oct12a.b/bj0615.d SSTD030
/chem/HP18444.i/15oct12a.b/bj0616.d SSTD015
/chem/HP18444.i/15oct12a.b/bj0617.d SSTD005

Area Summary

File ID:

Internal Standard Name	bj0612.d	bj0613.d	bj0614.d	bj0615.d	bj0616.d	bj0617.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	182516	164686	166336	166531	167239	149763	166178	6	Yes
Naphthalene-d8	716206	645522	645477	648763	651946	600386	651383	6	Yes
Acenaphthene-d10	435326	399573	387959	384734	389852	375942	395564	5	Yes
Phenanthrene-d10	934686	888923	845434	829981	834974	825376	859896	5	Yes
Pyrene-d10	1047747	997933	946695	936005	946023	962902	972884	4	Yes
Perylene-d12	728412	723008	716300	700297	693940	719801	713626	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bj0612.d	bj0613.d	bj0614.d	bj0615.d	bj0616.d	bj0617.d	Avg. RT
1,4-Dichlorobenzene-d4	5.718	5.718	5.718	5.718	5.718	5.718	5.718
Naphthalene-d8	6.948	6.948	6.948	6.948	6.948	6.948	6.948
Acenaphthene-d10	8.661	8.661	8.661	8.662	8.662	8.662	8.662
Phenanthrene-d10	10.113	10.113	10.113	10.107	10.107	10.113	10.111
Pyrene-d10	11.500	11.500	11.500	11.500	11.500	11.500	11.500
Perylene-d12	14.169	14.170	14.170	14.170	14.170	14.170	14.170

Comments: _____

Report generated on 10/13/2015 at 08:22

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane			0.671	0.708	0.736	0.718	0.688	0.711	0.705	3	AVG
N-Nitrosodimethylamine			1.037	1.100	1.131	1.157	1.105	1.154	1.114	4	AVG
Pyridine			1.752	1.880	1.913	1.913	1.898	1.941	1.883	4	AVG
2-Picoline			1.923	2.012	1.976	2.003	1.910	1.957	1.964	2	AVG
N-Nitrosomethylethylamine			0.781	0.806	0.816	0.826	0.788	0.805	0.804	2	AVG
Methyl methanesulfonate			0.914	0.978	0.960	0.979	0.922	0.938	0.948	3	AVG
N-Nitrosodiethylamine		0.675	0.737	0.768	0.777	0.794	0.758	0.770	0.754	5	AVG
Ethyl methanesulfonate		0.792	0.741	0.782	0.786	0.799	0.748	0.773	0.774	3	AVG
Benzaldehyde			1.554	1.552	1.487	1.451	1.437	1.332	1.469	6	AVG
Phenol		2.226	2.080	2.152	2.203	2.239	2.150	2.332	2.197	4	AVG
Aniline		2.703	2.714	2.783	2.760	2.811	2.759	2.767	2.757	1	AVG
a-methylstyrene			1.450	1.560	1.523	1.593	1.553	1.561	1.540	3	AVG
bis(2-Chloroethyl)ether		1.805	1.705	1.694	1.711	1.719	1.658	1.663	1.708	3	AVG
2-Chlorophenol		1.332	1.389	1.403	1.433	1.452	1.372	1.395	1.397	3	AVG
1,3-Dichlorobenzene		1.592	1.499	1.589	1.571	1.590	1.516	1.546	1.557	2	AVG
1,4-Dichlorobenzene		1.595	1.559	1.606	1.604	1.637	1.548	1.566	1.588	2	AVG
Benzyl alcohol			1.003	1.046	1.056	1.094	1.051	1.064	1.052	3	AVG
1,2-Dichlorobenzene		1.492	1.475	1.490	1.516	1.546	1.464	1.482	1.495	2	AVG
Indene			2.579	2.654	2.591	2.761	2.686	2.677	2.658	3	AVG
2-Methylphenol		1.500	1.445	1.467	1.495	1.512	1.443	1.463	1.475	2	AVG
2,2'-oxybis(1-Chloropropane)		2.537	2.370	2.404	2.407	2.447	2.339	2.326	2.404	3	AVG
bis(2-Chloroisopropyl)ether		2.537	2.370	2.404	2.407	2.447	2.339	2.326	2.404	3	AVG
N-Nitrosopyrrolidine		0.758	0.749	0.787	0.805	0.834	0.809	0.798	0.792	4	AVG
Acetophenone		2.534	2.227	2.316	2.244	2.275	2.301	2.229	2.304	5	AVG
4-Methylphenol		1.507	1.471	1.563	1.573	1.612	1.523	1.528	1.540	3	AVG
Total Cresols		1.504	1.458	1.515	1.534	1.562	1.483	1.496	1.507	2	AVG
N-Nitroso-di-n-propylamine		1.318	1.316	1.336	1.354	1.384	1.304	1.317	1.333	2	AVG
N-Nitrosomorpholine			0.982	1.031	1.056	1.070	1.012	1.013	1.028	3	AVG
o-Toluidine		2.517	2.486	2.623	2.663	2.687	2.572	2.550	2.585	3	AVG
Hexachloroethane			0.640	0.668	0.661	0.685	0.646	0.653	0.659	2	AVG
Nitrobenzene		0.478	0.482	0.510	0.525	0.515	0.493	0.504	0.501	3	AVG
N-Nitrosopiperidine		0.177	0.185	0.197	0.198	0.200	0.190	0.194	0.191	4	AVG
Isophorone		0.840	0.841	0.902	0.915	0.908	0.872	0.888	0.881	3	AVG
2-Nitrophenol		0.168	0.178	0.177	0.192	0.193	0.183	0.189	0.183	5	AVG
2,4-Dimethylphenol		0.381	0.413	0.419	0.440	0.429	0.414	0.420	0.417	4	AVG
O,O,O-Triethylphosphorothioate			0.173	0.189	0.191	0.185	0.178	0.183	0.183	4	AVG
bis(2-Chloroethoxy)methane		0.545	0.522	0.538	0.547	0.544	0.520	0.530	0.535	2	AVG
Benzoic acid			0.216	0.287	0.317	0.347	0.353	0.363	0.314	18	1STDEG
1,2,3,4-Tetrahydronaphthalene			0.602	0.609	0.612	0.630	0.617	0.624	0.615	2	AVG
2,4-Dichlorophenol		0.273	0.283	0.304	0.309	0.306	0.296	0.301	0.296	4	AVG
1,2,4-Trichlorobenzene		0.349	0.327	0.346	0.345	0.345	0.328	0.336	0.339	3	AVG
Naphthalene	1.113	1.082	1.044	1.098	1.089	1.081	1.033	1.050	1.074	3	AVG
4-Chloroaniline		0.425	0.422	0.451	0.454	0.455	0.436	0.442	0.441	3	AVG
2,6-Dichlorophenol		0.283	0.297	0.294	0.310	0.307	0.289	0.298	0.297	3	AVG
Hexachloropropene			0.203	0.219	0.231	0.232	0.226	0.231	0.224	5	AVG
Hexachlorobutadiene		0.185	0.192	0.193	0.201	0.198	0.189	0.194	0.193	3	AVG
Quinoline			0.646	0.673	0.695	0.687	0.661	0.668	0.672	3	AVG
Caprolactam			0.090	0.102	0.102	0.104	0.099	0.099	0.099	5	AVG
N-Nitrosodi-n-butylamine			0.290	0.322	0.409	0.403	0.390	0.398	0.368	14	AVG
4-Chloro-3-methylphenol		0.301	0.341	0.365	0.378	0.379	0.353	0.359	0.354	8	AVG
Safrole			0.254	0.276	0.278	0.278	0.270	0.273	0.271	3	AVG
2-Methylnaphthalene	0.754	0.705	0.701	0.722	0.723	0.716	0.684	0.694	0.712	3	AVG

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

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: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RRF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
1-Methylnaphthalene	0.733	0.608	0.647	0.651	0.655	0.649	0.625	0.633	0.650	6	AVG
Hexachlorocyclopentadiene			0.347	0.354	0.371	0.382	0.379	0.383	0.370	4	AVG
1,2,4,5-Tetrachlorobenzene		0.615	0.591	0.605	0.589	0.594	0.594	0.591	0.597	2	AVG
cis-Isosafrole			0.527	0.527	0.528	0.528	0.522	0.521	0.526	1	AVG
2,4,6-Trichlorophenol		0.346	0.345	0.385	0.386	0.388	0.389	0.390	0.376	6	AVG
2,4,5-Trichlorophenol		0.405	0.396	0.421	0.412	0.421	0.407	0.401	0.409	2	AVG
trans-Isosafrole			0.552	0.564	0.571	0.580	0.570	0.573	0.568	2	AVG
Isosafrole			0.548	0.558	0.564	0.571	0.562	0.564	0.561	1	AVG
1,1'-Biphenyl		1.601	1.465	1.517	1.452	1.481	1.493	1.467	1.497	3	AVG
2-Chloronaphthalene		1.239	1.155	1.157	1.152	1.178	1.205	1.163	1.178	3	AVG
1-Chloronaphthalene		1.170	1.128	1.157	1.114	1.119	1.055	1.110	1.122	3	AVG
Diphenyl ether		0.795	0.790	0.819	0.800	0.806	0.799	0.786	0.799	1	AVG
2-Nitroaniline		0.336	0.312	0.360	0.372	0.376	0.371	0.371	0.357	7	AVG
1,4-Naphthoquinone			0.421	0.467	0.485	0.492	0.480	0.480	0.471	5	AVG
1,4-Dinitrobenzene			0.156	0.180	0.181	0.194	0.192	0.196	0.183	8	AVG
Dimethylphthalate			1.271	1.304	1.267	1.280	1.261	1.255	1.273	1	AVG
1,3-Dinitrobenzene			0.172	0.205	0.201	0.207	0.208	0.207	0.200	7	AVG
2,6-Dinitrotoluene		0.225	0.265	0.285	0.289	0.288	0.290	0.289	0.276	9	AVG
Acenaphthylene	1.748	1.709	1.740	1.847	1.815	1.844	1.828	1.822	1.794	3	AVG
3-Nitroaniline		0.233	0.293	0.315	0.316	0.319	0.321	0.323	0.303	11	AVG
Acenaphthene	1.101	1.248	1.183	1.244	1.213	1.211	1.174	1.190	1.195	4	AVG
2,4-Dinitrophenol				0.165	0.171	0.186	0.194	0.199	0.183	8	AVG
4-Nitrophenol				0.235	0.231	0.237	0.235	0.232	0.234	1	AVG
Pentachlorobenzene		0.451	0.469	0.477	0.476	0.470	0.462	0.462	0.467	2	AVG
2,4-Dinitrotoluene			0.351	0.388	0.380	0.398	0.396	0.390	0.384	5	AVG
2,4_2,6-Dinitrotoluenes		0.280	0.308	0.336	0.334	0.343	0.343	0.340	0.326	7	AVG
Dibenzofuran		1.715	1.616	1.671	1.609	1.634	1.590	1.600	1.634	3	AVG
1-Naphthylamine				1.209	1.148	1.208	1.184	1.204	1.191	2	AVG
2,3,4,6-Tetrachlorophenol		0.270	0.288	0.315	0.314	0.318	0.320	0.322	0.307	7	AVG
2-Naphthylamine				1.165	1.121	1.163	1.163	1.179	1.158	2	AVG
Diethylphthalate			1.220	1.246	1.253	1.287	1.262	1.245	1.252	2	AVG
Thionazin			0.242	0.272	0.232	0.240	0.237	0.234	0.243	6	AVG
Fluorene	1.220	1.297	1.279	1.327	1.277	1.285	1.271	1.267	1.278	2	AVG
4-Chlorophenyl-phenylether		0.566	0.615	0.629	0.622	0.630	0.619	0.611	0.613	4	AVG
5-Nitro-o-toluidine		0.327	0.315	0.365	0.355	0.370	0.370	0.368	0.353	6	AVG
4-Nitroaniline		0.236	0.299	0.326	0.326	0.331	0.322	0.322	0.309	11	AVG
4,6-Dinitro-2-methylphenol				0.119	0.128	0.130	0.134	0.135	0.129	5	AVG
N-Nitrosodiphenylamine (1)		0.588	0.582	0.597	0.587	0.586	0.573	0.584	0.585	1	AVG
NDPA as diphenylamine		0.588	0.582	0.597	0.587	0.586	0.573	0.584	0.585	1	AVG
1,2-Diphenylhydrazine		0.819	0.870	0.911	0.896	0.896	0.882	0.897	0.882	3	AVG
Tetraethyldithiopyrophosphate			0.140	0.143	0.143	0.140	0.138	0.136	0.140	2	AVG
1,3,5-Trinitrobenzene				0.068	0.076	0.077	0.078	0.081	0.076	6	AVG
Diallate (peak 1)			0.377	0.390	0.391	0.388	0.375	0.382	0.384	2	AVG
Phorate		0.467	0.543	0.564	0.580	0.579	0.559	0.564	0.551	7	AVG
Phenacetin		0.361	0.361	0.410	0.427	0.428	0.415	0.418	0.403	7	AVG
4-Bromophenyl-phenylether		0.182	0.169	0.176	0.179	0.177	0.174	0.178	0.177	2	AVG
Diallate (peak 2)			0.367	0.386	0.376	0.379	0.372	0.380	0.377	2	AVG
Diallate trans/cis			0.375	0.389	0.388	0.386	0.374	0.382	0.383	2	AVG
Hexachlorobenzene	0.188	0.183	0.182	0.185	0.184	0.183	0.180	0.186	0.184	1	AVG
Dimethoate			0.336	0.362	0.372	0.372	0.356	0.358	0.359	4	AVG
Atrazine			0.188	0.199	0.195	0.196	0.189	0.183	0.191	3	AVG
Pentachlorophenol			0.106	0.115	0.125	0.128	0.126	0.131	0.122	8	AVG

(1) Cannot be separated from Diphenylamine
4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.

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: HP20296 Calibration Date(s): 10/15/15 10/15/15

Calibration Times: 13:06 16:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

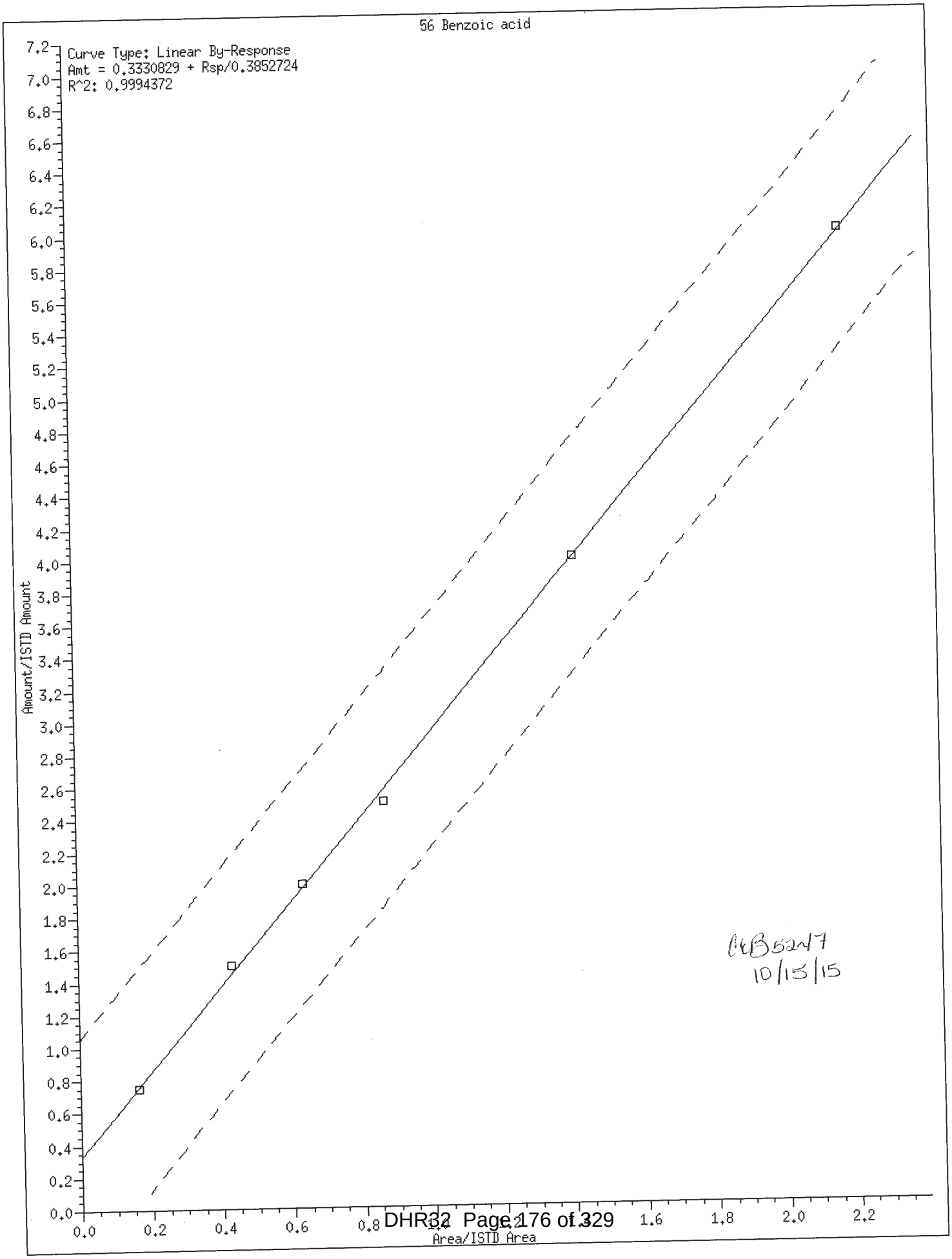
LAB FILE ID: RRF0.125 = lj0532.d RRF0.25 = lj0538.d RRF1.25 = lj0537.d RRF3.75 = lj0536.d
RRF7.5 = lj0531.d RRF12.5 = lj0535.d RRF20 = lj0534.d RRF30 = lj0533.d

COMPOUND	RRF0.125	RF0.25	RRF1.25	RRF3.75	RRF7.5	RRF12.5	RRF20	RRF30	$\overline{RRF}$	% RSD	CAL. METHOD
4-Aminobiphenyl		0.609	0.629	0.685	0.690	0.684	0.674	0.690	0.666	5	AVG
Pentachloronitrobenzene			0.086	0.090	0.088	0.090	0.089	0.090	0.089	2	AVG
Pronamide		0.244	0.275	0.317	0.333	0.331	0.321	0.328	0.307	11	AVG
Dinoseb			0.132	0.168	0.189	0.198	0.204	0.210	0.184	16	1STDEG
Phenanthrene	1.072	1.027	1.024	1.051	1.043	1.040	1.024	1.050	1.042	2	AVG
Anthracene	1.033	0.996	1.006	1.048	1.048	1.057	1.033	1.047	1.034	2	AVG
Carbazole		0.868	0.929	0.967	0.986	0.982	0.958	0.967	0.951	4	AVG
Methyl parathion			0.216	0.261	0.277	0.284	0.275	0.276	0.265	9	AVG
Di-n-butylphthalate			1.068	1.164	1.192	1.191	1.174	1.197	1.164	4	AVG
Parathion			0.123	0.155	0.161	0.167	0.165	0.168	0.156	11	AVG
4-Nitroquinoline-1-oxide				0.090	0.102	0.118	0.123	0.128	0.112	14	AVG
Octachlorostyrene			0.061	0.066	0.066	0.066	0.066	0.067	0.065	3	AVG
Isodrin		0.132	0.114	0.119	0.123	0.122	0.121	0.121	0.122	4	AVG
Fluoranthene	1.163	1.030	1.089	1.155	1.176	1.164	1.137	1.155	1.134	4	AVG
Benzidine				0.664	0.662	0.667	0.640	0.633	0.653	2	AVG
Pyrene	1.199	1.094	1.047	1.076	1.058	1.057	1.029	1.048	1.076	5	AVG
p-Dimethylaminoazobenzene		0.128	0.151	0.177	0.190	0.193	0.188	0.194	0.174	15	AVG
Chlorobenzilate			0.282	0.316	0.320	0.318	0.312	0.315	0.310	5	AVG
3,3'-Dimethylbenzidine			0.572	0.643	0.686	0.687	0.664	0.683	0.656	7	AVG
Butylbenzylphthalate			0.407	0.462	0.468	0.468	0.455	0.463	0.454	5	AVG
2-Acetylaminofluorene			0.310	0.385	0.413	0.419	0.415	0.437	0.397	11	AVG
3,3'-Dichlorobenzidine			0.314	0.352	0.357	0.359	0.351	0.365	0.350	5	AVG
4,4'-Methylenebis(2-chloroanil				0.201	0.201	0.205	0.200	0.205	0.203	1	AVG
Benzo(a)anthracene	0.904	0.830	0.877	0.968	0.955	0.968	0.945	0.963	0.926	6	AVG
Chrysene	0.901	0.827	0.877	0.912	0.890	0.907	0.875	0.890	0.885	3	AVG
bis(2-Ethylhexyl)phthalate			0.546	0.653	0.671	0.680	0.665	0.690	0.651	8	AVG
6-Methylchrysene			0.570	0.628	0.639	0.635	0.623	0.657	0.625	5	AVG
Di-n-octylphthalate			1.256	1.479	1.602	1.632	1.603	1.630	1.533	10	AVG
Benzo(b)fluoranthene	1.231	1.188	1.172	1.266	1.234	1.256	1.247	1.249	1.231	3	AVG
7,12-Dimethylbenz[a]anthracene		0.440	0.496	0.547	0.553	0.569	0.557	0.562	0.532	9	AVG
Benzo(k)fluoranthene	1.201	1.128	1.198	1.206	1.213	1.239	1.180	1.210	1.197	3	AVG
Benzo(a)pyrene	1.021	1.109	1.126	1.166	1.174	1.184	1.183	1.207	1.146	5	AVG
3-Methylcholanthrene		0.461	0.494	0.536	0.559	0.567	0.555	0.576	0.535	8	AVG
Dibenz(a,h)acridine			0.882	0.956	0.999	1.015	0.998	1.038	0.981	6	AVG
Dibenz(a,j)acridine			0.905	0.971	1.007	1.025	1.006	1.020	0.989	5	AVG
Indeno(1,2,3-cd)pyrene	1.244	1.294	1.300	1.356	1.378	1.399	1.361	1.392	1.341	4	AVG
Dibenz(a,h)anthracene	1.067	1.009	1.060	1.142	1.167	1.175	1.144	1.175	1.117	6	AVG
Benzo(g,h,i)perylene	1.141	1.108	1.106	1.135	1.173	1.187	1.147	1.168	1.146	3	AVG
Total PAHs	1.164	1.121	1.132	1.155	1.135	1.153	1.118	1.108	1.136	2	AVG
2-Fluorophenol		1.390	1.447	1.515	1.533	1.535	1.470	1.517	1.487	4	AVG
Phenol-d6		2.052	1.955	2.093	2.079	2.109	2.017	2.029	2.048	3	AVG
Nitrobenzene-d5		0.513	0.486	0.507	0.515	0.512	0.498	0.503	0.505	2	AVG
2-Fluorobiphenyl		1.377	1.365	1.413	1.370	1.391	1.357	1.375	1.378	1	AVG
2,4,6-Tribromophenol		0.128	0.141	0.148	0.146	0.149	0.151	0.150	0.145	6	AVG
Terphenyl-d14		0.657	0.643	0.675	0.673	0.676	0.656	0.668	0.664	2	AVG

Average %RSD 4

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 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



CLB 52417
10/15/15

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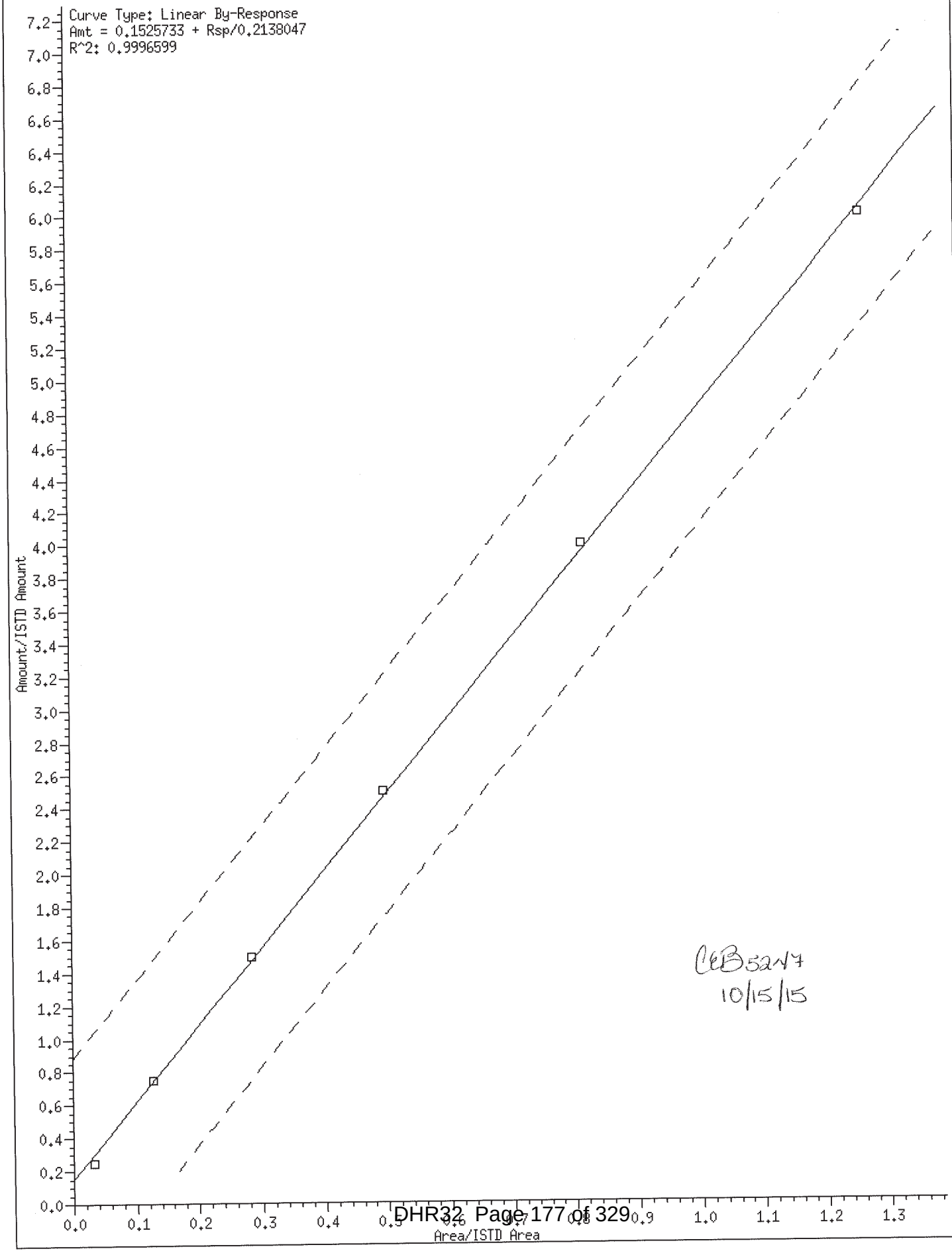

CEB 5247
10/15/15

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP20296.i/15oct15.b/lj0531.d SSTD7.5
/chem/HP20296.i/15oct15.b/lj0532.d SSTD0.125
/chem/HP20296.i/15oct15.b/lj0533.d SSTD030
/chem/HP20296.i/15oct15.b/lj0534.d SSTD020
/chem/HP20296.i/15oct15.b/lj0535.d SSTD12.5
/chem/HP20296.i/15oct15.b/lj0536.d SSTD3.75
/chem/HP20296.i/15oct15.b/lj0537.d SSTD1.25
/chem/HP20296.i/15oct15.b/lj0538.d SSTD0.25

Area Summary

File ID:

Internal Standard Name	lj0531.d	lj0532.d	lj0533.d	lj0534.d	lj0535.d	lj0536.d	lj0537.d	lj0538.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	185789	172168	169733	172350	164820	166396	175058	177531	172981	4
Naphthalene-d8	704214	666639	649919	670534	645068	644442	677442	683133	667674	3
Acenaphthene-d10	414115	384995	368836	375673	370090	363918	378866	377362	379232	4
Phenanthrene-d10	752998	693584	676284	702612	688510	667346	687996	684811	694268	4
Pyrene-d10	869908	797125	773974	802565	786512	760948	791702	772801	794442	4
Perylene-d12	649934	566613	603092	599209	580842	563925	565243	559095	585994	5

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	lj0531.d	lj0532.d	lj0533.d	lj0534.d	lj0535.d	lj0536.d	lj0537.d	lj0538.d
1,4-Dichlorobenzene-d4	7.049	7.049	7.049	7.049	7.049	7.043	7.043	7.043
Naphthalene-d8	9.039	9.038	9.039	9.039	9.038	9.033	9.033	9.033
Acenaphthene-d10	11.868	11.868	11.868	11.868	11.862	11.862	11.863	11.862
Phenanthrene-d10	13.799	13.799	13.804	13.799	13.799	13.793	13.793	13.793
Pyrene-d10	15.874	15.874	15.879	15.874	15.874	15.874	15.874	15.869
Perylene-d12	20.495	20.495	20.501	20.495	20.495	20.495	20.495	20.490

Comments: _____

Report generated on 10/15/2015 at 18:14

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP20296

Method: SW-846 8270C MINI File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 BATCH: 15OCT15026 Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	12.50	12.64	1	20	YES
N-Nitrosodimethylamine	12.50	12.40	-1	20	YES
Pyridine	12.50	13.16	5	20	YES
2-Picoline	12.50	12.46	0	20	YES
N-Nitrosomethylethylamine	12.50	12.22	-2	20	YES
Methyl methanesulfonate	12.50	12.63	1	20	YES
N-Nitrosodiethylamine	12.50	12.25	-2	20	YES
Ethyl methanesulfonate	12.50	12.38	-1	20	YES
Phenol	12.50	12.23	-2	20	YES
Aniline	12.50	12.38	-1	20	YES
bis(2-Chloroethyl)ether	12.50	12.22	-2	20	YES
2-Chlorophenol	12.50	12.45	0	20	YES
1,3-Dichlorobenzene	12.50	12.58	1	20	YES
1,4-Dichlorobenzene	12.50	12.54	0	20	YES
Benzyl alcohol	12.50	12.76	2	20	YES
1,2-Dichlorobenzene	12.50	12.89	3	20	YES
Indene	12.50	12.95	4	20	YES
2-Methylphenol	12.50	12.69	2	20	YES
2,2'-oxybis(1-Chloropropane	12.50	13.05	4	20	YES
bis(2-Chloroisopropyl)ether	12.50	13.05	4	20	YES
N-Nitrosopyrrolidine	12.50	12.23	-2	20	YES
Acetophenone	12.50	12.33	-1	20	YES
4-Methylphenol	12.50	12.38	-1	20	YES
N-Nitroso-di-n-propylamine	12.50	12.19	-2	20	YES
N-Nitrosomorpholine	12.50	12.24	-2	20	YES
o-Toluidine	12.50	12.39	-1	20	YES
Total Cresols	25.00	25.08	0	20	YES
Hexachloroethane	12.50	12.73	2	20	YES
Nitrobenzene	12.50	12.65	1	20	YES
N-Nitrosopiperidine	12.50	12.38	-1	20	YES
Isophorone	12.50	12.95	4	20	YES
2-Nitrophenol	12.50	12.72	2	20	YES
2,4-Dimethylphenol	12.50	12.15	-3	20	YES
bis(2-Chloroethoxy)methane	12.50	12.75	2	20	YES
Benzoic acid	25.00	20.80	-17	20	YES
O,O,O-Triethylphosphorothio	12.50	12.25	-2	20	YES
2,4-Dichlorophenol	12.50	12.72	2	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP20296

Method: SW-846 8270C MINI File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 BATCH: 15OCT15026 Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,2,4-Trichlorobenzene	12.50	12.74	2	20	YES
Naphthalene	12.50	12.71	2	20	YES
4-Chloroaniline	12.50	12.56	1	20	YES
2,6-Dichlorophenol	12.50	12.55	0	20	YES
Hexachloropropene	12.50	13.64	9	20	YES
Hexachlorobutadiene	12.50	13.08	5	20	YES
Quinoline	12.50	12.48	0	20	YES
N-Nitrosodi-n-butylamine	12.50	10.58	-15	20	YES
4-Chloro-3-methylphenol	12.50	12.96	4	20	YES
Safrole	12.50	12.41	-1	20	YES
2-Methylnaphthalene	12.50	11.98	-4	20	YES
1-Methylnaphthalene	12.50	12.40	-1	20	YES
Hexachlorocyclopentadiene	25.00	27.00	8	20	YES
1,2,4,5-Tetrachlorobenzene	12.50	12.58	1	20	YES
cis-Isosafrole	2.13	1.56	-27	20	NO*
2,4,6-Trichlorophenol	12.50	13.30	6	20	YES
2,4,5-Trichlorophenol	12.50	12.60	1	20	YES
trans-Isosafrole	10.38	11.71	13	20	YES
1,1'-Biphenyl	12.50	12.77	2	20	YES
2-Chloronaphthalene	12.50	13.04	4	20	YES
Isosafrole	12.50	13.27	6	20	YES
1-Chloronaphthalene	12.50	12.37	-1	20	YES
Diphenyl ether	12.50	12.73	2	20	YES
2-Nitroaniline	12.50	13.04	4	20	YES
1,4-Naphthoquinone	15.63	16.13	3	20	YES
1,4-Dinitrobenzene	12.50	12.82	3	20	YES
Dimethylphthalate	12.50	12.71	2	20	YES
1,3-Dinitrobenzene	12.50	13.03	4	20	YES
2,6-Dinitrotoluene	12.50	13.43	7	20	YES
Acenaphthylene	12.50	13.12	5	20	YES
3-Nitroaniline	12.50	13.36	7	20	YES
Acenaphthene	12.50	13.27	6	20	YES
2,4-Dinitrophenol	25.00	25.68	3	20	YES
4-Nitrophenol	12.50	13.14	5	20	YES
Pentachlorobenzene	12.50	12.66	1	20	YES
2,4-Dinitrotoluene	12.50	13.19	6	20	YES
Dibenzofuran	12.50	12.70	2	20	YES

NC = Could not calculate

Comments: _*See Isosafrole summary compound.

CEB5247
10/15/15

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP20296

Method: SW-846 8270C MINI File ID: lj0541.d

ICV SAMPLE ID: RVICV2465 BATCH: 15OCT15026 Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4_2,6-Dinitrotoluenes	25.00	26.62	6	20	YES
1-Naphthylamine	25.00	25.22	1	20	YES
2,3,4,6-Tetrachlorophenol	12.50	13.32	7	20	YES
2-Naphthylamine	25.00	25.39	2	20	YES
Diethylphthalate	12.50	13.00	4	20	YES
Thionazin	12.50	12.49	0	20	YES
Fluorene	12.50	13.09	5	20	YES
4-Chlorophenyl-phenylether	12.50	13.11	5	20	YES
5-Nitro-o-toluidine	12.50	13.59	9	20	YES
4-Nitroaniline	12.50	13.22	6	20	YES
4,6-Dinitro-2-methylphenol	12.50	12.67	1	20	YES
N-Nitrosodiphenylamine	12.50	12.56	0	20	YES
NDPA as diphenylamine	12.50	12.56	0	20	YES
1,2-Diphenylhydrazine	12.50	13.27	6	20	YES
Tetraethyldithiopyrophospha	12.50	12.45	0	20	YES
1,3,5-Trinitrobenzene	12.50	12.19	-2	20	YES
Diallate (peak 1)	9.38	8.85	-6	20	YES
Phorate	12.50	12.84	3	20	YES
Phenacetin	12.50	12.76	2	20	YES
4-Bromophenyl-phenylether	12.50	12.72	2	20	YES
Diallate (peak 2)	3.13	2.95	-5	20	YES
Hexachlorobenzene	12.50	12.23	-2	20	YES
Diallate trans/cis	12.50	11.81	-6	20	YES
Dimethoate	12.50	12.56	0	20	YES
Pentachlorophenol	12.50	13.80	10	20	YES
4-Aminobiphenyl	12.50	14.59	17	20	YES
Pentachloronitrobenzene	12.50	12.58	1	20	YES
Pronamide	12.50	12.99	4	20	YES
Dinoseb	12.50	12.22	-2	20	YES
Phenanthrene	12.50	12.48	0	20	YES
Anthracene	12.50	12.94	4	20	YES
Carbazole	12.50	12.74	2	20	YES
Methyl parathion	12.50	12.96	4	20	YES
Di-n-butylphthalate	12.50	13.01	4	20	YES
Parathion	12.50	13.36	7	20	NO*
4-Nitroquinoline-1-oxide	150.00	188.66	26	20	YES
Isodrin	12.50	12.28	-2		

NC = Could not calculate

Comments: _*Non-CCC < 50% D OK.

CEB 5217
10/15/15

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS
LAB CODE: LANCAS
INSTRUMENT: HP20296
Method: SW-846 8270C MINI
File ID: lj0541.d
ICV SAMPLE ID: RVICV2465
BATCH: 15OCT15026
Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	12.50	12.92	3	20	YES
Benzidine	62.50	63.36	1	20	YES
Pyrene	12.50	12.30	-2	20	YES
p-Dimethylaminoazobenzene	12.50	14.75	18	20	YES
Chlorobenzilate	12.50	12.90	3	20	YES
3,3'-Dimethylbenzidine	25.00	24.18	-3	20	YES
Butylbenzylphthalate	12.50	13.52	8	20	YES
2-Acetylaminofluorene	12.50	13.03	4	20	YES
3,3'-Dichlorobenzidine	12.50	12.29	-2	20	YES
Benzo(a)anthracene	12.50	13.20	6	20	YES
Chrysene	12.50	13.27	6	20	YES
4,4'-Methylenebis(2-chloroa	12.50	12.30	-2	20	YES
bis(2-Ethylhexyl)phthalate	12.50	13.56	9	20	YES
6-Methylchrysene	12.50	12.84	3	20	YES
Di-n-octylphthalate	12.50	13.90	11	20	YES
Benzo(b)fluoranthene	12.50	13.29	6	20	YES
7,12-Dimethylbenz[a]anthrac	12.50	12.83	3	20	YES
Benzo(k)fluoranthene	12.50	12.99	4	20	YES
Benzo(a)pyrene	12.50	12.86	3	20	YES
3-Methylcholanthrene	12.50	14.38	15	20	YES
Dibenz(a,h)acridine	12.50	13.01	4	20	YES
Dibenz(a,j)acridine	12.50	12.28	-2	20	YES
Indeno(1,2,3-cd)pyrene	12.50	13.05	4	20	YES
Dibenz(a,h)anthracene	12.50	13.43	7	20	YES
Benzo(g,h,i)perylene	12.50	13.24	6	20	YES
Total PAHs	225.00	232.53	3	20	YES

NC = Could not calculate

Comments:

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS
LAB CODE: LANCAS
INSTRUMENT: HP20296
Method: SW-846 8270C MINI
File ID: lj0542.d
ICV SAMPLE ID: RVBASICV2475
BATCH: 15OCT15026
Sample Name: SSTD12.5

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzaldehyde	12.50	14.30	14	20	YES
Caprolactam	12.50	13.24	6	20	YES
Atrazine	12.50	13.69	10	20	YES

NC = Could not calculate

Comments:

Page 1 of 1

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.700	0.702	30.060	30.0	0
N-Nitrosodimethylamine	1.158	1.121	29.040	30.0	-3
Pyridine	1.939	1.907	29.490	30.0	-2
2-Picoline	1.927	1.900	29.580	30.0	-1
N-Nitrosomethylethylamine	0.886	0.852	28.830	30.0	-4
Methyl methanesulfonate	0.981	0.910	27.810	30.0	-7
N-Nitrosodiethylamine	0.831	0.823	29.710	30.0	-1
Ethyl methanesulfonate	0.818	0.812	29.800	30.0	-1
* Phenol	2.376	2.417	30.510	30.0	2*
Aniline	2.765	2.741	29.740	30.0	-1
a-methylstyrene	1.587	1.577	29.820	30.0	-1
bis(2-Chloroethyl)ether	1.759	1.724	29.420	30.0	-2
2-Chlorophenol	1.467	1.469	30.020	30.0	0
1,3-Dichlorobenzene	1.569	1.600	30.600	30.0	2
* 1,4-Dichlorobenzene	1.575	1.619	30.840	30.0	3*
Benzyl alcohol	1.138	1.094	28.840	30.0	-4
1,2-Dichlorobenzene	1.487	1.557	31.410	30.0	5
Indene	2.784	2.744	29.570	30.0	-1
2-Methylphenol	1.488	1.477	29.770	30.0	-1
2,2'-oxybis(1-Chloropropane)	2.620	2.301	26.360	30.0	-12
bis(2-Chloroisopropyl)ether	2.620	2.301	26.360	30.0	-12
N-Nitrosopyrrolidine	0.926	0.912	29.550	30.0	-2
Acetophenone	2.594	2.371	27.430	30.0	-9
4-Methylphenol	1.673	1.724	30.920	30.0	3
Total Cresols	1.581	1.601	60.690	60.0	1
# N-Nitroso-di-n-propylamine	1.482	1.359	27.520	30.0	-8#
N-Nitrosomorpholine	1.249	1.101	26.460	30.0	-12
o-Toluidine	2.682	2.638	29.500	30.0	-2
Hexachloroethane	0.614	0.613	29.970	30.0	0
Nitrobenzene	0.508	0.488	28.800	30.0	-4
N-Nitrosopiperidine	0.206	0.210	30.510	30.0	2
Isophorone	0.950	0.911	28.770	30.0	-4
* 2-Nitrophenol	0.195	0.212	32.720	30.0	9*
2,4-Dimethylphenol	0.421	0.427	30.410	30.0	1
O,O,O-Triethylphosphorothioate	0.199	0.215	32.320	30.0	8
bis(2-Chloroethoxy)methane	0.536	0.514	28.750	30.0	-4

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzoic acid	0.418	0.328	31.390	40.0	-22
1,2,3,4-Tetrahydronaphthalene	0.618	0.604	29.320	30.0	-2
* 2,4-Dichlorophenol	0.310	0.327	31.600	30.0	5*
1,2,4-Trichlorobenzene	0.344	0.357	31.120	30.0	4
Naphthalene	1.081	1.087	30.170	30.0	1
4-Chloroaniline	0.474	0.483	30.530	30.0	2
2,6-Dichlorophenol	0.304	0.319	31.500	30.0	5
Hexachloropropene	0.217	0.233	32.200	30.0	7
* Hexachlorobutadiene	0.199	0.212	32.000	30.0	7*
Quinoline	0.734	0.751	30.670	30.0	2
Caprolactam	0.144	0.140	29.120	30.0	-3
N-Nitrosodi-n-butylamine	0.406	0.428	31.620	30.0	5
* 4-Chloro-3-methylphenol	0.381	0.381	30.050	30.0	0*
Safrole	0.290	0.304	31.440	30.0	5
2-Methylnaphthalene	0.733	0.749	30.650	30.0	2
1-Methylnaphthalene	0.661	0.684	31.000	30.0	3
# Hexachlorocyclopentadiene	0.348	0.295	25.360	30.0	-15#
1,2,4,5-Tetrachlorobenzene	0.582	0.618	31.850	30.0	6
cis-Isosafrole	0.505	0.523	5.280	5.1	4
* 2,4,6-Trichlorophenol	0.393	0.408	31.130	30.0	4*
2,4,5-Trichlorophenol	0.420	0.442	31.580	30.0	5
trans-Isosafrole	0.560	0.582	25.870	24.9	4
Isosafrole	0.551	0.572	31.150	30.0	4
1,1'-Biphenyl	1.573	1.538	29.330	30.0	-2
2-Chloronaphthalene	1.145	1.053	27.570	30.0	-8
1-Chloronaphthalene	1.127	1.212	32.260	30.0	8
Diphenyl ether	0.816	0.818	30.080	30.0	0
2-Nitroaniline	0.397	0.418	31.590	30.0	5
1,4-Naphthoquinone	0.516	0.509	29.560	30.0	-1
1,4-Dinitrobenzene	0.213	0.226	31.810	30.0	6
Dimethylphthalate	1.388	1.403	30.310	30.0	1
1,3-Dinitrobenzene	0.236	0.250	31.750	30.0	6
2,6-Dinitrotoluene	0.317	0.328	31.060	30.0	4
Acenaphthylene	1.829	1.879	30.820	30.0	3
3-Nitroaniline	0.348	0.369	31.800	30.0	6
* Acenaphthene	1.233	1.223	29.760	30.0	-1*

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
# 2,4-Dinitrophenol	0.216	0.198	36.810	40.0	-8#
# 4-Nitrophenol	0.209	0.204	29.280	30.0	-2#
Pentachlorobenzene	0.547	0.573	31.410	30.0	5
2,4-Dinitrotoluene	0.440	0.460	31.370	30.0	5
2,4_2,6-Dinitrotoluenes	0.382	0.394	62.430	60.0	4
Dibenzofuran	1.720	1.724	30.070	30.0	0
1-Naphthylamine	1.277	1.292	30.340	30.0	1
2,3,4,6-Tetrachlorophenol	0.373	0.375	30.150	30.0	0
2-Naphthylamine	1.270	1.306	30.850	30.0	3
Diethylphthalate	1.356	1.351	29.900	30.0	0
Thionazin	0.261	0.285	32.800	30.0	9
Fluorene	1.404	1.442	30.830	30.0	3
4-Chlorophenyl-phenylether	0.693	0.704	30.460	30.0	2
5-Nitro-o-toluidine	0.415	0.417	30.200	30.0	1
4-Nitroaniline	0.383	0.377	29.570	30.0	-1
4,6-Dinitro-2-methylphenol	0.136	0.135	29.780	30.0	-1
* N-Nitrosodiphenylamine (1)	0.571	0.592	31.150	30.0	4*
NDPA as diphenylamine	0.573	0.592	31.020	30.0	3
1,2-Diphenylhydrazine	0.848	0.790	27.950	30.0	-7
Tetraethyldithiopyrophosphate	0.132	0.129	29.390	30.0	-2
1,3,5-Trinitrobenzene	0.082	0.090	33.040	30.0	10
Diallate (peak 1)	0.389	0.372	23.850	24.9	-4
Phorate	0.543	0.736	40.710	30.0	36
Phenacetin	0.393	0.391	29.920	30.0	0
4-Bromophenyl-phenylether	0.196	0.214	32.740	30.0	9
Diallate (peak 2)	0.380	0.371	4.980	5.1	-2
Diallate trans/cis	0.387	0.372	28.830	30.0	-4
Hexachlorobenzene	0.210	0.225	32.110	30.0	7
Dimethoate	0.344	0.347	30.270	30.0	1
* Pentachlorophenol	0.145	0.129	26.810	30.0	-11*
4-Aminobiphenyl	0.618	0.634	30.810	30.0	3
Pentachloronitrobenzene	0.092	0.096	31.110	30.0	4
Pronamide	0.312	0.331	31.760	30.0	6
Dinoseb	0.197	0.197	30.030	30.0	0
Phenanthrene	1.031	1.032	30.060	30.0	0
Anthracene	1.017	1.048	30.920	30.0	3

(1) Cannot be Separated from Diphenylamine

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Carbazole	0.957	0.984	30.830	30.0	3
Methyl parathion	0.249	0.262	31.570	30.0	5
Di-n-butylphthalate	1.110	1.162	31.400	30.0	5
Parathion	0.147	0.151	30.720	30.0	2
4-Nitroquinoline-1-oxide	0.107	0.091	25.490	30.0	-15
Octachlorostyrene	0.083	0.089	32.350	30.0	8
Isodrin	0.122	0.122	29.980	30.0	0
* Fluoranthene	1.145	1.199	31.410	30.0	5*
Benzidine	0.581	0.629	97.430	90.0	8
Pyrene	1.061	1.090	30.820	30.0	3
p-Dimethylaminoazobenzene	0.202	0.213	31.680	30.0	6
Chlorobenzilate	0.289	0.296	30.750	30.0	3
3,3'-Dimethylbenzidine	0.574	0.637	33.290	30.0	11
Butylbenzylphthalate	0.439	0.462	31.540	30.0	5
2-Acetylaminofluorene	0.394	0.442	33.650	30.0	12
3,3'-Dichlorobenzidine	0.365	0.411	33.790	30.0	13
4,4'-Methylenebis(2-chloroanil	0.195	0.225	34.710	30.0	16
Benzo(a)anthracene	0.937	1.043	33.400	30.0	11
Chrysene	0.906	0.960	31.820	30.0	6
bis(2-Ethylhexyl)phthalate	0.617	0.656	31.890	30.0	6
6-Methylchrysene	0.639	0.700	32.840	30.0	9
* Di-n-octylphthalate	1.379	1.397	30.400	30.0	1*
Benzo(b)fluoranthene	1.249	1.317	31.630	30.0	5
7,12-Dimethylbenz[a]anthracene	0.570	0.590	31.040	30.0	3
Benzo(k)fluoranthene	1.232	1.205	29.340	30.0	-2
* Benzo(a)pyrene	1.166	1.178	30.300	30.0	1*
3-Methylcholanthrene	0.544	0.570	31.450	30.0	5
Dibenz(a,h)acridine	0.888	0.958	32.370	30.0	8
Dibenz(a,j)acridine	0.945	0.964	30.620	30.0	2
Indeno(1,2,3-cd)pyrene	1.256	1.326	31.680	30.0	6
Dibenz(a,h)anthracene	1.025	1.083	31.680	30.0	6
Benzo(g,h,i)perylene	1.030	1.094	31.870	30.0	6
Total PAHs	0.940	0.920	497.190	540.0	-8
2-Fluorophenol	1.476	1.497	60.860	60.0	1
Phenol-d6	2.076	2.084	60.210	60.0	0

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: HP18444 Calibration Date: 10/20/15 Time: 10:31

Lab File ID: bj1001a.d Init. Calib. Date(s): 10/12/15 10/12/15

Init. Calib. Times(s): 19:56 22:37

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Nitrobenzene-d5	0.494	0.481	58.500	60.0	-2
2-Fluorobiphenyl	1.351	1.407	62.480	60.0	4
2,4,6-Tribromophenol	0.192	0.220	68.760	60.0	15
Terphenyl-d14	0.693	0.752	65.100	60.0	8
				Average %Drift:	5

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP18444.i/15oct12a.b/bj0601.d **
/chem/HP18444.i/15oct12a.b/bj0602.d
/chem/HP18444.i/15oct12a.b/bj0603.d
/chem/HP18444.i/15oct12a.b/bj0604.d
/chem/HP18444.i/15oct12a.b/bj0605.d
/chem/HP18444.i/15oct12a.b/bj0606.d
/chem/HP18444.i/15oct12a.b/bj0607.d
/chem/HP18444.i/15oct12a.b/bj0608.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP18444.i/15oct20.b/bj1001a.d

Area Summary

File ID:

Internal Standard Name	bj1001a.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	215787	198560	99280	397120	Yes
Naphthalene-d8	846920	799113	399556	1598226	Yes
Acenaphthene-d10	525009	498506	249253	997012	Yes
Phenanthrene-d10	1069090	983616	491808	1967232	Yes
Pyrene-d10	1227808	1112950	556475	2225900	Yes
Perylene-d12	996042	792924	396462	1585848	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	bj1001a.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.343	5.718	Yes
Naphthalene-d8	6.573	6.948	Yes
Acenaphthene-d10	8.275	8.661	Yes
Phenanthrene-d10	9.721	10.113	Yes
Pyrene-d10	11.096	11.506	Yes
Perylene-d12	13.707	14.175	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/20/2015 at 10:55

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP18444 Calibration Date: 10/20/15 Time: 10:58

Lab File ID: bj1002a.d Init. Calib. Date(s): 10/13/15 10/13/15

Init. Calib. Times(s): 00:04 01:54

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Benzaldehyde	1.603	1.444	45.050	50.0	-10
Atrazine	0.211	0.227	53.760	50.0	8
			Average %Drift:		9

FORM VII SV-1

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP20296 Calibration Date: 10/19/15 Time: 10:08

Lab File ID: lj0641.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.705	0.711	7.570	7.5	1
N-Nitrosodimethylamine	1.114	1.086	7.320	7.5	-2
Pyridine	1.883	1.876	7.470	7.5	0
2-Picoline	1.964	1.902	7.260	7.5	-3
N-Nitrosomethylethylamine	0.804	0.754	7.030	7.5	-6
Methyl methanesulfonate	0.948	1.004	7.940	7.5	6
N-Nitrosodiethylamine	0.754	0.709	7.050	7.5	-6
Ethyl methanesulfonate	0.774	0.747	7.230	7.5	-4
Benzaldehyde	1.469	1.368	6.980	7.5	-7
Phenol	2.197	2.312	7.890	7.5	5
Aniline	2.757	2.728	7.420	7.5	-1
a-methylstyrene	1.540	1.469	7.150	7.5	-5
bis(2-Chloroethyl)ether	1.708	1.694	7.440	7.5	-1
2-Chlorophenol	1.396	1.374	7.380	7.5	-2
1,3-Dichlorobenzene	1.557	1.527	7.350	7.5	-2
1,4-Dichlorobenzene	1.588	1.548	7.310	7.5	-2
Benzyl alcohol	1.053	0.938	6.690	7.5	-11
1,2-Dichlorobenzene	1.495	1.457	7.310	7.5	-3
Indene	2.658	2.408	6.790	7.5	-9
2-Methylphenol	1.475	1.398	7.110	7.5	-5
2,2'-oxybis(1-Chloropropane)	2.404	2.280	7.110	7.5	-5
bis(2-Chloroisopropyl)ether	2.404	2.280	7.110	7.5	-5
N-Nitrosopyrrolidine	0.792	0.732	6.930	7.5	-8
Acetophenone	2.304	2.118	6.890	7.5	-8
4-Methylphenol	1.540	1.471	7.160	7.5	-4
Total Cresols	1.507	1.435	14.280	15.0	-5
N-Nitroso-di-n-propylamine	1.333	1.269	7.140	7.5	-5
N-Nitrosomorpholine	1.028	1.039	7.580	7.5	1
o-Toluidine	2.585	2.526	7.330	7.5	-2
Hexachloroethane	0.659	0.646	7.350	7.5	-2
Nitrobenzene	0.501	0.506	7.570	7.5	1
N-Nitrosopiperidine	0.191	0.189	7.420	7.5	-1
Isophorone	0.881	0.897	7.630	7.5	2
2-Nitrophenol	0.183	0.180	7.380	7.5	-2
2,4-Dimethylphenol	0.417	0.410	7.390	7.5	-2
O,O,O-Triethylphosphorothioate	0.183	0.200	8.180	7.5	9

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: HP20296 Calibration Date: 10/19/15 Time: 10:08

Lab File ID: lj0641.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
bis(2-Chloroethoxy)methane	0.535	0.537	7.520	7.5	0
Benzoic acid	0.314	0.275	8.800	10.0	-12
1,2,3,4-Tetrahydronaphthalene	0.615	0.595	7.250	7.5	-3
2,4-Dichlorophenol	0.296	0.309	7.840	7.5	4
1,2,4-Trichlorobenzene	0.339	0.360	7.950	7.5	6
Naphthalene	1.074	1.056	7.380	7.5	-2
4-Chloroaniline	0.441	0.452	7.680	7.5	2
2,6-Dichlorophenol	0.297	0.305	7.710	7.5	3
Hexachloropropene	0.224	0.246	8.250	7.5	10
Hexachlorobutadiene	0.193	0.219	8.480	7.5	13
Quinoline	0.672	0.661	7.380	7.5	-2
Caprolactam	0.099	0.095	7.160	7.5	-5
N-Nitrosodi-n-butylamine	0.368	0.399	8.110	7.5	8
4-Chloro-3-methylphenol	0.354	0.359	7.620	7.5	2
Safrole	0.271	0.275	7.600	7.5	1
2-Methylnaphthalene	0.712	0.719	7.580	7.5	1
1-Methylnaphthalene	0.650	0.647	7.470	7.5	0
Hexachlorocyclopentadiene	0.370	0.393	7.980	7.5	6
1,2,4,5-Tetrachlorobenzene	0.597	0.658	8.270	7.5	10
cis-Isosafrole	0.526	0.506	1.230	1.3	-4
2,4,6-Trichlorophenol	0.376	0.413	8.250	7.5	10
2,4,5-Trichlorophenol	0.409	0.436	7.990	7.5	7
trans-Isosafrole	0.568	0.574	6.290	6.2	1
Isosafrole	0.561	0.562	7.510	7.5	0
1,1'-Biphenyl	1.497	1.489	7.460	7.5	-1
2-Chloronaphthalene	1.178	1.215	7.730	7.5	3
1-Chloronaphthalene	1.122	1.147	7.670	7.5	2
Diphenyl ether	0.799	0.832	7.810	7.5	4
2-Nitroaniline	0.357	0.340	7.150	7.5	-5
1,4-Naphthoquinone	0.471	0.446	7.110	7.5	-5
1,4-Dinitrobenzene	0.183	0.182	7.430	7.5	-1
Dimethylphthalate	1.273	1.305	7.690	7.5	3
1,3-Dinitrobenzene	0.200	0.203	7.600	7.5	1
2,6-Dinitrotoluene	0.276	0.283	7.690	7.5	3
Acenaphthylene	1.794	1.797	7.510	7.5	0
3-Nitroaniline	0.303	0.295	7.310	7.5	-2

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: HP20296 Calibration Date: 10/19/15 Time: 10:08

Lab File ID: lj0641.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 - 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Acenaphthene	1.196	1.220	7.650	7.5	2
2,4-Dinitrophenol	0.183	0.148	8.100	10.0	-19
4-Nitrophenol	0.234	0.249	7.990	7.5	6
Pentachlorobenzene	0.467	0.516	8.290	7.5	10
2,4-Dinitrotoluene	0.384	0.377	7.360	7.5	-2
2,4_2,6-Dinitrotoluenes	0.326	0.330	15.050	15.0	0
Dibenzofuran	1.634	1.650	7.580	7.5	1
1-Naphthylamine	1.191	1.166	7.340	7.5	-2
2,3,4,6-Tetrachlorophenol	0.307	0.339	8.280	7.5	10
2-Naphthylamine	1.158	1.139	7.380	7.5	-2
Diethylphthalate	1.252	1.269	7.600	7.5	1
Thionazin	0.243	0.229	7.060	7.5	-6
Fluorene	1.278	1.330	7.810	7.5	4
4-Chlorophenyl-phenylether	0.613	0.683	8.350	7.5	11
5-Nitro-o-toluidine	0.353	0.347	7.380	7.5	-2
4-Nitroaniline	0.309	0.306	7.430	7.5	-1
4,6-Dinitro-2-methylphenol	0.129	0.114	6.640	7.5	-11
N-Nitrosodiphenylamine (1)	0.585	0.577	7.390	7.5	-1
NDPA as diphenylamine	0.585	0.577	7.390	7.5	-1
1,2-Diphenylhydrazine	0.882	0.885	7.530	7.5	0
Tetraethyldithiopyrophosphate	0.140	0.139	7.420	7.5	-1
1,3,5-Trinitrobenzene	0.076	0.072	7.120	7.5	-5
Diallate (peak 1)	0.384	0.361	5.860	6.2	-6
Phorate	0.551	0.551	7.500	7.5	0
Phenacetin	0.403	0.394	7.330	7.5	-2
4-Bromophenyl-phenylether	0.177	0.191	8.090	7.5	8
Diallate (peak 2)	0.377	0.349	1.180	1.3	-7
Diallate trans/cis	0.383	0.359	7.040	7.5	-6
Hexachlorobenzene	0.184	0.199	8.110	7.5	8
Dimethoate	0.359	0.342	7.130	7.5	-5
Atrazine	0.191	0.192	7.540	7.5	1
Pentachlorophenol	0.122	0.110	6.770	7.5	-10
4-Aminobiphenyl	0.666	0.663	7.470	7.5	0
Pentachloronitrobenzene	0.089	0.095	8.020	7.5	7
Pronamide	0.307	0.313	7.640	7.5	2
Dinoseb	0.184	0.173	6.830	7.5	-9

(1) Cannot be Separated from Diphenylamine

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: HP20296 Calibration Date: 10/19/15 Time: 10:08

Lab File ID: lj0641.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenanthrene	1.041	1.027	7.400	7.5	-1
Anthracene	1.034	1.036	7.520	7.5	0
Carbazole	0.951	0.951	7.500	7.5	0
Methyl parathion	0.265	0.250	7.080	7.5	-6
Di-n-butylphthalate	1.164	1.130	7.280	7.5	-3
Parathion	0.156	0.148	7.120	7.5	-5
4-Nitroquinoline-1-oxide	0.112	0.085	5.680	7.5	-24
Octachlorostyrene	0.065	0.071	8.110	7.5	8
Isodrin	0.122	0.122	7.510	7.5	0
Fluoranthene	1.134	1.189	7.860	7.5	5
Benzidine	0.653	0.644	22.210	22.5	-1
Pyrene	1.076	1.062	7.400	7.5	-1
p-Dimethylaminoazobenzene	0.174	0.181	7.760	7.5	3
Chlorobenzilate	0.310	0.310	7.490	7.5	0
3,3'-Dimethylbenzidine	0.656	0.664	7.590	7.5	1
Butylbenzylphthalate	0.454	0.428	7.080	7.5	-6
2-Acetylaminofluorene	0.397	0.366	6.920	7.5	-8
3,3'-Dichlorobenzidine	0.350	0.366	7.850	7.5	5
4,4'-Methylenebis(2-chloroanil	0.203	0.207	7.660	7.5	2
Benzo(a)anthracene	0.926	1.019	8.250	7.5	10
Chrysene	0.885	0.947	8.020	7.5	7
bis(2-Ethylhexyl)phthalate	0.651	0.604	6.970	7.5	-7
6-Methylchrysene	0.625	0.659	7.900	7.5	5
Di-n-octylphthalate	1.533	1.327	6.490	7.5	-13
Benzo(b)fluoranthene	1.230	1.266	7.720	7.5	3
7,12-Dimethylbenz[a]anthracene	0.532	0.543	7.650	7.5	2
Benzo(k)fluoranthene	1.197	1.268	7.950	7.5	6
Benzo(a)pyrene	1.146	1.193	7.800	7.5	4
3-Methylcholanthrene	0.535	0.532	7.450	7.5	-1
Dibenz(a,h)acridine	0.981	0.983	7.510	7.5	0
Dibenz(a,j)acridine	0.989	1.010	7.660	7.5	2
Indeno(1,2,3-cd)pyrene	1.340	1.401	7.840	7.5	4
Dibenz(a,h)anthracene	1.117	1.174	7.880	7.5	5
Benzo(g,h,i)perylene	1.146	1.171	7.670	7.5	2
Total PAHs	1.136	1.113	138.700	135.0	3
2-Fluorophenol	1.487	1.471	14.840	15.0	-1

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: HP20296 Calibration Date: 10/19/15 Time: 10:08

Lab File ID: lj0641.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenol-d6	2.048	2.032	14.890	15.0	-1
Nitrobenzene-d5	0.505	0.506	15.040	15.0	0
2-Fluorobiphenyl	1.378	1.420	15.460	15.0	3
2,4,6-Tribromophenol	0.145	0.161	16.630	15.0	11
Terphenyl-d14	0.664	0.706	15.960	15.0	6
			Average	%Drift:	4

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP20296.i/15oct15.b/lj0531.d **
/chem/HP20296.i/15oct15.b/lj0532.d
/chem/HP20296.i/15oct15.b/lj0533.d
/chem/HP20296.i/15oct15.b/lj0534.d
/chem/HP20296.i/15oct15.b/lj0535.d
/chem/HP20296.i/15oct15.b/lj0536.d
/chem/HP20296.i/15oct15.b/lj0537.d
/chem/HP20296.i/15oct15.b/lj0538.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP20296.i/15oct19.b/lj0641.d

Area Summary

File ID:

Internal Standard Name	lj0641.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	176909	185789	92894	371578	Yes
Naphthalene-d8	663560	704214	352107	1408428	Yes
Acenaphthene-d10	383023	414115	207058	828230	Yes
Phenanthrene-d10	735431	752998	376499	1505996	Yes
Pyrene-d10	868621	869908	434954	1739816	Yes
Perylene-d12	660709	649934	324967	1299868	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	lj0641.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	6.969	7.049	Yes
Naphthalene-d8	8.958	9.039	Yes
Acenaphthene-d10	11.793	11.868	Yes
Phenanthrene-d10	13.724	13.799	Yes
Pyrene-d10	15.783	15.874	Yes
Perylene-d12	20.388	20.495	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/19/2015 at 10:53

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP20296 Calibration Date: 10/19/15 Time: 19:47

Lab File ID: lj0661.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.705	0.692	7.360	7.5	-2
N-Nitrosodimethylamine	1.114	1.115	7.510	7.5	0
Pyridine	1.883	1.859	7.410	7.5	-1
2-Picoline	1.964	1.949	7.450	7.5	-1
N-Nitrosomethylethylamine	0.804	0.784	7.320	7.5	-2
Methyl methanesulfonate	0.948	1.009	7.980	7.5	6
N-Nitrosodiethylamine	0.754	0.745	7.410	7.5	-1
Ethyl methanesulfonate	0.774	0.764	7.400	7.5	-1
Benzaldehyde	1.469	1.405	7.180	7.5	-4
Phenol	2.197	2.335	7.970	7.5	6
Aniline	2.757	2.736	7.440	7.5	-1
a-methylstyrene	1.540	1.475	7.180	7.5	-4
bis(2-Chloroethyl)ether	1.708	1.699	7.460	7.5	-1
2-Chlorophenol	1.396	1.396	7.500	7.5	0
1,3-Dichlorobenzene	1.557	1.544	7.430	7.5	-1
1,4-Dichlorobenzene	1.588	1.583	7.480	7.5	0
Benzyl alcohol	1.053	0.967	6.890	7.5	-8
1,2-Dichlorobenzene	1.495	1.476	7.410	7.5	-1
Indene	2.658	2.491	7.030	7.5	-6
2-Methylphenol	1.475	1.441	7.330	7.5	-2
2,2'-oxybis(1-Chloropropane)	2.404	2.478	7.730	7.5	3
bis(2-Chloroisopropyl)ether	2.404	2.478	7.730	7.5	3
N-Nitrosopyrrolidine	0.792	0.760	7.200	7.5	-4
Acetophenone	2.304	2.238	7.290	7.5	-3
4-Methylphenol	1.540	1.502	7.320	7.5	-2
Total Cresols	1.507	1.471	14.640	15.0	-2
N-Nitroso-di-n-propylamine	1.333	1.351	7.600	7.5	1
N-Nitrosomorpholine	1.028	1.124	8.200	7.5	9
o-Toluidine	2.585	2.566	7.440	7.5	-1
Hexachloroethane	0.659	0.687	7.820	7.5	4
Nitrobenzene	0.501	0.513	7.680	7.5	2
N-Nitrosopiperidine	0.191	0.189	7.380	7.5	-2
Isophorone	0.881	0.892	7.590	7.5	1
2-Nitrophenol	0.183	0.178	7.330	7.5	-2
2,4-Dimethylphenol	0.417	0.416	7.490	7.5	0
O,O,O-Triethylphosphorothioate	0.183	0.197	8.070	7.5	8

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: HP20296 Calibration Date: 10/19/15 Time: 19:47

Lab File ID: lj0661.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
bis(2-Chloroethoxy)methane	0.535	0.543	7.620	7.5	2
Benzoic acid	0.314	0.270	8.680	10.0	-13
1,2,3,4-Tetrahydronaphthalene	0.615	0.601	7.320	7.5	-2
2,4-Dichlorophenol	0.296	0.304	7.700	7.5	3
1,2,4-Trichlorobenzene	0.339	0.351	7.770	7.5	4
Naphthalene	1.074	1.045	7.300	7.5	-3
4-Chloroaniline	0.441	0.453	7.710	7.5	3
2,6-Dichlorophenol	0.297	0.301	7.620	7.5	2
Hexachloropropene	0.224	0.245	8.210	7.5	10
Hexachlorobutadiene	0.193	0.215	8.350	7.5	11
Quinoline	0.672	0.662	7.390	7.5	-1
Caprolactam	0.099	0.100	7.530	7.5	0
N-Nitrosodi-n-butylamine	0.368	0.399	8.130	7.5	8
4-Chloro-3-methylphenol	0.354	0.352	7.480	7.5	0
Safrole	0.271	0.281	7.760	7.5	3
2-Methylnaphthalene	0.712	0.714	7.510	7.5	0
1-Methylnaphthalene	0.650	0.643	7.410	7.5	-1
Hexachlorocyclopentadiene	0.370	0.432	8.780	7.5	17
1,2,4,5-Tetrachlorobenzene	0.597	0.727	9.140	7.5	22
cis-Isosafrole	0.526	0.563	1.360	1.3	7
2,4,6-Trichlorophenol	0.376	0.441	8.800	7.5	17
2,4,5-Trichlorophenol	0.409	0.477	8.750	7.5	17
trans-Isosafrole	0.568	0.576	6.310	6.2	1
Isosafrole	0.561	0.574	7.670	7.5	2
1,1'-Biphenyl	1.497	1.497	7.500	7.5	0
2-Chloronaphthalene	1.178	1.203	7.660	7.5	2
1-Chloronaphthalene	1.122	1.127	7.540	7.5	0
Diphenyl ether	0.799	0.836	7.850	7.5	5
2-Nitroaniline	0.357	0.349	7.340	7.5	-2
1,4-Naphthoquinone	0.471	0.459	7.310	7.5	-3
1,4-Dinitrobenzene	0.183	0.193	7.910	7.5	6
Dimethylphthalate	1.273	1.305	7.690	7.5	3
1,3-Dinitrobenzene	0.200	0.206	7.710	7.5	3
2,6-Dinitrotoluene	0.276	0.297	8.070	7.5	8
Acenaphthylene	1.794	1.828	7.640	7.5	2
3-Nitroaniline	0.303	0.297	7.360	7.5	-2

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: HP20296 Calibration Date: 10/19/15 Time: 19:47

Lab File ID: lj0661.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Acenaphthene	1.196	1.219	7.650	7.5	2
2,4-Dinitrophenol	0.183	0.171	9.350	10.0	-7
4-Nitrophenol	0.234	0.222	7.130	7.5	-5
Pentachlorobenzene	0.467	0.567	9.110	7.5	21
2,4-Dinitrotoluene	0.384	0.394	7.690	7.5	2
2,4_2,6-Dinitrotoluenes	0.326	0.345	15.750	15.0	5
Dibenzofuran	1.634	1.686	7.740	7.5	3
1-Naphthylamine	1.191	1.160	7.310	7.5	-3
2,3,4,6-Tetrachlorophenol	0.307	0.376	9.180	7.5	22
2-Naphthylamine	1.158	1.150	7.450	7.5	-1
Diethylphthalate	1.252	1.244	7.450	7.5	-1
Thionazin	0.243	0.221	6.810	7.5	-9
Fluorene	1.278	1.347	7.910	7.5	5
4-Chlorophenyl-phenylether	0.613	0.711	8.700	7.5	16
5-Nitro-o-toluidine	0.353	0.365	7.750	7.5	3
4-Nitroaniline	0.309	0.311	7.550	7.5	1
4,6-Dinitro-2-methylphenol	0.129	0.122	7.100	7.5	-5
N-Nitrosodiphenylamine (1)	0.585	0.572	7.320	7.5	-2
NDPA as diphenylamine	0.585	0.572	7.320	7.5	-2
1,2-Diphenylhydrazine	0.882	0.763	6.490	7.5	-13
Tetraethyldithiopyrophosphate	0.140	0.123	6.560	7.5	-13
1,3,5-Trinitrobenzene	0.076	0.081	8.040	7.5	7
Diallate (peak 1)	0.384	0.337	5.470	6.2	-12
Phorate	0.551	0.494	6.730	7.5	-10
Phenacetin	0.403	0.363	6.750	7.5	-10
4-Bromophenyl-phenylether	0.177	0.206	8.750	7.5	17
Diallate (peak 2)	0.377	0.329	1.110	1.3	-13
Diallate trans/cis	0.383	0.336	6.580	7.5	-12
Hexachlorobenzene	0.184	0.217	8.860	7.5	18
Dimethoate	0.359	0.321	6.710	7.5	-11
Atrazine	0.191	0.203	7.950	7.5	6
Pentachlorophenol	0.122	0.132	8.160	7.5	9
4-Aminobiphenyl	0.666	0.678	7.640	7.5	2
Pentachloronitrobenzene	0.089	0.098	8.300	7.5	11
Pronamide	0.307	0.318	7.770	7.5	4
Dinoseb	0.184	0.192	7.490	7.5	0

(1) Cannot be Separated from Diphenylamine

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: HP20296 Calibration Date: 10/19/15 Time: 19:47

Lab File ID: lj0661.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenanthrene	1.041	1.041	7.500	7.5	0
Anthracene	1.034	1.054	7.650	7.5	2
Carbazole	0.951	0.956	7.540	7.5	1
Methyl parathion	0.265	0.247	7.000	7.5	-7
Di-n-butylphthalate	1.164	1.121	7.220	7.5	-4
Parathion	0.156	0.146	7.010	7.5	-7
4-Nitroquinoline-1-oxide	0.112	0.092	6.150	7.5	-18
Octachlorostyrene	0.065	0.081	9.260	7.5	24
Isodrin	0.122	0.124	7.620	7.5	2
Fluoranthene	1.134	1.242	8.210	7.5	10
Benzidine	0.653	0.619	21.340	22.5	-5
Pyrene	1.076	1.046	7.290	7.5	-3
p-Dimethylaminoazobenzene	0.174	0.192	8.260	7.5	10
Chlorobenzilate	0.310	0.274	6.620	7.5	-12
3,3'-Dimethylbenzidine	0.656	0.666	7.620	7.5	2
Butylbenzylphthalate	0.454	0.411	6.790	7.5	-9
2-Acetylaminofluorene	0.397	0.374	7.080	7.5	-6
3,3'-Dichlorobenzidine	0.350	0.368	7.900	7.5	5
4,4'-Methylenebis(2-chloroanil	0.203	0.208	7.690	7.5	3
Benzo(a)anthracene	0.926	1.015	8.220	7.5	10
Chrysene	0.885	0.944	8.000	7.5	7
bis(2-Ethylhexyl)phthalate	0.651	0.563	6.490	7.5	-13
6-Methylchrysene	0.625	0.677	8.120	7.5	8
Di-n-octylphthalate	1.533	1.230	6.010	7.5	-20
Benzo(b)fluoranthene	1.230	1.244	7.580	7.5	1
7,12-Dimethylbenz[a]anthracene	0.532	0.534	7.530	7.5	0
Benzo(k)fluoranthene	1.197	1.239	7.760	7.5	4
Benzo(a)pyrene	1.146	1.178	7.710	7.5	3
3-Methylcholanthrene	0.535	0.540	7.570	7.5	1
Dibenz(a,h)acridine	0.981	0.990	7.570	7.5	1
Dibenz(a,j)acridine	0.989	1.018	7.720	7.5	3
Indeno(1,2,3-cd)pyrene	1.340	1.375	7.690	7.5	3
Dibenz(a,h)anthracene	1.117	1.146	7.690	7.5	3
Benzo(g,h,i)perylene	1.146	1.158	7.580	7.5	1
Total PAHs	1.136	1.058	138.310	135.0	2
2-Fluorophenol	1.487	1.492	15.050	15.0	0

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: HP20296 Calibration Date: 10/19/15 Time: 19:47

Lab File ID: lj0661.d Init. Calib. Date(s): 10/15/15 10/15/15

Init. Calib. Times(s): 13:06 16:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	$\overline{RRF}$	RRF7.5	ACTUAL CONC.	TRUE CONC.	% DRIFT
Phenol-d6	2.048	2.048	15.010	15.0	0
Nitrobenzene-d5	0.505	0.513	15.230	15.0	2
2-Fluorobiphenyl	1.378	1.457	15.850	15.0	6
2,4,6-Tribromophenol	0.145	0.197	20.410	15.0	36
Terphenyl-d14	0.664	0.727	16.430	15.0	10
			Average %Drift:		6

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP20296.i/15oct15.b/lj0531.d **
/chem/HP20296.i/15oct15.b/lj0532.d
/chem/HP20296.i/15oct15.b/lj0533.d
/chem/HP20296.i/15oct15.b/lj0534.d
/chem/HP20296.i/15oct15.b/lj0535.d
/chem/HP20296.i/15oct15.b/lj0536.d
/chem/HP20296.i/15oct15.b/lj0537.d
/chem/HP20296.i/15oct15.b/lj0538.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP20296.i/15oct19a.b/lj0661.d

Area Summary

File ID:

Internal Standard Name	lj0661.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	190672	185789	92894	371578	Yes
Naphthalene-d8	731885	704214	352107	1408428	Yes
Acenaphthene-d10	393187	414115	207058	828230	Yes
Phenanthrene-d10	794759	752998	376499	1505996	Yes
Pyrene-d10	976032	869908	434954	1739816	Yes
Perylene-d12	774948	649934	324967	1299868	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	lj0661.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	6.974	7.049	Yes
Naphthalene-d8	8.964	9.039	Yes
Acenaphthene-d10	11.798	11.868	Yes
Phenanthrene-d10	13.724	13.799	Yes
Pyrene-d10	15.788	15.874	Yes
Perylene-d12	20.394	20.495	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____

Report generated on 10/19/2015 at 20:17

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

	IS1(DCB)		IS2(NPT)		IS3(ANT)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	215787	5.343	846920	6.573	525009	8.275
UPPER LIMIT	431574	5.843	1693840	7.073	1050018	8.775
LOWER LIMIT	107894	4.843	423460	6.073	262505	7.775
LLI SAMPLE NO.						
01 SBLKLG290	284565	5.343	1077817	6.567	667203	8.275
02 SBLKLE290	234300	5.343	895080	6.567	547793	8.275
03 290LELCS	289040	5.343	1106182	6.573	667707	8.275
04 290LGLCS	309197	5.343	1175764	6.573	728121	8.281
05 8081281	264176	5.343	1012257	6.567	624509	8.275
06 8081282	313638	5.343	1209218	6.567	748331	8.275
07 8081283	281864	5.343	1097592	6.567	678676	8.275
08 8081284	250419	5.343	984825	6.567	583339	8.275
09 8081285	227996	5.343	902126	6.573	555852	8.275
10 8081286	313080	5.343	1202521	6.573	715917	8.275
11 8081287	218720	5.343	866713	6.573	526585	8.275
12 8081288	269729	5.343	1049092	6.573	627260	8.275
13 8081289	331975	5.343	1286525	6.573	752946	8.275
14 8081290MS	298479	5.343	1132727	6.573	667968	8.281
15 8081291MSD	273509	5.343	1063252	6.573	639553	8.281
16 8081292	263506	5.343	1022317	6.573	604406	8.275
17 8081293	298317	5.343	1152698	6.573	678146	8.275

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1069090	9.721	1227808	11.096	996042	13.707
	UPPER LIMIT	2138180	10.221	2455616	11.596	1992084	14.207
	LOWER LIMIT	534545	9.221	613904	10.596	498021	13.207
	LLI SAMPLE NO.						
01	SBLKLG290	1323734	9.715	1495795	11.096	1095807	13.707
02	SBLKLE290	1101310	9.715	1257572	11.096	919983	13.707
03	290LELCS	1316924	9.721	1408679	11.102	935554	13.707
04	290LGLCS	1400803	9.720	1545142	11.102	1063375	13.713
05	8081281	1235611	9.715	1395259	11.096	1004224	13.707
06	8081282	1486901	9.715	1658955	11.096	1170332	13.707
07	8081283	1378940	9.715	1560113	11.096	1115834	13.707
08	8081284	1099676	9.715	1146809	11.096	820790	13.707
09	8081285	1080766	9.715	1182188	11.102	855793	13.713
10	8081286	1380489	9.721	1474573	11.102	876471	13.713
11	8081287	1036272	9.721	1162742	11.102	848086	13.713
12	8081288	1198784	9.720	1249130	11.102	779013	13.713
13	8081289	1433116	9.721	1473346	11.102	862486	13.713
14	8081290MS	1255021	9.721	1274420	11.102	777418	13.719
15	8081291MSD	1183196	9.720	1190658	11.102	827478	13.719
16	8081292	1089535	9.721	1117114	11.102	750057	13.719
17	8081293	1232100	9.721	1231390	11.102	758125	13.719

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	215787	5.343	846920	6.573	525009	8.275
	UPPER LIMIT	431574	5.843	1693840	7.073	1050018	8.775
	LOWER LIMIT	107894	4.843	423460	6.073	262505	7.775
	LLI SAMPLE NO.						
18	8081294	290312	5.343	1095648	6.573	638565	8.275
19	8081295	310358	5.343	1194698	6.573	701764	8.281
20	8084533	330472	5.343	1290020	6.573	723529	8.275
21	8082030	253878	5.343	969677	6.573	572023	8.281
22	8082030MS	293801	5.343	1134148	6.573	640655	8.281
23	8082030MSD	299333	5.343	1149587	6.573	664200	8.281

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): bj1001a.d Date Analyzed: 10/20/15

Instrument ID: HP18444 Time Analyzed: 10:31

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1069090	9.721	1227808	11.096	996042	13.707
	UPPER LIMIT	2138180	10.221	2455616	11.596	1992084	14.207
	LOWER LIMIT	534545	9.221	613904	10.596	498021	13.207
	LLI SAMPLE NO.						
18	8081294	1156131	9.721	1188346	11.102	764523	13.719
19	8081295	1297680	9.720	1287581	11.102	770337	13.719
20	8084533	1219309	9.720	1160765	11.102	765373	13.719
21	8082030	1016056	9.726	1055610	11.108	805270	13.725
22	8082030MS	1128503	9.726	1165130	11.108	899076	13.725
23	8082030MSD	1168610	9.726	1183215	11.108	900313	13.725

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0641.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 10:08

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	176909	6.969	663560	8.958	383023	11.793
	UPPER LIMIT	353818	7.469	1327120	9.458	766046	12.293
	LOWER LIMIT	88455	6.469	331780	8.458	191512	11.293
	LLI SAMPLE NO.						
01	SBLKWK288	151816	6.974	513612	8.958	304889	11.793
02	288WKLCS	149504	6.974	533306	8.958	299112	11.793
03	8083931DL	150202	6.969	511814	8.958	303071	11.793
04	8083933DL	153580	6.969	562958	8.958	318380	11.793
05	8083935DL	154410	6.974	564459	8.958	304403	11.793
06	8083942	155390	6.974	577040	8.958	342356	11.793
07	8083942DL	155735	6.974	583105	8.959	330595	11.793
08	8083943	161041	6.984	498310	8.969	307238	11.793
09	8083943DL	138849	6.974	520863	8.963	304007	11.793
10	8083944	160073	6.974	538127	8.964	325581	11.798
11	8083945	162626	6.974	544831	8.964	324852	11.793

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0641.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 10:08

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	735431	13.724	868621	15.783	660709	20.388
	UPPER LIMIT	1470862	14.224	1737242	16.283	1321418	20.888
	LOWER LIMIT	367716	13.224	434311	15.283	330355	19.888
	LLI SAMPLE NO.						
01	SBLKWK288	595045	13.724	707629	15.783	558927	20.388
02	288WKLCS	577558	13.719	713777	15.783	579506	20.388
03	8083931DL	590565	13.719	711138	15.783	573431	20.388
04	8083933DL	601622	13.718	702271	15.783	513574	20.388
05	8083935DL	606102	13.724	719590	15.788	568903	20.388
06	8083942	668959	13.724	807058	15.783	680526	20.388
07	8083942DL	618411	13.719	742893	15.789	585853	20.394
08	8083943	607838	13.724	741085	15.788	626894	20.393
09	8083943DL	593450	13.724	728792	15.788	616333	20.388
10	8083944	624856	13.724	740991	15.789	631255	20.394
11	8083945	639837	13.724	754894	15.788	610123	20.394

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0661.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 19:47

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	190672	6.974	731885	8.964	393187	11.798
	UPPER LIMIT	381344	7.474	1463770	9.464	786374	12.298
	LOWER LIMIT	95336	6.474	365943	8.464	196594	11.298
	LLI SAMPLE NO.						
01	SBLKWA288	149766	6.974	501240	8.963	302124	11.798
02	288WALCS	158954	6.979	585530	8.964	336839	11.798
03	8084481	161230	6.974	529940	8.964	327285	11.798
04	8084482MS	152396	6.980	512942	8.964	317092	11.799
05	8084483MSD	157494	6.979	562219	8.964	305836	11.798
06	8084480	155660	6.974	592333	8.964	341100	11.798
07	8084485	141350	6.974	529715	8.964	311074	11.798
08	8084486	141867	6.974	532473	8.964	318946	11.798
09	8084487	158319	6.974	597968	8.964	314312	11.798
10	8084488	154731	6.974	591061	8.964	341327	11.798
11	8084534	152346	6.974	586443	8.964	342993	11.798
12	8084460	148418	6.974	560298	8.964	329291	11.798
13	8084461MS	167435	6.979	635897	8.963	376193	11.798
14	8084462MSD	160980	6.979	588498	8.963	328069	11.798
15	8084459	158998	6.974	517926	8.964	312247	11.798
16	8084464	143121	6.974	518458	8.964	308160	11.798
17	8084465	156069	6.979	583128	8.963	345438	11.798

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0661.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 19:47

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	794759	13.724	976032	15.788	774948	20.394
	UPPER LIMIT	1589518	14.224	1952064	16.288	1549896	20.894
	LOWER LIMIT	397380	13.224	488016	15.288	387474	19.894
	LLI SAMPLE NO.						
01	SBLKWA288	585573	13.724	700535	15.788	565945	20.394
02	288WALCS	628322	13.724	796353	15.788	601531	20.394
03	8084481	620360	13.724	772212	15.788	633159	20.394
04	8084482MS	608516	13.724	722289	15.789	627910	20.394
05	8084483MSD	595860	13.724	728555	15.788	602413	20.394
06	8084480	666424	13.724	798272	15.788	612761	20.394
07	8084485	589493	13.724	742406	15.788	627705	20.394
08	8084486	620708	13.724	760236	15.788	643352	20.394
09	8084487	612486	13.724	754800	15.788	638271	20.394
10	8084488	642945	13.724	765671	15.789	580125	20.394
11	8084534	642170	13.724	761530	15.788	591279	20.394
12	8084460	643072	13.724	763754	15.789	655163	20.399
13	8084461MS	702423	13.729	792628	15.794	708941	20.399
14	8084462MSD	678778	13.729	797979	15.794	710215	20.404
15	8084459	599246	13.729	737353	15.794	657366	20.399
16	8084464	600183	13.724	717503	15.794	665215	20.399
17	8084465	671750	13.729	819017	15.794	651733	20.404

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0661.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 19:47

		IS1(DCB)		IS2(NPT)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	190672	6.974	731885	8.964	393187	11.798
	UPPER LIMIT	381344	7.474	1463770	9.464	786374	12.298
	LOWER LIMIT	95336	6.474	365943	8.464	196594	11.298
	LLI SAMPLE NO.						
18	8084466	142850	6.974	541265	8.969	324540	11.798
19	8084467	151655	6.979	589868	8.964	338486	11.798
20	8084468	158610	6.979	562881	8.964	312253	11.798
21	8084469	156679	6.979	565665	8.964	336710	11.798
22	8084470	154203	6.979	525987	8.964	306707	11.798
23	8084471	159112	6.974	607858	8.964	331748	11.798
24	8084472	153881	6.974	592729	8.964	323077	11.798

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

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): lj0661.d Date Analyzed: 10/19/15

Instrument ID: HP20296 Time Analyzed: 19:47

		IS4(PHN)		IS5(PYR)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	794759	13.724	976032	15.788	774948	20.394
	UPPER LIMIT	1589518	14.224	1952064	16.288	1549896	20.894
	LOWER LIMIT	397380	13.224	488016	15.288	387474	19.894
	LLI SAMPLE NO.						
18	8084466	626753	13.724	806487	15.794	698789	20.404
19	8084467	642137	13.724	728445	15.794	612562	20.399
20	8084468	626943	13.724	771289	15.794	654209	20.399
21	8084469	639280	13.724	776418	15.788	619762	20.399
22	8084470	619465	13.724	744920	15.788	616766	20.399
23	8084471	656311	13.724	785121	15.788	640962	20.399
24	8084472	634308	13.724	761107	15.794	700598	20.399

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -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.

Preparation and Run Logs

Semivolatiles by GC/MS

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct12a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
whs02991	BJ0600.D	DFTPP2245	10/12/2015	19:32		
whs02991	BJ0601.D	STD2735	10/12/2015	19:56		
whs02991	BJ0602.D	STD2735	10/12/2015	20:26		
whs02991	BJ0603.D	STD2735	10/12/2015	20:48		
whs02991	BJ0604.D	STD2735	10/12/2015	21:10		
whs02991	BJ0605.D	STD2735	10/12/2015	21:32		
whs02991	BJ0606.D	STD2735	10/12/2015	21:54		
whs02991	BJ0607.D	STD2735	10/12/2015	22:15		
whs02991	BJ0608.D	STD2735	10/12/2015	22:37		
whs02991	BJ0609.D	8270MDL2735	10/12/2015	22:59		
whs02991	BJ0610.D	PAHMDL2735	10/12/2015	23:21		
whs02991	BJ0611.D	ICV2465	10/12/2015	23:42		
whs02991	BJ0612.D	BAS2735	10/13/2015	00:04		
whs02991	BJ0613.D	BAS2735	10/13/2015	00:26		
whs02991	BJ0614.D	BAS2735	10/13/2015	00:48		
whs02991	BJ0615.D	BAS2735	10/13/2015	01:10		
whs02991	BJ0616.D	BAS2735	10/13/2015	01:32		
whs02991	BJ0617.D	BAS2735	10/13/2015	01:54		
whs02991	BJ0618.D	BAS2735	10/13/2015	02:15		
whs02991	BJ0619.D	BASICV2475	10/13/2015	02:37		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP18444 **HP #02**

Data Directory Path is - C:\msdchem\1\data\15oct20\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
lmh00956	BJ1000.D	DFTPP2245	10/20/2015	08:53		
lmh00956	BJ1001.D	STD2735	10/20/2015	09:06		
lmh00956	BJ1002.D	BAS2735	10/20/2015	09:30		
lmh00956	BJ1003.D	KEP2715	10/20/2015	09:52		
lmh00956	BJ1000z.D	DFTPP2245	10/20/2015	10:17		
lmh00956	BJ1001a.D	STD2735	10/20/2015	10:31		
lmh00956	BJ1002a.D	BAS2735	10/20/2015	10:58		
lmh00956	BJ1003a.D	KEP2715	10/20/2015	11:19		
lmh00956	BJ1004.D	SBLKLG290	10/20/2015	12:00	15290SLG	
lmh00956	BJ1002b.D	PDA2225	10/20/2015	12:22		
lmh00956	BJ1022.D	SBLKLE290	10/20/2015	12:43	15290SLE	
lmh00956	BJ1023.D	290LELCS	10/20/2015	13:05	15290SLE	
lmh00956	BJ1005.D	290LGLCS	10/20/2015	13:27	15290SLG	
lmh00956	BJ1006.D	8081281	10/20/2015	13:48	15290SLG	
lmh00956	BJ1007.D	8081282	10/20/2015	14:10	15290SLG	
lmh00956	BJ1008.D	8081283	10/20/2015	14:31	15290SLG	
lmh00956	BJ1009.D	8081284	10/20/2015	14:53	15290SLG	
lmh00956	BJ1010.D	8081285	10/20/2015	15:14	15290SLG	
lmh00956	BJ1011.D	8081286	10/20/2015	15:36	15290SLG	
lmh00956	BJ1012.D	8081287	10/20/2015	15:57	15290SLG	
lmh00956	BJ1013.D	8081288	10/20/2015	16:19	15290SLG	
lmh00956	BJ1014.D	8081289	10/20/2015	16:41	15290SLG	
lmh00956	BJ1015.D	8081290	10/20/2015	17:02	15290SLG	
lmh00956	BJ1016.D	8081291	10/20/2015	17:24	15290SLG	
lmh00956	BJ1017.D	8081292	10/20/2015	17:46	15290SLG	
lmh00956	BJ1018.D	8081293	10/20/2015	18:07	15290SLG	
lmh00956	BJ1019.D	8081294	10/20/2015	18:29	15290SLG	5
lmh00956	BJ1020.D	8081295	10/20/2015	18:51	15290SLG	
lmh00956	BJ1021.D	8084533	10/20/2015	19:12	15290SLG	
lmh00956	BJ1024.D	8082030	10/20/2015	19:35	15290SLE	5
lmh00956	BJ1025.D	8082030	10/20/2015	19:56	15290SLE	5
lmh00956	BJ1026.D	8082030	10/20/2015	20:18	15290SLE	5

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP20296 **HP #12**

Data Directory Path is - D:\DATA\15oct15\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
hbz01996	LJ0530.D	RVDFTPP2435	10/15/2015	11:57		
hbz01996	LJ0531.D	RVSTD2745	10/15/2015	13:06		
hbz01996	LJ0532.D	RVSTD2745	10/15/2015	14:04		
hbz01996	LJ0533.D	RVSTD2745	10/15/2015	14:32		
hbz01996	LJ0534.D	RVSTD2745	10/15/2015	15:00		
hbz01996	LJ0535.D	RVSTD2745	10/15/2015	15:28		
hbz01996	LJ0536.D	RVSTD2745	10/15/2015	15:56		
hbz01996	LJ0537.D	RVSTD2745	10/15/2015	16:23		
hbz01996	LJ0538.D	RVSTD2745	10/15/2015	16:51		
hbz01996	LJ0539.D	RVMDL2745	10/15/2015	17:19		
hbz01996	LJ0540.D	PAHMDL2745	10/15/2015	17:47		
hbz01996	LJ0541.D	RVICV2465	10/15/2015	18:15		
hbz01996	LJ0542.D	RVBASICV2475	10/15/2015	18:43		

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP20296 **HP #12**

Data Directory Path is - D:\DATA\15oct19\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
hbz01996	LJ0640.D	RVDFTPP2435	10/19/2015	09:20		
hbz01996	LJ0640z.D	RVDFTPP2435	10/19/2015	09:51		
hbz01996	LJ0641.D	RVSTD2745	10/19/2015	10:08		
hbz01996	LJ0642.D	SBLKWK288	10/19/2015	11:39	15288WAK	
hbz01996	LJ0643.D	288WKLCS	10/19/2015	12:07	15288WAK	
hbz01996	LJ0644.D	SBLKWB289	10/19/2015	12:35	15289WAB	
hbz01996	LJ0645.D	289WBLCS	10/19/2015	13:03	15289WAB	
hbz01996	LJ0646.D	289WBLCSD	10/19/2015	13:31	15289WAB	
hbz01996	LJ0647.D	8083931DL	10/19/2015	13:58	15288WAD	20
hbz01996	LJ0648.D	8083933DL	10/19/2015	14:27	15288WAD	50
hbz01996	LJ0649.D	8083935DL	10/19/2015	14:55	15288WAD	20
hbz01996	LJ0650.D	8083942	10/19/2015	15:23	15288WAD	
hbz01996	LJ0651.D	8083942DL	10/19/2015	15:51	15288WAD	10
hbz01996	LJ0652.D	8083943	10/19/2015	16:19	15288WAD	
hbz01996	LJ0653.D	8083943DL	10/19/2015	16:46	15288WAD	10
hbz01996	LJ0654.D	8083944	10/19/2015	17:14	15288WAD	
hbz01996	LJ0655.D	8083945	10/19/2015	17:42	15288WAD	
hbz01996	LJ0656.D	8085612	10/19/2015	18:10	15289WAB	
hbz01996	LJ0657.D	8085613	10/19/2015	18:38	15289WAB	
hbz01996	LJ0658.D	8085614	10/19/2015	19:06	15289WAB	

Lancaster Laboratories
Semi-Volatiles
Runlog for Agilent GC/MS System HP20296 **HP #12**

Data Directory Path is - D:\DATA\15oct19a\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
ceb05247	LJ0660.D	RVDFTPP2435	10/19/2015	19:34		
ceb05247	LJ0661.D	RVSTD2745	10/19/2015	19:47		
ceb05247	LJ0662.D	SBLKWA288	10/19/2015	20:27	15288WAA	
ceb05247	LJ0663.D	288WALCS	10/19/2015	20:54	15288WAA	
ceb05247	LJ0664.D	8084481	10/19/2015	21:22	15288WAK	
ceb05247	LJ0665.D	8084482	10/19/2015	21:50	15288WAK	
ceb05247	LJ0666.D	8084483	10/19/2015	22:18	15288WAK	
ceb05247	LJ0667.D	8084480	10/19/2015	22:46	15288WAK	
ceb05247	LJ0668.D	8084485	10/19/2015	23:14	15288WAK	
ceb05247	LJ0669.D	8084486	10/19/2015	23:42	15288WAK	
ceb05247	LJ0670.D	8084487	10/20/2015	00:10	15288WAK	
ceb05247	LJ0671.D	8084488	10/20/2015	00:38	15288WAK	
ceb05247	LJ0672.D	8084534	10/20/2015	01:06	15288WAK	
ceb05247	LJ0673.D	8084460	10/20/2015	01:34	15288WAA	
ceb05247	LJ0674.D	8084461	10/20/2015	02:02	15288WAA	
ceb05247	LJ0675.D	8084462	10/20/2015	02:30	15288WAA	
ceb05247	LJ0676.D	8084459	10/20/2015	02:58	15288WAA	
ceb05247	LJ0677.D	8084464	10/20/2015	03:26	15288WAA	
ceb05247	LJ0678.D	8084465	10/20/2015	03:54	15288WAA	
ceb05247	LJ0679.D	8084466	10/20/2015	04:22	15288WAA	
ceb05247	LJ0680.D	8084467	10/20/2015	04:50	15288WAA	
ceb05247	LJ0681.D	8084468	10/20/2015	05:18	15288WAA	
ceb05247	LJ0682.D	8084469	10/20/2015	05:46	15288WAA	
ceb05247	LJ0683.D	8084470	10/20/2015	06:14	15288WAA	
ceb05247	LJ0684.D	8084471	10/20/2015	06:42	15288WAA	
ceb05247	LJ0685.D	8084472	10/20/2015	07:10	15288WAA	
ceb05247	LJ0686.D	8084473	10/20/2015	07:38	15288WAA	

Organic Extraction Batchlog Assigned to: 6740 Jessica Velez

Reviewed by: MB2/1996 10/19/15 Start Date: 10/16/15 Start time: 8:30

15288WAK026

Tech 1: JVE740 Tech 2: _____

Dept: 26 Prep Analysis: 00813 BNA Water Extraction TCL SW846 8270C Water

QC	Sample Code	Amt mL	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
8084482MS	P1502	251	SS1528026A	1.0	MS1528626A	1.0	1	✓	✓	IS3A	Cloudy yellow
8084483MSD	P1502	247	SS1528026A	↓	MS1528626A	1.0	1	✓	✓	IS3A	↓
BLANKA	SBLKWK288	250	SS1528026A		—	—	1	✓	✓	—	Tap H2O
LCSA	288WKLCS	250	SS1528026A	↓	MS1528626A	1.0	1	✓	✓	↓	↓

Solvent Used	Lot No.
10N NaOH	2507A14
Methylene Chloride	123564
Sodium Sulfate	15288A
Sulfuric Acid	155108

Spike Solutions: Witness: _____

MS1528626A MINI SEP. LCS SPIKE

SS1528026A MINI SEP. BNA SURROGATE

Sample #		Sample Code	Amt mL	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	List	Due Date	Prio
1	8084480	P1501	244	SS1528026A	1.0	1	✓	✓	IS3A	cloudy yellow	04678	642	10/22/2015	N
2	8084481BKG	P1502	245	SS1528026A	↓	1	✓	✓	IS3A	↓	04678	642	10/22/2015	N
3	8084485	P1503	244	SS1528026A		1	✓	✓	IS3A		04678	642	10/22/2015	N
4	8084486	P1504	248	SS1528026A		1	✓	✓	IS3A		04678	642	10/22/2015	N
5	8084487	P1505	244	SS1528026A		1	✓	✓	IS3A		04678	642	10/22/2015	N
6	8084488	P1506	246	SS1528026A		1	✓	✓	IS3A		04678	642	10/22/2015	N
7	8084534	HRWL1	241	SS1528026A		1	✓	✓	IS3A	BROWN	04678	2272	10/22/2015	N

N/A

Rack ID:	—	Work Station	H205	Micro Temp 100?		S-bath ID 11	80°C	S-bath ID —	C	N-Evap —	C	M-vap — C	15288WAK026
Internal Standard	MSTD2795	Balance #	15661		✓							

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Organic Extraction Batchlog Assigned to: 504 Sally Appleyard Reviewed by: 10/20/15 Start Date: 10/19/15 Start time: 18:35

15290SLG026

Tech 1: SLA 504 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
8081290MS	D3012	30.09	SS1528526A	1.0	MS1527626A	1.0	1.0	Z	Z	301A	
8081291MSD	D3012	30.26	SS1528526A		MS1527626A	1.0	1.0	Z	Z	301A	
BLANKA	SBLKLG290	30.0	SS1528526A				1.0	Z	Z		
LCSA	290LGLCS	30.0	SS1528526A		MS1527626A	1.0	1.0	Z	Z		

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185100/15A
Methylene Chloride	123566
Sodium Sulfate	15290A

Spike Solutions: Witness: N/A

MS1527626A LCS SPIKE MIX

SS1528526A BNA SURROGATE STANDARD

Sample #	Sample Code	Amt (G)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	List	Due Date	Prio
1 8081281	D3004	30.30	SS1528526A	1.0	1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
2 8081282	D3005	30.41	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
3 8081283	D3006	30.16	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
4 8081284	D3007	30.18	SS1528526A		1.0	Z	Z	301A	Soil;Rocks;Brown	10727	14775	10/20/2015	N
5 8081285	D3008	30.10	SS1528526A		1.0	Z	Z	301A	Soil;Rocks;Brown	10727	14775	10/20/2015	N
6 8081286	D3009	30.37	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
7 8081287	D3010	30.38	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
8 8081288	D3011	30.04	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
9 8081289BKG	D3012	30.09	SS1528526A		1.0	Z	Z	301A	Sandy;Rocks;Black;Brown	10727	14775	10/20/2015	N
10 8081292	D3013	30.12	SS1528526A		1.0	Z	Z	301A	Clay;Brown	10727	14775	10/20/2015	N
11 8081293	D3014	30.39	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
12 8081294	D3015	30.28	SS1528526A		1.0	Z	Z	301A	Soil;Brown	10727	14775	10/20/2015	N
13 8081295	D3016	30.24	SS1528526A		1.0	Z	Z	301A	Sandy;Rocks;Black;Brown	10727	14775	10/20/2015	N
14 8084533	HRWS1	30.15	SS1528526A		1.0	Z	Z	301A		10727	1847	10/22/2015	N

SLA 10/19/15 N/A

Rack ID:		Work Station	Micro	Micro Temp 100?
Internal Standard	LC15691N	Balance #	—	✓

S-bath ID	397 C	S-bath ID	C	N-Evap	C	M-vap	C	15290SLG026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Metals in Liquid Data

Case Narrative/Conformance Summary

Metals in Liquid

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

ICP Metals

Fraction: Metals in Liquid

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8084534	HGR-WL01-100915	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

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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.

Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

ICP Metals

Fraction: Metals in Liquid

Abbreviation Key

BKG – Background	AF - Cold Vapor Atomic Fluorescence
DUP – Duplicate	U - Below MDL
MS - Matrix Spike	B - Below LOQ
MSD - Matrix Spike Dup	N - Matrix Spike out of specifications
B – Blank	* - Duplicate out of specifications
Q - Laboratory Control Sample	E - Matrix Effects exist as proven by Serial Dilution or Spiked Dilution
Y - Laboratory Control Sample Duplicate	A - Post Digestion Spike
P - ICP Atomic Emission Spectrometer	L - Serial Dilution
MS - ICP Mass Spectrometry	R - Internal Standard Relative Intensity OOS
CV - Cold Vapor	NR - Not Required

Sample Data

Metals in Liquid

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR32
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 8084534 % Solids: 0.0
Concentration Units: UG/L Date Received: 10/10/2015

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	7.0	U		P
7440-39-3	Barium	61.8			P
7440-43-9	Cadmium	0.30	U		P
7440-47-3	Chromium	28.6			P
7439-92-1	Lead	9.5	B		P
7439-97-6	Mercury	0.050	U		CV
7782-49-2	Selenium	8.2	U		P
7440-22-4	Silver	1.4	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

Metals in Liquid

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR32
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Arsenic	P29348C	8084534
Barium		*94051BKG
Cadmium		P29348CB
Chromium		P29348CQ
Lead		
Selenium		
Silver		

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 CONTROL REFERENCE LIST

SDG No.: DHR32
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Mercury	P29313E	8084534
		P29313EB
		P29313EQ

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.: DHR32

Method: P
Run Name: 1529903T70
Calibration Date(s): 10/26/2015
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)
Arsenic		600.0	615.81	102.6	500.0	528.18	105.6	500.0	519.26	103.9
Barium		600.0	599.55	99.9	500.0	512.49	102.5	500.0	511.31	102.3
Cadmium		600.0	603.74	100.6	500.0	511.91	102.4	500.0	503.11	100.6
Chromium		600.0	592.20	98.7	500.0	507.52	101.5	500.0	504.28	100.9
Lead										
Selenium		600.0	596.23	99.4	500.0	502.97	100.6	500.0	501.67	100.3
Silver		600.0	590.49	98.4	500.0	503.60	100.7	500.0	499.77	100.0

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: P
Run Name: 1529903T70
Calibration Date(s): 10/26/2015
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)
Arsenic					500.0	504.31	100.9	500.0	526.70	105.3
Barium					500.0	511.10	102.2	500.0	508.99	101.8
Cadmium					500.0	503.19	100.6	500.0	507.67	101.5
Chromium					500.0	506.80	101.4	500.0	505.22	101.0
Lead										
Selenium					500.0	493.10	98.6	500.0	500.92	100.2
Silver					500.0	500.23	100.0	500.0	498.87	99.8

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: P
Run Name: 1530002T73
Calibration Date(s): 10/27/2015
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)
Arsenic		600.0	599.99	100.0	500.0	487.73	97.5	500.0	492.57	98.5
Barium										
Cadmium										
Chromium										
Lead		600.0	598.76	99.8	500.0	492.58	98.5	500.0	494.75	99.0
Selenium										
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: P
Run Name: 1530002T73
Calibration Date(s): 10/27/2015
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)
Arsenic					500.0	493.19	98.6	500.0	493.25	98.7
Barium										
Cadmium										
Chromium										
Lead					500.0	488.93	97.8	500.0	486.14	97.2
Selenium										
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.44	97.6	1.0	0.98	98.0	1.0	0.95	95.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.97	97.0	1.0	0.97	97.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.97	97.0	1.0	0.97	97.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
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)
Mercury					1.0	0.95	95.0	1.0	0.98	98.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: P
Run Name: 1529903T70
Calibration Date(s): 10/26/2015
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Arsenic		20.0	23.10	115.5	35.31	176.6
Barium		5.0	5.03	100.6	4.98	99.6
Cadmium		5.0	5.03	100.6	4.84	96.8
Chromium		15.0	15.67	104.5	15.06	100.4
Lead						
Selenium		20.0	22.78	113.9	24.39	122.0
Silver		5.0	3.60	72.0	4.44	88.8

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.: DHR32

Method: P
Run Name: 1530002T73
Calibration Date(s): 10/27/2015
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Arsenic		20.0	16.41	82.1	24.00	120.0
Barium						
Cadmium						
Chromium						
Lead		15.0	9.63	64.2	7.60	50.7
Selenium						
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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
Concentration Units: UG/L

			Initial		Final	
Analyte	Mass	True	Found	%R	Found	%R
Mercury		0.2	0.20	100.0	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

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: P
Run Name: 1529903T70
Calibration Date(s): 10/26/2015
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		3.4	U	3.4	U	-3.8	B	7.3	B		7.000	U	P29348CB
Barium		0.33	U	0.33	U	0.33	U	0.33	U		0.300	U	P29348CB
Cadmium		0.36	U	0.36	U	0.36	U	0.36	U		0.300	U	P29348CB
Chromium		1.1	U	1.1	U	1.1	U	1.1	U		1.500	U	P29348CB
Lead													
Selenium		3.4	U	3.4	U	-4.5	B	3.4	U		8.200	U	P29348CB
Silver		0.83	U	-1.3	B	0.83	U	-1.3	B		1.400	U	P29348CB

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.: DHR32

Method: P
Run Name: 1529903T70
Calibration Date(s): 10/26/2015

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				9.4	B								
Barium				0.33	U								
Cadmium				0.36	U								
Chromium				1.1	U								
Lead													
Selenium				-6.6	B								
Silver				-1.2	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

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: P
Run Name: 1530002T73
Calibration Date(s): 10/27/2015
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		3.4	U	6.8	B	5.5	B	3.4	U				
Barium													
Cadmium													
Chromium													
Lead		2.5	U	2.5	U	-5.2	B	-2.5	B		-6.900	B	P29348CB
Selenium													
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	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: P
Run Name: 1530002T73
Calibration Date(s): 10/27/2015

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				5.2	B								
Barium													
Cadmium													
Chromium													
Lead				2.5	U								
Selenium													
Silver													

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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015
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		-0.067	B	0.050	U	0.050	U	0.050	U		0.050	U	P29313EB

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.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015

		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				0.050	U	0.050	U	0.050	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	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: CV
Run Name: 1529501M07
Calibration Date(s): 10/22/2015

		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				0.050	U	0.050	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	

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR32

Instrument ID: 11016
Run Name: 1529903T70
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	500365	100.1	498578.3	99.7	487624	97.5	497270.0	99.5
Arsenic	0	100	11		85.1	85.1	21		113.2	113.2
Barium	0	500	1		499.2	99.8	1		501.1	100.2
Cadmium	0	1000	1		924.3	92.4	1		929.4	92.9
Calcium	500000	500000	502141	100.4	500332.1	100.1	499078	99.8	500816.1	100.2
Chromium	0	500	9		491.5	98.3	9		493.6	98.7
Iron	200000	200000	197731	98.9	199971.7	100.0	196745	98.4	199527.3	99.8
Lead										
Magnesium	500000	500000	491885	98.4	496675.9	99.3	482981	96.6	491036.9	98.2
Selenium	0	50	1		53.1	106.2	6		50.0	100.0
Silver	0	200	1		210.5	105.3	0		211.1	105.6

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR32

Instrument ID: 18255
Run Name: 1530002T73
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	495767	99.2	509612.4	101.9	489296	97.9	504801.3	101.0
Arsenic	0	100	9		105.2	105.2	12		87.0	87.0
Barium										
Cadmium										
Calcium	500000	500000	497938	99.6	512183.2	102.4	492165	98.4	508049.3	101.6
Chromium										
Iron	200000	200000	200623	100.3	207281.8	103.6	199817	99.9	205373.0	102.7
Lead	0	50	0		48.0	96.0	-4		43.8	87.6
Magnesium	500000	500000	507893	101.6	523663.7	104.7	504255	100.9	519329.6	103.9
Selenium										
Silver										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR32
Matrix: WATER

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Arsenic		P29348CQ	UG/L	150.000	155.130		80 - 120	103	P	Yes
Barium		P29348CQ	UG/L	2000.000	2062.740		80 - 120	103	P	Yes
Cadmium		P29348CQ	UG/L	50.000	52.690		80 - 120	105	P	Yes
Chromium		P29348CQ	UG/L	200.000	207.850		80 - 120	104	P	Yes
Lead		P29348CQ	UG/L	150.000	142.570		80 - 120	95	P	Yes
Mercury		P29313EQ	UG/L	1.000	0.919		80 - 120	92	CV	Yes
Selenium		P29348CQ	UG/L	150.000	144.100		80 - 120	96	P	Yes
Silver		P29348CQ	UG/L	50.000	43.780		80 - 120	88	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 9
SERIAL DILUTIONS
SDG No.: DHR32
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: *94051BKG Serial Dilution Lab Sample ID: *94051L
Batch ID(s): P29348C
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Arsenic		7.0000	U	35.0000	U			P
Barium		39.8500		39.9500		0		P
Cadmium		0.3000	U	1.5000	U			P
Chromium		55.0900		56.3000	B	2		P
Lead		23.6600		25.5000	U	100		P
Selenium		8.2000	U	41.0000	U			P
Silver		1.4000	U	7.0000	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

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: P
Instrument ID: 11016
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Arsenic	189.04		3.4
Barium	455.40		0.33
Cadmium	226.50		0.36
Chromium	267.72		1.1
Lead			
Selenium	196.09		3.4
Silver	328.06		0.83

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: P
Instrument ID: 18255
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Arsenic	189.04		3.4
Barium			
Cadmium			
Chromium			
Lead	220.35		2.5
Selenium			
Silver			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: CV
Instrument ID: 17384
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury	254.00		0.050

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.: DHR32
Matrix: WATER

Method: P
Date: 07/2015

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Arsenic	189.04		20.0	7.0
Barium	455.40		5.0	0.30
Cadmium	226.50		5.0	0.30
Chromium	267.72		15.0	1.5
Lead	220.35		15.0	5.1
Selenium	196.09		20.0	8.2
Silver	328.06		5.0	1.4

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.: DHR32
Matrix: WATER

Method: CV
Date: 07/2015

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury	254.00		0.20	0.050

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.: DHR32

Instrument ID: 11016
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Arsenic	189.04	0.0000130	0.0000000	-0.0000670	0.0000000	-0.0000910
Cadmium	226.50	-0.0000040	0.0000000	0.0000890	0.0000000	-0.0000070
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.09	0.0000080	0.0000000	0.0000230	0.0000000	0.0000310
Silver	328.06	0.0000000	0.0000000	-0.0000370	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 11016
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	MN	MO	NI	TH
Arsenic	189.04	0.0005210	0.0000000	0.0011390	0.0000000	0.0001400
Cadmium	226.50	0.0000020	0.0000000	0.0000000	-0.0000500	0.0000630
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	-0.0008440
Selenium	196.09	0.0000000	0.0004790	0.0000000	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	0.0003000	0.0000000	0.0001500

Comments:

QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 11016
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: TI	V	W	ZR	--
Arsenic	189.04	0.0000000	0.0005560	-0.0033900	0.0000000	
Cadmium	226.50	0.0000000	0.0000000	0.0001090	0.0000000	
Chromium	267.72	0.0000000	0.0000000	0.0002670	0.0000000	
Selenium	196.09	0.0000000	0.0000000	0.0091860	0.0000000	
Silver	328.06	-0.0000700	-0.0034260	0.0000000	0.0049580	

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 18255
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Arsenic	189.04	0.0000750	0.0000000	-0.0001110	0.0000000	0.0000000
Lead	220.35	0.0001410	0.0000000	0.0000020	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 18255
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	CU	MO	NI	SI
Arsenic	189.04	0.0004820	0.0000000	0.0001240	0.0000000	0.0000000
Lead	220.35	0.0000000	0.0002590	-0.0028050	0.0000000	0.0000780

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 18255
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: W	--	--	--	--
Arsenic	189.04	-0.0031360				
Lead	220.35	0.0000000				

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR32

Method: P
Instrument ID: 11016
Date: 10/2015

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Arsenic	189.04	10.00	20000.0
Barium	455.4	10.00	10000.0
Cadmium	226.5	10.00	20000.0
Chromium	267.72	10.00	20000.0
Lead			
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 12
LINEAR RANGES
SDG No.: DHR32

Method: P
Instrument ID: 18255
Date: 10/2015

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Arsenic	189.04	10.00	20000.0
Barium			
Cadmium			
Chromium			
Lead	220.35	10.00	20000.0
Selenium			
Silver			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Preparation and Run Logs

Metals in Liquid

Method: P
Batch ID: P29348C

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
8084534	10/21/2015	50.00	50
*94051BKG	10/21/2015	50.00	50
P29348CB	10/21/2015	50.00	50
P29348CQ	10/21/2015	1.00	1

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
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

Method: CV
Batch ID: P29313E

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
8084534	10/21/2015	40.00	40
P29313EB	10/21/2015	40.00	40
P29313EQ	10/21/2015	1.00	1

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
	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.: DHR32

Method: P
Instrument ID: 11016
Run Name: 1529903T70

Run Start Date: 10/26/2015
Run End Date: 10/26/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
S0	1.00	11:53	X	X	X	X			X	X																					
S	1.00	11:56																													
S	1.00	11:58	X	X	X				X	X																					
S	1.00	12:02				X																									
ICV	1.00	12:04	X	X	X	X			X	X																					
ICB	1.00	12:07	X	X	X	X			X	X																					
LLC	1.00	12:10	X	X	X	X			X	X																					
ICSA	1.00	12:13	X	X	X	X			X	X																					
ICSAB	1.00	12:16	X	X	X	X			X	X																					
CCV	1.00	12:19	X	X	X	X			X	X																					
CCB	1.00	12:22	X	X	X	X			X	X																					
P29348CB	1.00	12:25	X	X	X	X			X	X																					
P29348CQ	1.00	12:28		X	X	X			X	X																					
*94051BKG	1.00	12:31		X	X	X			X	X																					
ZZZZZZ	1.00	12:34																													
ZZZZZZ	1.00	12:36																													
ZZZZZZ	1.00	12:39																													
ZZZZZZ	1.00	12:42																													
*94051L	5.00	12:45		X	X	X			X	X																					
ZZZZZZ	1.00	12:48																													
ZZZZZZ	1.00	12:51																													
CCV	1.00	12:54	X	X	X	X			X	X																					
CCB	1.00	12:56	X	X	X	X			X	X																					
ZZZZZZ	1.00	12:59																													
ZZZZZZ	1.00	13:02																													
ZZZZZZ	1.00	13:05																													
8084534	1.00	13:08	X	X	X	X			X	X																					
ZZZZZZ	1.00	13:11																													
ZZZZZZ	1.00	13:14																													
ZZZZZZ	1.00	13:17																													
ZZZZZZ	1.00	13:20																													
ZZZZZZ	1.00	13:23																													
ZZZZZZ	1.00	13:25																													
CCV	1.00	13:29	X	X	X	X			X	X																					
CCB	1.00	13:31	X	X	X	X			X	X																					
ZZZZZZ	1.00	13:34																													
ZZZZZZ	1.00	13:37																													
ZZZZZZ	1.00	13:40																													

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.: DHR32

Method: P
Instrument ID: 11016
Run Name: 1529903T70

Run Start Date: 10/26/2015
Run End Date: 10/26/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	1.00	13:43																														
ZZZZZZ	1.00	13:46																														
LLC	1.00	13:49	X	X	X	X			X	X																						
ICSA	1.00	13:52	X	X	X	X			X	X																						
ICSAB	1.00	13:55	X	X	X	X			X	X																						
CCV	1.00	13:58	X	X	X	X			X	X																						
CCB	1.00	14:00	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.: DHR32

Method: P
Instrument ID: 18255
Run Name: 1530002T73

Run Start Date: 10/27/2015
Run End Date: 10/27/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
S0	1.00	01:39	X				X																								
S	1.00	01:42																													
S	1.00	01:45	X				X																								
S	1.00	01:47																													
ICV	1.00	01:50	X				X																								
ICB	1.00	01:53	X				X																								
LLC	1.00	01:55	X				X																								
ICSA	1.00	01:58	X				X																								
ICSAB	1.00	02:01	X				X																								
CCV	1.00	02:03	X				X																								
CCB	1.00	02:06	X				X																								
P29348CB	1.00	02:08					X																								
P29348CB	1.00	02:11																													
P29348CQ	1.00	02:14	X				X																								
*94051BKG	1.00	02:17	X				X																								
ZZZZZZ	1.00	02:19																													
ZZZZZZ	1.00	02:22																													
ZZZZZZ	1.00	02:25																													
ZZZZZZ	1.00	02:27																													
*94051L	5.00	02:30	X				X																								
ZZZZZZ	1.00	02:33																													
CCV	1.00	02:36	X				X																								
CCB	1.00	02:38	X				X																								
ZZZZZZ	1.00	02:41																													
ZZZZZZ	1.00	02:44																													
ZZZZZZ	1.00	02:46																													
ZZZZZZ	1.00	02:49																													
8084534	1.00	02:52					X																								
ZZZZZZ	1.00	02:54																													
ZZZZZZ	1.00	02:57																													
ZZZZZZ	1.00	03:00																													
ZZZZZZ	1.00	03:02																													
ZZZZZZ	1.00	03:05																													
CCV	1.00	03:08	X				X																								
CCB	1.00	03:10	X				X																								
ZZZZZZ	1.00	03:13																													
LLC	1.00	03:16	X				X																								
ICSA	1.00	03:18	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.: DHR32

Method: P
Instrument ID: 18255
Run Name: 1530002T73

Run Start Date: 10/27/2015
Run End Date: 10/27/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ICSAB	1.00	03:21	X				X																									
CCV	1.00	03:24	X				X																									
CCB	1.00	03:26	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.: DHR32

Method: CV
Instrument ID: 17384
Run Name: 1529501M07

Run Start Date: 10/22/2015
Run End Date: 10/22/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
S0	1.00	03:23						X																							
S0.2	1.00	03:25						X																							
S0.5	1.00	03:27						X																							
S1.0	1.00	03:29						X																							
S2.5	1.00	03:31						X																							
S5.0	1.00	03:33						X																							
ICV	1.00	03:35						X																							
ICB	1.00	03:37						X																							
CRA	1.00	03:39						X																							
CCV	1.00	03:41						X																							
CCB	1.00	03:43						X																							
ZZZZZZ	1.00	03:47																													
ZZZZZZ	1.00	03:49																													
ZZZZZZ	1.00	03:51																													
ZZZZZZ	1.00	03:53																													
ZZZZZZ	1.00	03:55																													
ZZZZZZ	1.00	03:57																													
ZZZZZZ	1.00	03:59																													
ZZZZZZ	1.00	04:01																													
P29313EB	1.00	04:03						X																							
P29313EQ	1.00	04:05						X																							
CCV	1.00	04:07						X																							
CCB	1.00	04:09						X																							
ZZZZZZ	1.00	04:11																													
ZZZZZZ	1.00	04:13																													
ZZZZZZ	1.00	04:15																													
ZZZZZZ	1.00	04:17																													
ZZZZZZ	1.00	04:19																													
ZZZZZZ	1.00	04:21																													
ZZZZZZ	1.00	04:23																													
ZZZZZZ	1.00	04:25																													
ZZZZZZ	1.00	04:27																													
ZZZZZZ	1.00	04:30																													
CCV	1.00	04:32						X																							
CCB	1.00	04:34						X																							
8084534	1.00	04:36						X																							
ZZZZZZ	1.00	04:38																													
ZZZZZZ	1.00	04:40																													

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.: DHR32

Method: CV
Instrument ID: 17384
Run Name: 1529501M07

Run Start Date: 10/22/2015
Run End Date: 10/22/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	1.00	04:42																														
ZZZZZZ	1.00	04:44																														
ZZZZZZ	1.00	04:46																														
ZZZZZZ	1.00	04:48																														
ZZZZZZ	1.00	04:50																														
ZZZZZZ	1.00	04:52																														
ZZZZZZ	1.00	04:54																														
CCV	1.00	04:56						X																								
CCB	1.00	04:58						X																								
ZZZZZZ	1.00	05:00																														
ZZZZZZ	1.00	05:02																														
ZZZZZZ	1.00	05:04																														
ZZZZZZ	1.04	05:06																														
ZZZZZZ	1.04	05:08																														
ZZZZZZ	1.00	05:10																														
ZZZZZZ	1.00	05:12																														
ZZZZZZ	1.00	05:14																														
ZZZZZZ	1.00	05:16																														
ZZZZZZ	1.00	05:18																														
CCV	1.00	05:20						X																								
CCB	1.00	05:22						X																								
ZZZZZZ	1.00	05:25																														
ZZZZZZ	1.00	05:27																														
ZZZZZZ	1.00	05:29																														
ZZZZZZ	1.00	05:31																														
ZZZZZZ	1.00	05:33																														
ZZZZZZ	1.00	05:35																														
ZZZZZZ	1.00	05:37																														
ZZZZZZ	1.00	05:39																														
ZZZZZZ	1.00	05:41																														
ZZZZZZ	1.00	05:43																														
CCV	1.00	05:45						X																								
CCB	1.00	05:47						X																								
ZZZZZZ	1.00	05:49																														
ZZZZZZ	1.00	05:51																														
ZZZZZZ	1.00	05:53																														
ZZZZZZ	1.00	05:55																														
ZZZZZZ	1.00	05:57																														

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.: DHR32

Method: CV
Instrument ID: 17384
Run Name: 1529501M07

Run Start Date: 10/22/2015
Run End Date: 10/22/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	1.00	05:59																														
ZZZZZZ	1.00	06:01																														
ZZZZZZ	1.00	06:03																														
ZZZZZZ	1.00	06:06																														
ZZZZZZ	1.00	06:08																														
CCV	1.00	06:10						X																								
CCB	1.00	06:12						X																								
ZZZZZZ	1.00	06:14																														
CRA	1.00	06:16						X																								
CCV	1.00	06:18						X																								
CCB	1.00	06:20						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

Metals in Solid Data

Case Narrative/Conformance Summary

Metals in Solid

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

ICP Metals

Fraction: Metals in Solid

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8084533	HGR-WS01-100915		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

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

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.

Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR32

ICP Metals

Fraction: Metals in Solid

Abbreviation Key

BKG – Background	AF - Cold Vapor Atomic Fluorescence
DUP – Duplicate	U - Below MDL
MS - Matrix Spike	B - Below LOQ
MSD - Matrix Spike Dup	N - Matrix Spike out of specifications
B – Blank	* - Duplicate out of specifications
Q - Laboratory Control Sample	E - Matrix Effects exist as proven by Serial Dilution or Spiked Dilution
Y - Laboratory Control Sample Duplicate	A - Post Digestion Spike
P - ICP Atomic Emission Spectrometer	L - Serial Dilution
MS - ICP Mass Spectrometry	R - Internal Standard Relative Intensity OOS
CV - Cold Vapor	NR - Not Required

Sample Data

Metals in Solid

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR32
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 8084533 % Solids: 87.9
Concentration Units: MG/KG Date Received: 10/10/2015

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	7.6			P
7440-39-3	Barium	89.2			P
7440-43-9	Cadmium	0.51	B		P
7440-47-3	Chromium	12.4			P
7439-92-1	Lead	5.8			P
7439-97-6	Mercury	0.018	B		CV
7782-49-2	Selenium	2.7			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

Metals in Solid

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR32
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Arsenic	P29208A	8084533
Barium		*84777BKG
Cadmium		P29208AB
Chromium		P29208AQ
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	

QUALITY CONTROL REFERENCE LIST

SDG No.: DHR32
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Mercury	P28811A	8084533
		P28811AB
		P28811AQ

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 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: P
Run Name: 1529506T71
Calibration Date(s): 10/22/2015
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)
Arsenic										
Barium		600.0	620.80	103.5	500.0	512.50	102.5	500.0	505.27	101.1
Cadmium										
Chromium		600.0	607.13	101.2	500.0	498.55	99.7	500.0	499.71	99.9
Lead		600.0	592.96	98.8	500.0	502.44	100.5	500.0	504.48	100.9
Selenium										
Silver		600.0	619.32	103.2	500.0	503.94	100.8	500.0	503.80	100.8

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: P
Run Name: 1529506T71
Calibration Date(s): 10/22/2015
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)
Arsenic										
Barium					500.0	519.80	104.0	500.0	509.86	102.0
Cadmium										
Chromium					500.0	510.33	102.1	500.0	499.19	99.8
Lead					500.0	501.98	100.4	500.0	505.63	101.1
Selenium										
Silver					500.0	515.26	103.1	500.0	505.14	101.0

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Lancaster Laboratories Environmental

QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR32

Method: P
Run Name: 1529603T72
Calibration Date(s): 10/23/2015
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)
Arsenic		600.0	602.03	100.3	500.0	511.40	102.3	500.0	513.47	102.7
Barium										
Cadmium		600.0	609.73	101.6	500.0	512.31	102.5	500.0	513.02	102.6
Chromium										
Lead										
Selenium		600.0	614.34	102.4	500.0	513.73	102.7	500.0	517.07	103.4
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: P
Run Name: 1529603T72
Calibration Date(s): 10/23/2015
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)
Arsenic					500.0	512.00	102.4	500.0	505.13	101.0
Barium										
Cadmium					500.0	514.23	102.8	500.0	506.99	101.4
Chromium										
Lead										
Selenium					500.0	517.31	103.5	500.0	510.73	102.1
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.59	103.6	1.0	0.97	97.0	1.0	0.97	97.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.96	96.0	1.0	0.95	95.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
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)
Mercury					1.0	0.92	92.0	1.0	0.95	95.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
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)
Mercury					1.0	0.94	94.0			

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120
* Outside Limits, Only ND samples were accepted

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.: DHR32

Method: P
Run Name: 1529506T71
Calibration Date(s): 10/22/2015
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Arsenic						
Barium		5.0	5.84	116.8	5.37	107.4
Cadmium						
Chromium		15.0	16.13	107.5	15.83	105.5
Lead		15.0	12.69	84.6	15.97	106.5
Selenium						
Silver		5.0	5.43	108.6	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.

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.: DHR32

Method: P
Run Name: 1529603T72
Calibration Date(s): 10/23/2015
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Arsenic		20.0	20.26	101.3	19.25	96.3
Barium						
Cadmium		5.0	5.37	107.4	5.24	104.8
Chromium						
Lead						
Selenium		20.0	22.56	112.8	21.91	109.6
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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
Concentration Units: UG/L

Analyte	Mass	True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.19	95.0	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.: DHR32

Method: P
Run Name: 1529506T71
Calibration Date(s): 10/22/2015
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													
Barium		0.49	B	0.38	B	0.80	B	0.33	U		0.067	U	P29208AB
Cadmium													
Chromium		1.0	B	1.1	B	2.0	B	0.85	U		0.099	B	P29208AB
Lead		2.5	U	-4.1	B	2.5	U	2.5	U		0.320	U	P29208AB
Selenium													
Silver		0.83	U	0.83	U	0.83	U	0.83	U		0.120	U	P29208AB

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.: DHR32

Method: P
Run Name: 1529506T71
Calibration Date(s): 10/22/2015

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													
Barium				0.76	B								
Cadmium													
Chromium				1.4	B								
Lead				2.5	U								
Selenium													
Silver				0.83	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

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: P
Run Name: 1529603T72
Calibration Date(s): 10/23/2015
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		3.4	U	3.4	U	3.4	U	3.4	U		0.580	U	P29208AB
Barium													
Cadmium		0.33	U	0.33	U	0.33	U	0.33	U		0.043	U	P29208AB
Chromium													
Lead													
Selenium		3.4	U	3.4	U	3.9	B	3.4	U		0.830	U	P29208AB
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	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR32

Method: P
Run Name: 1529603T72
Calibration Date(s): 10/23/2015

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				3.4	U								
Barium													
Cadmium				0.33	U								
Chromium													
Lead													
Selenium				3.4	U								
Silver													

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015
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		0.050	U	0.050	U	0.050	U	0.050	U		0.010	U	P28811AB

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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015

		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				0.050	U	0.050	U	0.050	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.: DHR32

Method: CV
Run Name: 1529101M08
Calibration Date(s): 10/18/2015

		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				0.050	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 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR32

Instrument ID: 16315
Run Name: 1529506T71
Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	%R	Initial Found Sol. AB	%R	Final Found Sol. A	%R	Final Found Sol. AB	%R
Aluminum	500000	500000	536074	107.2	515312.4	103.1	510879	102.2	523073.0	104.6
Arsenic										
Barium	0	500	1		500.7	100.1	1		502.3	100.5
Cadmium										
Calcium	500000	500000	549167	109.8	521884.5	104.4	519093	103.8	523145.2	104.6
Chromium	0	500	8		494.7	98.9	7		503.3	100.7
Iron	200000	200000	218972	109.5	209873.1	104.9	207260	103.6	212771.7	106.4
Lead	0	50	-3		46.7	93.4	3		51.9	103.8
Magnesium	500000	500000	657587	131.5	597119.2	119.4	598159	119.6	610773.8	122.2
Selenium										
Silver	0	200	-4		213.8	106.9	-6		217.6	108.8

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR32

Instrument ID: 16417
Run Name: 1529603T72
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	509654	101.9	499574.5	99.9	501887	100.4	508973.7	101.8
Arsenic	0	100	-4		101.7	101.7	-4		97.4	97.4
Barium										
Cadmium	0	1000	5		952.9	95.3	6		965.4	96.5
Calcium	500000	500000	513010	102.6	503833.8	100.8	505956	101.2	516576.3	103.3
Chromium										
Iron	200000	200000	204669	102.3	201938.1	101.0	202932	101.5	207003.0	103.5
Lead										
Magnesium	500000	500000	479263	95.9	466488.8	93.3	470509	94.1	477806.4	95.6
Selenium	0	50	-1		51.1	102.2	-4		49.5	99.0
Silver										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR32
Matrix: SOIL

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Arsenic		P29208AQ	UG/L	15000.000	15840.000		80 - 120	106	P	Yes
Barium		P29208AQ	UG/L	200000.000	204372.000		80 - 120	102	P	Yes
Cadmium		P29208AQ	UG/L	5000.000	5421.000		80 - 120	108	P	Yes
Chromium		P29208AQ	UG/L	20000.000	20084.000		80 - 120	100	P	Yes
Lead		P29208AQ	UG/L	15000.000	15501.000		80 - 120	103	P	Yes
Mercury		P28811AQ	UG/L	100.000	101.980		80 - 120	102	CV	Yes
Selenium		P29208AQ	UG/L	15000.000	15769.000		80 - 120	105	P	Yes
Silver		P29208AQ	UG/L	5000.000	5044.000		80 - 120	101	P	Yes

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 9
SERIAL DILUTIONS
SDG No.: DHR32
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: *84777BKG Serial Dilution Lab Sample ID: *84777L
Batch ID(s): P29208A
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Arsenic		45.5900		41.2000	B	10		P
Barium		859.3900		794.4000		8		P
Cadmium		4.8000	B	4.9500	B	3		P
Chromium		150.2000		140.5000		6		P
Lead		132.5600		121.3000		8		P
Selenium		17.0300	B	44.7500	B	163		P
Silver		1.2000	U	6.0000	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

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: P
Instrument ID: 16315
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Arsenic			
Barium	455.40		0.33
Cadmium			
Chromium	267.72		0.85
Lead	220.35		2.5
Selenium			
Silver	328.06		0.83

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: P
Instrument ID: 16417
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Arsenic	189.04		3.4
Barium			
Cadmium	226.50		0.33
Chromium			
Lead			
Selenium	196.09		3.4
Silver			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR32

Method: CV
Instrument ID: 19302
Date: 10/2015

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury			0.050

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.: DHR32
Matrix: SOIL

Method: P
Date: 07/2015

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Arsenic	189.04		20.0	5.8
Barium	455.40		5.0	0.67
Cadmium	226.50		5.0	0.43
Chromium	267.72		15.0	0.98
Lead	220.35		15.0	3.2
Selenium	196.09		20.0	8.3
Silver	328.06		5.0	1.2

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.: DHR32
Matrix: SOIL

Method: CV
Date: 07/2015

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury			0.60	0.060

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.: DHR32

Instrument ID: 16315
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Barium	455.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	-0.0000290	0.0000000	0.0000000
Lead	220.35	0.0001710	0.0000000	0.0000490	0.0000000	-0.0000890
Silver	328.06	0.0000000	0.0000000	-0.0006200	0.0000000	0.0000000

Comments:

QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 16315
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	CU	MO	NI	SI
Barium	455.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000420	0.0011050	-0.0012300	-0.0000500	0.0002660
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.: DHR32

Instrument ID: 16315
Date: 08/2015

Analyte	Wavelength (nm)	Interelement Correction Factor for: TH	TI	W	ZR	--
Barium	455.40	0.0000000	0.0000000	0.0000000	0.0003190	
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	
Lead	220.35	0.0000000	0.0000000	-0.0009170	0.0000000	
Silver	328.06	-0.0212540	-0.0004520	0.0000000	0.0019920	

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 16417
Date: 11/2014

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Arsenic	189.04	0.0000000	0.0000000	-0.0001410	0.0000000	0.0000000
Cadmium	226.50	-0.0000060	0.0000000	0.0000930	0.0000000	0.0000120
Selenium	196.09	-0.0000020	0.0000000	0.0000010	0.0000000	-0.0000160

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR32

Instrument ID: 16417
Date: 11/2014

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	MN	MO	NI	W
Arsenic	189.04	0.0003470	0.0000000	0.0015870	0.0000000	0.0009450
Cadmium	226.50	0.0000850	0.0000000	0.0000000	-0.0000540	0.0004220
Selenium	196.09	0.0000000	0.0005870	0.0000000	0.0000000	0.0072180

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR32

Method: P
Instrument ID: 16315
Date: 10/2015

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Arsenic			
Barium	455.4	10.00	5000.0
Cadmium			
Chromium	267.72	10.00	20000.0
Lead	220.35	10.00	10000.0
Selenium			
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 12
LINEAR RANGES
SDG No.: DHR32

Method: P
Instrument ID: 16417
Date: 10/2015

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Arsenic	189.04	10.00	20000.0
Barium			
Cadmium	226.5	10.00	20000.0
Chromium			
Lead			
Selenium	196.09	10.00	10000.0
Silver			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

Preparation and Run Logs

Metals in Solid

QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR32

Method: P
Batch ID: P29208A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
8084533	10/19/2015	1.02	100
*84777BKG	10/19/2015	1.02	100
P29208AB	10/19/2015	1.00	100
P29208AQ	10/19/2015	1.00	100

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
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

Method: CV
Batch ID: P28811A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
8084533	10/16/2015	0.63	100
P28811AB	10/16/2015	0.60	100
P28811AQ	10/16/2015	1.00	100

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
	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.: DHR32

Method: P
Instrument ID: 16315
Run Name: 1529506T71

Run Start Date: 10/22/2015
Run End Date: 10/22/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
S0	1.00	19:44		X		X	X			X																						
S	1.00	19:47																														
S	1.00	19:50		X			X			X																						
S	1.00	19:53				X																										
ICV	1.00	19:56		X		X	X			X																						
ICB	1.00	19:59		X		X	X			X																						
LLC	1.00	20:02		X		X	X			X																						
ICSA	1.00	20:05		X		X	X			X																						
ICSAB	1.00	20:08		X		X	X			X																						
CCV	1.00	20:11		X		X	X			X																						
CCB	1.00	20:14		X		X	X			X																						
P29208AB	1.00	20:17		X		X	X			X																						
P29208AQ	1.00	20:20		X		X	X			X																						
*84777BKG	1.00	20:23		X		X	X			X																						
ZZZZZZ	1.00	20:26																														
ZZZZZZ	1.00	20:29																														
ZZZZZZ	1.00	20:31																														
ZZZZZZ	1.00	20:35																														
*84777L	5.00	20:38		X		X	X			X																						
ZZZZZZ	1.00	20:41																														
ZZZZZZ	1.00	20:43																														
CCV	1.00	20:46		X		X	X			X																						
CCB	1.00	20:49		X		X	X			X																						
ZZZZZZ	1.00	20:52																														
ZZZZZZ	1.00	20:55																														
ZZZZZZ	1.00	20:58																														
ZZZZZZ	1.00	21:01																														
ZZZZZZ	1.00	21:04																														
ZZZZZZ	1.00	21:07																														
ZZZZZZ	1.00	21:10																														
ZZZZZZ	1.00	21:13																														
ZZZZZZ	1.00	21:16																														
ZZZZZZ	1.00	21:19																														
CCV	1.00	21:22		X		X	X			X																						
CCB	1.00	21:25		X		X	X			X																						
8084533	1.00	21:28		X		X	X			X																						
LLC	1.00	21:31		X		X	X			X																						
ICSA	1.00	21:34		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.: DHR32

Method: P
Instrument ID: 16315
Run Name: 1529506T71

Run Start Date: 10/22/2015
Run End Date: 10/22/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ICSAB	1.00	21:37		X		X	X			X																						
CCV	1.00	21:40		X		X	X			X																						
CCB	1.00	21:43		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.: DHR32

Method: P
Instrument ID: 16417
Run Name: 1529603T72

Run Start Date: 10/23/2015
Run End Date: 10/23/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
S0	1.00	04:35	X		X				X																						
S	1.00	04:39																													
S	1.00	04:42	X		X				X																						
S	1.00	04:45																													
ICV	1.00	04:48	X		X				X																						
ICB	1.00	04:51	X		X				X																						
LLC	1.00	04:54	X		X				X																						
ICSA	1.00	04:57	X		X				X																						
ICSAB	1.00	05:01	X		X				X																						
CCV	1.00	05:04	X		X				X																						
CCB	1.00	05:07	X		X				X																						
P29208AB	1.00	05:10	X		X				X																						
P29208AB	1.00	05:13																													
P29208AQ	1.00	05:17	X		X				X																						
*84777BKG	1.00	05:20	X		X				X																						
ZZZZZZ	1.00	05:23																													
ZZZZZZ	1.00	05:26																													
ZZZZZZ	1.00	05:29																													
ZZZZZZ	1.00	05:32																													
*84777L	5.00	05:35	X		X				X																						
ZZZZZZ	1.00	05:38																													
CCV	1.00	05:41	X		X				X																						
CCB	1.00	05:45	X		X				X																						
ZZZZZZ	1.00	05:48																													
ZZZZZZ	1.00	05:51																													
ZZZZZZ	1.00	05:54																													
ZZZZZZ	1.00	05:57																													
ZZZZZZ	1.00	06:00																													
ZZZZZZ	1.00	06:04																													
ZZZZZZ	1.00	06:07																													
ZZZZZZ	1.00	06:10																													
8084533	1.00	06:13	X		X				X																						
CCV	1.00	06:16	X		X				X																						
CCB	1.00	06:19	X		X				X																						
ZZZZZZ	5.00	06:23																													
ZZZZZZ	5.00	06:26																													
ZZZZZZ	40.00	06:29																													
LLC	1.00	06:33	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.: DHR32

Method: P
Instrument ID: 16417
Run Name: 1529603T72

Run Start Date: 10/23/2015
Run End Date: 10/23/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
ICSA	1.00	06:36	X		X				X																						
ICSAB	1.00	06:39	X		X				X																						
CCV	1.00	06:42	X		X				X																						
CCB	1.00	06:45	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.: DHR32

Method: CV
Instrument ID: 19302
Run Name: 1529101M08

Run Start Date: 10/18/2015
Run End Date: 10/18/2015

Lab Sample ID	D/F	Time	Analytes																												
			AS	BA	CD	CR	PB	HG	SE	AG																					
S0	1.00	08:28						X																							
S0.2	1.00	08:30						X																							
S0.5	1.00	08:32						X																							
S1.0	1.00	08:34						X																							
S2.5	1.00	08:36						X																							
S5.0	1.00	08:38						X																							
ICV	1.00	08:40						X																							
ICB	1.00	08:42						X																							
CRA	1.00	08:44						X																							
CCV	1.00	08:46						X																							
CCB	1.00	08:48						X																							
P28811AB	1.00	08:50						X																							
P28811AQ	1.00	08:52						X																							
ZZZZZZ	1.00	08:54																													
ZZZZZZ	1.00	08:56																													
ZZZZZZ	1.00	08:58																													
ZZZZZZ	1.00	09:00																													
ZZZZZZ	1.00	09:02																													
ZZZZZZ	1.00	09:04																													
ZZZZZZ	1.00	09:06																													
ZZZZZZ	1.00	09:08																													
CCV	1.00	09:10						X																							
CCB	1.00	09:12						X																							
ZZZZZZ	1.00	09:14																													
ZZZZZZ	1.00	09:16																													
ZZZZZZ	1.00	09:18																													
ZZZZZZ	1.00	09:20																													
ZZZZZZ	1.00	09:22																													
ZZZZZZ	1.00	09:24																													
ZZZZZZ	1.00	09:26																													
ZZZZZZ	1.00	09:28																													
ZZZZZZ	1.00	09:30																													
ZZZZZZ	1.00	09:32																													
CCV	1.00	09:34						X																							
CCB	1.00	09:36						X																							
ZZZZZZ	1.00	09:39																													
ZZZZZZ	1.00	09:41																													
ZZZZZZ	1.00	09:43																													

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.: DHR32

Method: CV
Instrument ID: 19302
Run Name: 1529101M08

Run Start Date: 10/18/2015
Run End Date: 10/18/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	1.00	09:45																														
ZZZZZZ	1.00	09:47																														
8084533	1.00	09:49						X																								
ZZZZZZ	1.00	09:51																														
ZZZZZZ	1.00	09:53																														
ZZZZZZ	1.00	09:55																														
ZZZZZZ	1.00	09:57																														
CCV	1.00	09:59						X																								
CCB	1.00	10:01						X																								
ZZZZZZ	1.00	10:03																														
ZZZZZZ	1.00	10:05																														
ZZZZZZ	1.00	10:07																														
ZZZZZZ	1.00	10:09																														
ZZZZZZ	1.00	10:11																														
ZZZZZZ	1.00	10:13																														
ZZZZZZ	1.00	10:15																														
ZZZZZZ	1.00	10:17																														
ZZZZZZ	1.00	10:28																														
ZZZZZZ	1.00	10:30																														
CCV	1.00	10:32						X																								
CCB	1.00	10:34						X																								
ZZZZZZ	1.00	10:36																														
ZZZZZZ	1.00	10:38																														
ZZZZZZ	1.00	10:40																														
ZZZZZZ	1.00	10:42																														
ZZZZZZ	1.00	10:44																														
ZZZZZZ	1.00	10:46																														
ZZZZZZ	1.00	10:51																														
ZZZZZZ	1.00	10:55																														
ZZZZZZ	1.00	10:58																														
ZZZZZZ	1.00	11:01																														
CCV	1.00	11:03						X																								
CCB	1.00	11:05						X																								
ZZZZZZ	500.00	11:07																														
ZZZZZZ	1000.00	11:12																														
ZZZZZZ	1.00	11:14																														
ZZZZZZ	200.00	11:16																														
CRA	1.00	11:18						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 14
ANALYSIS RUN LOG
SDG No.: DHR32

Method: CV
Instrument ID: 19302
Run Name: 1529101M08

Run Start Date: 10/18/2015
Run End Date: 10/18/2015

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
CCV	1.00	11:20						X																								
CCB	1.00	11:22						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

Moisture Data

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CLIENT: **CH2M Hill, Inc.**
SDG: DHR32

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
8084533	HRWS1

COMMENTS:

Method defined actions are taken for any failed matrix QC.

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 15287820006A	Sample number(s): 8084533				
Moisture	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 15287820006A	Sample number(s): 8084533			
Moisture	16.4	14.9	10*	5

* - Outside of specification

(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: **15287820006**

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
8084533	A	00111	1.1081	9.1360	9.1406	12.08	10/14/15 (1201/SWF)	10/15/15 (236/CW)
P086772BKG	A	00111	1.1200	8.6852	8.3821	16.39	10/14/15 (1201/SWF)	10/15/15 (236/CW)
P086772DUP	A	00111	1.0918	8.7698	8.5582	14.86	10/14/15 (1201/SWF)	10/15/15 (236/CW)
LCS 89.5% Std.		00111	1.1130	5.0075	1.6423	89.43	10/14/15 (1201/SWF)	10/15/15 (236/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
Groundwater and Water Samples
Collected on 10/09/15

SDG# DHR33

GROUP	SAMPLE NUMBERS
1599903	8084536-8084541

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-13-10
AZ Cert. # AZ0780

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: 10/26/2015**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at (717) 556-7258.

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Sample Reference List for SDG Number DHR33
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
8084536	HR137	S01-VP13-7579-100915 Grab Groundwater
8084537	HRTB-	100915TB Water
8084538	HREB1	HGR-100915-EB01 Grab Water
8084539	HR142	S01-VP14-2832-100915 Grab Groundwater
8084540	HR144	S01-VP14-4852-100915 Grab Groundwater
8084541	HR147	S01-VP14-7882-100915 Grab Groundwater

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Sample pH Log

SDG: DHR33

LLI Sample Number	Bottle Code	Actual pH	Exp. pH	pH Check Code	Adj. pH	Adjusted Date	Adjusted Time	Preservative Added	Preservative Lot #	LLI Supplied Bottle?	Sulfide Present?	Corrective Substance	CS Lot #	Res. Cl. Present?	Corrective Substance	CS Lot #
8084536	040A	>2	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084537	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084538	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084539	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084540	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA
8084541	040A	7	>2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA

Check Code Key

PK = Original container checked - pH is within the correct range. (No preservative was added)
PA = Original container checked - pH adjusted to correct range. (Preservative was added)
PV = Volatile container checked
PC = pH checked (unpreserved container)
SPK = Subsampled from an original container. Original container checked - pH is within correct range
SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.
SPC = Subsampled from an original container. pH checked (unpreserved container).
SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.
UP = Unable to preserve due to matrix of the sample.
NA = Not applicable

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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.

02898 VOCs- 25ml Water by 8260B

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.

Analysis Reports / Field Chain of Custody

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	CH2M Hill, Inc. PO Box 241329 Denver CO 80224

October 16, 2015

Project: Dow Hanging Rock, OH

Submittal Date: 10/10/2015
Group Number: 1599903
SDG: DHR33
PO Number: 10381-7-101541
Release Number: DHR33
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LL) #
S01-VP13-7579-100915 Grab Groundwater	8084536
100915TB Water	8084537
HGR-100915-EB01 Grab Water	8084538
S01-VP14-2832-100915 Grab Groundwater	8084539
S01-VP14-4852-100915 Grab Groundwater	8084540
S01-VP14-7882-100915 Grab Groundwater	8084541

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Stephanie Aselage
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

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Analysis Report

Sample Description: S01-VP13-7579-100915 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084536
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 09:30 by DR

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR137 SDG#: DHR33-01

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.2	J	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.4	J	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	1

The container used for this analysis was submitted with headspace.

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 14:54	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 14:54	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: 100915TB Water
Dow Hanging Rock, OH

LL Sample # WW 8084537
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRTB- SDG#: DHR33-02TB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 14:23	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 14:23	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: HGR-100915-EB01 Grab Water
Dow Hanging Rock, OH

LL Sample # WW 8084538
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 08:00 by DR

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HREB1 SDG#: DHR33-03EB

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		**ug/l**		**ug/l**	**ug/l**	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 14:01	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 14:01	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP14-2832-100915 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084539
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 10:45 by DR

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR142 SDG#: DHR33-04

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	1.7		0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	1.4		0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 15:16	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 15:16	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP14-4852-100915 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084540
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 11:20 by DR

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR144 SDG#: DHR33-05

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	5.0	U	5.0	1.0	1
02898	Benzene	71-43-2	0.5	U	0.5	0.1	1
02898	Bromoform	75-25-2	0.5	U	0.5	0.1	1
02898	Ethylbenzene	100-41-4	0.5	U	0.5	0.1	1
02898	Isopropylbenzene	98-82-8	0.5	U	0.5	0.1	1
02898	Methylene Chloride	75-09-2	0.5	U	0.5	0.2	1
02898	Naphthalene	91-20-3	0.5	U	0.5	0.1	1
02898	n-Propylbenzene	103-65-1	0.5	U	0.5	0.1	1
02898	Styrene	100-42-5	0.5	U	0.5	0.1	1
02898	Tetrachloroethene	127-18-4	0.5	U	0.5	0.1	1
02898	1,2,4-Trichlorobenzene	120-82-1	0.5	U	0.5	0.1	1
02898	Trichloroethene	79-01-6	0.5	U	0.5	0.1	1
02898	1,3,5-Trimethylbenzene	108-67-8	0.5	U	0.5	0.1	1
02898	m+p-Xylene	179601-23-1	0.5	U	0.5	0.1	1
02898	o-Xylene	95-47-6	0.5	U	0.5	0.1	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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 15:39	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 15:39	Kerri E Legerlotz	1

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: S01-VP14-7882-100915 Grab Groundwater
Dow Hanging Rock, OH

LL Sample # WW 8084541
LL Group # 1599903
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 10/09/2015 12:10 by DR

Submitted: 10/10/2015 09:55
Reported: 10/16/2015 14:02

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HR147 SDG#: DHR33-06

CAT No.	Analysis Name	CAS Number	Result		Limit of Quantitation*	Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B 25mL purge**		ug/l		ug/l	ug/l	
02898	Acrylonitrile	107-13-1	100	U	100	20	20
02898	Benzene	71-43-2	10	U	10	2.0	20
02898	Bromoform	75-25-2	10	U	10	2.0	20
02898	Ethylbenzene	100-41-4	10	U	10	2.0	20
02898	Isopropylbenzene	98-82-8	10	U	10	2.0	20
02898	Methylene Chloride	75-09-2	10	U	10	4.0	20
02898	Naphthalene	91-20-3	10	U	10	2.0	20
02898	n-Propylbenzene	103-65-1	10	U	10	2.0	20
02898	Styrene	100-42-5	10	U	10	2.0	20
02898	Tetrachloroethene	127-18-4	10	U	10	2.0	20
02898	1,2,4-Trichlorobenzene	120-82-1	10	U	10	2.0	20
02898	Trichloroethene	79-01-6	10	U	10	2.0	20
02898	1,3,5-Trimethylbenzene	108-67-8	10	U	10	2.0	20
02898	m+p-Xylene	179601-23-1	10	U	10	2.0	20
02898	o-Xylene	95-47-6	10	U	10	2.0	20

The container used for this analysis was submitted with headspace.

Reporting limits were raised due to limited sample volume.

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
02898	VOCs- 25ml Water by 8260B	SW-846 8260B 25mL purge	1	C152881AA	10/15/2015 16:01	Kerri E Legerlotz	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	C152881AA	10/15/2015 16:01	Kerri E Legerlotz	20

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1599903
Reported: 10/16/2015 14:02

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 LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: C152881AA	Sample number(s): 8084536-8084541									
Acrylonitrile	5.0	U	5.0	1.0	ug/l	100	104	63-141	4	30
Benzene	0.5	U	0.5	0.1	ug/l	92	89	80-120	4	30
Bromoform	0.5	U	0.5	0.1	ug/l	81	81	64-134	1	30
Ethylbenzene	0.5	U	0.5	0.1	ug/l	93	90	80-120	3	30
Isopropylbenzene	0.5	U	0.5	0.1	ug/l	90	87	80-120	3	30
Methylene Chloride	0.5	U	0.5	0.2	ug/l	88	85	80-120	3	30
Naphthalene	0.5	U	0.5	0.1	ug/l	91	89	59-136	2	30
n-Propylbenzene	0.5	U	0.5	0.1	ug/l	101	100	79-121	0	30
Styrene	0.5	U	0.5	0.1	ug/l	92	90	80-122	2	30
Tetrachloroethene	0.5	U	0.5	0.1	ug/l	88	85	80-120	3	30
1,2,4-Trichlorobenzene	0.5	U	0.5	0.1	ug/l	87	89	70-123	2	30
Trichloroethene	0.5	U	0.5	0.1	ug/l	93	89	80-120	4	30
1,3,5-Trimethylbenzene	0.5	U	0.5	0.1	ug/l	95	95	80-120	0	30
m+p-Xylene	0.5	U	0.5	0.1	ug/l	92	90	80-120	2	30
o-Xylene	0.5	U	0.5	0.1	ug/l	88	87	80-120	2	30

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: VOCs- 25ml Water by 8260B
Batch number: C152881AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8084536	95	101	99	93
8084537	96	103	98	94
8084538	96	104	98	93
8084539	98	106	100	93
8084540	96	105	97	93
8084541	97	105	98	93
Blank	97	102	97	92
LCS	96	103	100	95
LCSD	94	106	99	95
Limits:	77-114	74-113	77-110	78-110

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(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.

Environmental Analysis Request/Chain of Custody

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Acct. # 11372 Group # 1599903 Sample # 8084536-41

COC # 388778

Client Information

Client: CH2M Hill

Acct. #:

Project Name/#: Hanging Rock Phase II RCRA Investigation 652109.01.F1

PWSID #:

Project Manager: Rachel Grand

P.O. #:

Sampler: Dee Roberts

Quote #:

State where samples were collected: Ohio

For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☑ NPDES ☐ Surface ☐ Other: ____

Analysis Requested / Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Sediment	Ground	Potable	NPDES	Surface	Other	Total # of Containers	VOC's (H)	SVOC's									Remarks (depth)
S01-VP13-7579-100915	10/9/15	0930	✓				✓					3	3		** unpreserved **								75-79'
100915TB	10/9/15	—	✓				✓					2	2										Trip blank
HGR-100915-EB01	10/9/15	0800	✓				✓					5	3	2									Equipment blank
S01-VP14-2832-100915	10/9/15	1045	✓				✓					3	3		** unpreserved **								28-32'
S01-VP14-4852-100915	10/9/15	1120	✓				✓					3	3		** unpreserved **								48-52'
S01-VP14-7882-100915	10/9/15	1210	✓				✓					3	3		** unpreserved **								78-82'

Turnaround Time (TAT) Requested (please circle)
Standard Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____

E-mail address: Rachel.Grand@CH2M.com

Data Package Options (circle if required)
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Dee Roberts	10/9/15	1700			

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx ✓ Other ____

Temperature upon receipt 1.8 °C

L# 1599903

Natalie Luciano

From: Shane.Lowe@ch2m.com
Sent: Monday, October 12, 2015 5:41 PM
To: Natalie Luciano
Subject: RE: Dow Hanging Rock
Attachments: 20151012163727927.pdf

Hi Natalie,
Please cancel the SVOC analysis for the EB received on the attached COC.

Thanks,

Shane M. Lowe

From: Natalie Luciano [mailto:NatalieLuciano@eurofinsUS.com]
Sent: Monday, October 12, 2015 3:30 PM
To: Lowe, Shane/STL <Shane.Lowe@ch2m.com>
Subject: Dow Hanging Rock

Hi Shane,

It looks like we got a TB with the IDW samples. Should this TB be analyzed?

We also got EB01 with a request for SVOCs, but none of the associated samples are being analyzed for SVOCs. Should we proceed with the SVOC analysis on EB01?

Thank you,
Natalie Luciano
Senior Specialist, Environmental Client Services

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Sample Administration Receipt Documentation Log

Doc Log ID: 113026

Group Number(s): 1599903

Client: CH2M Hill

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/10/2015 9:55
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	OH		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Timothy Cubberley (6520) at 15:19 on 10/10/2015

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	1.8	DT	Wet	Y	Bagged	N

2425 New Holland Pike
Lancaster, PA 17601-5994
T 717-656-2300
F 717-656-2681
www.LancasterLabs.com

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

> greater than

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 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.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and the < Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, ISO17025) 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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Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR33

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
8084536	S01-VP13-7579-100915	X		1	
8084537	100915TB	X		1	Trip Blank
8084538	HGR-100915-EB01	X		1	Equipment Blank
8084539	S01-VP14-2832-100915	X		1	
8084540	S01-VP14-4852-100915	X		1	
8084541	S01-VP14-7882-100915	X		20	

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

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

(Sample number(s): 8084541: Analysis: 02898)
The container used for this analysis was submitted with headspace.

Reporting limits were raised due to limited sample volume.

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Case Narrative/Conformance Summary

CLIENT: CH2M Hill, Inc.
SDG: DHR33

GC/MS Volatiles

Fraction: Volatiles by GC/MS

(Sample number(s): 8084536: Analysis: 02898)
The container used for this analysis was submitted with headspace.

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

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR33

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
VOCs- 25ml Water by 8260B	C152881AA	VBLKC50	10/15/2015 11:29:00
		LCSC50	10/15/2015 09:59:00
		LCDC50	10/15/2015 10:21:00
		8084536	10/15/2015 14:54:00
		8084537	10/15/2015 14:23:00
		8084538	10/15/2015 14:01:00
		8084539	10/15/2015 15:16:00
		8084540	10/15/2015 15:39:00
		8084541	10/15/2015 16:01:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR33
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C152881AA / VBLKC50 **Analyte**	**Analysis Date**	**Blank Results**	**Units**	**MDL**	**LOQ**
Methylene Chloride	10/15/15	N.D.	ug/l	0.2	0.5
Acrylonitrile	10/15/15	N.D.	ug/l	1.0	5.0
Benzene	10/15/15	N.D.	ug/l	0.1	0.5
Trichloroethene	10/15/15	N.D.	ug/l	0.1	0.5
Tetrachloroethene	10/15/15	N.D.	ug/l	0.1	0.5
Ethylbenzene	10/15/15	N.D.	ug/l	0.1	0.5
m+p-Xylene	10/15/15	N.D.	ug/l	0.1	0.5
o-Xylene	10/15/15	N.D.	ug/l	0.1	0.5
Styrene	10/15/15	N.D.	ug/l	0.1	0.5
Bromoform	10/15/15	N.D.	ug/l	0.1	0.5
Isopropylbenzene	10/15/15	N.D.	ug/l	0.1	0.5
n-Propylbenzene	10/15/15	N.D.	ug/l	0.1	0.5
1,3,5-Trimethylbenzene	10/15/15	N.D.	ug/l	0.1	0.5
1,2,4-Trichlorobenzene	10/15/15	N.D.	ug/l	0.1	0.5
Naphthalene	10/15/15	N.D.	ug/l	0.1	0.5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR33
Matrix: LIQUID

Fraction: Volatiles by GC/MS

C152881AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l	Spike Added	10 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKC50	97	77 - 114	102	74 - 113	97	77 - 110	92	78 - 110
LCSC50	96	77 - 114	103	74 - 113	100	77 - 110	95	78 - 110
LCDC50	94	77 - 114	106	74 - 113	99	77 - 110	95	78 - 110
8084536	95	77 - 114	101	74 - 113	99	77 - 110	93	78 - 110
8084537	96	77 - 114	103	74 - 113	98	77 - 110	94	78 - 110
8084538	96	77 - 114	104	74 - 113	98	77 - 110	93	78 - 110
8084539	98	77 - 114	106	74 - 113	100	77 - 110	93	78 - 110
8084540	96	77 - 114	105	74 - 113	97	77 - 110	93	78 - 110
8084541	97	77 - 114	105	74 - 113	98	77 - 110	93	78 - 110

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR33
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSC50 LCSD: LCDC50	Batch: **C152881AA** (Sample number(s): 8084536-8084541)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Methylene Chloride	5.00	4.42	4.27	88	85	80-120	3	30
Acrylonitrile	25	24.94	25.92	100	104	63-141	4	30
Benzene	5.00	4.61	4.44	92	89	80-120	4	30
Trichloroethene	5.00	4.66	4.47	93	89	80-120	4	30
Tetrachloroethene	5.00	4.40	4.25	88	85	80-120	3	30
Ethylbenzene	5.00	4.67	4.52	93	90	80-120	3	30
m+p-Xylene	10	9.15	8.96	92	90	80-120	2	30
o-Xylene	5.00	4.42	4.35	88	87	80-120	2	30
Styrene	5.00	4.61	4.50	92	90	80-122	2	30
Bromoform	5.00	4.07	4.03	81	81	64-134	1	30
Isopropylbenzene	5.00	4.48	4.34	90	87	80-120	3	30
n-Propylbenzene	5.00	5.03	5.02	101	100	79-121	0	30
1,3,5-Trimethylbenzene	5.00	4.76	4.75	95	95	80-120	0	30
1,2,4-Trichlorobenzene	5.00	4.36	4.46	87	89	70-123	2	30
Naphthalene	5.00	4.55	4.45	91	89	59-136	2	30

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR33___

Lab File ID: cl30t01.d BFB Injection Date: 07/30/15

Instrument ID: HP10193 BFB Injection Time: 11:30

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	22.62
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	7.23
173	Less than 2.0% of mass 174	0.30 (0.35)1
174	Greater than 50.0% of mass 95	85.40
175	5.0 - 9.0% of mass 174	6.32 (7.40)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.56 (97.84)1
177	5.0 - 9.0% of mass 176	5.25 (6.29)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	VSTD25	cl30i11.d	07/30/15	12:20
02	VSTD10	cl30i12.d	07/30/15	12:43
03	VSTD5	cl30i13.d	07/30/15	13:06
04	VSTD2	cl30i14.d	07/30/15	13:30
05	VSTD1	cl30i15.d	07/30/15	13:53
06	VSTD.5	cl30i16.d	07/30/15	14:16
07	VSTD.2	cl30i17.d	07/30/15	14:38
08	MDL0.1 - MDL0.1	cl30m11.d	07/30/15	15:01
09	LCSC02	cl30v11.d	07/30/15	15:23
10	VSTD25	cl30i01.d	07/30/15	16:11
11	VSTD10	cl30i02.d	07/30/15	16:33
12	VSTD5	cl30i03.d	07/30/15	16:57
13	VSTD2	cl30i04.d	07/30/15	17:19
14	VSTD1	cl30i05.d	07/30/15	17:41
15	VSTD.5	cl30i06.d	07/30/15	18:04
16	VSTD.2	cl30i07.d	07/30/15	18:27
17	MDL0.1 - MDL0.1	cl30m01.d	07/30/15	18:50
18	LCSCLG	cl30v01.d	07/30/15	19:34

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.:_DHR33___

Lab File ID: cc15t01.d BFB Injection Date: 10/15/15

Instrument ID: HP10193 BFB Injection Time: 08:31

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	22.52
75	30.0 - 60.0% of mass 95	53.16
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.71
173	Less than 2.0% of mass 174	0.55 (0.72)1
174	Greater than 50.0% of mass 95	76.68
175	5.0 - 9.0% of mass 174	6.11 (7.96)1
176	Greater than 95.0%, but less than 101.0% of mass 174	76.46 (99.72)1
177	5.0 - 9.0% of mass 176	4.80 (6.27)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	VSTD10	cc15c01.d	10/15/15	09:10
02	VSTD10	cc15c02.d	10/15/15	09:36
03	LCSC50	cc15l01.d	10/15/15	09:59
04	LCDC50	cc15l02.d	10/15/15	10:21
05	LCSC51	cc15l03.d	10/15/15	10:44
06	LCDC51	cc15l04.d	10/15/15	11:07
07	VBLKC50	cc15b01.d	10/15/15	11:29
08	8084440	cc15s01.d	10/15/15	12:25
09	8084444	cc15s02.d	10/15/15	13:16
10	8084538	cc15s03.d	10/15/15	14:01
11	8084537	cc15s04.d	10/15/15	14:23
12	8084536	cc15s05.d	10/15/15	14:54
13	8084539	cc15s06.d	10/15/15	15:16
14	8084540	cc15s07.d	10/15/15	15:39
15	8084541	cc15s08.d	10/15/15	16:01
16	8078094	cc15s21.d	10/15/15	16:24
17	8078096	cc15s22.d	10/15/15	16:46
18	8078095	cc15s23.d	10/15/15	17:08
19	8078095DL	cc15s24.d	10/15/15	17:31
20	8078044	cc15s09.d	10/15/15	17:53
21	8078045	cc15s10.d	10/15/15	18:16
22	8078095DL2	cc15s25.d	10/15/15	18:38

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.:_DHR33___

Lab File ID: cc15t01.d BFB Injection Date: 10/15/15

Instrument ID: HP10193 BFB Injection Time: 08:31

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	22.52
75	30.0 - 60.0% of mass 95	53.16
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.71
173	Less than 2.0% of mass 174	0.55 (0.72)1
174	Greater than 50.0% of mass 95	76.68
175	5.0 - 9.0% of mass 174	6.11 (7.96)1
176	Greater than 95.0%, but less than 101.0% of mass 174	76.46 (99.72)1
177	5.0 - 9.0% of mass 176	4.80 (6.27)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	8078049	cc15s12.d	10/15/15	19:00
24	8078051	cc15s13.d	10/15/15	19:23
25	8078055	cc15s14.d	10/15/15	19:45
26	8078048	cc15s15.d	10/15/15	20:07

FORM V VOA

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Dichlorodifluoromethane	0.4294	0.4230	0.4613	0.3709	0.3716	0.3669	0.3835	0.4009	9	AVG
Chloromethane	#0.4808	0.4357	0.4737	0.3733	0.3623	0.3625	0.3703	0.4084	13	AVG #
Vinyl Chloride	*0.3753	0.3751	0.4081	0.3293	0.3281	0.3259	0.3353	0.3539	9	AVG *
1,3-Butadiene	0.3816	0.3815	0.3918	0.3107	0.2421	0.1997	0.1532	0.2944	33	2NDDEG
Bromomethane	0.2614	0.2469	0.2611	0.2103	0.2033	0.2018	0.2037	0.2269	12	AVG
Chloroethane		0.2368	0.2534	0.1957	0.1847	0.1841	0.1861	0.2068	15	AVG
Dichlorofluoromethane	0.5943	0.5879	0.6213	0.5009	0.4843	0.4881	0.4939	0.5387	11	AVG
Trichlorofluoromethane	0.4969	0.4961	0.5391	0.4374	0.4393	0.4397	0.4523	0.4715	8	AVG
Ethyl ether	0.2393	0.2229	0.2716	0.2118	0.2017	0.1904	0.1934	0.2187	13	AVG
Freon 123a	0.3725	0.3775	0.3770	0.2960	0.2919	0.2907	0.2984	0.3291	13	AVG
Acrolein	2.0462	2.1658	2.4585	2.2266	1.8378	1.8543	1.8482	2.0625	11	AVG
1,1-Dichloroethene	*0.2542	0.2541	0.2861	0.2403	0.2144	0.2159	0.2150	0.2400	11	AVG *
Freon 113	0.2418	0.2606	0.2957	0.2619	0.2341	0.2372	0.2354	0.2524	9	AVG
Acetone		4.0550	3.8772	3.5338	2.9086	2.9112	3.0142	3.3833	15	AVG
Methyl Iodide	0.4429	0.4561	0.5068	0.4390	0.3923	0.4002	0.3961	0.4333	10	AVG
Carbon Disulfide	0.7773	0.7934	0.9033	0.7834	0.7114	0.7334	0.7333	0.7765	8	AVG
Allyl Chloride	0.5726	0.5214	0.6303	0.4822	0.4653	0.4503	0.4590	0.5116	13	AVG
Methyl Acetate	0.1370	0.1554	0.1666	0.1640	0.1544	0.1541	0.1566	0.1554	6	AVG
Methylene Chloride	0.3050	0.2955	0.3197	0.2735	0.2390	0.2401	0.2368	0.2728	13	AVG
t-Butyl Alcohol	1.1390	1.1431	1.3346	1.0813	0.9876	0.9670	0.9814	1.0906	12	AVG
Acrylonitrile	2.9159	3.8461	4.3481	3.7968	3.3938	3.3570	3.5416	3.5999	13	AVG
trans-1,2-Dichloroethene	0.2895	0.2818	0.3159	0.2665	0.2392	0.2421	0.2425	0.2682	11	AVG
Methyl Tertiary Butyl Ether	0.7860	0.7942	0.8806	0.7722	0.6979	0.6948	0.6824	0.7583	9	AVG
n-Hexane	0.4735	0.5041	0.5336	0.4684	0.4231	0.4296	0.4338	0.4666	9	AVG
1,1-Dichloroethane	#0.6119	0.6030	0.6757	0.5840	0.5187	0.5244	0.5256	0.5776	10	AVG #
di-Isopropyl Ether	1.1700	1.1827	1.3135	1.1392	1.0205	1.0243	1.0148	1.1236	10	AVG
2-Chloro-1,3-Butadiene	0.5379	0.5451	0.6183	0.5165	0.4707	0.4773	0.4821	0.5211	10	AVG
Ethyl t-butyl ether	0.9752	1.0300	1.1365	0.9922	0.8898	0.8975	0.8818	0.9719	10	AVG
cis-1,2-Dichloroethene	0.3064	0.3156	0.3501	0.2971	0.2664	0.2696	0.2681	0.2962	10	AVG
2,2-Dichloropropane	0.4785	0.4823	0.5371	0.4619	0.4210	0.4285	0.4254	0.4621	9	AVG
2-Butanone	5.5541	5.7740	6.8241	6.0409	5.2446	5.3576	5.4260	5.7459	10	AVG
Propionitrile	1.1749	1.2801	1.5020	1.3713	1.1624	1.1926	1.1681	1.2645	10	AVG
Methacrylonitrile	3.9019	4.4684	5.4368	4.7221	4.1186	4.2195	4.3444	4.4588	11	AVG
Bromochloromethane	0.1284	0.1298	0.1595	0.1204	0.1182	0.1128	0.1148	0.1263	13	AVG
Tetrahydrofuran	1.4500	1.5062	1.7219	1.4605	1.2420	1.2912	1.3018	1.4248	12	AVG
Chloroform	*0.5452	0.5564	0.6223	0.5212	0.4668	0.4730	0.4706	0.5222	11	AVG *
1,1,1-Trichloroethane	0.4606	0.4821	0.5274	0.4615	0.4128	0.4203	0.4202	0.4550	9	AVG
Cyclohexane	0.6063	0.6005	0.6544	0.5652	0.5124	0.5138	0.5119	0.5664	10	AVG
Cyclohexane(2)	0.4032	0.5149	0.4863	0.4275	0.3884	0.3918	0.3920	0.4292	12	AVG
Cyclohexane(3)	0.1784	0.1749	0.1918	0.1655	0.1471	0.1492	0.1471	0.1649	11	AVG
1,1-Dichloropropene	0.4221	0.4541	0.4943	0.4294	0.3910	0.3994	0.4030	0.4276	8	AVG
Carbon Tetrachloride	0.3722	0.3883	0.4457	0.3927	0.3572	0.3701	0.3780	0.3863	7	AVG
Isobutyl Alcohol	0.3291	0.3961	0.4783	0.4076	0.3767	0.3857	0.3833	0.3938	11	AVG
Benzene	1.2036	1.2118	1.3519	1.1504	1.0347	1.0474	1.0475	1.1496	10	AVG
1,2-Dichloroethane	0.4658	0.4449	0.4782	0.4008	0.3568	0.3587	0.3531	0.4083	13	AVG
1,2-Dichloroethane(2)	0.0500	0.0308	0.0336	0.0298	0.0261	0.0259	0.0255	0.0317	27	AVG
t-Amyl methyl ether	0.7887	0.8320	0.9293	0.8113	0.7295	0.7344	0.7267	0.7931	9	AVG
n-Heptane	0.5596	0.6048	0.6438	0.5585	0.5061	0.5106	0.5152	0.5569	9	AVG
n-Butanol	0.2228	0.3916	0.3466	0.3225	0.3023	0.3103	0.2962	0.3132	16	2NDDEG
Trichloroethene	0.3080	0.3199	0.3568	0.3047	0.2707	0.2750	0.2762	0.3016	10	AVG
Methylcyclohexane		0.5119	0.6424	0.4933	0.4824	0.4733	0.4828	0.5144	12	AVG
1,2-Dichloropropane	*0.3278	0.3230	0.3630	0.3071	0.2805	0.2817	0.2822	0.3093	10	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: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	RRF	% RSD	CAL. METHOD
Methyl Methacrylate	8.2427	9.7834	11.178	9.6891	8.7829	9.0432	9.7328	9.4932	10	AVG
Dibromomethane	0.1302	0.1402	0.1579	0.1394	0.1250	0.1239	0.1241	0.1344	9	AVG
1,4-Dioxane		0.0618	0.0739	0.0676	0.0604	0.0585	0.0573	0.0633	10	AVG
Bromodichloromethane	0.3664	0.3668	0.4187	0.3602	0.3377	0.3457	0.3548	0.3643	7	AVG
2-Nitropropane	3.2608	3.6315	4.3482	3.9522	3.5557	3.7864	3.9414	3.7823	9	AVG
1-Bromo-2-chloroethane	0.3358	0.3338	0.4066	0.3200	0.3059	0.2948	0.2971	0.3277	12	AVG
cis-1,3-Dichloropropene	0.4201	0.4467	0.5027	0.4461	0.4133	0.4259	0.4336	0.4412	7	AVG
4-Methyl-2-Pentanone		0.2334	0.2668	0.2392	0.2195	0.2179	0.2118	0.2314	9	AVG
Toluene	*1.0378	1.0532	1.1713	0.9975	0.8952	0.9039	0.8900	0.9927	11	AVG *
trans-1,3-Dichloropropene	0.4638	0.4897	0.5590	0.5142	0.4765	0.4978	0.5048	0.5008	6	AVG
Ethyl Methacrylate		0.4357	0.4834	0.4366	0.3982	0.4045	0.4002	0.4264	8	AVG
1,1,2-Trichloroethane	0.2626	0.2750	0.3082	0.2620	0.2405	0.2403	0.2364	0.2607	10	AVG
Tetrachloroethene	0.4619	0.4815	0.5355	0.4562	0.4131	0.4232	0.4216	0.4561	9	AVG
1,3-Dichloropropane	0.5094	0.5126	0.5778	0.5009	0.4529	0.4520	0.4496	0.4936	9	AVG
2-Hexanone	0.2102	0.2278	0.2682	0.2395	0.2154	0.2153	0.2068	0.2262	10	AVG
Dibromochloromethane	0.2658	0.2982	0.3470	0.3089	0.2955	0.3067	0.3138	0.3051	8	AVG
1,2-Dibromoethane	0.2525	0.2536	0.2929	0.2595	0.2319	0.2355	0.2323	0.2512	9	AVG
Chlorobenzene	#1.1821	1.1657	1.3147	1.1241	1.0187	1.0281	1.0272	1.1229	10	AVG #
1,1,1,2-Tetrachloroethane	0.3561	0.3757	0.4310	0.3746	0.3496	0.3573	0.3648	0.3727	7	AVG
Ethylbenzene	*1.9671	2.0589	2.2950	1.9573	1.7930	1.8186	1.8388	1.9612	9	AVG *
m+p-Xylene	0.7599	0.7757	0.8626	0.7570	0.6817	0.6970	0.7010	0.7478	8	AVG
o-Xylene	0.7485	0.7733	0.8682	0.7512	0.6761	0.6911	0.6857	0.7420	9	AVG
Styrene		1.2594	1.3997	1.2421	1.1309	1.1573	1.1615	1.2252	8	AVG
Bromoform	#0.1628	0.1649	0.1824	0.1678	0.1636	0.1731	0.1816	0.1709	5	AVG #
Isopropylbenzene		2.0360	2.2740	1.9839	1.7981	1.8278	1.8068	1.9545	9	AVG
1,1,2,2-Tetrachloroethane	#0.5477	0.6006	0.6822	0.6055	0.5394	0.5387	0.5375	0.5788	9	AVG #
Bromobenzene	0.8774	0.8795	1.0276	0.8801	0.7989	0.8174	0.8349	0.8737	9	AVG
trans-1,4-Dichloro-2-butene		3.3986	4.1342	4.0667	3.9054	4.4744	5.0873	4.1778	14	AVG
1,2,3-Trichloropropane	0.1702	0.1610	0.1946	0.1683	0.1506	0.1472	0.1478	0.1628	10	AVG
n-Propylbenzene	4.0469	4.3254	4.8588	4.2475	3.8299	3.8755	3.8666	4.1501	9	AVG
2-Chlorotoluene	0.8319	0.8468	0.9481	0.8357	0.7478	0.7572	0.7647	0.8189	9	AVG
1,3,5-Trimethylbenzene	2.9287	3.1042	3.5387	3.1030	2.7820	2.8404	2.8601	3.0224	9	AVG
4-Chlorotoluene	0.8832	0.8896	1.0024	0.8625	0.7847	0.7947	0.8044	0.8602	9	AVG
tert-Butylbenzene		0.6312	0.7249	0.6355	0.5833	0.5900	0.5954	0.6267	8	AVG
Pentachloroethane	0.4348	0.4721	0.5840	0.4799	0.4837	0.4815	0.5124	0.4926	9	AVG
1,2,4-Trimethylbenzene		3.1485	3.5967	3.1702	2.8591	2.9540	2.9805	3.1181	8	AVG
sec-Butylbenzene	3.7754	3.9543	4.4615	3.9011	3.5412	3.5898	3.5889	3.8303	8	AVG
1,3-Dichlorobenzene	1.6558	1.7493	1.9750	1.7344	1.5522	1.6062	1.6352	1.7011	8	AVG
p-Isopropyltoluene		3.4336	3.9155	3.4476	3.1563	3.2523	3.2982	3.4172	8	AVG
1,4-Dichlorobenzene	1.8393	1.9347	2.1070	1.8070	1.5899	1.6160	1.6408	1.7907	11	AVG
1,2,3-Trimethylbenzene	1.4467	1.3956	1.7118	1.3114	1.2710	1.2463	1.2895	1.3817	12	AVG
Benzyl Chloride		0.1970	0.2198	0.2185	0.2144	0.2299	0.2361	0.2193	6	AVG
n-Butylbenzene		1.7842	1.9172	1.6576	1.5371	1.5570	1.5738	1.6711	9	AVG
1,2-Dichlorobenzene	1.5251	1.6358	1.7897	1.5993	1.4324	1.4578	1.4504	1.5558	8	AVG
1,2-Dibromo-3-chloropropane		1.8989	2.2750	2.0418	1.9505	2.1282	2.2893	2.0973	8	AVG
1,2,4-Trichlorobenzene	1.1895	1.2597	1.4045	1.2122	1.1529	1.1672	1.1825	1.2241	7	AVG
Hexachlorobutadiene	0.6844	0.6830	0.7769	0.6576	0.6112	0.6248	0.6285	0.6666	8	AVG
Naphthalene	1.7567	1.8825	2.1071	1.8840	1.8331	1.8553	1.8419	1.8801	6	AVG
1,2,3-Trichlorobenzene	1.0214	1.0042	1.1419	0.9654	0.9505	0.9664	0.9477	0.9996	7	AVG
Dibromofluoromethane	0.2406	0.2388	0.2395	0.2393	0.2395	0.2376	0.2409	0.2394	0	AVG
Dibromofluoromethane(2)	0.2468	0.2459	0.2445	0.2453	0.2452	0.2455	0.2467	0.2457	0	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: HP10193 Calibration Date(s): 07/30/15 07/30/15

Heated Purge: (Y/N) Y Calibration Times: 16:11 18:27

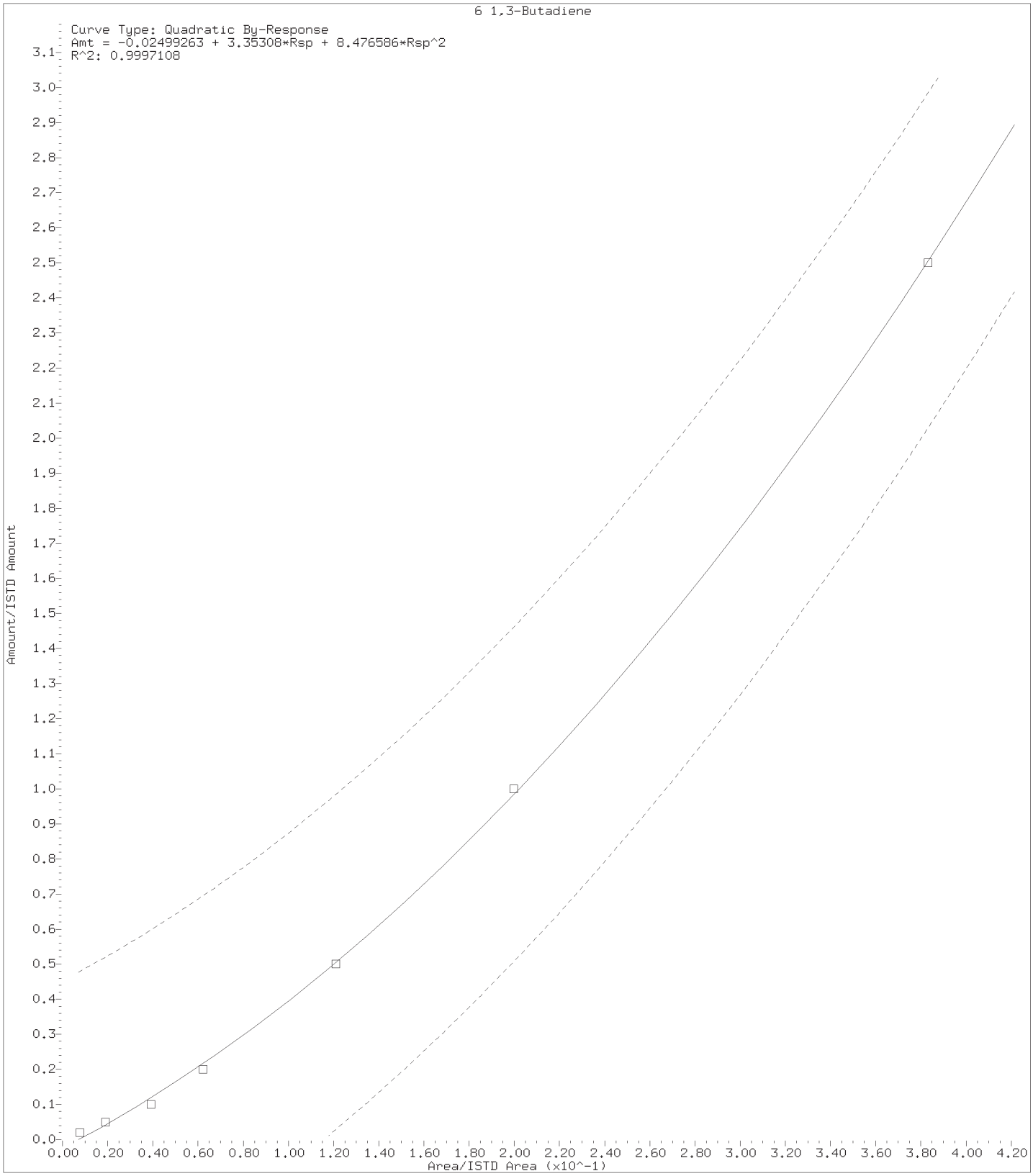
Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

LAB FILE ID: RRF0.2= cl30i07.d RRF0.5= cl30i06.d RRF 1 = cl30i05.d
RRF 2 = cl30i04.d RRF 5 = cl30i03.d RRF 10= cl30i02.d RRF 25= cl30i01.d

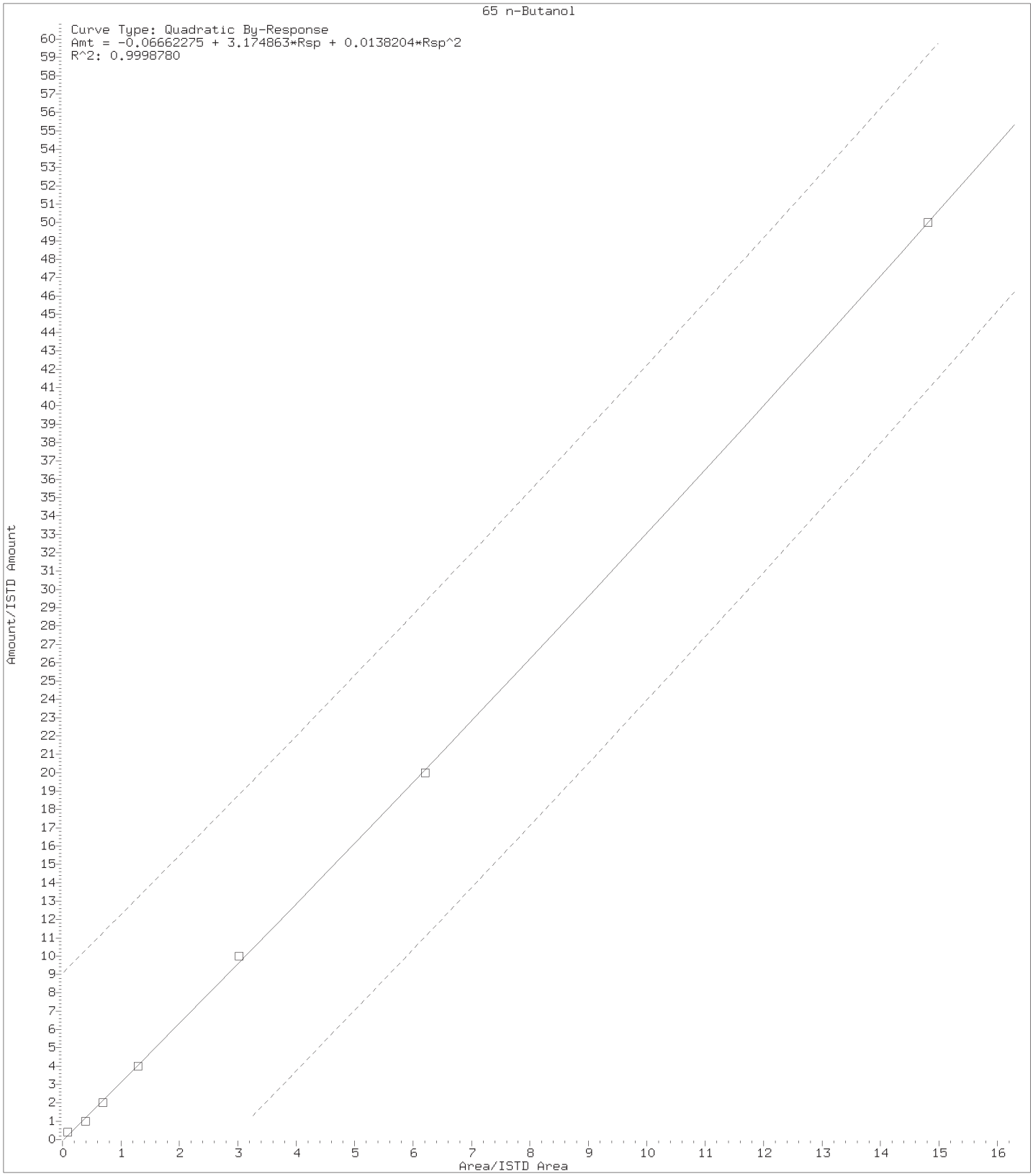
COMPOUND	RRF0.2	RRF0.5	RRF 1	RRF 2	RRF 5	RRF 10	RRF 25	___ RRF	% RSD	CAL. METHOD
1,2-Dichloroethane-d4	0.0492	0.0479	0.0485	0.0487	0.0478	0.0478	0.0467	0.0481	2	AVG
1,2-Dichloroethane-d4(2)	0.3042	0.3039	0.3030	0.3051	0.2968	0.2923	0.2926	0.2997	2	AVG
1,2-Dichloroethane-d4(3)	0.0312	0.0309	0.0303	0.0300	0.0305	0.0300	0.0306	0.0305	1	AVG
Toluene-d8	1.3895	1.3890	1.3924	1.3884	1.3907	1.3734	1.3603	1.3834	1	AVG
Toluene-d8(2)	0.8868	0.8867	0.8881	0.8917	0.8971	0.8884	0.8972	0.8909	1	AVG
4-Bromofluorobenzene	0.5311	0.5271	0.5249	0.5222	0.5235	0.5200	0.5153	0.5235	1	AVG
4-Bromofluorobenzene(2)	0.4504	0.4509	0.4512	0.4483	0.4531	0.4515	0.4416	0.4496	1	AVG

Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%



Digitally signed by Kerri E. Koch Legerlotz on 07/31/2015 at 09:03.
Target 3.5 esignature user ID: kel01973



Digitally signed by Kerri E. Koch Legerlotz on 07/31/2015 at 09:03.
Target 3.5 esignature user ID: kel01973

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP10193.i/15jul30a.b/cl30i01.d VSTD025
/chem2/HP10193.i/15jul30a.b/cl30i02.d VSTD010
/chem2/HP10193.i/15jul30a.b/cl30i03.d VSTD005
/chem2/HP10193.i/15jul30a.b/cl30i04.d VSTD002
/chem2/HP10193.i/15jul30a.b/cl30i05.d VSTD001
/chem2/HP10193.i/15jul30a.b/cl30i06.d VSTD0.5
/chem2/HP10193.i/15jul30a.b/cl30i07.d VSTD0.2

Area Summary

File ID:
==========

Internal Standard Name	cl30i01.d	cl30i02.d	cl30i03.d	cl30i04.d	cl30i05.d	cl30i06.d	cl30i07.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	180317	187758	194916	188412	160636	196691	211307	188577	8	Yes
Fluorobenzene	2543511	2545570	2540711	2542391	2171028	2538050	2530714	2487425	6	Yes
Chlorobenzene-d5	1881187	1858517	1846997	1845629	1570456	1834071	1834388	1810178	6	Yes
1,4-Dichlorobenzene-d4	1051246	1048982	1039391	1022404	875553	1032225	1037286	1015298	6	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:
==========

Internal Standard Name	cl30i01.d	cl30i02.d	cl30i03.d	cl30i04.d	cl30i05.d	cl30i06.d	cl30i07.d	Avg. RT
t-Butyl Alcohol-d10	3.932	3.926	3.926	3.920	3.938	3.932	3.932	3.929
Fluorobenzene	7.437	7.437	7.437	7.437	7.437	7.437	7.437	7.437
Chlorobenzene-d5	10.985	10.985	10.985	10.985	10.985	10.985	10.985	10.985
1,4-Dichlorobenzene-d4	12.887	12.887	12.887	12.887	12.887	12.887	12.887	12.887

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 07/31/2015 at 08:45.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dichlorodifluoromethane	0.4009	0.3505	4.37	5	-13
# Chloromethane	0.4084	0.3615	4.43	5	-11 #
* Vinyl Chloride	0.3539	0.3300	4.66	5	-7 *
1,3-Butadiene	0.2944	0.4602	11.95	5	139
Bromomethane	0.2269	0.2096	4.62	5	-8
Chloroethane	0.2068	0.1890	4.57	5	-9
Dichlorofluoromethane	0.5387	0.5150	4.78	5	-4
Trichlorofluoromethane	0.4715	0.4475	4.75	5	-5
Ethyl ether	0.2187	0.2009	4.59	5	-8
Freon 123a	0.3291	0.3049	4.63	5	-7
Acrolein	2.0625	1.6793	30.53	37.5	-19
* 1,1-Dichloroethene	0.2400	0.2125	4.43	5	-11 *
Freon 113	0.2524	0.2314	4.58	5	-8
Acetone	3.3833	2.8557	31.65	37.5	-16
Methyl Iodide	0.4333	0.3954	4.56	5	-9
Carbon Disulfide	0.7765	0.6682	4.30	5	-14
Allyl Chloride	0.5116	0.4915	4.80	5	-4
Methyl Acetate	0.1554	0.1448	4.66	5	-7
Methylene Chloride	0.2728	0.2416	4.43	5	-11
t-Butyl Alcohol	1.0906	1.0097	46.29	50	-7
Acrylonitrile	3.5999	3.4663	24.07	25	-4
trans-1,2-Dichloroethene	0.2682	0.2494	4.65	5	-7
Methyl Tertiary Butyl Ether	0.7583	0.6808	4.49	5	-10
n-Hexane	0.4666	0.4183	4.48	5	-10
# 1,1-Dichloroethane	0.5776	0.5181	4.48	5	-10 #
di-Isopropyl Ether	1.1236	1.0449	4.65	5	-7
2-Chloro-1,3-Butadiene	0.5211	0.4406	4.23	5	-15
Ethyl t-butyl ether	0.9719	0.8807	4.53	5	-9
cis-1,2-Dichloroethene	0.2962	0.2720	4.59	5	-8
2,2-Dichloropropane	0.4621	0.4203	4.55	5	-9
2-Butanone	5.7459	5.4170	35.35	37.5	-6
Propionitrile	1.2645	1.2413	36.81	37.5	-2
Methacrylonitrile	4.4588	4.4268	37.23	37.5	-1
Bromochloromethane	0.1263	0.1182	4.68	5	-6
Tetrahydrofuran	1.4248	1.2767	22.40	25	-10
* Chloroform	0.5222	0.4792	4.59	5	-8 *

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: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,1,1-Trichloroethane	0.4550	0.4183	4.60	5	-8
Cyclohexane	0.5664	0.4984	4.40	5	-12
1,1-Dichloropropene	0.4276	0.3808	4.45	5	-11
Carbon Tetrachloride	0.3863	0.3679	4.76	5	-5
Isobutyl Alcohol	0.3938	0.3836	121.76	125	-3
Benzene	1.1496	1.0433	4.54	5	-9
1,2-Dichloroethane	0.4083	0.3599	4.41	5	-12
t-Amyl methyl ether	0.7931	0.7271	4.58	5	-8
n-Heptane	0.5569	0.4949	4.44	5	-11
n-Butanol	0.3132	0.2987	235.26	250	-6
Trichloroethene	0.3016	0.2855	4.73	5	-5
Methylcyclohexane	0.5144	0.4877	4.74	5	-5
* 1,2-Dichloropropane	0.3093	0.2878	4.65	5	-7 *
Methyl Methacrylate	9.4932	9.1000	4.79	5	-4
Dibromomethane	0.1344	0.1252	4.66	5	-7
1,4-Dioxane	0.0633	0.0618	122.06	125	-2
Bromodichloromethane	0.3643	0.3378	4.64	5	-7
2-Nitropropane	3.7823	3.4911	4.61	5	-8
1-Bromo-2-chloroethane	0.3277	0.2971	4.53	5	-9
cis-1,3-Dichloropropene	0.4412	0.4111	4.66	5	-7
4-Methyl-2-Pentanone	0.2314	0.2109	22.79	25	-9
* Toluene	0.9927	0.9078	4.57	5	-9 *
trans-1,3-Dichloropropene	0.5008	0.4811	4.80	5	-4
Ethyl Methacrylate	0.4264	0.3979	4.66	5	-7
1,1,2-Trichloroethane	0.2607	0.2387	4.58	5	-8
Tetrachloroethene	0.4561	0.4205	4.61	5	-8
1,3-Dichloropropane	0.4936	0.4473	4.53	5	-9
2-Hexanone	0.2262	0.2154	23.80	25	-5
Dibromochloromethane	0.3051	0.2877	4.71	5	-6
1,2-Dibromoethane	0.2512	0.2373	4.72	5	-6
# Chlorobenzene	1.1229	1.0281	4.58	5	-8 #
1,1,1,2-Tetrachloroethane	0.3727	0.3519	4.72	5	-6
* Ethylbenzene	1.9612	1.8161	4.63	5	-7 *
m+p-Xylene	0.7478	0.6905	9.23	10	-8
o-Xylene	0.7420	0.6686	4.51	5	-10
Styrene	1.2252	1.1409	4.66	5	-7

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: HP10193 ICV Date: 07/30/15 Time: 19:34

Lab File ID: cl30v01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
# Bromoform	0.1709	0.1563	4.57	5	-9 #
Isopropylbenzene	1.9545	1.8344	4.69	5	-6
# 1,1,2,2-Tetrachloroethane	0.5788	0.5304	4.58	5	-8 #
Bromobenzene	0.8737	0.8083	4.63	5	-7
trans-1,4-Dichloro-2-butene	4.1778	3.6780	22.01	25	-12
1,2,3-Trichloropropane	0.1628	0.1522	4.67	5	-7
n-Propylbenzene	4.1501	3.8682	4.66	5	-7
2-Chlorotoluene	0.8189	0.7512	4.59	5	-8
1,3,5-Trimethylbenzene	3.0224	2.8187	4.66	5	-7
4-Chlorotoluene	0.8602	0.7830	4.55	5	-9
tert-Butylbenzene	0.6267	0.5862	4.68	5	-6
Pentachloroethane	0.4926	0.4778	4.85	5	-3
1,2,4-Trimethylbenzene	3.1181	2.8754	4.61	5	-8
sec-Butylbenzene	3.8303	3.5739	4.67	5	-7
1,3-Dichlorobenzene	1.7011	1.5816	4.65	5	-7
p-Isopropyltoluene	3.4172	3.1411	4.60	5	-8
1,4-Dichlorobenzene	1.7907	1.6230	4.53	5	-9
1,2,3-Trimethylbenzene	1.3817	1.2287	4.45	5	-11
Benzyl Chloride	0.2193	0.2079	4.74	5	-5
n-Butylbenzene	1.6711	1.5365	4.60	5	-8
1,2-Dichlorobenzene	1.5558	1.4429	4.64	5	-7
1,2-Dibromo-3-chloropropane	2.0973	1.9839	4.73	5	-5
1,2,4-Trichlorobenzene	1.2241	1.1061	4.52	5	-10
Hexachlorobutadiene	0.6666	0.6062	4.55	5	-9
Naphthalene	1.8801	1.7472	4.65	5	-7
1,2,3-Trichlorobenzene	0.9996	0.8715	4.36	5	-13

Average %Drift 9

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

page 3 of 3 FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP10193.i/15jul30a.b/cl30i07.d
/chem2/HP10193.i/15jul30a.b/cl30i06.d
/chem2/HP10193.i/15jul30a.b/cl30i05.d
/chem2/HP10193.i/15jul30a.b/cl30i04.d
/chem2/HP10193.i/15jul30a.b/cl30i03.d
/chem2/HP10193.i/15jul30a.b/cl30i02.d
/chem2/HP10193.i/15jul30a.b/cl30i01.d

File /chem2/HP10193.i/15jul30a.b/cl30i02.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP10193.i/15oct15a.b/cc15c01.d

RT Summary

File ID:

Internal Standard Name	cc15c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.913	3.926	Yes
Fluorobenzene	7.431	7.437	Yes
Chlorobenzene-d5	10.979	10.985	Yes
1,4-Dichlorobenzene-d4	12.881	12.887	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	cc15c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	212204	187758	93879	375516	Yes
Fluorobenzene	2564381	2545570	1272785	5091140	Yes
Chlorobenzene-d5	1898562	1858517	929258	3717034	Yes
1,4-Dichlorobenzene-d4	985926	1048982	524491	2097964	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments:

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10193 Calibration Date: 10/15/15 Time: 09:10

Lab File ID: cc15c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4009	0.3844	9.59	10	-4	
#	Chloromethane	0.4084	0.3606	8.83	10	-12	#
*	Vinyl Chloride	0.3539	0.3298	9.32	10	-7	*
	1,3-Butadiene	0.2944	0.6580	58.52	10	485	
	Bromomethane	0.2269	0.2034	8.96	10	-10	
	Chloroethane	0.2068	0.1815	8.78	10	-12	
	Dichlorofluoromethane	0.5387	0.4110	7.63	10	-24	
	Trichlorofluoromethane	0.4715	0.4228	8.97	10	-10	
	Ethyl ether	0.2187	0.1939	8.86	10	-11	
	Freon 123a	0.3291	0.2534	7.70	10	-23	
	Acrolein	2.0625	1.3096	317.48	500	-37	
*	1,1-Dichloroethene	0.2400	0.1912	7.97	10	-20	*
	Freon 113	0.2524	0.2103	8.33	10	-17	
	Acetone	3.3833	2.6296	77.72	100	-22	
	Methyl Iodide	0.4333	0.3489	8.05	10	-19	
	Carbon Disulfide	0.7765	0.6459	8.32	10	-17	
	Allyl Chloride	0.5116	0.4019	7.86	10	-21	
	Methyl Acetate	0.1554	0.1049	6.75	10	-33	
	Methylene Chloride	0.2728	0.2313	8.48	10	-15	
	t-Butyl Alcohol	1.0906	0.8020	147.07	200	-26	
	Acrylonitrile	3.5999	2.8784	39.98	50	-20	
	trans-1,2-Dichloroethene	0.2682	0.2249	8.39	10	-16	
	Methyl Tertiary Butyl Ether	0.7583	0.6521	8.60	10	-14	
	n-Hexane	0.4666	0.3732	8.00	10	-20	
#	1,1-Dichloroethane	0.5776	0.4808	8.32	10	-17	#
	di-Isopropyl Ether	1.1236	0.9164	8.16	10	-18	
	2-Chloro-1,3-Butadiene	0.5211	0.4156	7.97	10	-20	
	Ethyl t-butyl ether	0.9719	0.7812	8.04	10	-20	
	cis-1,2-Dichloroethene	0.2962	0.2558	8.64	10	-14	
	2,2-Dichloropropane	0.4621	0.3443	7.45	10	-25	
	2-Butanone	5.7459	5.1110	88.95	100	-11	
	Propionitrile	1.2645	0.6340	100.27	200	-50	
	Methacrylonitrile	4.4588	4.2144	94.52	100	-5	
	Bromochloromethane	0.1263	0.1164	9.22	10	-8	
	Tetrahydrofuran	1.4248	1.2733	89.37	100	-11	
*	Chloroform	0.5222	0.4431	8.48	10	-15	*

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: HP10193 Calibration Date: 10/15/15 Time: 09:10

Lab File ID: cc15c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	1,1,1-Trichloroethane	0.4550	0.3612	7.94	10	-21	
	Cyclohexane	0.5664	0.4501	7.95	10	-21	
	Cyclohexane(2)	0.4292	0.3537	8.24	10	-18	
	Cyclohexane(3)	0.1649	0.1315	7.98	10	-20	
	1,1-Dichloropropene	0.4276	0.3634	8.50	10	-15	
	Carbon Tetrachloride	0.3863	0.3073	7.96	10	-20	
	Isobutyl Alcohol	0.3938	0.3901	495.32	500	-1	
	Benzene	1.1496	1.0153	8.83	10	-12	
	1,2-Dichloroethane	0.4083	0.3513	8.60	10	-14	
	1,2-Dichloroethane(2)	0.0317	0.0268	8.47	10	-15	
	t-Amyl methyl ether	0.7931	0.6626	8.35	10	-16	
	n-Heptane	0.5569	0.4577	8.22	10	-18	
	n-Butanol	0.3132	0.3250	1057.65	1000	6	
	Trichloroethene	0.3016	0.2675	8.87	10	-11	
	Methylcyclohexane	0.5144	0.4570	8.89	10	-11	
*	1,2-Dichloropropane	0.3093	0.2827	9.14	10	-9	*
	Methyl Methacrylate	9.4932	9.0563	9.54	10	-5	
	Dibromomethane	0.1344	0.1318	9.81	10	-2	
	1,4-Dioxane	0.0633	0.0716	565.78	500	13	
	Bromodichloromethane	0.3643	0.3360	9.22	10	-8	
	2-Nitropropane	3.7823	3.5807	94.67	100	-5	
	1-Bromo-2-chloroethane	0.3277	0.3181	9.71	10	-3	
	cis-1,3-Dichloropropene	0.4412	0.4159	9.43	10	-6	
	4-Methyl-2-Pentanone	0.2314	0.2271	98.14	100	-2	
*	Toluene	0.9927	0.8757	8.82	10	-12	*
	trans-1,3-Dichloropropene	0.5008	0.4791	9.57	10	-4	
	Ethyl Methacrylate	0.4264	0.4226	9.91	10	-1	
	1,1,2-Trichloroethane	0.2607	0.2583	9.91	10	-1	
	Tetrachloroethene	0.4561	0.3727	8.17	10	-18	
	1,3-Dichloropropane	0.4936	0.4850	9.82	10	-2	
	2-Hexanone	0.2262	0.2273	100.49	100	0	
	Dibromochloromethane	0.3051	0.2930	9.60	10	-4	
	1,2-Dibromoethane	0.2512	0.2502	9.96	10	0	
#	Chlorobenzene	1.1229	1.0061	8.96	10	-10	#
	1,1,1,2-Tetrachloroethane	0.3727	0.3305	8.87	10	-11	
*	Ethylbenzene	1.9612	1.7554	8.95	10	-10	*

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: HP10193 Calibration Date: 10/15/15 Time: 09:10

Lab File ID: cc15c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

	COMPOUND	RRF	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7478	0.6637	17.75	20	-11	
	o-Xylene	0.7420	0.6526	8.79	10	-12	
	Styrene	1.2252	1.1108	9.07	10	-9	
#	Bromoform	0.1709	0.1526	8.93	10	-11	#
	Isopropylbenzene	1.9545	1.6760	8.58	10	-14	
#	1,1,2,2-Tetrachloroethane	0.5788	0.6181	10.68	10	7	#
	Bromobenzene	0.8737	0.8128	9.30	10	-7	
	trans-1,4-Dichloro-2-butene	4.1778	1.9875	47.57	100	-52	
	1,2,3-Trichloropropane	0.1628	0.1642	10.09	10	1	
	n-Propylbenzene	4.1501	4.0524	9.76	10	-2	
	2-Chlorotoluene	0.8189	0.7725	9.43	10	-6	
	1,3,5-Trimethylbenzene	3.0224	2.8140	9.31	10	-7	
	4-Chlorotoluene	0.8602	0.8112	9.43	10	-6	
	tert-Butylbenzene	0.6267	0.5797	9.25	10	-8	
	Pentachloroethane	0.4926	0.4591	9.32	10	-7	
	1,2,4-Trimethylbenzene	3.1181	2.9138	9.34	10	-7	
	sec-Butylbenzene	3.8303	3.5833	9.36	10	-6	
	1,3-Dichlorobenzene	1.7011	1.5630	9.19	10	-8	
	p-Isopropyltoluene	3.4172	3.1579	9.24	10	-8	
	1,4-Dichlorobenzene	1.7907	1.5780	8.81	10	-12	
	1,2,3-Trimethylbenzene	1.3817	1.2527	9.07	10	-9	
	Benzyl Chloride	0.2193	0.2227	10.16	10	2	
	n-Butylbenzene	1.6711	1.6145	9.66	10	-3	
	1,2-Dichlorobenzene	1.5558	1.4233	9.15	10	-9	
	1,2-Dibromo-3-chloropropane	2.0973	1.7081	8.14	10	-19	
	1,2,4-Trichlorobenzene	1.2241	1.0771	8.80	10	-12	
	Hexachlorobutadiene	0.6666	0.5613	8.42	10	-16	
	Naphthalene	1.8801	1.7242	9.17	10	-8	
	1,2,3-Trichlorobenzene	0.9996	0.8360	8.36	10	-16	
	Dibromofluoromethane	0.2394	0.2305	9.62	10	-4	
	Dibromofluoromethane(2)	0.2457	0.2370	9.65	10	-4	
	1,2-Dichloroethane-d4	0.0481	0.0493	10.26	10	3	
	1,2-Dichloroethane-d4(2)	0.2997	0.3071	10.25	10	2	
	1,2-Dichloroethane-d4(3)	0.0305	0.0321	10.52	10	5	
	Toluene-d8	1.3834	1.3626	9.85	10	-2	

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: HP10193 Calibration Date: 10/15/15 Time: 09:10

Lab File ID: cc15c01.d Init. Calib. Date(s): 07/30/15 07/30/15

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rxi-624Sil .25

COMPOUND	$\overline{RRF}$	RRF10	ACTUAL CONC.	TRUE CONC.	% DRIFT
Toluene-d8(2)	0.8909	0.8847	9.93	10	-1
4-Bromofluorobenzene	0.5235	0.4986	9.53	10	-5
4-Bromofluorobenzene(2)	0.4496	0.4086	9.09	10	-9

Average %Drift 16

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR33___

Lab File ID (Standard): cc15c01.d Date Analyzed: 10/15/15

Instrument ID: HP10193 Time Analyzed: 09:10

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA)		IS2(FBZ)		IS3(CBZ)		IS4(DCB)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	212204	3.913	2564381	7.431	1898562	10.979	985926	12.881
	UPPER LIMIT	424408	4.413	5128762	7.931	3797124	11.479	1971852	13.381
	LOWER LIMIT	106102	3.413	1282190	6.931	949281	10.479	492963	12.381
	LAB SAMPLE ID								
01	LCSC50	200249	3.901	2563492	7.425	1887347	10.979	986224	12.881
02	LCDC50	180336	3.901	2582087	7.431	1894078	10.979	968534	12.881
03	LCSC51	205393	3.919	2558217	7.431	1881814	10.979	941999	12.887
04	LCDC51	185620	3.901	2525290	7.425	1869426	10.985	943990	12.887
05	VBLKC50	181626	3.907	2453365	7.425	1811320	10.985	914234	12.887
06	8084440	325260	3.846	2523957	7.419	1885342	10.979	954224	12.881
07	8084444	416227	3.846	2470577	7.425	1842407	10.979	952189	12.881
08	8084538	206665	3.907	2559008	7.431	1885028	10.985	926395	12.887
09	8084537	193954	3.925	2518219	7.431	1834546	10.985	921248	12.887
10	8084536	197782	3.889	2540653	7.425	1843491	10.979	894741	12.887
11	8084539	181482	3.907	2473200	7.431	1828209	10.985	906537	12.887
12	8084540	176503	3.901	2450761	7.431	1801437	10.985	902108	12.887
13	8084541	182210	3.907	2424678	7.431	1776868	10.985	896355	12.887
14	8078094	179986	3.907	2400791	7.425	1774175	10.985	900378	12.887
15	8078096	184626	3.907	2390007	7.431	1765787	10.985	878499	12.887
16	8078095	197004	3.907	2504997	7.431	1900354	10.985	950466	12.881
17	8078095DL	174225	3.913	2506739	7.425	1859064	10.979	933113	12.887
18	8078044	157996	3.907	2436825	7.425	1798018	10.985	887991	12.887
19	8078045	222207	3.907	2483638	7.431	1791766	10.985	905825	12.887
20	8078095DL2	144898	3.913	2428504	7.425	1763862	10.985	891853	12.887
21	8078049	172129	3.901	2434882	7.425	1797490	10.985	905749	12.887
22	8078051	200331	3.907	2460180	7.431	1843953	10.985	936783	12.887

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 1 of 2

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.:_DHR33___

Lab File ID (Standard): cc15c01.d Date Analyzed: 10/15/15

Instrument ID: HP10193 Time Analyzed: 09:10

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	212204	3.913	2564381	7.431	1898562	10.979	985926	12.881
UPPER LIMIT	424408	4.413	5128762	7.931	3797124	11.479	1971852	13.381
LOWER LIMIT	106102	3.413	1282190	6.931	949281	10.479	492963	12.381
LAB SAMPLE ID								
23 8078055	129419	3.956	2449095	7.431	1825499	10.985	935217	12.881
24 8078048	114263	3.950	2474833	7.431	1858638	10.985	906329	12.887

IS1 (TBA)=t-Butyl Alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

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.

page 2 of 2

FORM VIII VOA

Preparation and Run Logs

Volatiles by GC/MS

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\15JUL30A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CL30T01.D	BFB MAR06-15	07/30/2015	11:30		
KEL01973	CL30I11.D	VSTD025	07/30/2015	12:20		
KEL01973	CL30I12.D	VSTD010	07/30/2015	12:43		
KEL01973	CL30I13.D	VSTD005	07/30/2015	13:06		
KEL01973	CL30I14.D	VSTD002	07/30/2015	13:30		
KEL01973	CL30I15.D	VSTD001	07/30/2015	13:53		
KEL01973	CL30I16.D	VSTD0.5	07/30/2015	14:16		
KEL01973	CL30I17.D	VSTD0.2	07/30/2015	14:38		
KEL01973	CL30M11.D	MDL0.1	07/30/2015	15:01		
KEL01973	CL30V11.D	LCSC02	07/30/2015	15:23		
KEL01973	CL30X02.D	BLK	07/30/2015	15:46		
KEL01973	CL30I02.D	VSTD010	07/30/2015	16:33		
KEL01973	CL30I03.D	VSTD005	07/30/2015	16:57		
KEL01973	CL30I04.D	VSTD002	07/30/2015	17:19		
KEL01973	CL30I05.D	VSTD001	07/30/2015	17:41		
KEL01973	CL30I06.D	VSTD0.5	07/30/2015	18:04		
KEL01973	CL30I07.D	VSTD0.2	07/30/2015	18:27		
KEL01973	CL30M01.D	MDL0.1	07/30/2015	18:50		
KEL01973	CL30M02.D	MDL0.4	07/30/2015	19:12		
KEL01973	CL30V01.D	LCSCLG	07/30/2015	19:34		

Lancaster Laboratories
Volatiles
Runlog for Agilent GC/MS System HP10193 **HP #25**

Data Directory Path is - C:\MSDChem\1\data\15OCT15A\

OPERATOR	FILE	LLI#	DATE	TIME	BATCH	DILUTION FACTOR
KEL01973	CC15T01.D	BFB AUG28-15	10/15/2015	08:31		
KEL01973	CC15X01.D	BLK	10/15/2015	08:47	C152881AA	
KEL01973	CC15C01.D	VSTD010	10/15/2015	09:10	C152881AA	
KEL01973	CC15C02.D	VSTD010	10/15/2015	09:36	C152881AA	
KEL01973	CC15L01.D	LCSC50	10/15/2015	09:59	C152881AA	
KEL01973	CC15L02.D	LCDC50	10/15/2015	10:21	C152881AA	
KEL01973	CC15L03.D	LCSC51	10/15/2015	10:44	C152881AA	
KEL01973	CC15L04.D	LCDC51	10/15/2015	11:07	C152881AA	
KEL01973	CC15B01.D	VBLKC50	10/15/2015	11:29	C152881AA	
KEL01973	CC15S01.D	8084440RE	10/15/2015	12:25	C152881AA	20
KEL01973	CC15X02.D	BLK	10/15/2015	12:48	C152881AA	
KEL01973	CC15S02.D	8084444RE	10/15/2015	13:16	C152881AA	2
KEL01973	CC15X03.D	BLK	10/15/2015	13:39	C152881AA	
KEL01973	CC15S03.D	8084538	10/15/2015	14:01	C152881AA	
KEL01973	CC15S04.D	8084537	10/15/2015	14:23	C152881AA	
KEL01973	CC15S05.D	8084536	10/15/2015	14:54	C152881AA	
KEL01973	CC15S06.D	8084539	10/15/2015	15:16	C152881AA	
KEL01973	CC15S07.D	8084540	10/15/2015	15:39	C152881AA	
KEL01973	CC15S08.D	8084541	10/15/2015	16:01	C152881AA	20
KEL01973	CC15S21.D	8078094	10/15/2015	16:24	C152881AA	
KEL01973	CC15S22.D	8078096	10/15/2015	16:46	C152881AA	
KEL01973	CC15S23.D	8078095	10/15/2015	17:08	C152881AA	10
KEL01973	CC15S24.D	8078095DL	10/15/2015	17:31	C152881AA	100
KEL01973	CC15S09.D	8078044	10/15/2015	17:53	C152881AA	
KEL01973	CC15S10.D	8078045	10/15/2015	18:16	C152881AA	
KEL01973	CC15S25.D	8078095DL2	10/15/2015	18:38	C152881AA	1000
KEL01973	CC15S12.D	8078049	10/15/2015	19:00	C152881AA	
KEL01973	CC15S13.D	8078051	10/15/2015	19:23	C152881AA	
KEL01973	CC15S14.D	8078055	10/15/2015	19:45	C152881AA	
KEL01973	CC15S15.D	8078048	10/15/2015	20:07	C152881AA	
KEL01973	CC15S16.D	8078048DL	10/15/2015	20:30	C152881AA	10

Appendix C
Data Quality Evaluation

TECHNICAL MEMORANDUM

Data Quality Evaluation for the RCRA Facility Phase 2 Investigation at the Dow Hanging Rock Facility, Ironton, Ohio

PREPARED FOR:	The Dow Chemical Corporation
PREPARED BY:	CH2M HILL (CH2M)
DATE:	November 2015

Introduction

This data quality evaluation (DQE) report assesses the data quality of analytical results for groundwater and soil samples associated with the Dow Hanging Rock Facility in Ironton, Ohio. CH2M collected samples November 4 to 20, 2014 and October 6 to 8, 2015. Guidance for this DQE report came from the following: *Quality Assurance Project Plan Dow Hanging Rock, Ironton, Ohio* (QAPP) (*November 2011);* the *Quality Assurance Project Plan Addendum 1 (October 2014);* the *U.S. Environmental Protection Agency* (USEPA) *Contract Laboratory National Functional Guidelines for Organic Data Review* (October 2013); the *USEPA Contract Laboratory National Functional Guidelines for Inorganic Data Review* (October 2013); and, individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as presented in the QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers 42 soil samples, 33 groundwater samples, 3 soil field duplicates (FDs), 3 groundwater FDs, 3 equipment blanks (EB) and 14 trip blanks (TB). The samples were reported in 16 sample delivery groups (SDGs) identified in Table 1.

Table 1. Sample Delivery Groups
RCRA Phase 2 Investigation, Dow Hanging Rock

DHR16	DHR20	DHR24	DHR29
DHR17	DHR21	DHR25	DHR30
DHR18	DHR22	DHR26	DHR31
DHR19	DHR23	DHR28	DHR33

Samples were collected and delivered to Eurofins Lancaster Laboratory (LANC) in Lancaster, Pennsylvania. The samples were analyzed by the methods listed in Table 2.

Table 2. Analytical Parameters
RCRA Phase 2 Investigation, Dow Hanging Rock

Parameter	Method	Laboratory
Select Volatile Organic Compounds (VOCs)	SW8260B	LANC
Select Semivolatile Organic Compounds (SVOC)	SW8270C/SW8270 C SIM	LANC
Metals	SW6020/7470A	LANC

The SDGs were assessed by reviewing the following: (1) chain-of-custody documentation, (2) holding-time compliance, (3) calibration criteria, (4) method and field blanks, (5) laboratory control sample (LCS)/laboratory control sample duplicates (LCSD), (6) matrix spike (MS)/matrix spike duplicates (MSD), (7) surrogate spike recoveries, (8) internal standard recoveries, (9) FD precision, and (10) required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the 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 QAPP and defined as follows:

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 because of 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 subsections. Qualified data are presented in Table 3.

Holding Time and Preservation

All holding time and preservation criteria were met.

Sample S01-VP14-7882-100915 was received with headspace in the VOC sample container. The data were qualified as estimated nondetected results and flagged “UJ” in the sample.

Calibration

Initial and continuing calibration analyses were performed as required by the method and met acceptance criteria, with the following exception:

The percent difference (%D) for 1,2,4-trichlorofluoromethane was less than criteria in one VOC continuing calibration verification standard (CCV), indicating a possible low bias. The result was qualified as an estimated nondetect and flagged “UJ” in the associated sample.

Method Blanks

Method blanks were analyzed as required and were free of contamination with the following exception:

- Indeno(1,2,3-cd)pyrene was detected at a concentration less than the reporting limit (RL) in one method blank associated with Method SW8270C SIM. The data were not qualified because the associated samples did not contain reportable levels of indeno(1,2,3-cd)pyrene.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and all accuracy and precision criteria were met, with the following exception:

Naphthalene was recovered less than the lower control limits in a few VOC LCSs, indicating a possible low sample bias. The data were qualified as estimated detected and nondetected results and flagged "J" and "UJ", respectively, in the associated samples.

Matrix Spikes

MS/MSD samples were analyzed as required, and all accuracy and precision criteria were met, with the following exceptions:

Tetrachloroethene was recovered less than the lower control limit in the VOC MS/MSD for sample S01-SS15-2728-100715, indicating a possible low bias. The result was qualified as estimated and flagged "J" in the parent sample.

Naphthalene was recovered less than the lower control limit in the VOC MS/MSD for sample S01-SS13-2628-100615, indicating a possible low bias. The result was qualified as and estimated nondetect and flagged "UJ" in the parent sample. In addition, tetrachloroethene was recovered greater than the upper control limit in the MSD, indicating a possible high bias. The result was qualified as estimated and flagged "J" in the sample.

Tetrachloroethene was recovered greater than the upper control limit in the MS/MSD for sample S01-VP12-4852-100815, indicating a possible high bias. The result was qualified as estimated and flagged "J" in the sample.

Dissolved arsenic and chromium were recovered greater than the upper control limits in the MS for sample VP08-GW-2529-111714, indicating a possible high bias. Detected results were qualified as estimated and flagged "J" in the parent sample. Nondetected results were not qualified.

The relative percent differences (RPD) for several analytes exceeded criteria in the MS/MSDs associated with the VOC and metals analyses. Detected results were qualified as estimated and flagged "J" in the parent sample. Nondetected results were not qualified.

Internal Standards

Internal standards were added to all samples for methods requiring their use, and all acceptance criteria were met.

Surrogates

Surrogates were added to all samples for methods requiring their use, and all acceptance criteria were met with the following exceptions:

- One or more surrogates associated with the acid fraction of the SVOC analysis were recovered less than 10 percent in several samples, indicating a possible significant low bias. The nondetected results were rejected for project use and flagged "R" in the associated samples.

- One or more surrogates associated with the base fraction of the SVOC analysis were recovered less than 10 percent in samples A24-GW01-2529-111714 and VP09-GW-2529-111814, indicating a possible significant low bias. Detected results were qualified as estimated and flagged "J" in the samples. The nondetected results were rejected for project use and flagged "R" in the samples.
- One or more surrogates associated with the base fraction of the SVOC analysis were recovered less than the lower control limit in several samples, indicating a possible low bias. The data were qualified as estimated detected and nondetected results and flagged "J" and "UJ", respectively, in the associated samples.

Field Duplicates

FDs were collected and analyzed, and all precision criteria were met with the following exceptions:

- The RPDs for arsenic, chromium and selenium exceeded criteria in FD pair VP09-GW-4549-111914/ HGR-111914-FD01. The data were qualified as estimated and flagged "J" in the FD pair.
- The RPDs for ethylbenzene and tetrachloroethene exceeded criteria in FD pair S01-SS12-2729-100615/ HGR-100615-FD01. The data were qualified as estimated detected and nondetected results and flagged "J" and "UJ", respectively, in the FD pair.

Field Blanks

EBs and TBs were collected, analyzed and were free of contamination with the following exceptions:

- o-Xylene was detected at a concentration less than the RL in one TB associated with Method SW8260B. The data were not qualified because the associated samples did not contain reportable levels of o-xylene.
- Several analytes were detected at concentrations less than the RL in a few EBs associated with Method SW8270C SIM. The data were qualified as not detected and flagged "U" when the associated sample concentrations were less than five times the blank concentrations.
- Arsenic and chromium were detected at concentrations less than the RL in one EB associated with Method SW6020. The data were not qualified because the associated samples did not contain reportable levels of arsenic and chromium or the concentrations were greater than five times the blank concentrations.

Chain of Custody

Required procedures were followed, and the COCs were free of errors.

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 that include FD, LCS/LCSD, and MS/MSD RPDs. Precision was general acceptable with the exception of a few analytes which were qualified as estimated due to FD and/or MS/MSD RPD issues. Data users should consider the impact to any result that is qualified as estimated because it may contain a bias that could affect the decision making process.
- Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, internal standards 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 nondetected results due to calibration, LCS/LCSD, surrogate and/or MS/MSD issues. In addition, several analytes were rejected for project use in multiple samples associated with the SVOC analyses. A few analytes were qualified as not detected in several samples due to equipment blank contamination.

- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures and the verification of holding time compliance. The laboratory did not note any discrepancies with the sample's storage or preservation procedures. Sample S01-VP14-7882-100915 was received with headspace in the sample container associated with the VOC analysis, resulting in the data being qualified as estimated. All data were reported from analyses within the USEPA-recommended holding time.
- Comparability of the data was verified using 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 several analytes associated with the SVOC analyses which were rejected for project use in multiple samples. The completeness goal of 95 percent was met for all methods/analytes with the exception of pentachlorophenol which was 82% complete in the groundwater samples.
- The data can be used for project decisions taking into consideration the validation flags applied to the samples.

Table 3. Data Qualification Data

RCRA Phase 2 Investigation, Dow Hanging Rock

Sample ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
A24-GW01-2529-111714	SW8270C	PENTACHLOROPHENOL	µg/L	5	R	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.034	J	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.013	J	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.053	R	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.019	J	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.053	R	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	DIBENZOFURAN	µg/L	0.032	J	Sur<LCL
A24-GW01-2529-111714	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.053	R	Sur<LCL
A24-GW02-2529-111314	SW8270C	PENTACHLOROPHENOL	µg/L	5	R	Sur<LCL
A24-GW03-2529-111414	SW8270C	PENTACHLOROPHENOL	µg/L	5	R	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.053	UJ	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.012	J	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.053	UJ	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.017	J	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.053	UJ	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	DIBENZOFURAN	µg/L	0.053	UJ	Sur<LCL
A24-GW04-2529-111414	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.053	UJ	Sur<LCL
A24-SB03-1314-111314	SW8260B	NAPHTHALENE	µg/kg	1700	J	LCS<LCL
A24-SB03-1314-111314	SW8260B	NAPHTHALENE	µg/kg	1700	J	LCS<LCL
HGR-100615-FD01	SW8260B	ETHYLBENZENE	µg/Kg	110	J	FD>RPD

Table 3. Data Qualification Data

RCRA Phase 2 Investigation, Dow Hanging Rock

Sample ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
HGR-100615-FD01	SW8260B	TETRACHLOROETHENE	µg/Kg	38	J	FD>RPD
HGR-111914-FD01	SW6020	ARSENIC	MG/L	0.165	J	FD>RPD
HGR-111914-FD01	SW6020	CHROMIUM	MG/L	0.56	J	FD>RPD
HGR-111914-FD01	SW6020	SELENIUM	MG/L	0.0214	J	FD>RPD
HGR-111914-FD01	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.036	U	EB<RL
MW02-GW-0020-110514	SW8270C	PENTACHLOROPHENOL	µg/L	6	R	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.018	J	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.056	UJ	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.056	UJ	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.056	UJ	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.056	UJ	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	DIBENZOFURAN	µg/L	0.056	UJ	Sur<LCL
MW02-GW-0020-110514	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.056	UJ	Sur<LCL
S01-SS10-0809-100615	SW8260B	NAPHTHALENE	µg/Kg	270	UJ	LCS<LCL
S01-SS12-0002-100615	SW8260B	NAPHTHALENE	µg/Kg	240	UJ	LCS<LCL
S01-SS12-0305-100615	SW8260B	NAPHTHALENE	µg/Kg	270	UJ	LCS<LCL
S01-SS12-0506-100615	SW8260B	NAPHTHALENE	µg/Kg	240	UJ	LCS<LCL
S01-SS12-2729-100615	SW8260B	ETHYLBENZENE	µg/Kg	5	UJ	FD>RPD
S01-SS12-2729-100615	SW8260B	TETRACHLOROETHENE	µg/Kg	1	J	FD>RPD
S01-SS13-2628-100615	SW8260B	NAPHTHALENE	µg/Kg	5	UJ	MS<LCL
S01-SS13-2628-100615	SW8260B	TETRACHLOROETHENE	µg/Kg	69	J	SD>UCL, MSRPD
S01-SS15-2728-100715	SW8260B	1,2,4-TRICHLOROBENZENE	µg/Kg	300	UJ	CCV<LCL
S01-SS15-2728-100715	SW8260B	TETRACHLOROETHENE	µg/Kg	880	J	MS<LCL, SD<LCL
S01-VP12-4852-100815	SW8260B	TETRACHLOROETHENE	µg/L	1.2	J	MS>UCL, MSRPD
S01-VP14-7882-100915	SW8260B	1,2,4-TRICHLOROBENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	1,3,5-TRIMETHYLBENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	ACRYLONITRILE	µg/L	100	UJ	SI
S01-VP14-7882-100915	SW8260B	BENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	BROMOFORM	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	ETHYLBENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	ISOPROPYLBENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	M+P-XYLENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	METHYLENE CHLORIDE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	NAPHTHALENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	N-PROPYLBENZENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	O-XYLENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	STYRENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	TETRACHLOROETHENE	µg/L	10	UJ	SI
S01-VP14-7882-100915	SW8260B	TRICHLOROETHENE	µg/L	10	UJ	SI
VD10-GW-2529-112014	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.04	J	Sur<LCL
VD10-GW-2529-112014	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.05	UJ	Sur<LCL
VD10-GW-2529-112014	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.05	UJ	Sur<LCL
VD10-GW-2529-112014	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.05	UJ	Sur<LCL
VD10-GW-2529-112014	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.05	UJ	Sur<LCL

Table 3. Data Qualification Data

RCRA Phase 2 Investigation, Dow Hanging Rock

Sample ID	Method	Analyte	Units	Final Result	Validation Flag	Validation Reason
VD10-GW-2529-112014	SW8270C SIM	DIBENZOFURAN	µg/L	0.013	J	Sur<LCL
VD10-GW-2529-112014	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.05	UJ	Sur<LCL
VP08-GW-2529-111714	SW6020	CHROMIUM, DISSOLVED	MG/L	0.004	J	MS>UCL, MSRPD
VP08-GW-2529-111714	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.015	J	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.012	J	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.054	UJ	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.02	J	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.054	UJ	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	DIBENZOFURAN	µg/L	0.015	J	Sur<LCL
VP08-GW-2529-111714	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.054	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C	PENTACHLOROPHENOL	µg/L	6	R	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	BENZO(B)FLUORANTHENE	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	DIBENZ(A,H)ANTHRACENE	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	DIBENZOFURAN	µg/L	0.053	UJ	Sur<LCL
VP08-GW-4549-111714	SW8270C SIM	INDENO(1,2,3-CD)PYRENE	µg/L	0.053	UJ	Sur<LCL
VP09-GW-2529-111814	SW8270C	PENTACHLOROPHENOL	µg/L	6	R	Sur<LCL
VP09-GW-2529-111814	SW8270C SIM	2-METHYLNAPHTHALENE	µg/L	0.011	J	Sur<LCL
VP09-GW-2529-111814	SW8270C SIM	BENZO(A)ANTHRACENE	µg/L	0.051	R	Sur<LCL
VP09-GW-2529-111814	SW8270C SIM	BENZO(A)PYRENE	µg/L	0.051	R	Sur<LCL

Validation Reasons:

CCV<LCL	The continuing calibration verification standard recovery was less than criteria
EB<RL	The analyte was detected in the equipment blank at a concentration greater than RL
FD>RPD	The relative percent difference exceeded criteria in the field duplicate pair
LCS<LCL	The laboratory control sample recovery was less than the lower control limits
MS<LCL	The matrix spike recovery was less than the lower control limits
MS>UCL	The matrix spike recovery was greater than the upper control limits
MSRPD	The relative percent difference exceeded criteria in the MS/MSD
SD<LCL	The matrix spike duplicate recovery was less than the lower control limits
SD>UCL	The matrix spike duplicate recovery was greater than the upper control limits
SI	Sample Integrity. Sample received with headspace
Sur<LCL	The surrogate recovery was less than the lower control limits

Note:

µg/L = micrograms per liter

mg/L = milligrams per liter

µg/kg = micrograms per kilogram

TECHNICAL MEMORANDUM

Data Quality Evaluation for the RCRA Facility Phase 2 Supplemental Investigation at the Dow Hanging Rock Facility, Ironton, Ohio

PREPARED FOR:	The Dow Chemical Corporation
PREPARED BY:	CH2M HILL (CH2M)
DATE:	March 2016

Introduction

This data quality evaluation (DQE) report assesses the data quality of analytical results for groundwater samples associated with the Dow Hanging Rock Facility in Ironton, Ohio. CH2M collected samples February 16, 2016. Guidance for this DQE report came from the following: *Quality Assurance Project Plan Dow Hanging Rock, Ironton, Ohio* (QAPP) (*November 2011);* the *Quality Assurance Project Plan Addendum 1 (October 2014);* the *U.S. Environmental Protection Agency* (USEPA) *Contract Laboratory National Functional Guidelines for Organic Data Review* (October 2013); and, individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness (PARCC) as presented in the QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers three groundwater samples, one field duplicate (FD), one equipment blank (EB) and one trip blank (TB). The samples were reported in one sample delivery group (SDGs) identified as DHR34.

Samples were collected and delivered to Eurofins Lancaster Laboratory (LANC) in Lancaster, Pennsylvania. The samples were analyzed by the method listed in Table 1.

Table 1. Analytical Parameters
RCRA Phase 2 Supplemental Investigation, Dow Hanging Rock

Parameter	Method	Laboratory
Select Volatile Organic Compounds (VOCs)	SW8260B	LANC

The SDG was assessed by reviewing the following: (1) chain-of-custody documentation, (2) holding-time compliance, (3) calibration criteria, (4) method and field blanks, (5) laboratory control sample (LCS)/laboratory control sample duplicates (LCSD), (6) matrix spike (MS)/matrix spike duplicates (MSD), (7) surrogate spike recoveries, (8) internal standard recoveries, (9) FD precision, and (10) required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the 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 QAPP and defined as follows:

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 because of 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 subsections. No data were qualified.

Holding Time and Preservation

All holding time and preservation criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the method and met acceptance criteria.

Method Blanks

Method blanks were analyzed as required and were free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required, and all accuracy and precision criteria were met.

Matrix Spikes

MS/MSD samples were analyzed as required, and all accuracy and precision criteria were met.

Internal Standards

Internal standards were added to all samples for methods requiring their use, and all acceptance criteria were met.

Surrogates

Surrogates were added to all samples for methods requiring their use, and all acceptance criteria were met.

Field Duplicates

A FD was collected and analyzed, and all precision criteria were met.

Field Blanks

One EB and TB were collected, analyzed and were free of contamination.

Chain of Custody

Required procedures were followed, and the COCs were free of errors.

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 that include FD, LCS/LCSD, and MS/MSD RPDs. Precision was acceptable.
- Accuracy of the data was verified through the review of the calibration data, LCS/LCSD, MS/MSD, internal standards and surrogate standard recoveries, as well as the evaluation of method/field blank data. Accuracy was acceptable.
- Representativeness of the data was verified through the sample's collection, storage, and preservation procedures and the verification of holding time compliance. The laboratory did not note any discrepancies with the sample's storage or preservation procedures. The data were reported from analyses within the USEPA-recommended holding time.
- Comparability of the data was verified using standard EPA 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. The data were considered valid. The completeness goal of 95 percent was met for all methods/analytes.

Appendix D
MIP Investigation

Dow Hanging Rock
High Resolution Site Evaluation Report

Wed Feb 11 2015

Project Location: County Road 1-A Ironton, Ohio

Client

Rachel Grand
CH2M Hill
1034 South Brentwood Boulevard, Suite 2300
Richmond Heights, Missouri 63117

Sensor Technologies

- [x] Membrane Interface Probe with Hydraulic Profiling Tool (MiHPT)
- [ ] Membrane Interface Probe (MIP)
- [ ] Hydraulic Profiling Tool (HPT)
- [x] Electrical Conductivity (EC)
- [ ] Low Level MiHPT (LLMiHPT)
- [ ] Laser Induced Fluorescence (LIF) - Ultraviolet Optical Scanning Tool (UVOST®)

Membrane Interface Probe Detectors

- [x] Photo Ionization Detector (PID)
- [x] Flame Ionization Detector (FID)
- [x] Halogen Specific Detector (XSD)
- [ ] Electron Capture Detector (ECD)

Notes/Anomalies

Sample Dates	# of Locations	Survey Depth	Aquisition Software Version	Operator
Mon Oct 13 2014 - Fri Oct 17 2014	16	40.85 Feet	Geoprobe DI Acquisition Software for Windows Version 1.3	Greg Jones

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Electrical Conductivity (EC)
EC continuously measures soil electrical conductivity by transmitting a low level alternating electrical current through the soil between electrically isolated sensor pins of the probe and the probe body. The voltage response of the imposed current to the soil is measured across these same two points. Conductivity, the inverse of resistivity, is measured in milliSiemens/meter (mS/m). The probe is reasonably accurate in the range of 5 to 400 mS/m. In general lower conductivity values are characteristic of larger grain soil types while higher conductivities are characteristic of finer sized particles such as finer sand, silts, and clays.

Hydraulic Profile Tool (HPT)
HPT continuously measures the hydraulic conductivity of the soil by injecting the constant flow of water through a small stainless steel screen into the soil formation and measuring the hydraulic pressure at both the pump source and the injection port vs. depth. The flow rate of the water into the soil formation is also measured and recorded in milliliters per minute (mL/min) versus depth. Static formation hydraulic pressure measurements (dissipation tests) can also be made by stopping at discrete intervals to determine the static water level. The HPT software can also provide an estimate of K (a value used in hydrogeologic calculations) to provide an interpretation of the hydraulic permeability of the formation.

Membrane Interface Probe (MIP)
MIP continuously measures total chemical detector response to volatile organic compounds (VOCs) vs. depth. The operating principle is based on heating the soil and/or water around a semi-permeable polymer membrane to 121° Celsius (C), volatilizing VOCs that then partition across this membrane. Nitrogen is used as an inert carrier gas, and travels from a surface supply down a transfer tubing which sweeps across the back of the membrane and returns any captured VOCs to the installed detectors at the surface. It takes approximately 60 seconds for the nitrogen gas stream to travel through 50 meters of inert tubing and reach the detectors (see detectors below). Detector response is recorded in microvolts vs. depth. The MIP can be used in saturated or unsaturated soils, as water does not pass through the membrane.

Photo Ionization Detector (PID)
The PID consists of a special 10.2 electron volt (eV) ultraviolet lamp that emits sufficient energy to ionize most aromatics such as benzene, toluene, xylene, etc., and many other molecules with an ionization potential below 10.2 eV. The PID also emits a response for chlorinated compounds containing double-bonded carbons (halogenated ethylenes), such as trichloroethylene (TCE) and tetrachloroethylene (PCE).

Flame Ionization Detector (FID)
The FID utilizes a hydrogen flame to combust compounds in the carrier gas and responds to any molecule with a carbon-hydrogen bond.

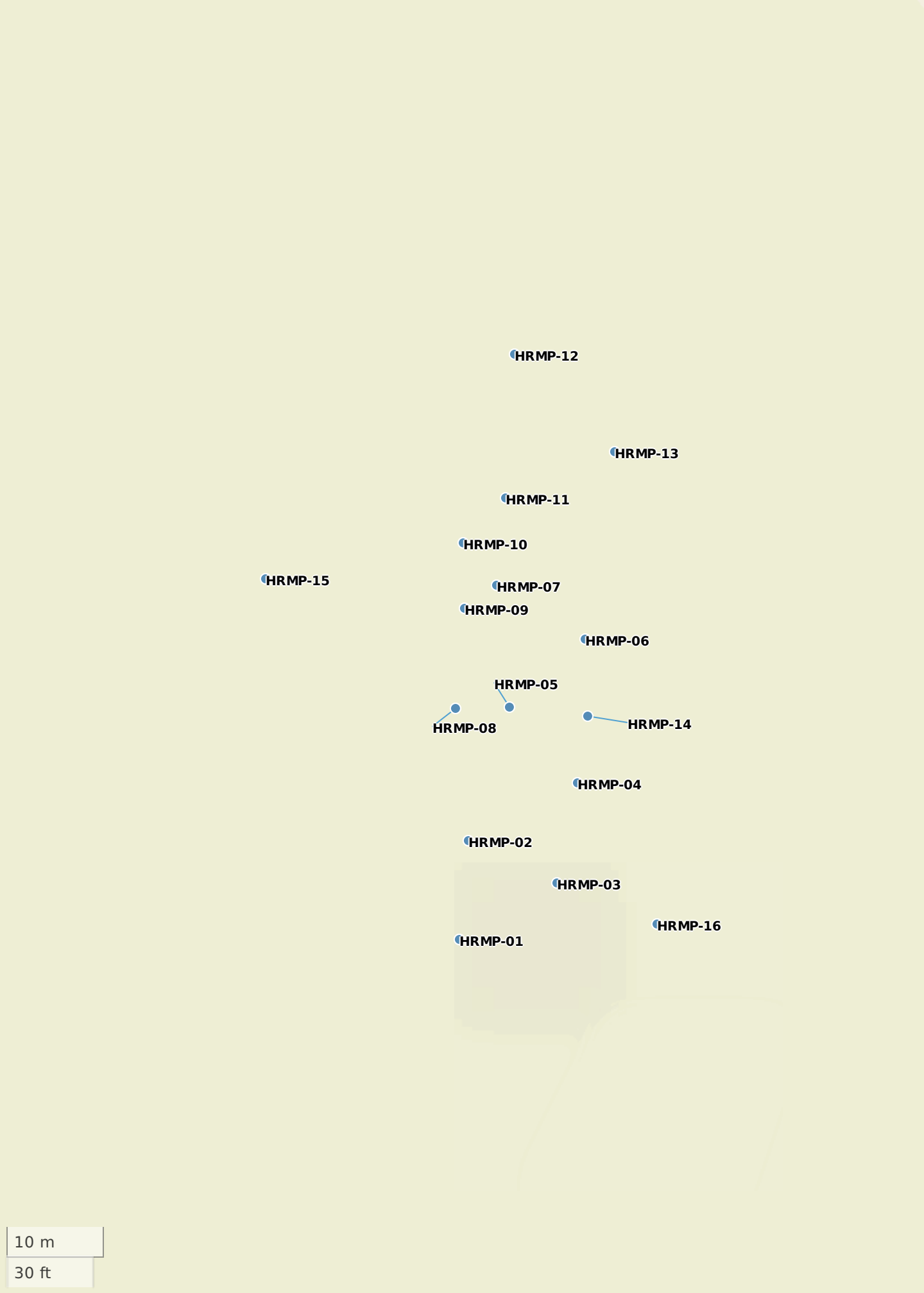
Halogen Specific Detector (XSD)
The XSD consists of a ceramic probe, platinum wire (anode) and platinum bead (cathode) mounted inside a high temperature reactor. The XSD is sensitive and provides a linear response to the quantity of halogen.

Electron Capture Detector (ECD)
The ECD detector consists of a sealed stainless steel cylinder containing radioactive Nickel-63, similar to a household smoke detector, that emits beta particles (electrons), which collide with the instrument carrier gas molecules, ionizing them in the process. When electro-negative compounds including chlorinated, fluorinated, or brominated molecules enter the cell, they immediately combine with the free electrons and provide a detector response. The ECD response is non-linear and variable depending on the atomic structure of the compound detected.

Low Level MIP (LL-MIP)
LL MIP can greatly increase the sensitivity of the MIP logging tool. The primary feature of LL MIP technology is that the carrier gas stream that sweeps the internal surface of the MIP membrane is pulsed. This results in an increase in the concentration of VOC contaminant delivered to the MIP detectors. This technology can provide the ability to track and map contaminant plumes down to concentrations at or below the 100 ppb range for some contaminants. Performance is highly dependent on the condition of the MIP system and the sensitivity of the installed detectors.

Laser Induced Fluorescence - UltraViolet Optical Scanning Tool (LIF-UVOST®)
The LIF/UVOST® system uses a high- energy laser to produce an ultraviolet light source for the detection of polycyclic aromatic hydrocarbons (PAHs). The LIF/ UVOST® system employs a excitation beam of light from a XeCl laser at 308 nm light pulsed at 50 megahertz. Any residual phase PAHs present in the soil grains will absorb this photon energy in the form of fluorescence. This fluorescence is returned to the optical detection system via a second silica fiber optic line, measured, and recorded in real time across four specific wavelengths, namely 350, 400, 450, and 500 nm. Individual LIF/UVOST® logs consist of a primary graph of total fluorescence as a percentage of a Reference Emitter (RE) test standard versus depth, an information box and up to five waveform callouts. These callouts present the fluoresce intensity of each of the monitored wavelengths on the Y-axis (in microvolts (uV)). The four peaks are due to the fluorescence at the four monitored wavelengths called channels. Each channel is assigned a color. Various NAPLs will have a unique waveform signature based on the relative amplitude of the four channels and/or the broadening of one or more of the channels. Performance Testing: All detector systems are tested before and after each survey location to verify proper system response to known reference values. Records of these performance tests are kept with the project and system operating logs. UVOST® is a registered trademark of Dakota Technologies, Inc.

BACK RD
US 52
TOWNSHIP RD 215
TOWNSHIP RD 215
TOWNSHIP RD 215
50 m
300 ft


HRMP-12
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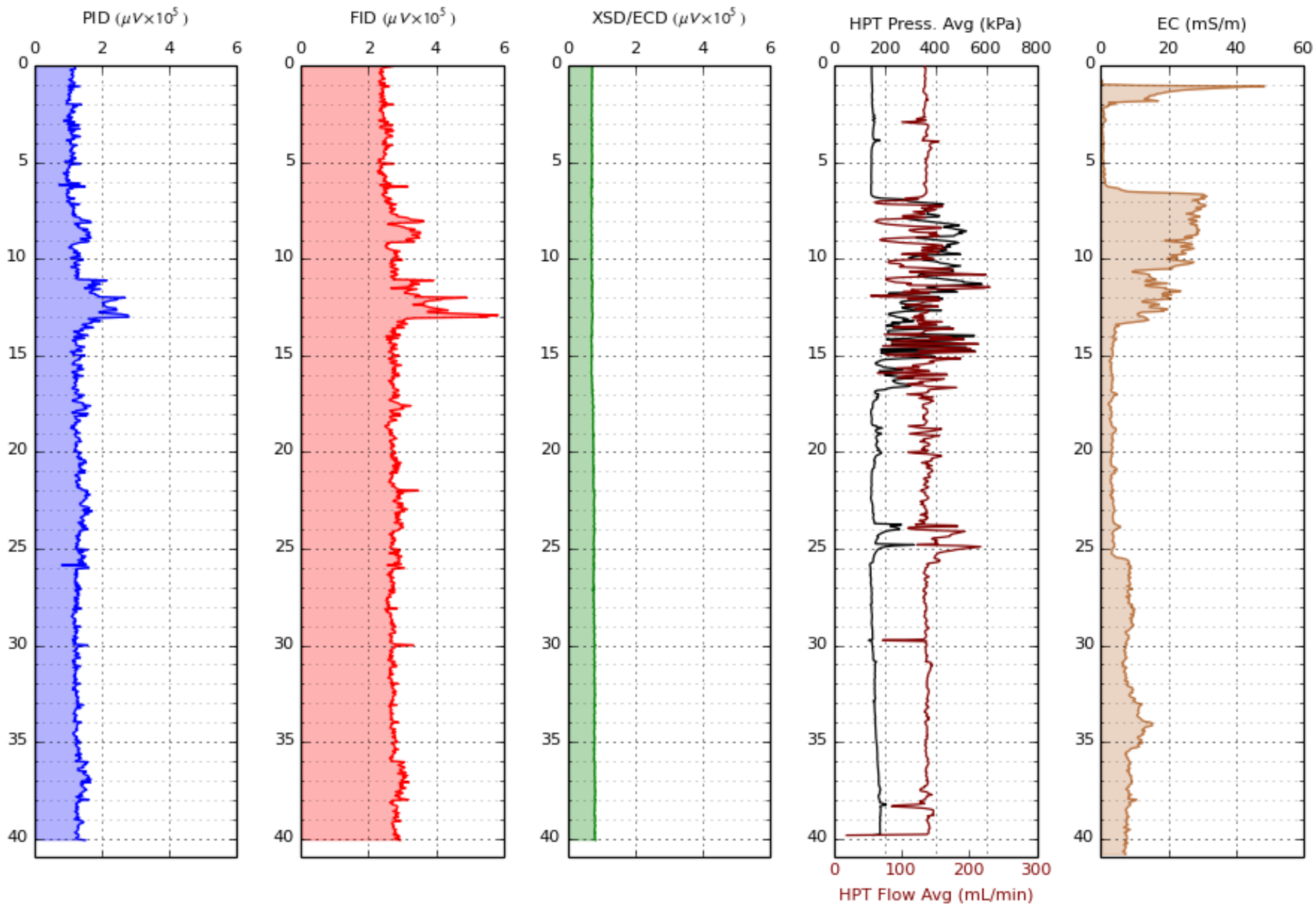
10 m
30 ft



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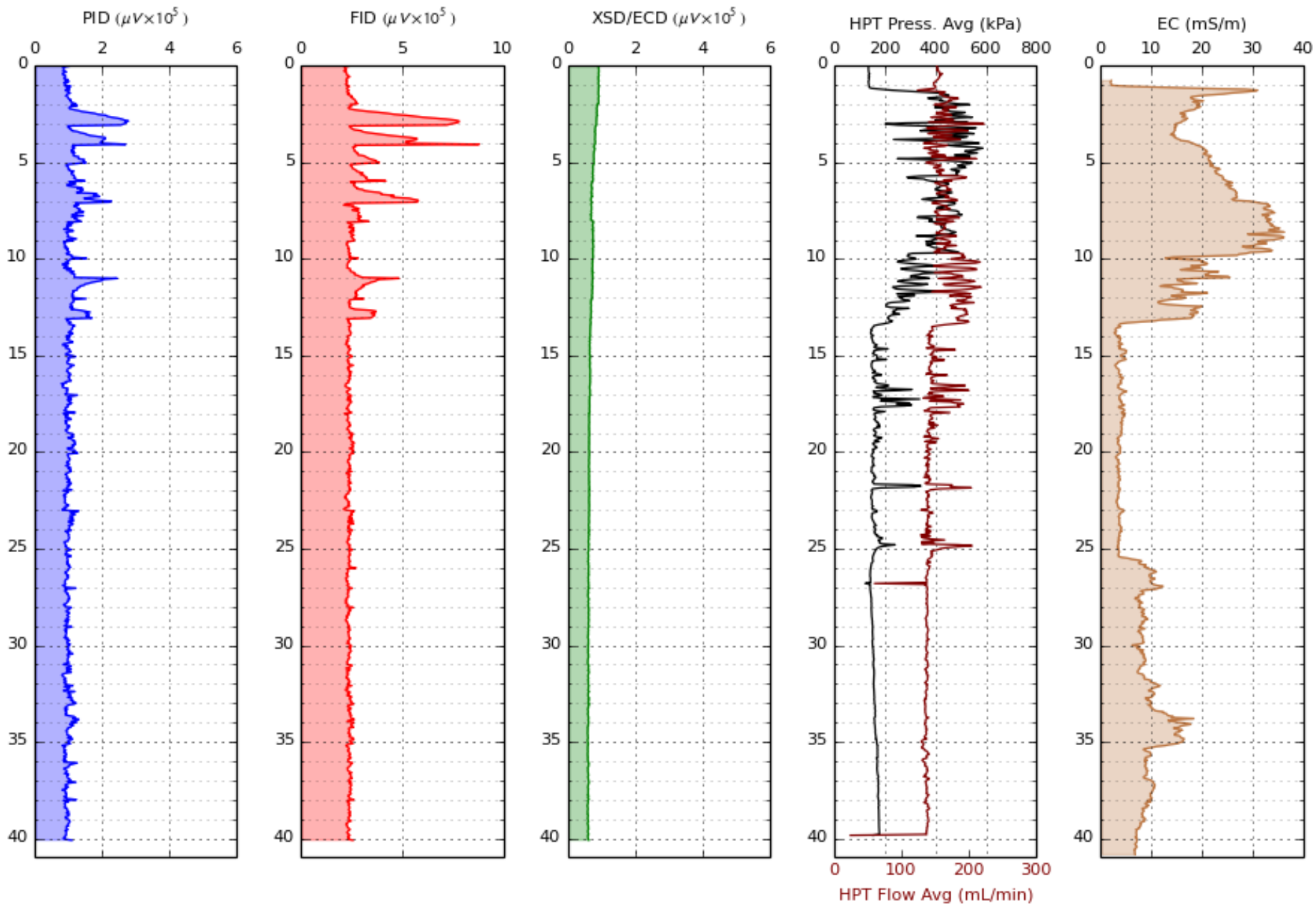

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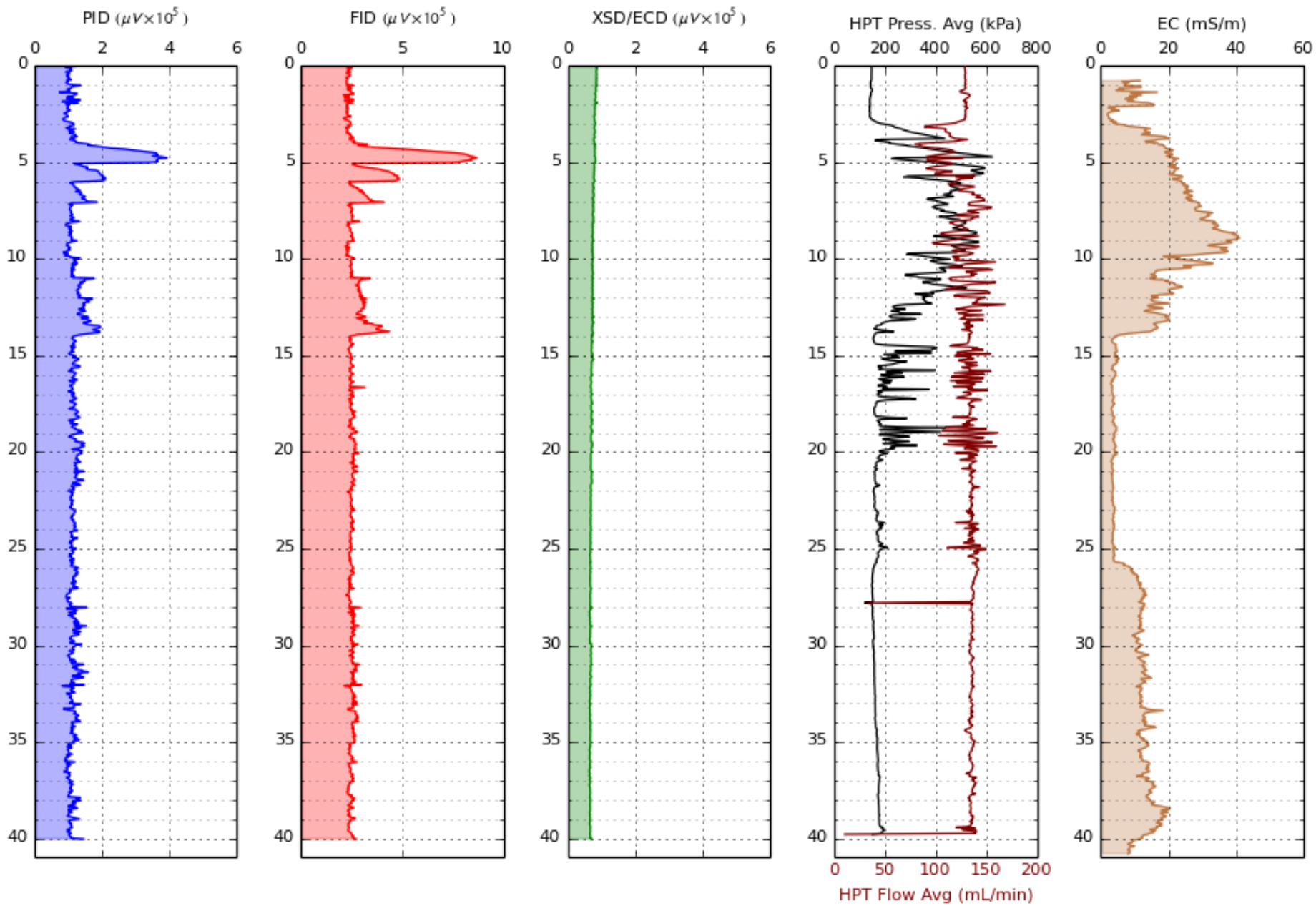

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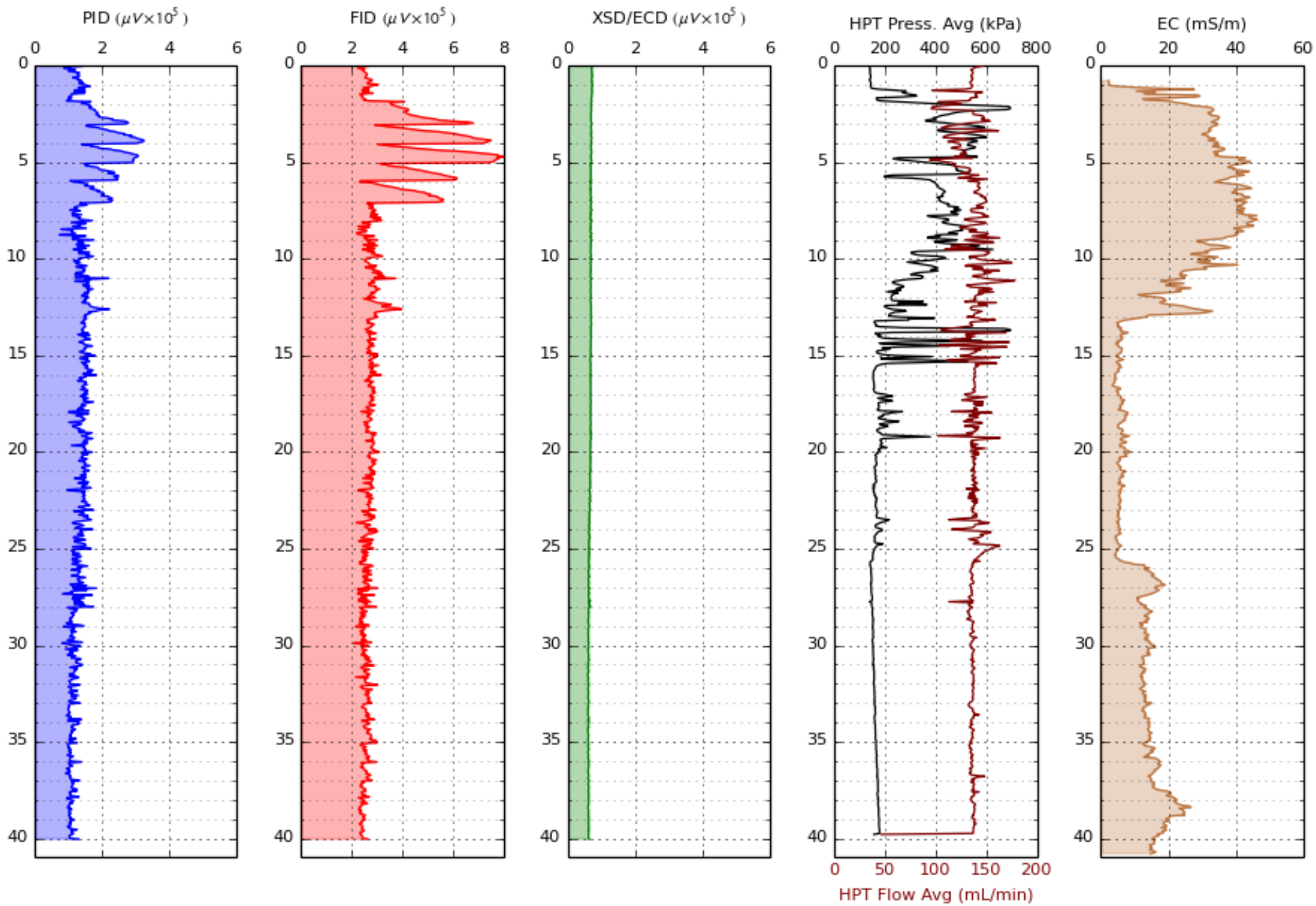

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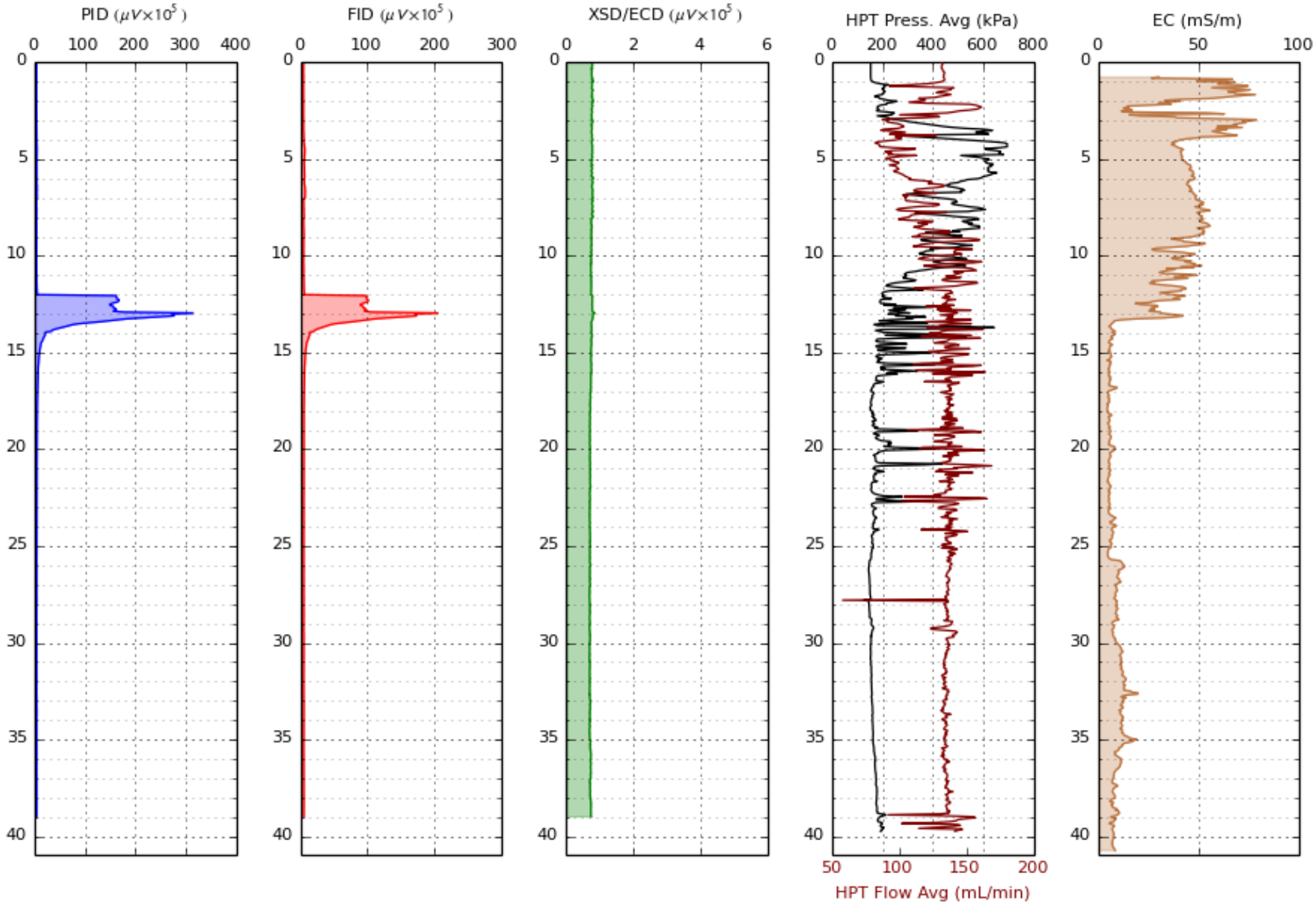

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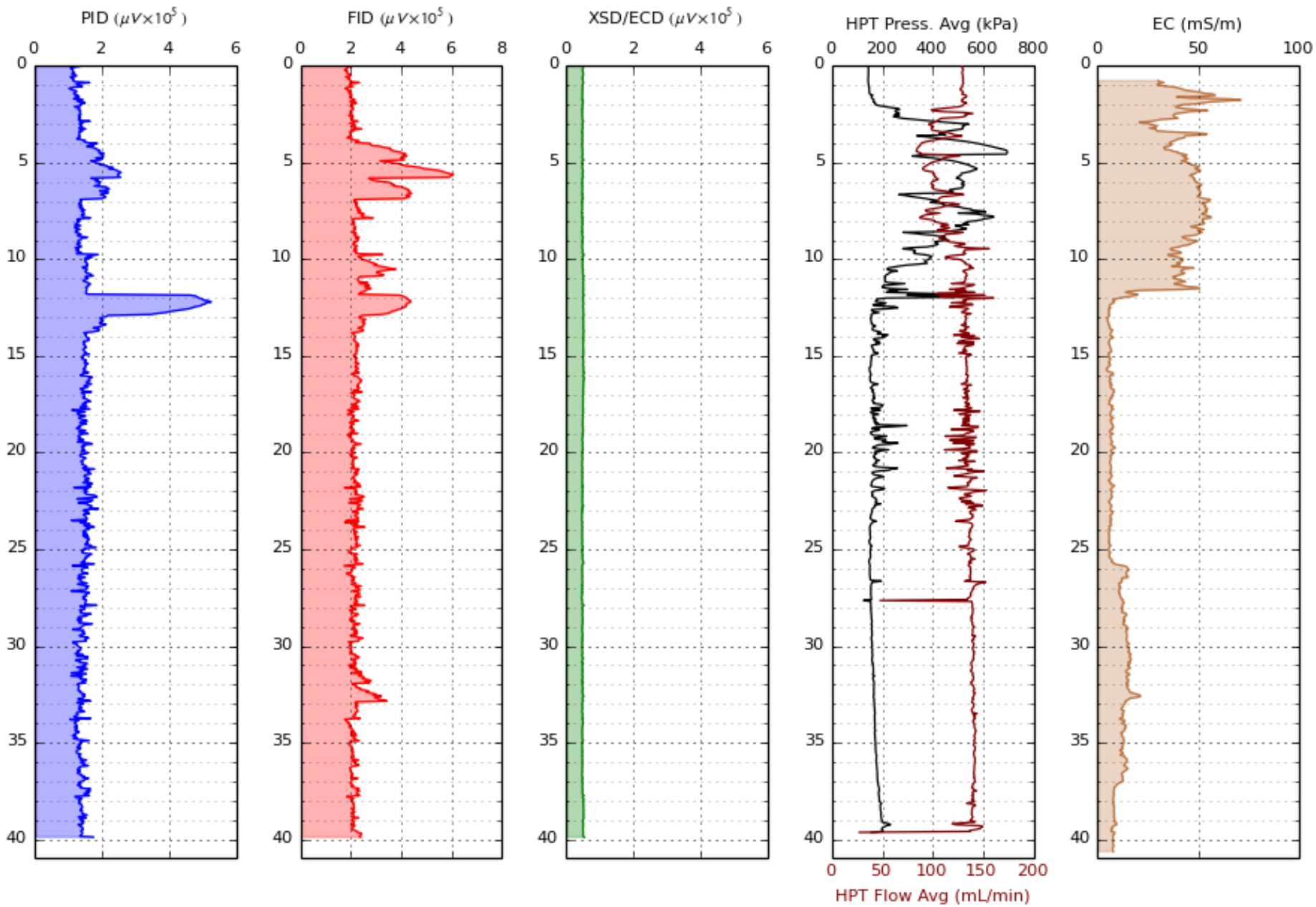

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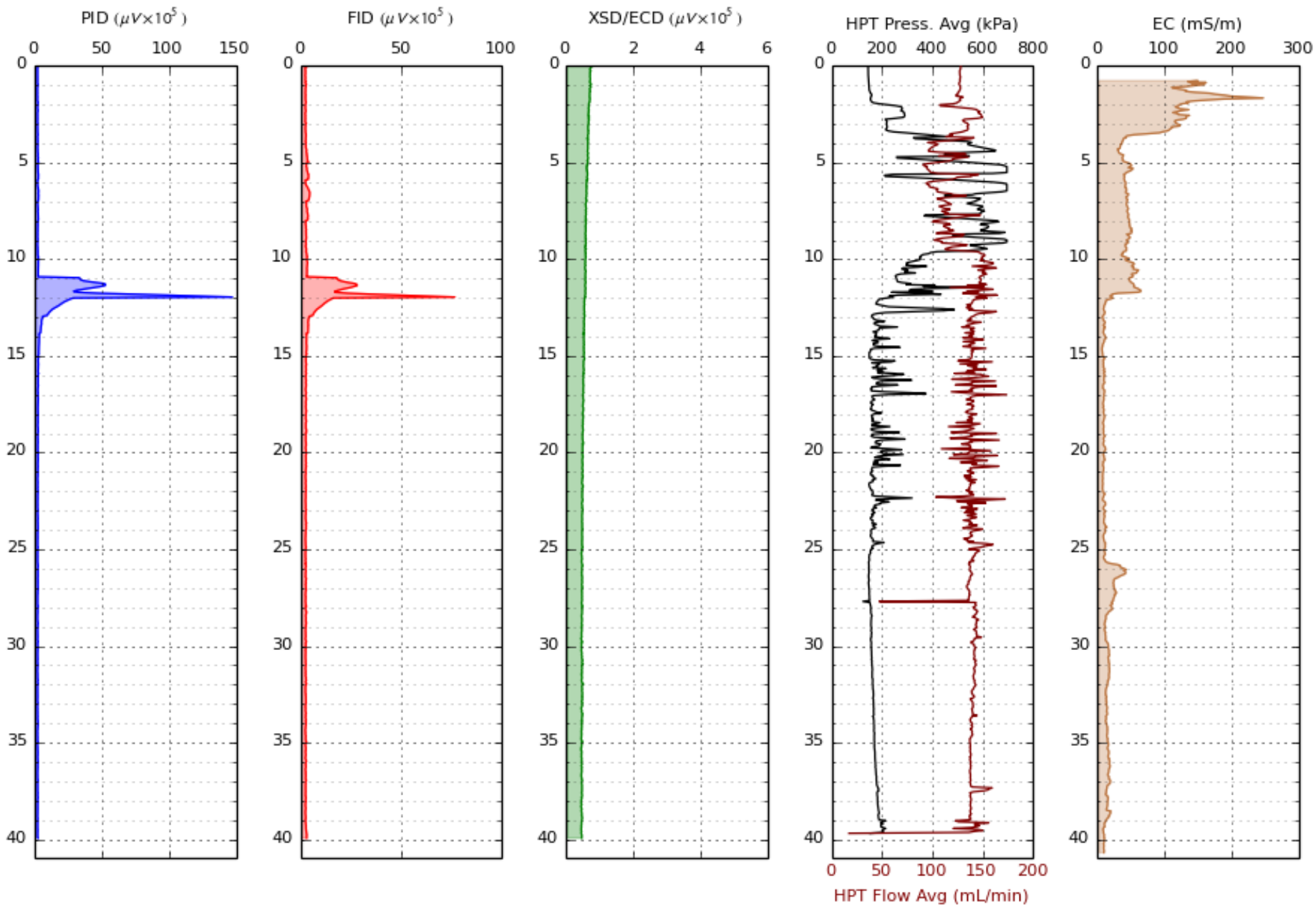

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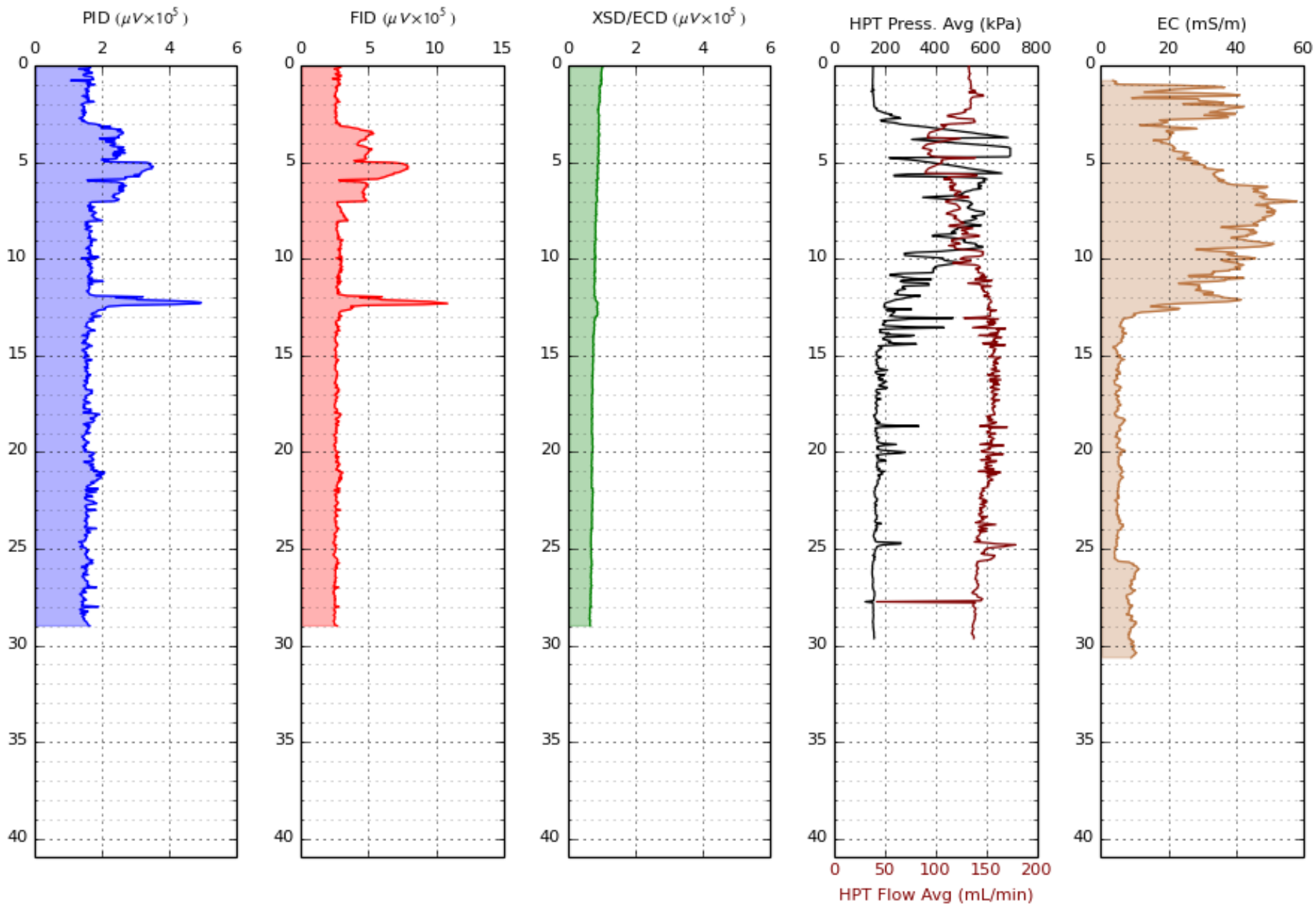

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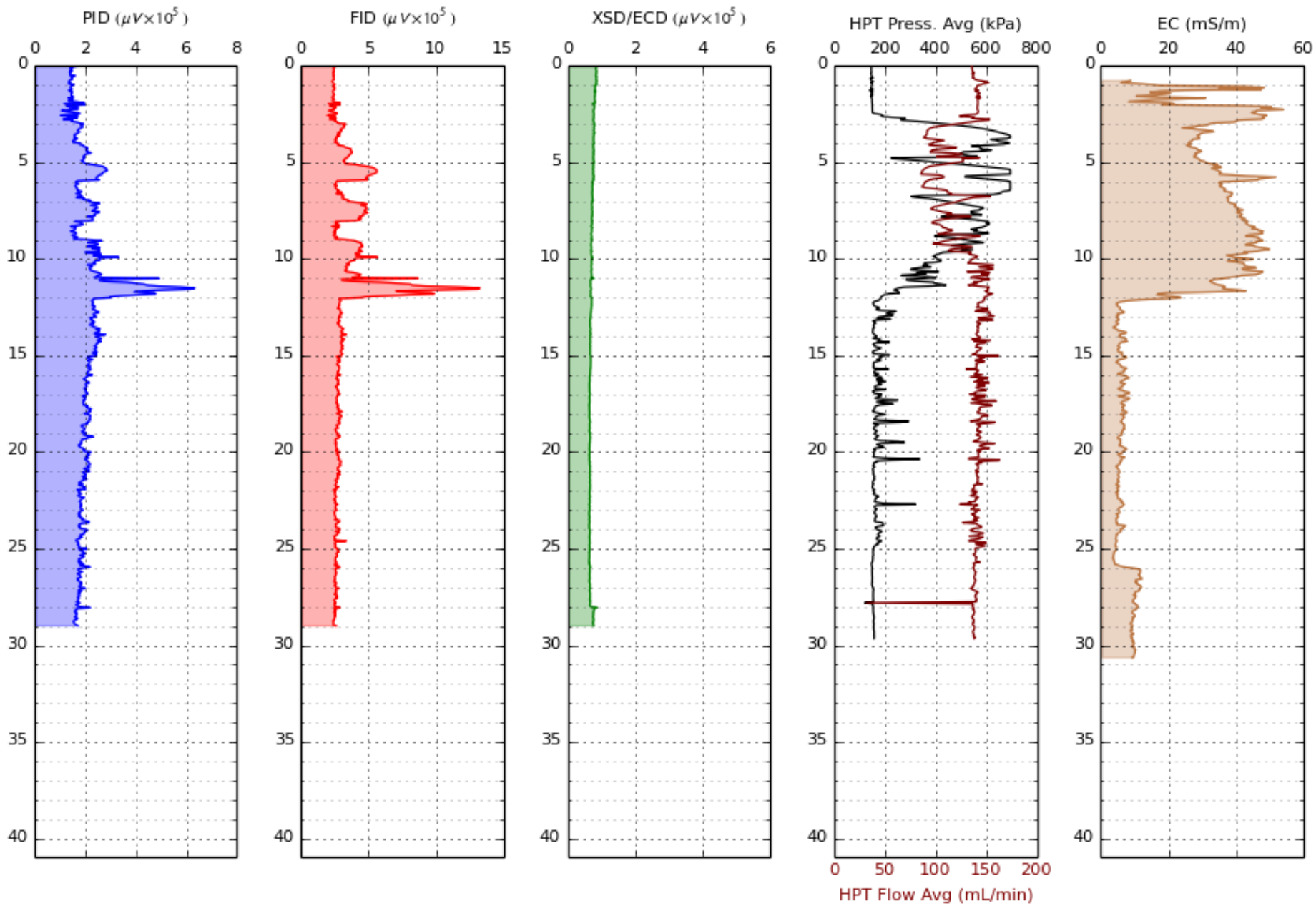

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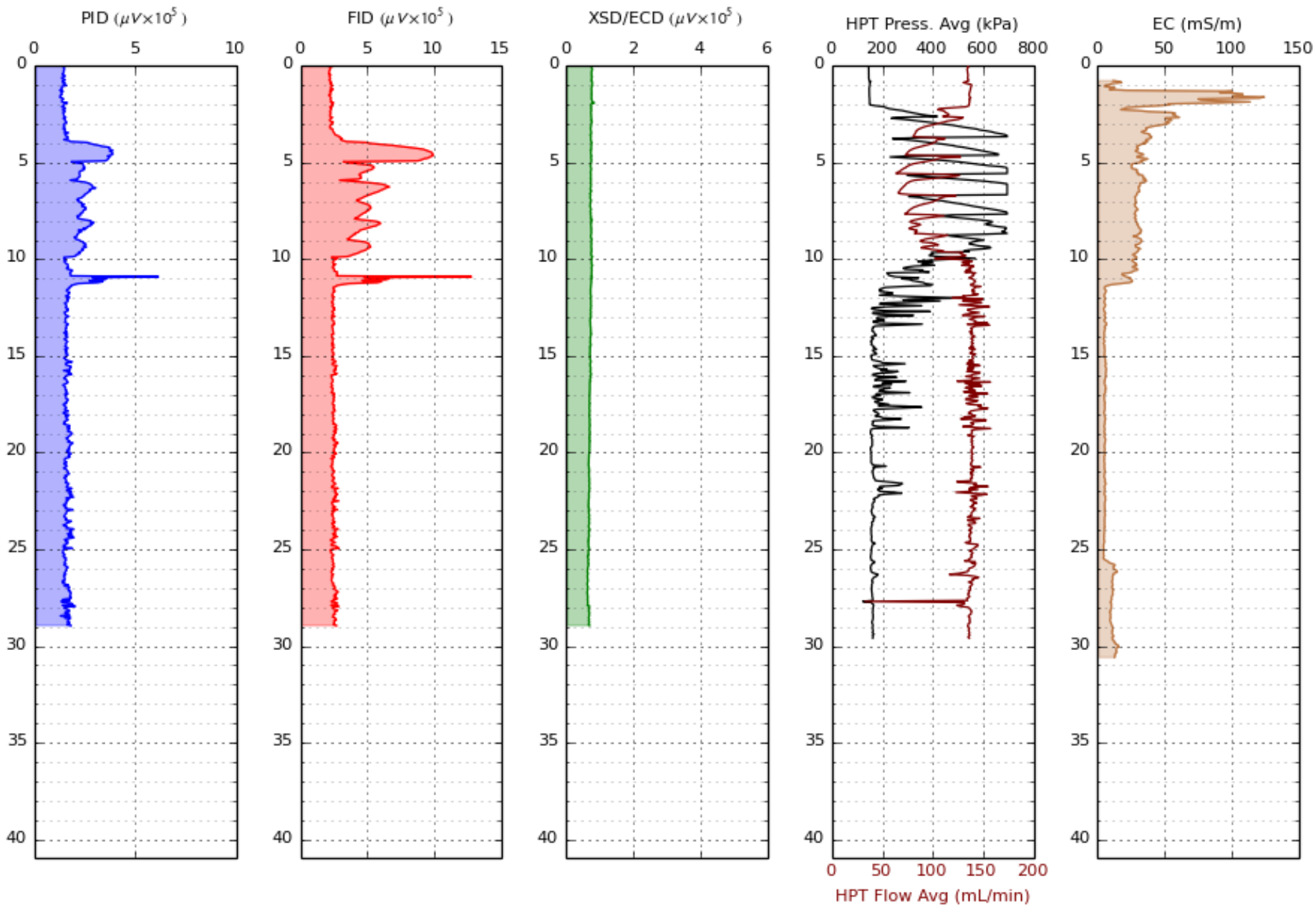

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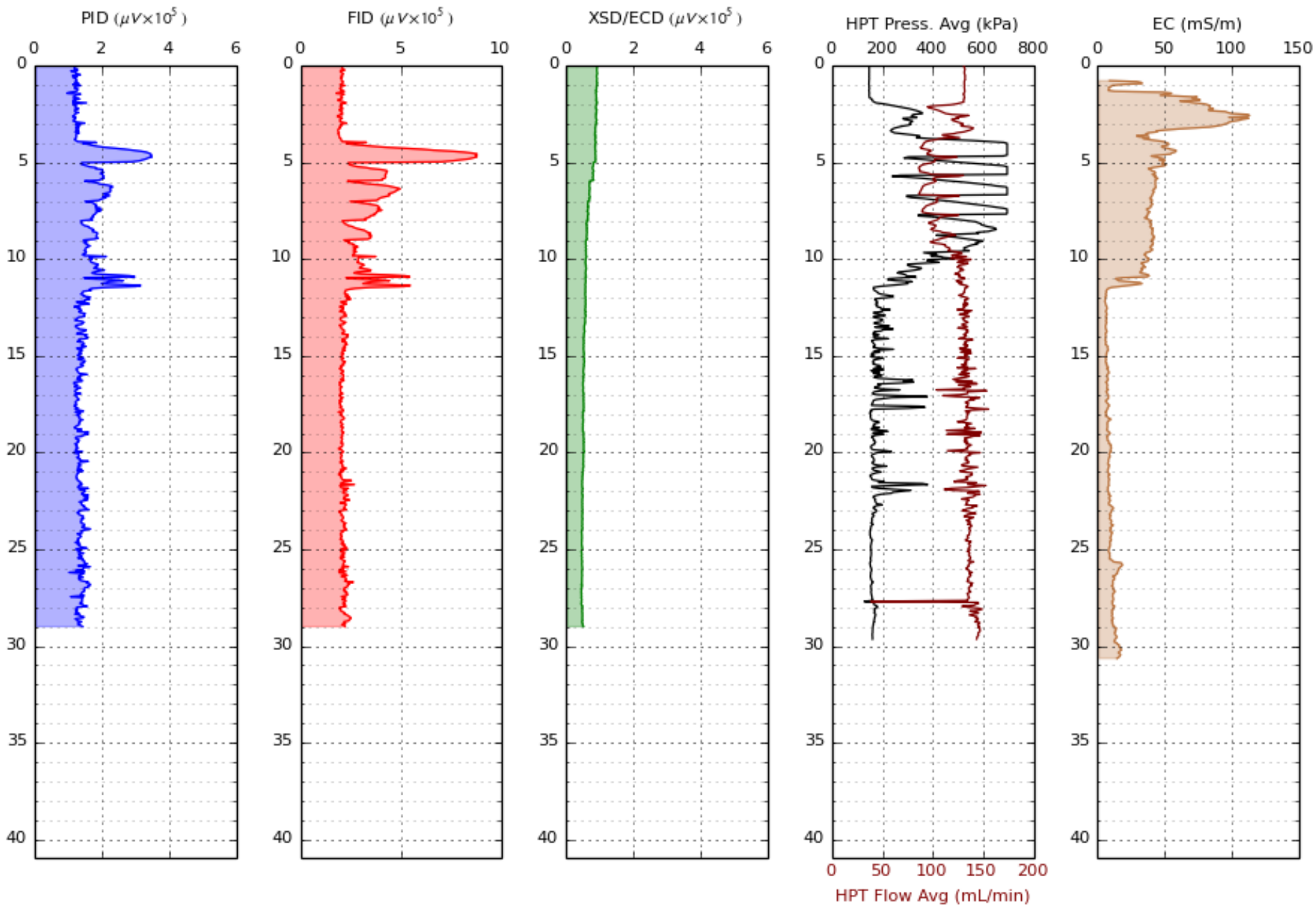

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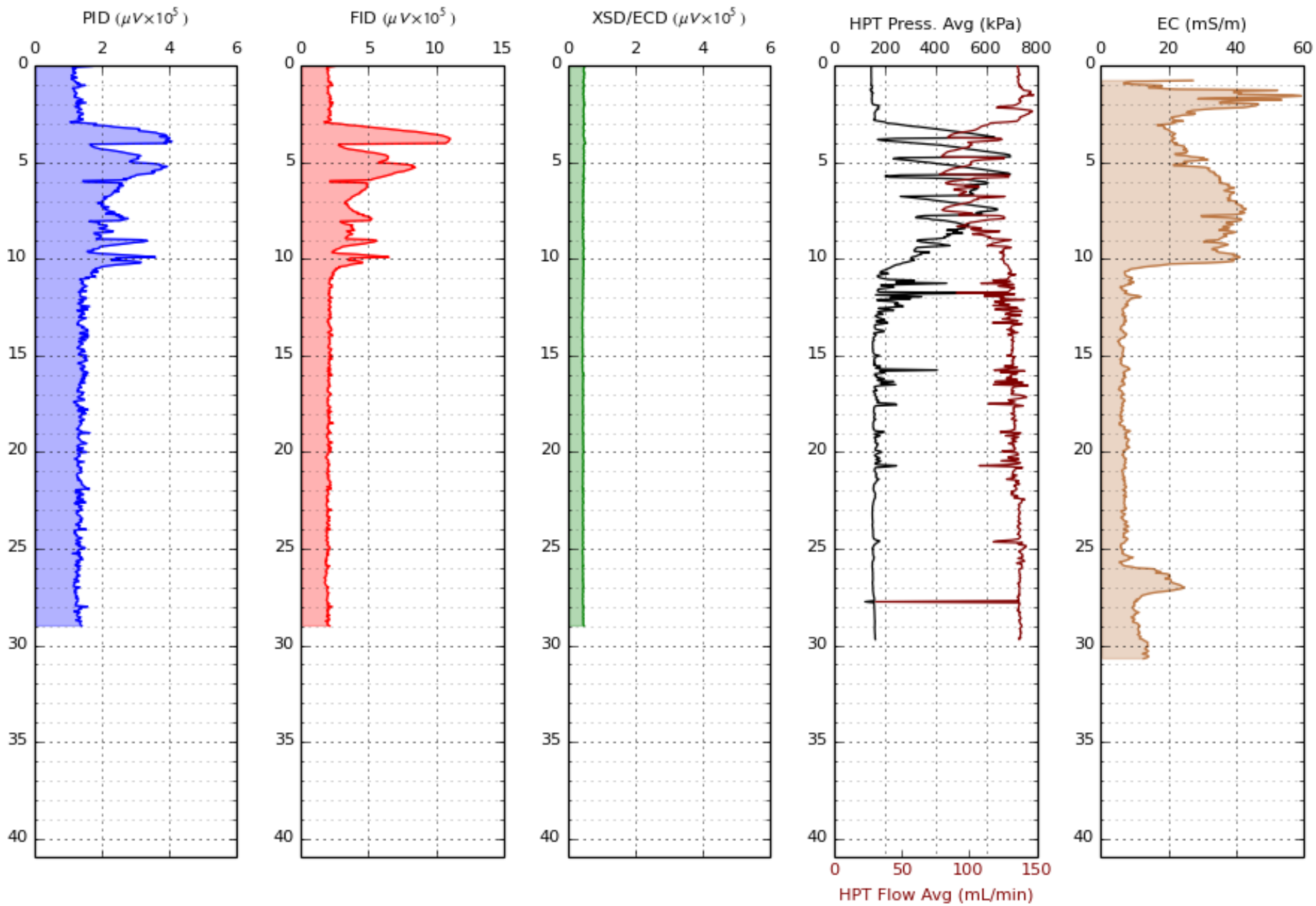

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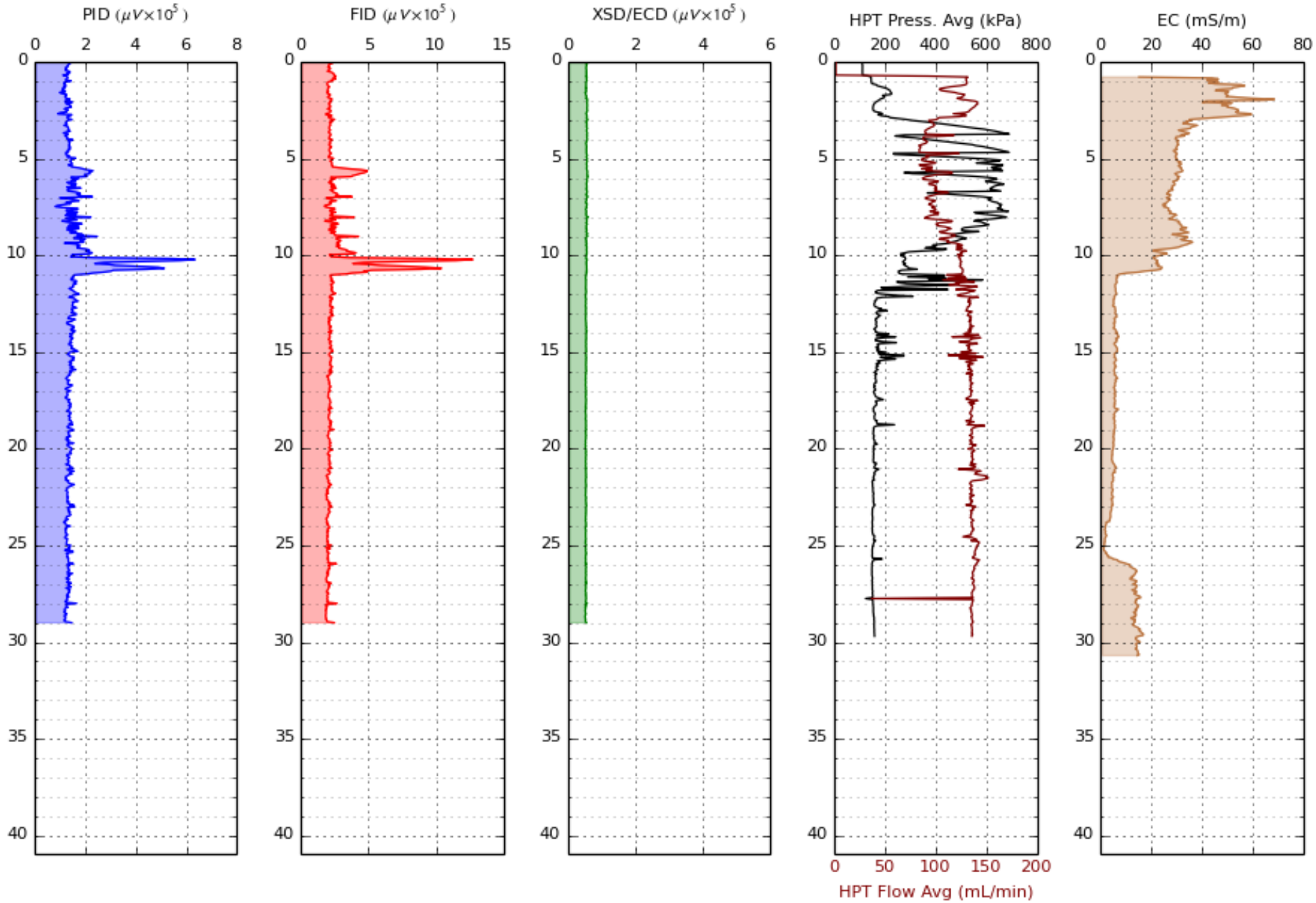

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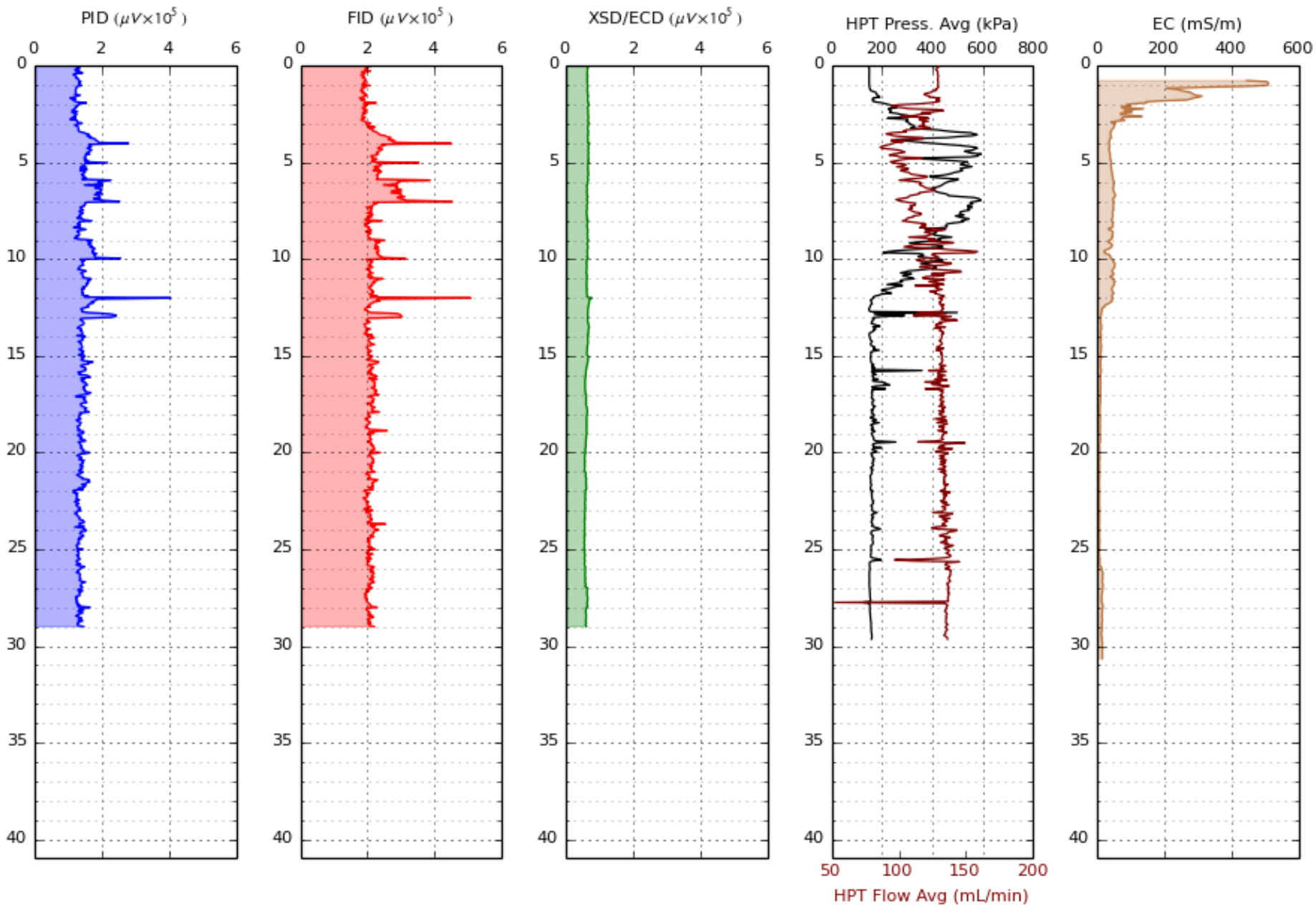

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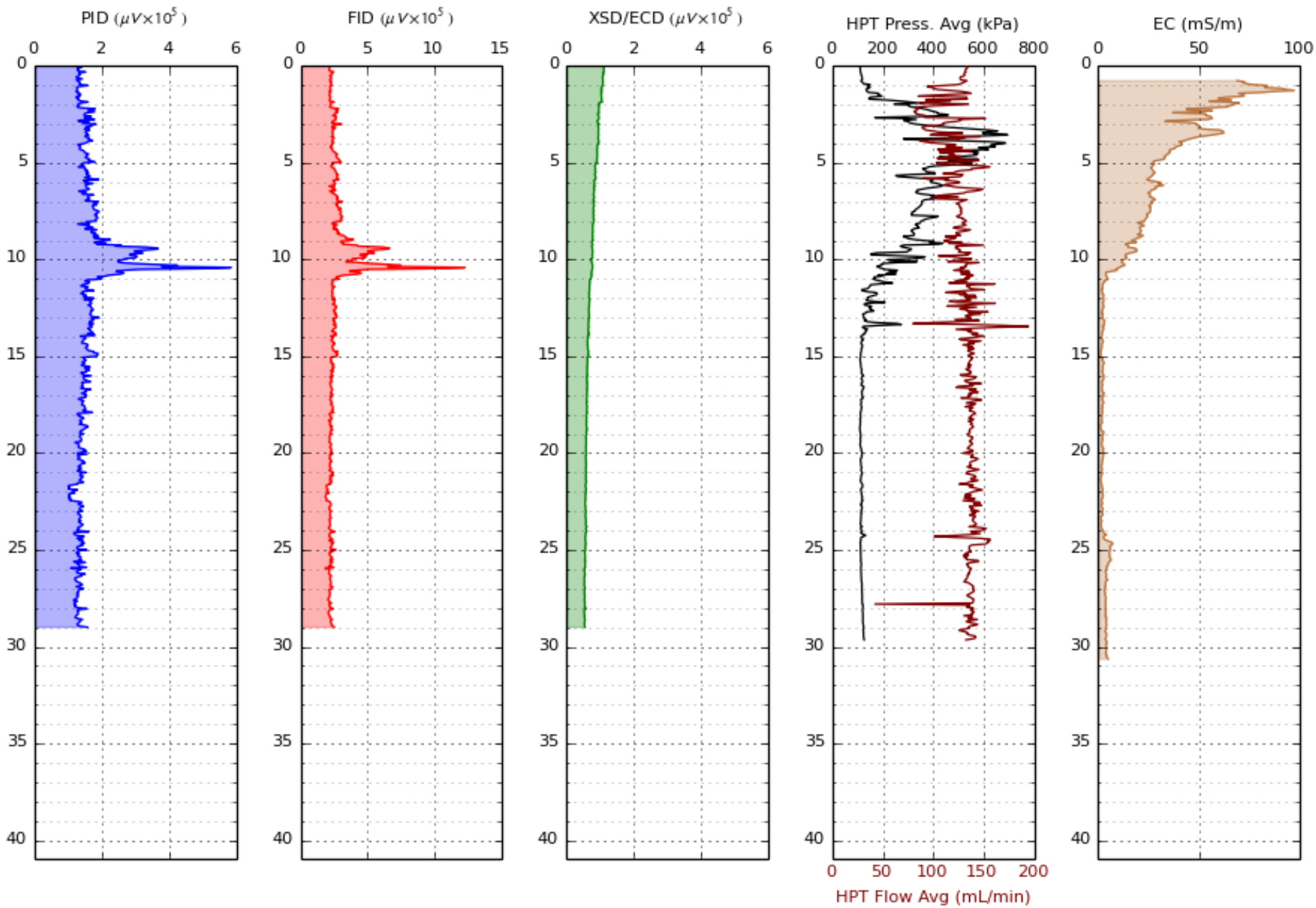

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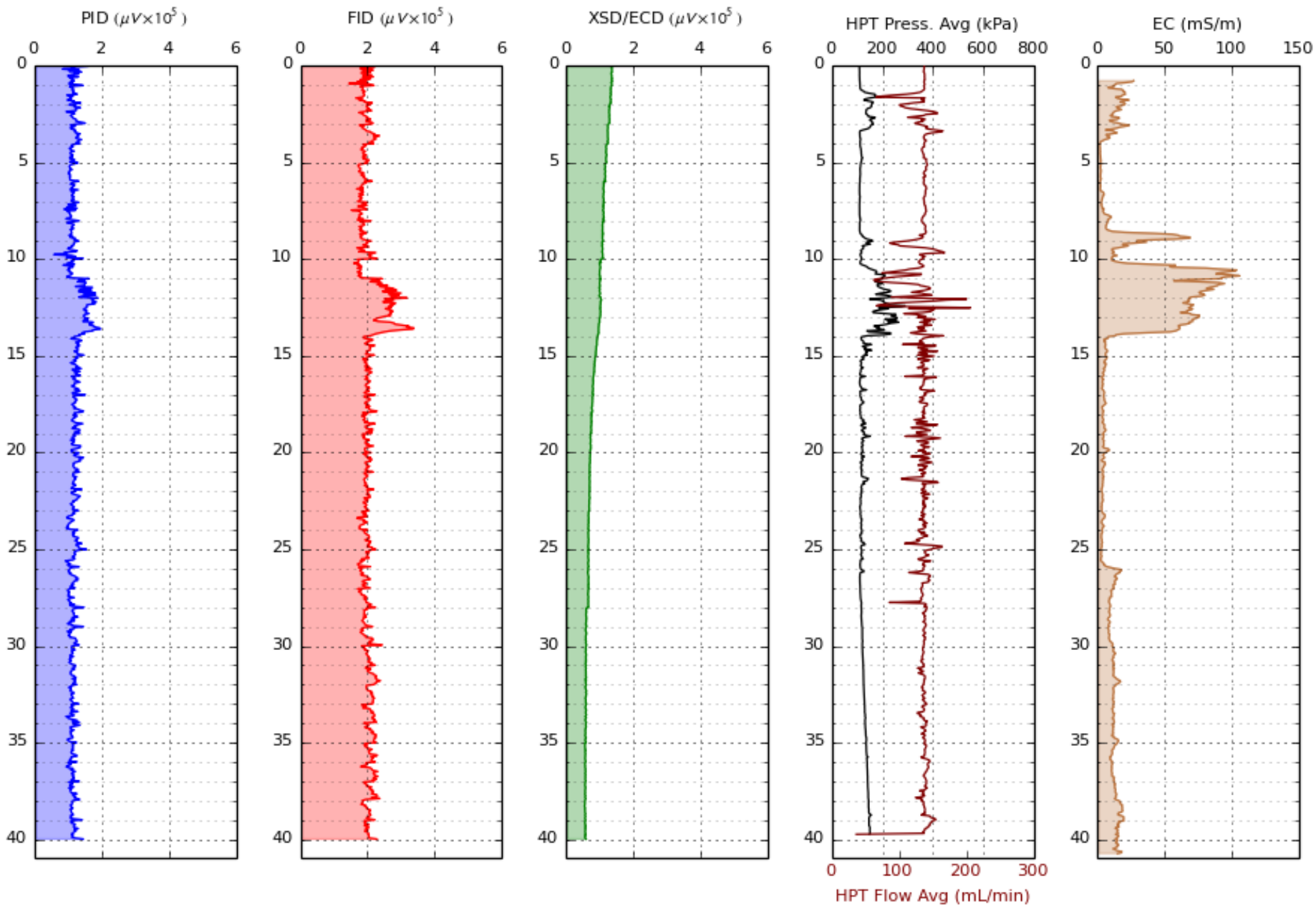

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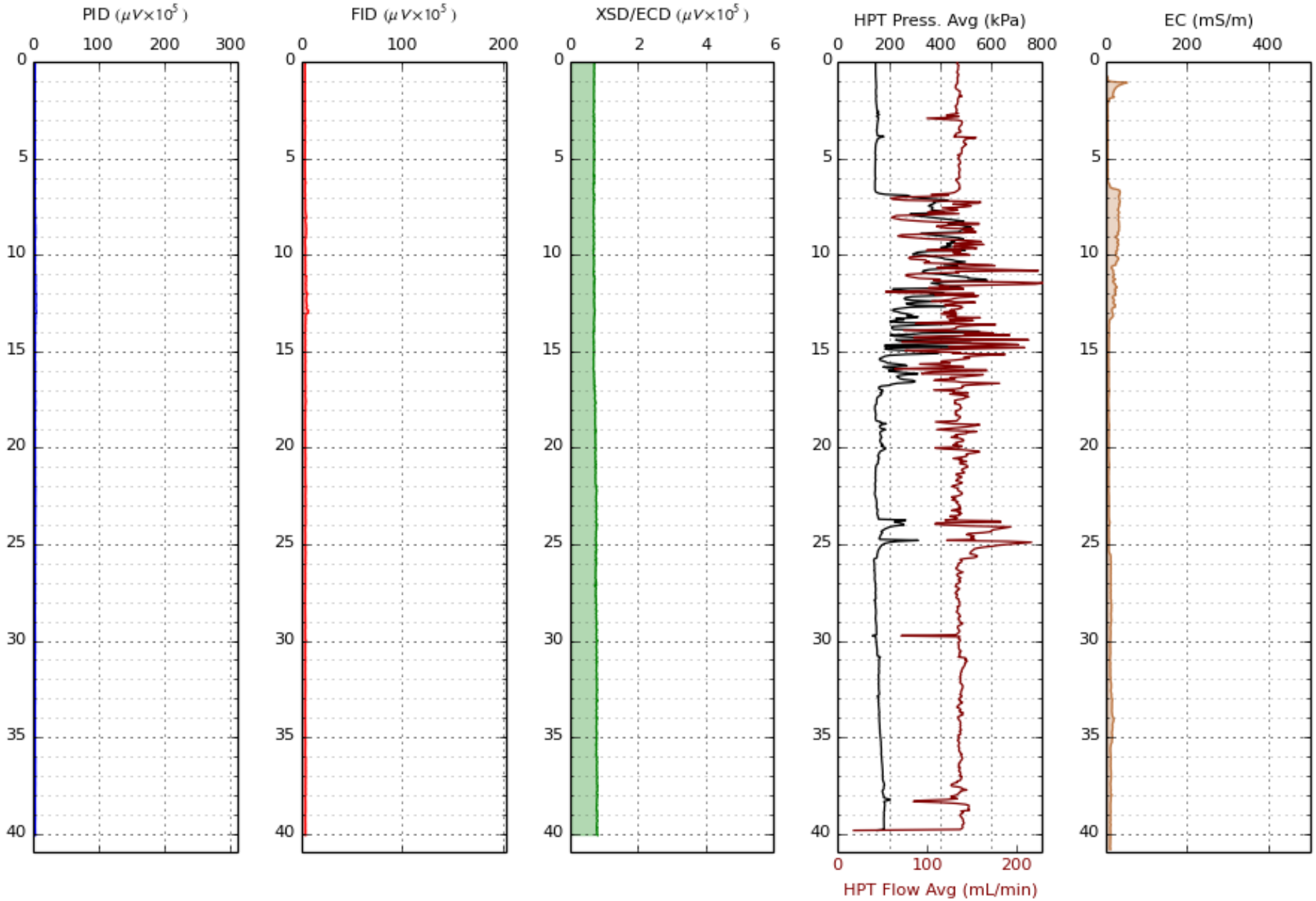

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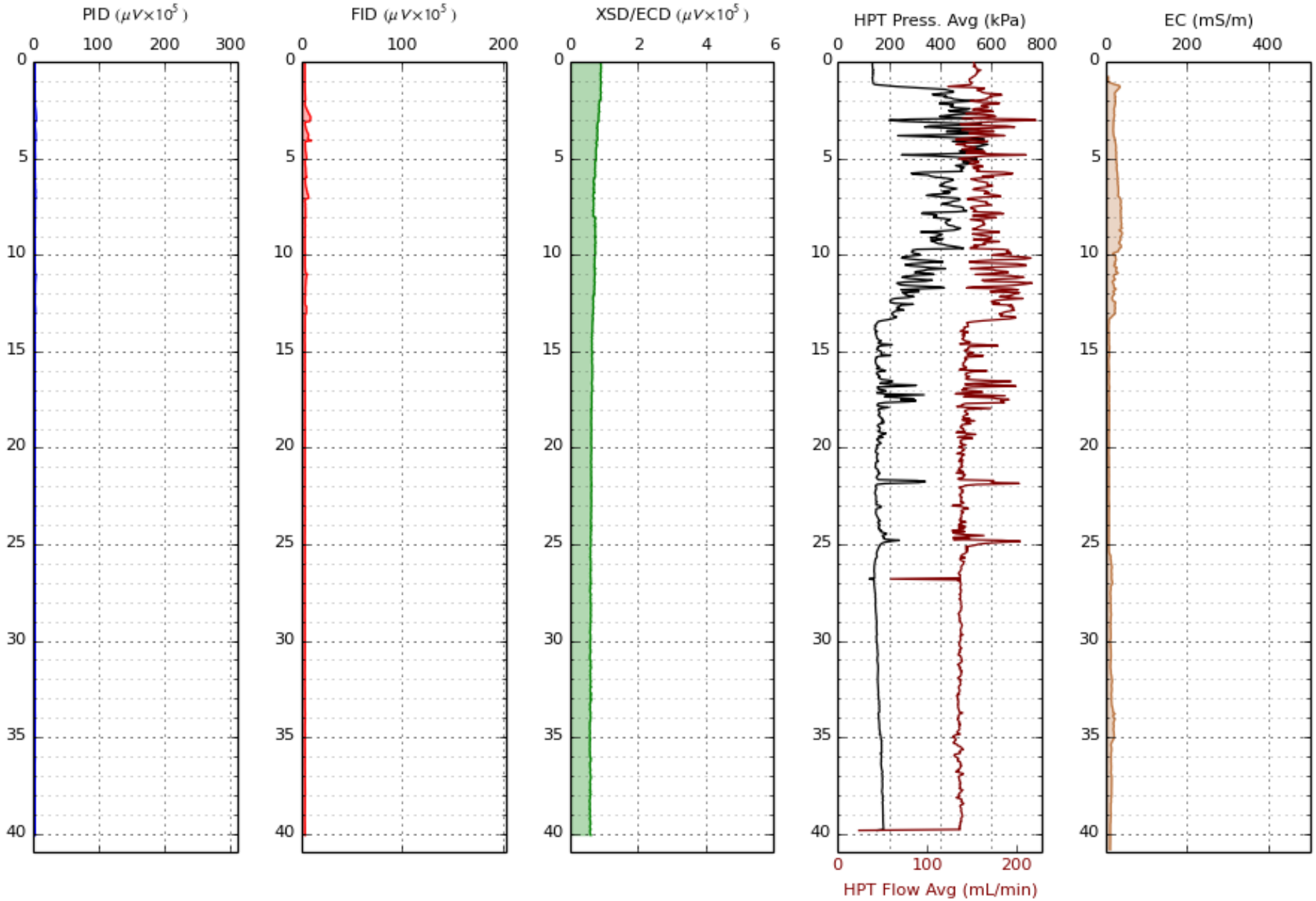

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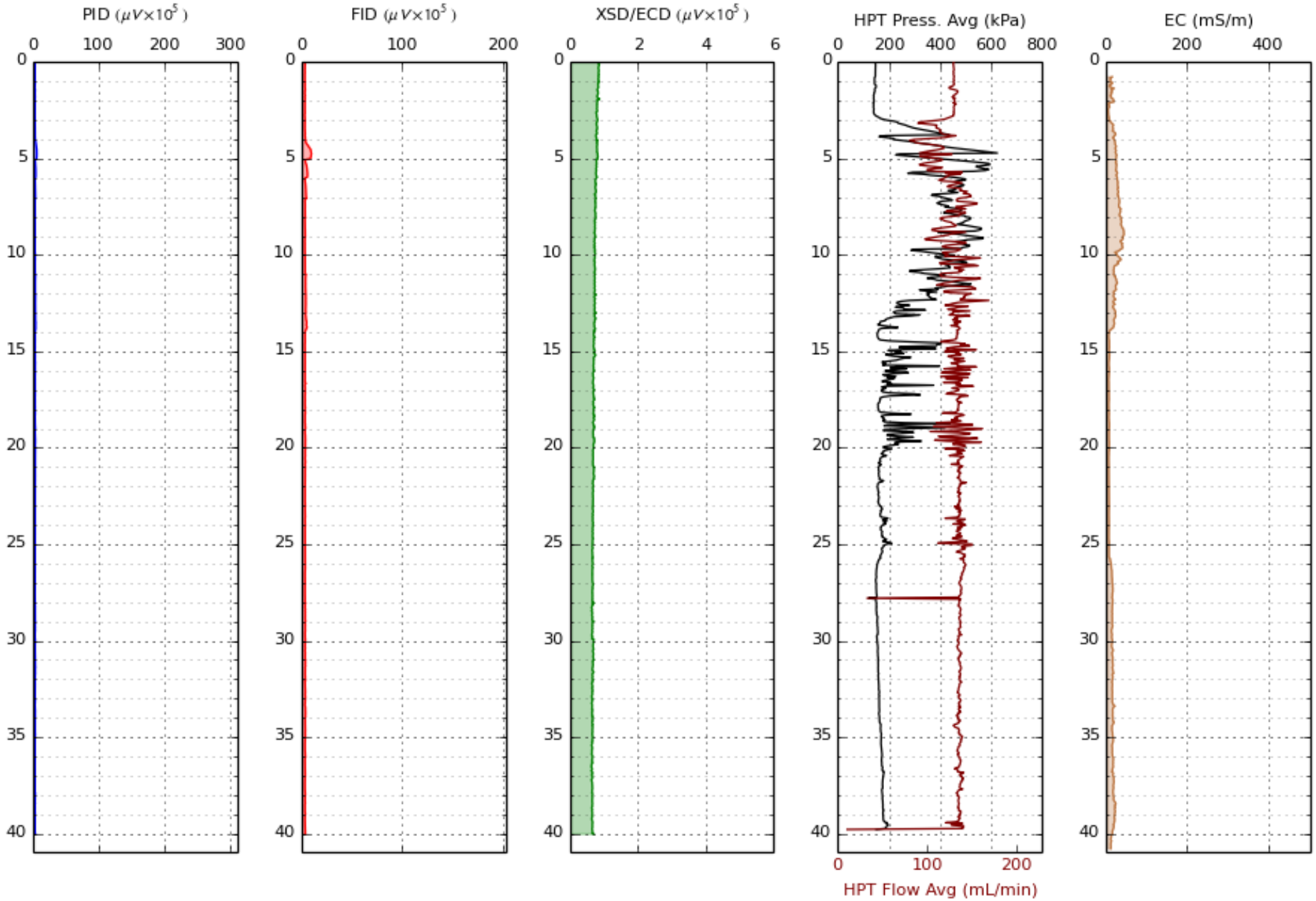

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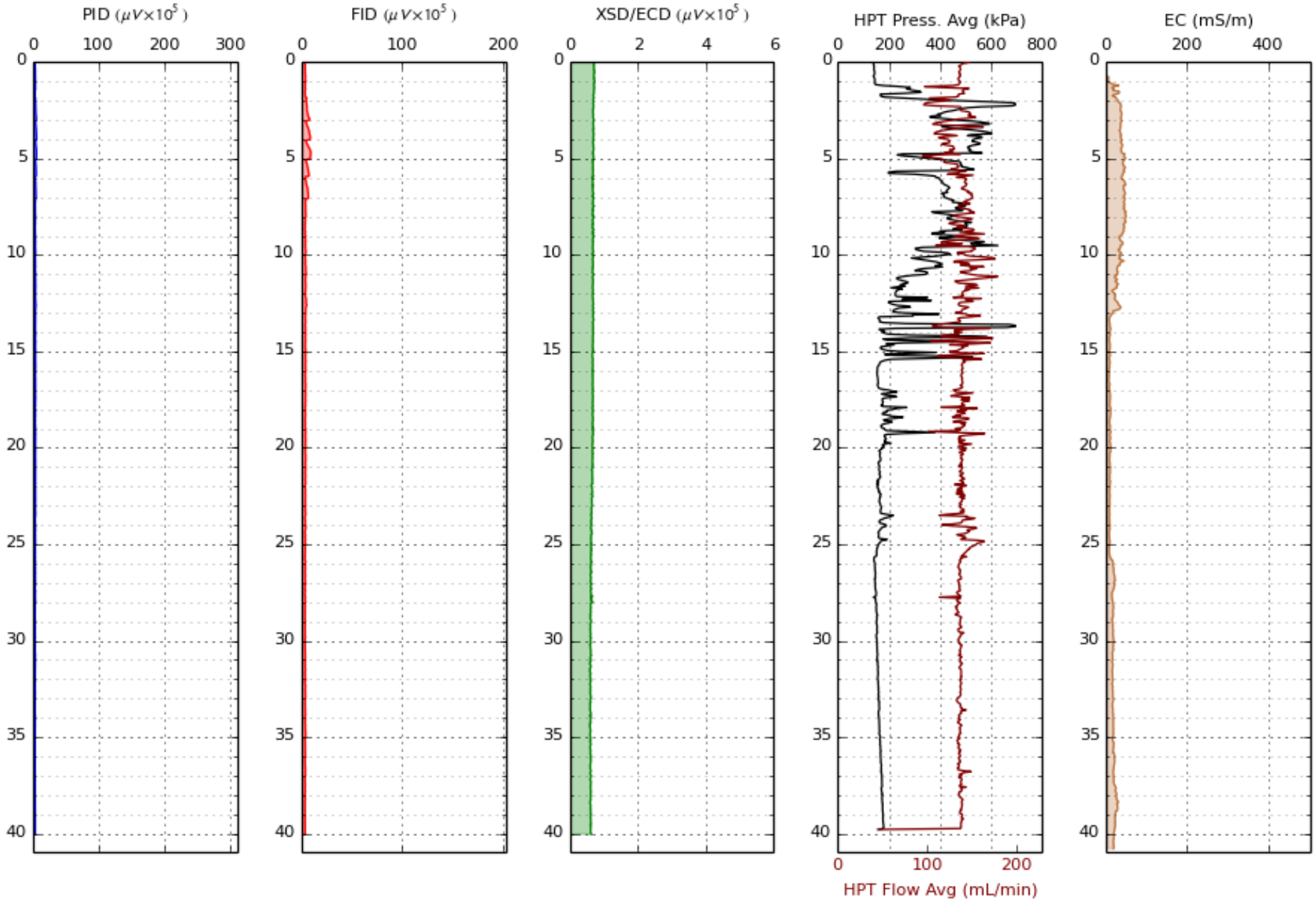

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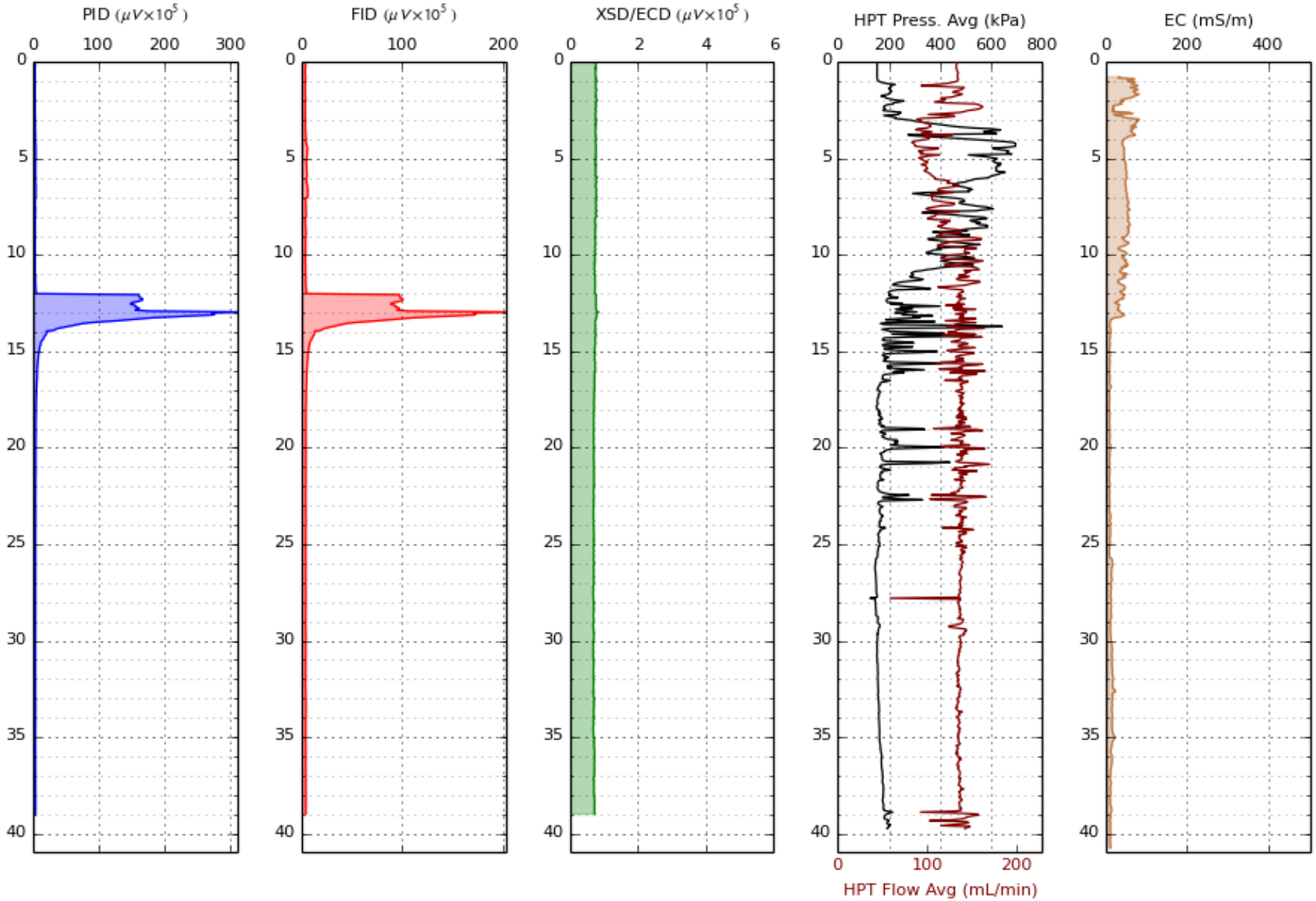

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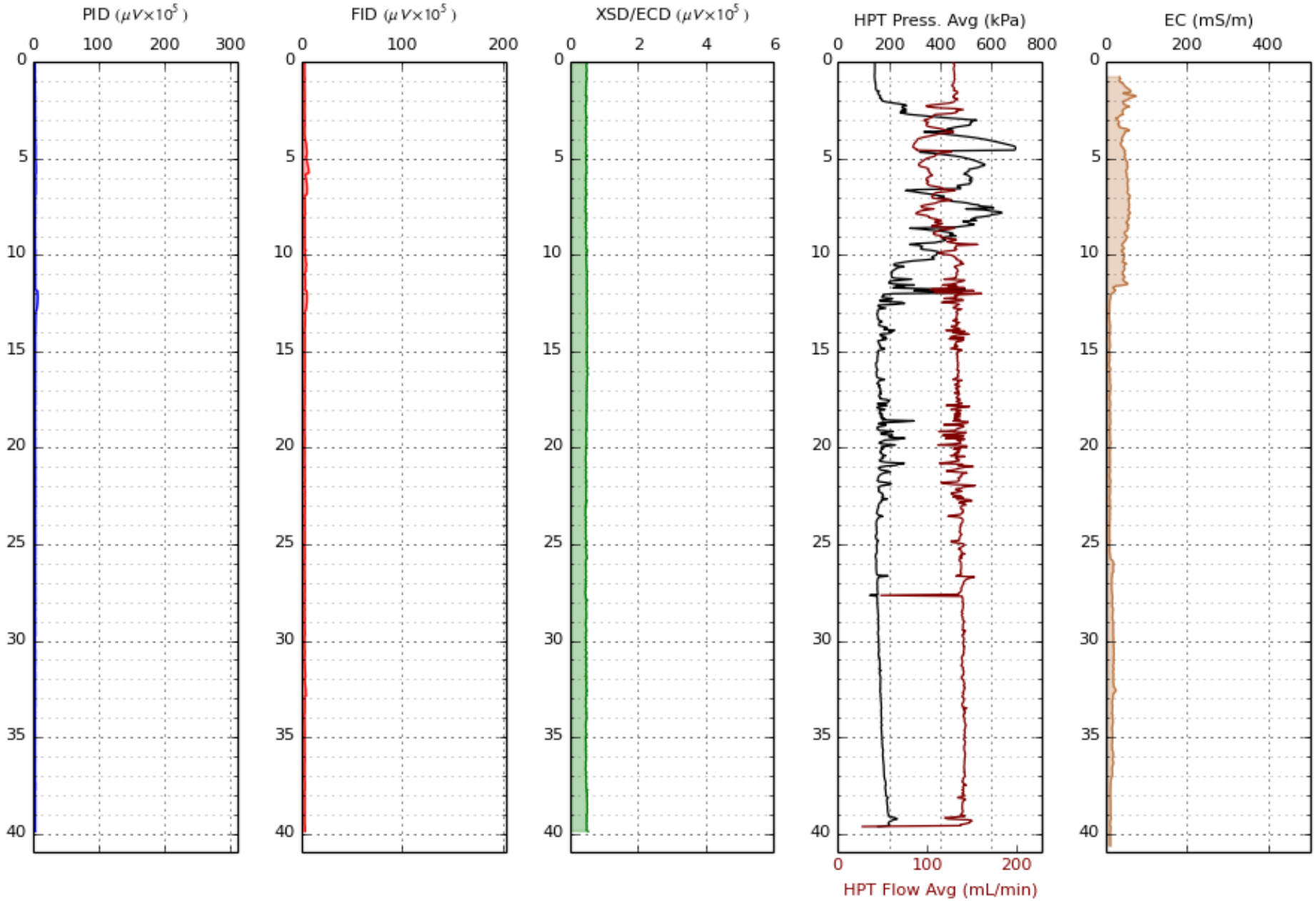

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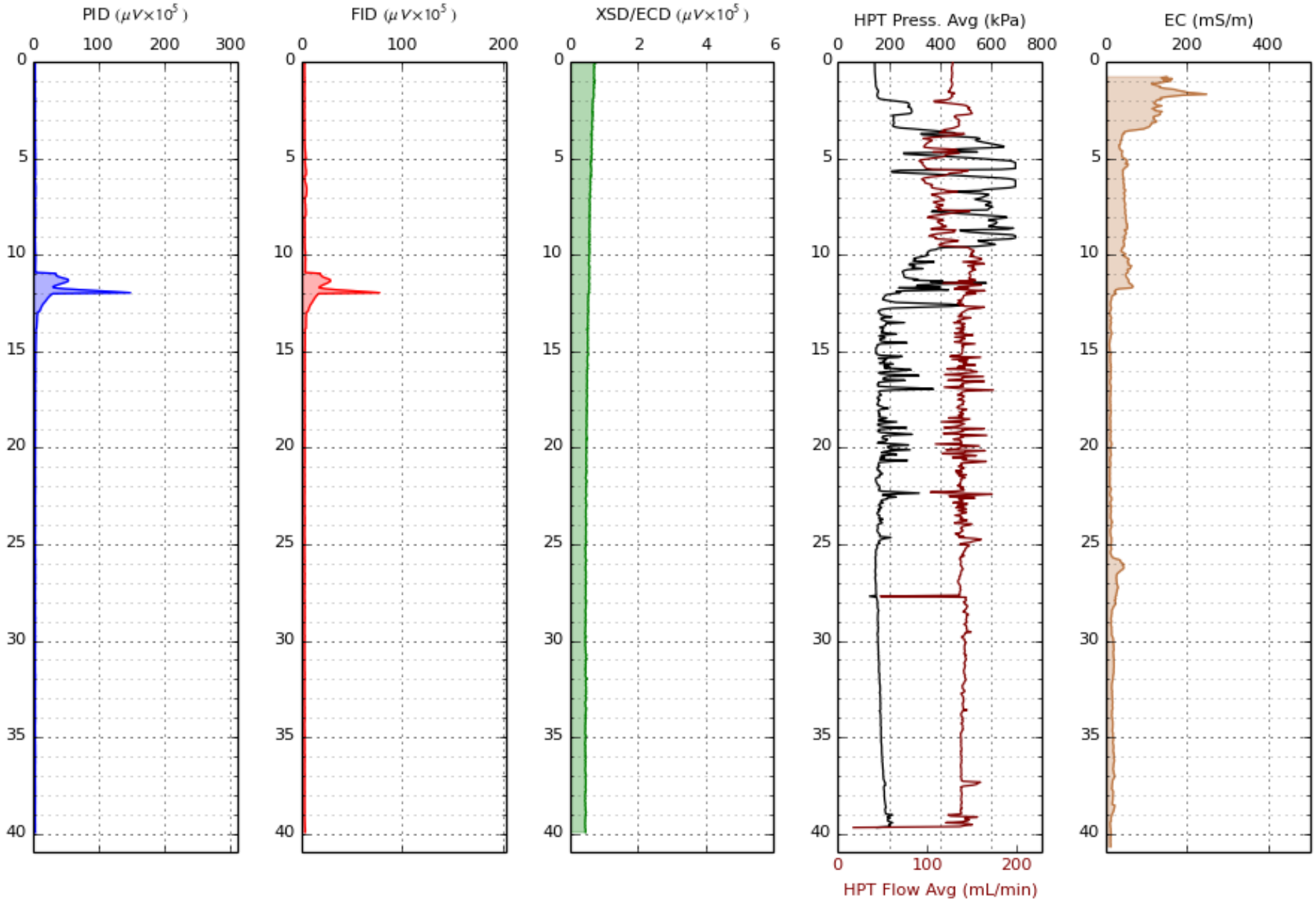

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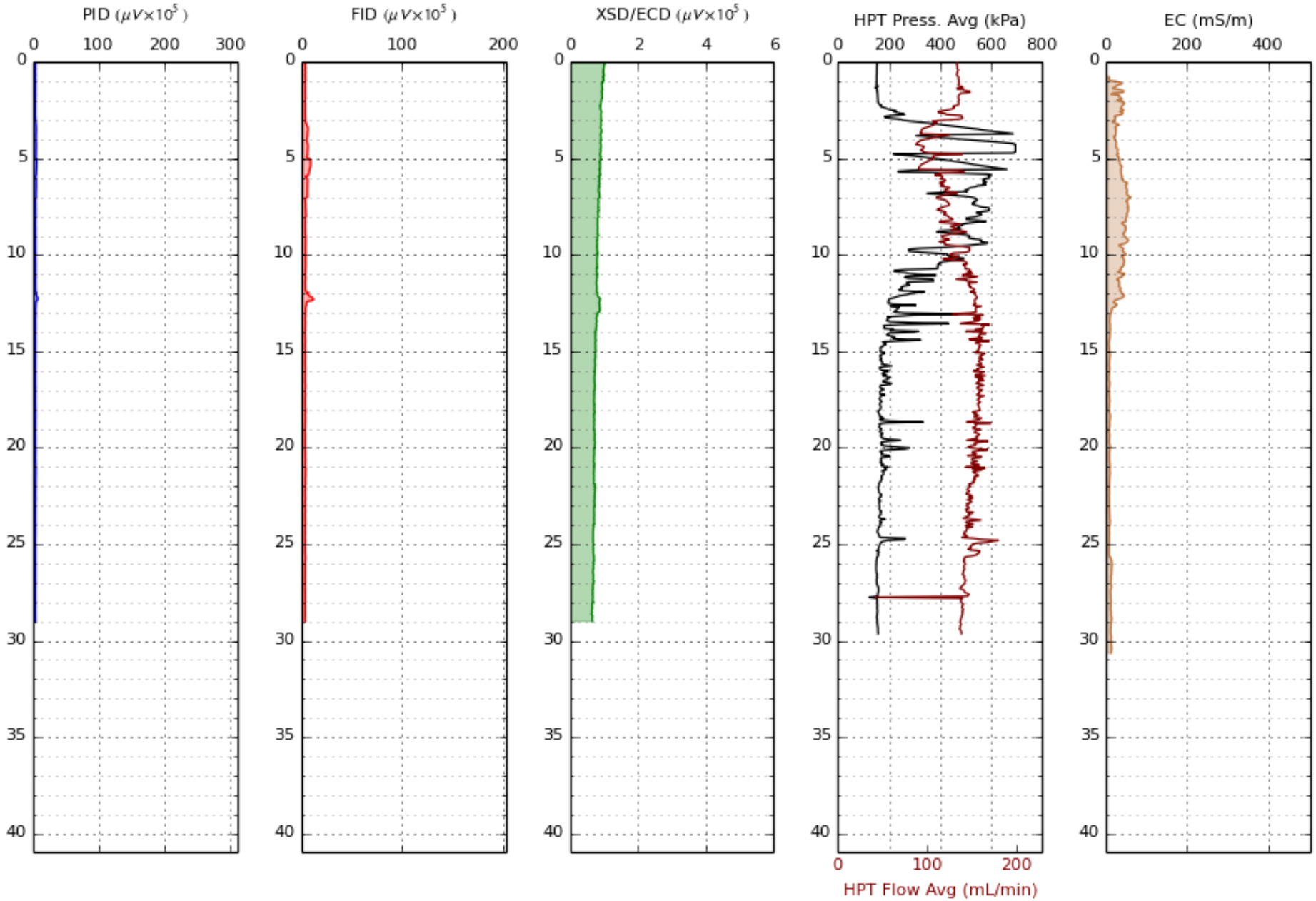

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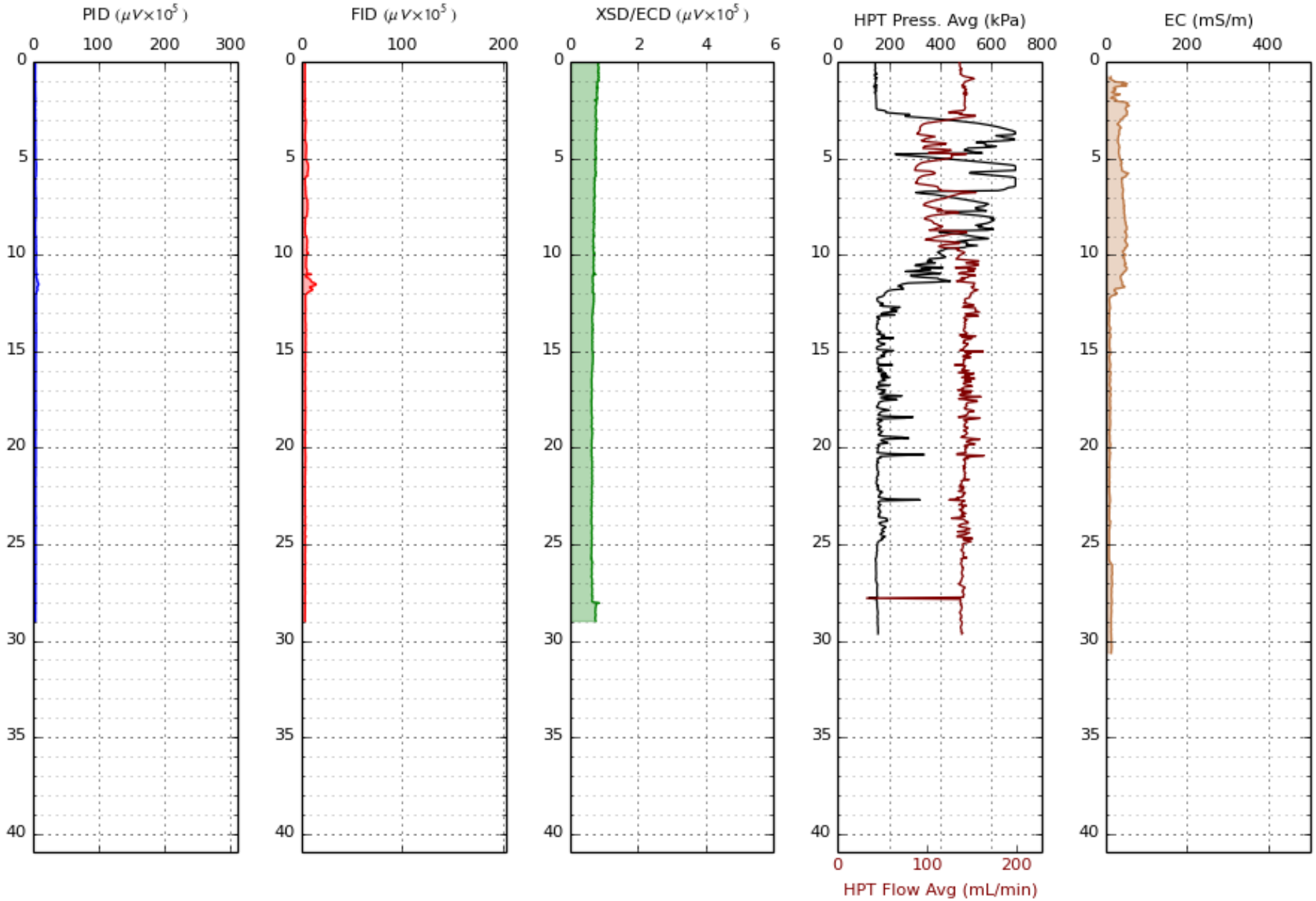

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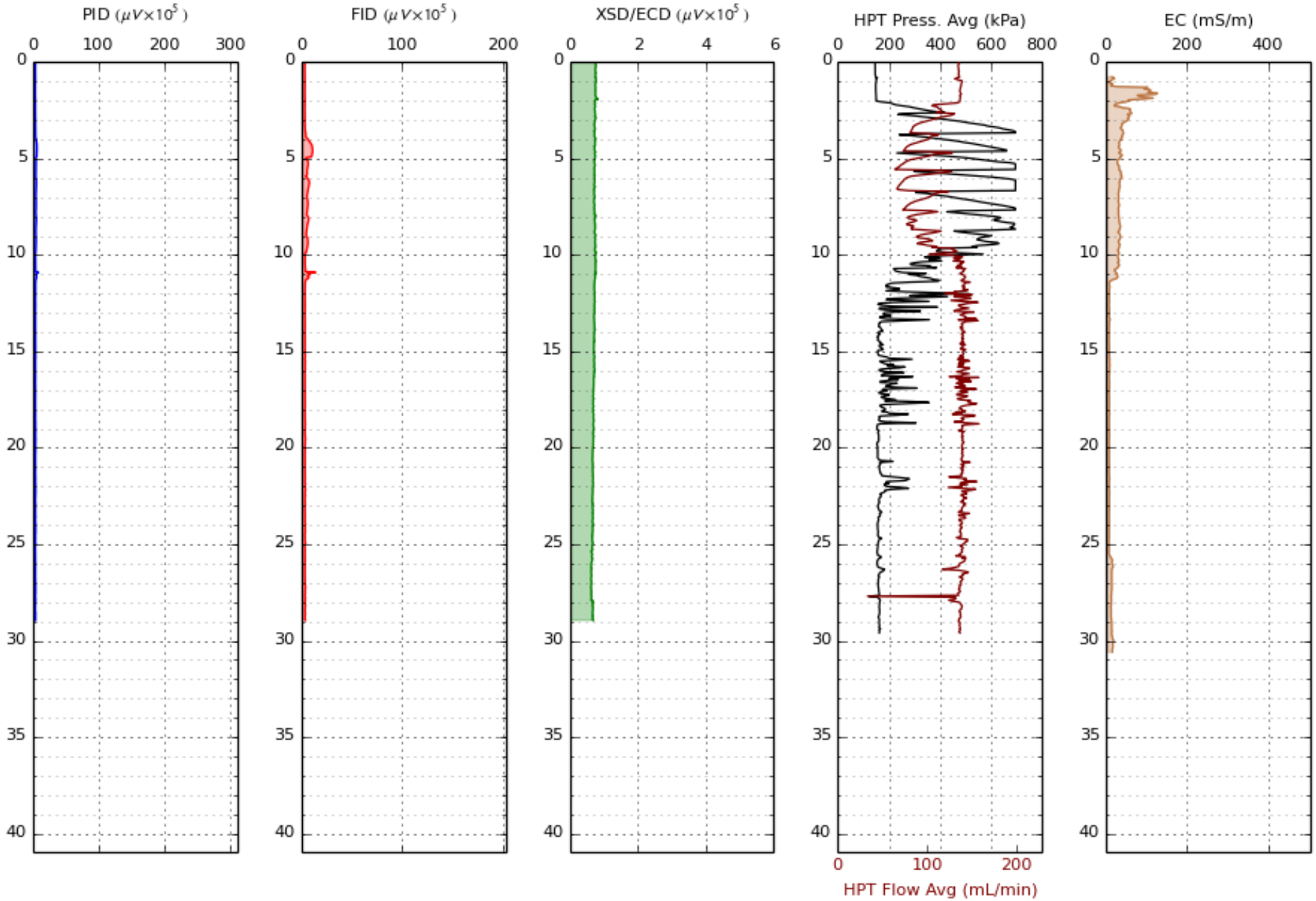

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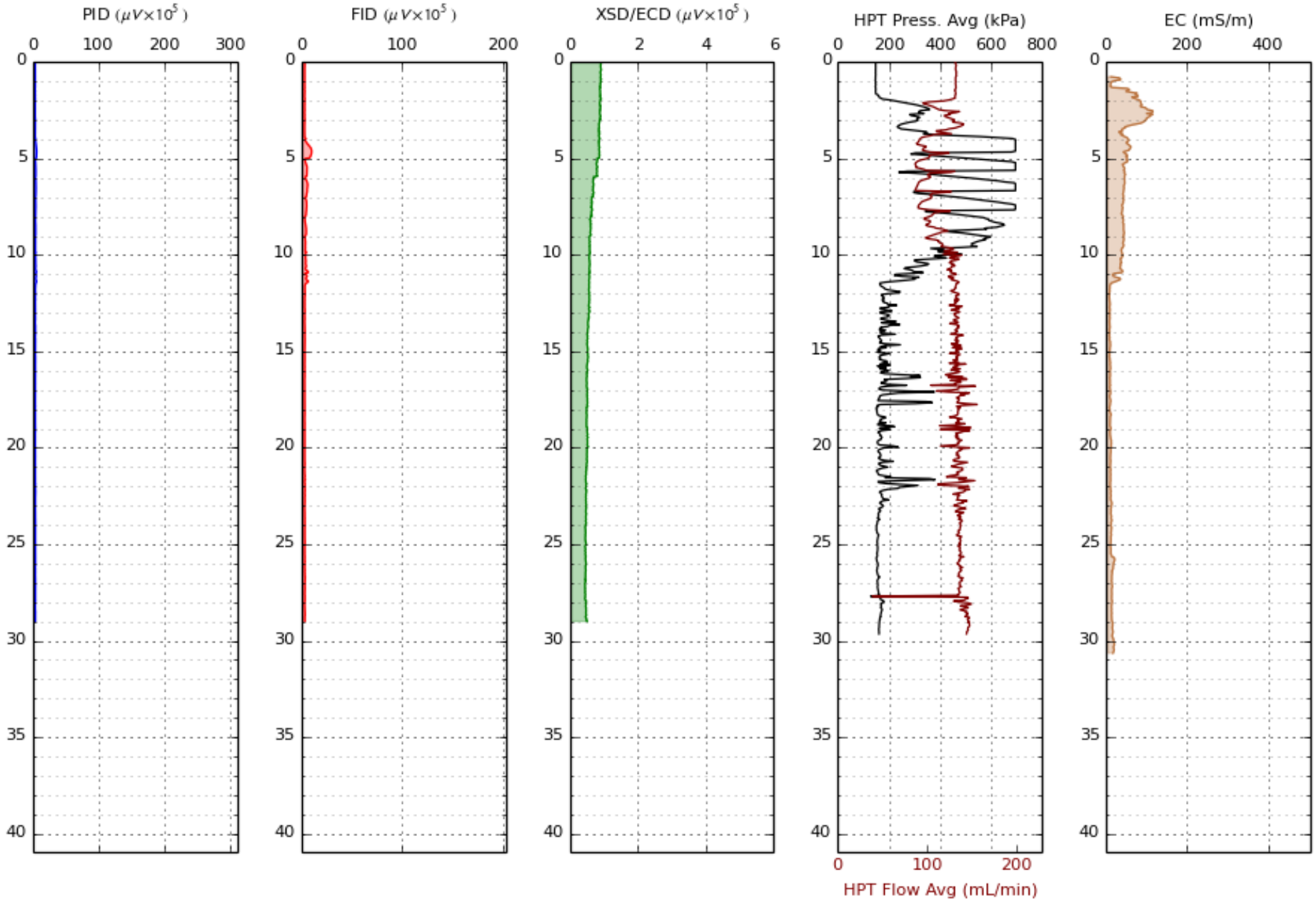

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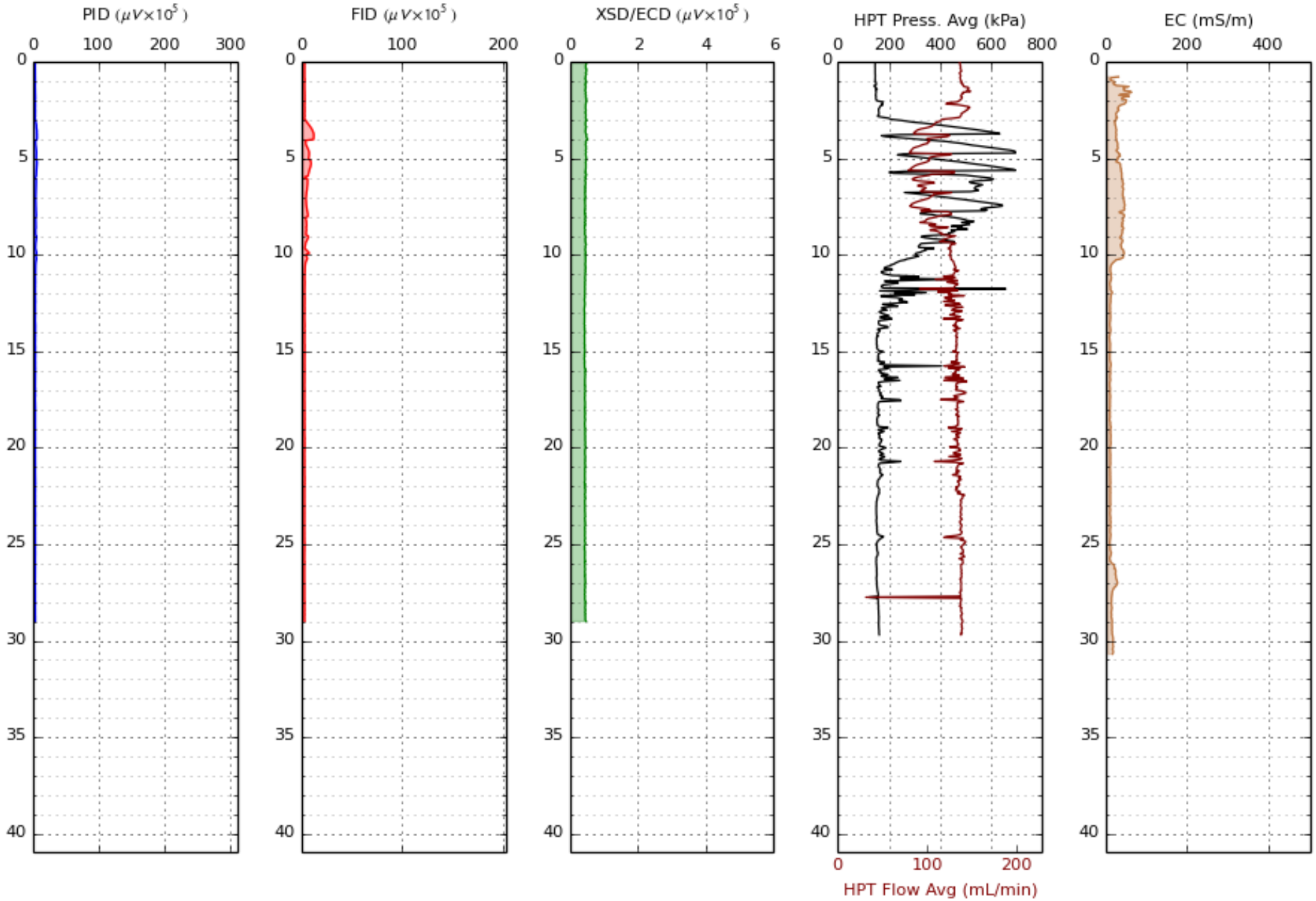

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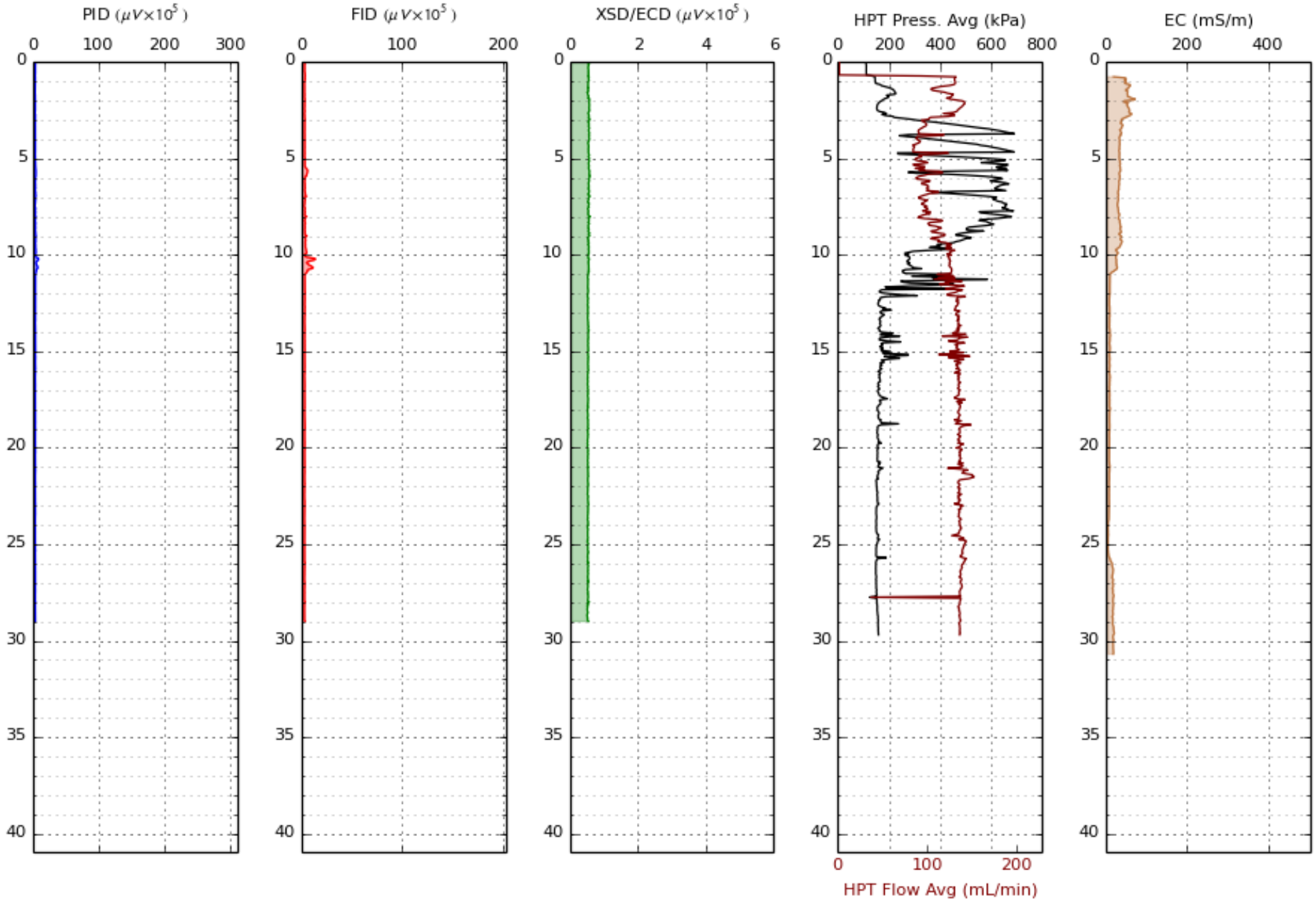

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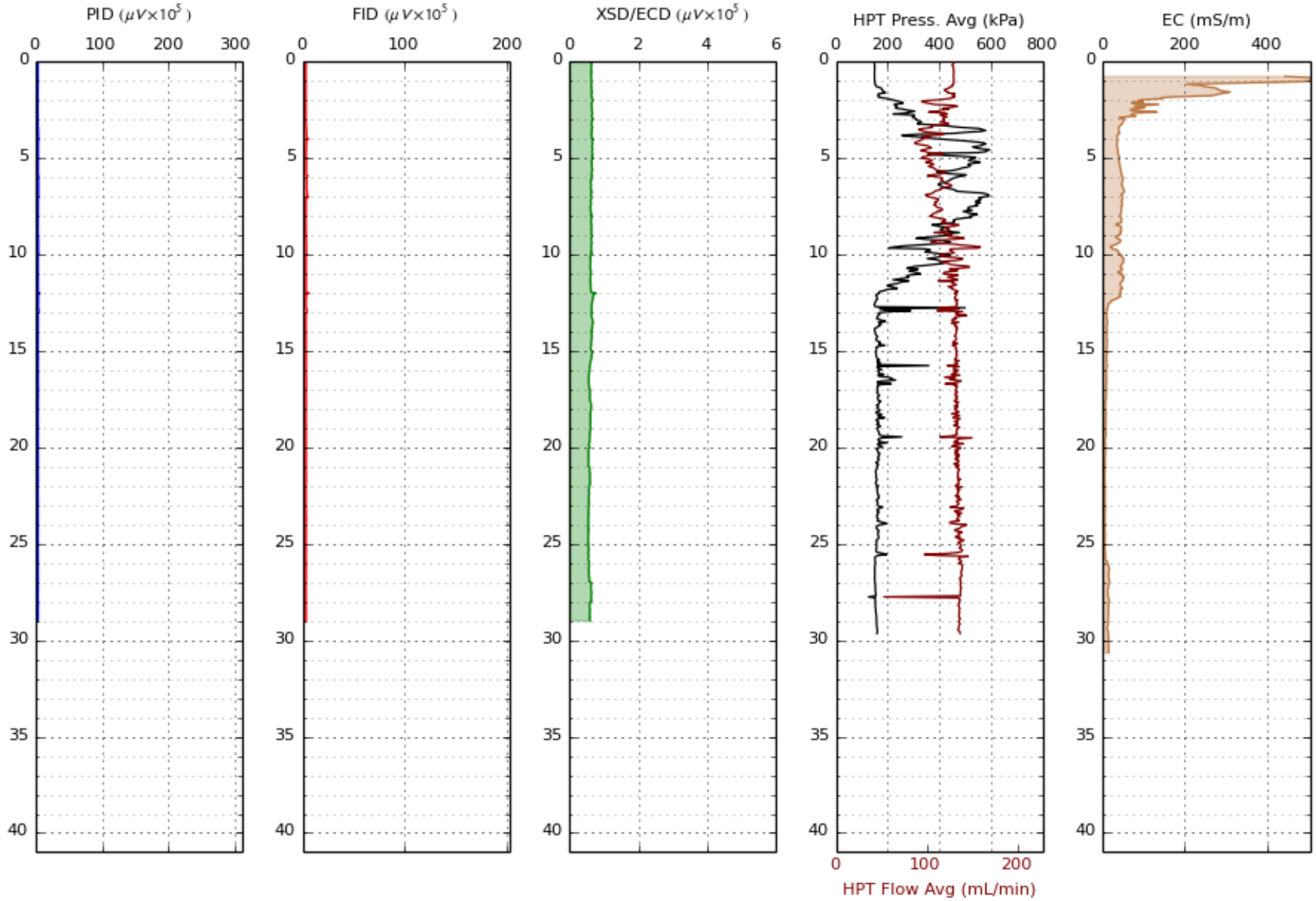

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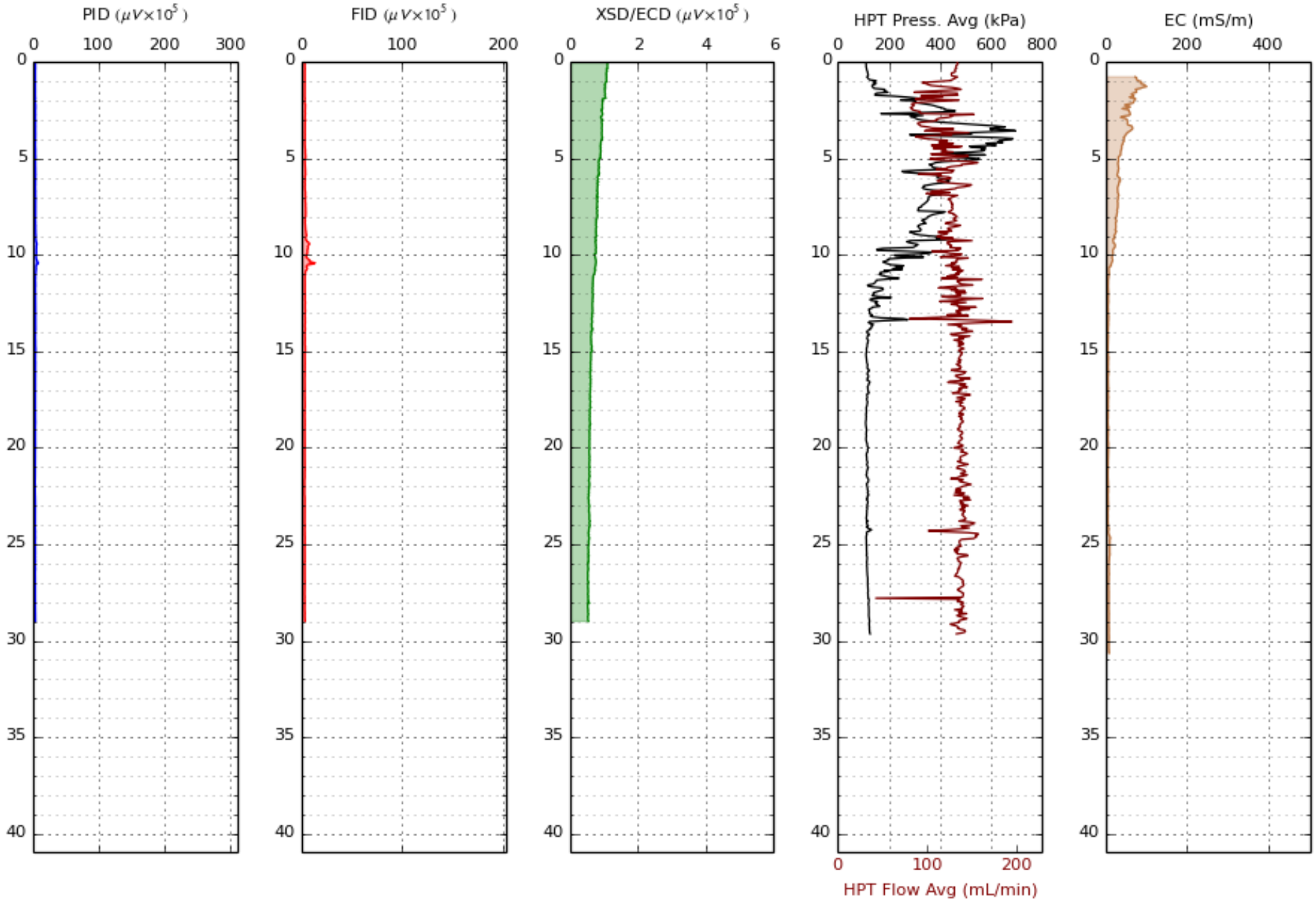

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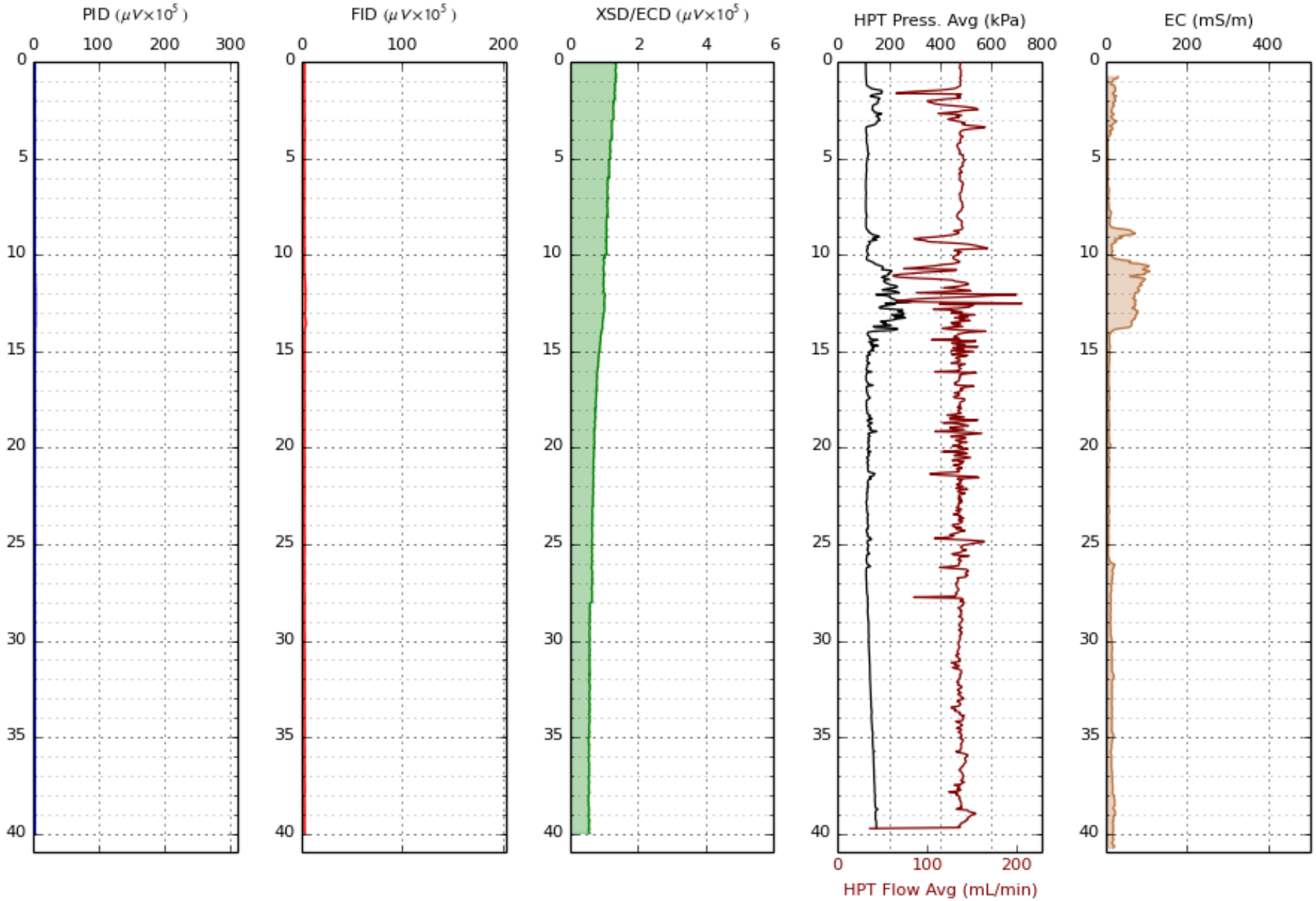

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Appendix E
Screening Level Human Health Risk Assessment

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	GENERAL CHEM	MOIST	MOISTURE	17.2		percent		
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	20	40
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	20	40
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	20	40
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	40	200
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	4	20
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	71-43-2	BENZENE	5	U	µg/kg	0.5	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	2	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	100-42-5	STYRENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	127-18-4	TETRACHLOROETHENE	5	U	µg/kg	1	5
SWMU24	A24-SB01	A24-SB01-0506-111214	11/12/2014	5	6	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	7.4		percent		
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7440-38-2	ARSENIC	2.16		mg/kg	0.0847	0.423
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7440-39-3	BARIUM	261		mg/kg	0.0191	0.529
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.1		mg/kg	0.0212	0.529
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7440-47-3	CHROMIUM	18.4		mg/kg	0.148	1.59
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7439-92-1	LEAD	6.35		mg/kg	0.233	1.59
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0073	U	mg/kg	0.0073	0.103
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7782-49-2	SELENIUM	4.99		mg/kg	0.72	2.12
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	METAL	7440-22-4	SILVER	0.0879	U	mg/kg	0.0879	0.529
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	1300		µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	110	U	µg/kg	110	360
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	360	U	µg/kg	360	1100
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	3500		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	110	U	µg/kg	110	360
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	18	U	µg/kg	18	36

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	790		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	360		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	780		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4200		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	3700		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	7400		µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	2800		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	2400		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	130	J	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	280		µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	218-01-9	CHRYSENE	4500		µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	990		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	5800		µg/kg	180	360
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	11000		µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	86-73-7	FLUORENE	110		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	36	U	µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	2800		µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	36	U	µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	5200		µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	108-95-2	PHENOL	65		µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	SVOC	129-00-0	PYRENE	11000		µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	UJ	µg/kg	4	10
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	UJ	µg/kg	3	10
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	UJ	µg/kg	3	10
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	67-64-1	ACETONE	7	UJ	µg/kg	7	20
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	7	J	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0002-121411	12/14/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.2		percent		
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.7		mg/kg	0.0959	0.479
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7440-39-3	BARIUM	91.1		mg/kg	0.0216	0.599
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.12		mg/kg	0.024	0.599
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7440-47-3	CHROMIUM	15.6		mg/kg	0.168	1.8
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7439-92-1	LEAD	12.7		mg/kg	0.264	1.8

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0133	J	mg/kg	0.0085	0.121
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.815	U	mg/kg	0.815	2.4
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	METAL	7440-22-4	SILVER	0.0995	U	mg/kg	0.0995	0.599
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	22		µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	6	J	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	86-73-7	FLUORENE	8	J	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	6	J	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	SVOC	129-00-0	PYRENE	8	J	µg/kg	4	21
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	UJ	µg/kg	4	10
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	UJ	µg/kg	3	10
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	UJ	µg/kg	3	10
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	67-64-1	ACETONE	25	J	µg/kg	7	20
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0305-121411	12/14/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	7.5		percent		
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7440-38-2	ARSENIC	6.63		mg/kg	0.0848	0.424
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7440-39-3	BARIUM	54.4		mg/kg	0.0189	0.525
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.679		mg/kg	0.021	0.525
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7440-47-3	CHROMIUM	7.41		mg/kg	0.147	1.57
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7439-92-1	LEAD	3.82		mg/kg	0.231	1.57
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0075	U	mg/kg	0.0075	0.107
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.714	U	mg/kg	0.714	2.1
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	METAL	7440-22-4	SILVER	0.0871	U	mg/kg	0.0871	0.525
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	110	U	µg/kg	110	360
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	360	U	µg/kg	360	1100
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	110	U	µg/kg	110	360
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	18

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	6	J	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	72	U	µg/kg	72	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	9	J	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	180	U	µg/kg	180	540
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	36	U	µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	36	U	µg/kg	36	180
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	6	J	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	108-95-2	PHENOL	18	U	µg/kg	18	36
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	SVOC	129-00-0	PYRENE	11	J	µg/kg	4	18
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	UJ	µg/kg	4	10
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	UJ	µg/kg	3	10
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	UJ	µg/kg	3	10

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	67-64-1	ACETONE	11	J	µg/kg	7	21
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS01	S24-SS01-0810-121411	12/14/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	GENERAL CHEM	MOIST	MOISTURE	17.4		percent		
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7440-38-2	ARSENIC	18.5		mg/kg	0.094	0.47
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7440-39-3	BARIUM	104		mg/kg	0.0212	0.588
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7440-43-9	CADMIUM	1.46		mg/kg	0.0235	0.588
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7440-47-3	CHROMIUM	27.4		mg/kg	0.165	1.76
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7439-92-1	LEAD	12.8		mg/kg	0.259	1.76
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7439-97-6	MERCURY	0.0126	J	mg/kg	0.008	0.114
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7782-49-2	SELENIUM	4.66		mg/kg	0.799	2.35
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	METAL	7440-22-4	SILVER	0.0976	U	mg/kg	0.0976	0.588
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	205-99-2	BENZO(B)FLUORANTHENE	5	J	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	210
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	2	J	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	67-64-1	ACETONE	7	U	µg/kg	7	21
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	71-43-2	BENZENE	29		µg/kg	0.5	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	100-41-4	ETHYLBENZENE	76	J	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	98-82-8	ISOPROPYLBENZENE	14		µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	179601-23-1	M+P-XYLENE	10		µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	91-20-3	NAPHTHALENE	1	J	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	103-65-1	N-PROPYLBENZENE	3	J	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	95-47-6	O-XYLENE	3	J	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS02	HGR-120711-FD01	12/7/2011	3	5	FD	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	16.9		percent		
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7440-38-2	ARSENIC	5.73		mg/kg	0.0953	0.477
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7440-39-3	BARIUM	740		mg/kg	0.0421	1.17
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.404	J	mg/kg	0.0234	0.584
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7440-47-3	CHROMIUM	23.2		mg/kg	0.164	1.75
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7439-92-1	LEAD	7.33		mg/kg	0.257	1.75
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0081	U	mg/kg	0.0081	0.116
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7782-49-2	SELENIUM	2	J	mg/kg	0.794	2.34
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	METAL	7440-22-4	SILVER	0.097	U	mg/kg	0.097	0.584
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	29	J	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	81		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	150		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	230		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	190		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	1100		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	4100		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	5100		µg/kg	20	100
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	3900		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	2500		µg/kg	4	20

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	60		µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	218-01-9	CHRYSENE	1300		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	950		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	98		µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	890		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	86-73-7	FLUORENE	130		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	3800		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	200
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	180		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	SVOC	129-00-0	PYRENE	930		µg/kg	4	20
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	78-93-3	2-BUTANONE	3	U	µg/kg	3	9
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	9
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	9
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	67-64-1	ACETONE	21	J	µg/kg	6	17
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	71-43-2	BENZENE	0.4	U	µg/kg	0.4	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-25-2	BROMOFORM	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	4

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	8		µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	67-66-3	CHLOROFORM	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	9
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.4	U	µg/kg	0.4	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	95-47-6	O-XYLENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	100-42-5	STYRENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-88-3	TOLUENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	4
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	9
SWMU24	S24-SS02	S24-S33S02-0002-120711	12/7/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	0.9	U	µg/kg	0.9	4
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	17.3		percent		
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7440-38-2	ARSENIC	16.9		mg/kg	0.0948	0.474
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7440-39-3	BARIUM	100		mg/kg	0.0213	0.593
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.3		mg/kg	0.0237	0.593
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7440-47-3	CHROMIUM	26.1		mg/kg	0.166	1.78
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7439-92-1	LEAD	12.3		mg/kg	0.261	1.78
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0156	J	mg/kg	0.0085	0.12
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7782-49-2	SELENIUM	3.95		mg/kg	0.806	2.37
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	METAL	7440-22-4	SILVER	0.0984	U	mg/kg	0.0984	0.593
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	12	J	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	J	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	86-73-7	FLUORENE	7	J	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	210
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	67-64-1	ACETONE	7	UJ	µg/kg	7	21
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	71-43-2	BENZENE	18		µg/kg	0.5	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	29	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	14		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	5		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	95-47-6	O-XYLENE	2	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS02	S24-SS02-0305-120711	12/7/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	18.3		percent		
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7440-38-2	ARSENIC	15.1		mg/kg	0.0942	0.471
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7440-39-3	BARIUM	144		mg/kg	0.0214	0.594
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.38		mg/kg	0.0238	0.594
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7440-47-3	CHROMIUM	22		mg/kg	0.166	1.78
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7439-92-1	LEAD	15.2		mg/kg	0.261	1.78
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0132	J	mg/kg	0.0082	0.117
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7782-49-2	SELENIUM	2.93		mg/kg	0.808	2.38
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	METAL	7440-22-4	SILVER	0.0986	U	mg/kg	0.0986	0.594
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	220		µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	J	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	2	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	5	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	140		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	67-64-1	ACETONE	13	J	µg/kg	8	22
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	71-43-2	BENZENE	230		µg/kg	0.5	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	5300		µg/kg	49	250
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	310		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	120		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	2	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	240		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	95-47-6	O-XYLENE	130		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	15		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	100-42-5	STYRENE	220	J	µg/kg	49	250
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	3	J	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-88-3	TOLUENE	120		µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS02	S24-SS02-0810-120711	12/7/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	15.3		percent		
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7440-38-2	ARSENIC	15.7		mg/kg	0.0908	0.454
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7440-39-3	BARIUM	141		mg/kg	0.021	0.584
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.45		mg/kg	0.0234	0.584
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7440-47-3	CHROMIUM	18.8		mg/kg	0.164	1.75
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7439-92-1	LEAD	14.9		mg/kg	0.257	1.75
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0918	J	mg/kg	0.0081	0.115
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7782-49-2	SELENIUM	1.47	U	mg/kg	0.795	2.34
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	METAL	7440-22-4	SILVER	0.097	U	mg/kg	0.097	0.584
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	240		µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	390
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	390	U	µg/kg	390	1200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	71		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	39

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	390
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	590
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	590
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	360		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	11	J	µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	450		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	740		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	710		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	930		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	500		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	390		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	590
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	260		µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	218-01-9	CHRYSENE	720		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	84		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	190		µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	2200		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	86-73-7	FLUORENE	300		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	590
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	39	U	µg/kg	39	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	420		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	39	U	µg/kg	39	200
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	2200		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	SVOC	129-00-0	PYRENE	1800		µg/kg	4	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	67-64-1	ACETONE	25	J	µg/kg	7	20
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS03	S24-SS03-0002-120711	12/7/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.1		percent		
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.2		mg/kg	0.0977	0.488

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7440-39-3	BARIUM	108		mg/kg	0.0211	0.587
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.36		mg/kg	0.0235	0.587
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7440-47-3	CHROMIUM	22.6		mg/kg	0.164	1.76
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7439-92-1	LEAD	9.12		mg/kg	0.258	1.76
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0227	J	mg/kg	0.0082	0.117
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7782-49-2	SELENIUM	1.5	U	mg/kg	0.798	2.35
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	METAL	7440-22-4	SILVER	0.0974	U	mg/kg	0.0974	0.587
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	78-93-3	2-BUTANONE	8	J	µg/kg	4	10
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	67-64-1	ACETONE	90	J	µg/kg	7	21
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS03	S24-SS03-0305-120711	12/7/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.3		percent		
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7440-38-2	ARSENIC	18.4		mg/kg	0.0991	0.496
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7440-39-3	BARIUM	96.3		mg/kg	0.0221	0.613
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.45		mg/kg	0.0245	0.613
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7440-47-3	CHROMIUM	18.5		mg/kg	0.172	1.84
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7439-92-1	LEAD	16.7		mg/kg	0.27	1.84
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0105	J	mg/kg	0.0084	0.119
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.991	U	mg/kg	0.834	2.45
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	METAL	7440-22-4	SILVER	0.102	U	mg/kg	0.102	0.613
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	67-64-1	ACETONE	23	J	µg/kg	7	21
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS03	S24-SS03-0810-120711	12/7/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	14.7		percent		
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7440-38-2	ARSENIC	9.08	J	mg/kg	0.0911	0.455
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7440-39-3	BARIUM	219	J	mg/kg	0.0209	0.58
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.05		mg/kg	0.0232	0.58
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7440-47-3	CHROMIUM	25.7	J	mg/kg	0.163	1.74
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7439-92-1	LEAD	18.6	J	mg/kg	0.255	1.74
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0316	J	mg/kg	0.0082	0.117
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7782-49-2	SELENIUM	3.25		mg/kg	0.789	2.32
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	METAL	7440-22-4	SILVER	0.0963	U	mg/kg	0.0963	0.58

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	3600		µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	1200	U	µg/kg	1200	3900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	3900	U	µg/kg	3900	12000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	82	U	µg/kg	82	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	360		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	1200	U	µg/kg	1200	3900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	2000	U	µg/kg	2000	5900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	2000	U	µg/kg	2000	5900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	530		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	95	J	µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	390		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	1000		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	1000		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	1400		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	810		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	700		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	2000	U	µg/kg	2000	5900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	218-01-9	CHRYSENE	1100		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	210		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	480		µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	780	U	µg/kg	780	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	2800		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	86-73-7	FLUORENE	330		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	39	U	µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	2000	U	µg/kg	2000	5900
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	390	U	µg/kg	390	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	760		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	200	U	µg/kg	200	390

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

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Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	390	U	µg/kg	390	2000
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	1500		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	108-95-2	PHENOL	200	U	µg/kg	200	390
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	SVOC	129-00-0	PYRENE	2100		µg/kg	39	200
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	78-93-3	2-BUTANONE	5	U	µg/kg	5	12
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	12
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	12
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	67-64-1	ACETONE	11	J	µg/kg	8	23
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	2	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	13	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	12
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	2	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	2	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	3	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	12
SWMU24	S24-SS04	S24-SS04-0002-120711	12/7/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.7		percent		
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7440-38-2	ARSENIC	16.6		mg/kg	0.0984	0.492
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7440-39-3	BARIUM	104		mg/kg	0.0217	0.603
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.41		mg/kg	0.0241	0.603
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7440-47-3	CHROMIUM	23.6		mg/kg	0.169	1.81
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7439-92-1	LEAD	20.1		mg/kg	0.265	1.81
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0204	J	mg/kg	0.0084	0.119
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7782-49-2	SELENIUM	3.72		mg/kg	0.82	2.41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	METAL	7440-22-4	SILVER	0.1	U	mg/kg	0.1	0.603
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	J	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	J	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	7	J	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	67-64-1	ACETONE	26	J	µg/kg	7	21
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS04	S24-SS04-0305-120711	12/7/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	20.1		percent		
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7440-38-2	ARSENIC	17.6		mg/kg	0.0982	0.491
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7440-39-3	BARIUM	143		mg/kg	0.0219	0.608
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.43		mg/kg	0.0243	0.608
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7440-47-3	CHROMIUM	25		mg/kg	0.17	1.82
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7439-92-1	LEAD	15.7		mg/kg	0.267	1.82
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0228	J	mg/kg	0.0083	0.118
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7782-49-2	SELENIUM	4.18		mg/kg	0.826	2.43
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.608
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	130	U	µg/kg	130	420
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1300
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	130	U	µg/kg	130	420
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	630
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	86-73-7	FLUORENE	5	J	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	630
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	210
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	UJ	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	78-93-3	2-BUTANONE	5	UJ	µg/kg	5	11
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	UJ	µg/kg	3	11
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	UJ	µg/kg	3	11
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	67-64-1	ACETONE	14	J	µg/kg	8	23
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	71-43-2	BENZENE	0.6	UJ	µg/kg	0.6	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	2	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	520	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	76-13-1	FREON 113	2	UJ	µg/kg	2	11
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	230	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	7	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	UJ	µg/kg	0.6	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	64	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	95-47-6	O-XYLENE	5	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	13	J	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	100-42-5	STYRENE	1	UJ	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-88-3	TOLUENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	UJ	µg/kg	1	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	UJ	µg/kg	2	6
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	UJ	µg/kg	2	11
SWMU24	S24-SS04	S24-SS04-0810-120711	12/7/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	UJ	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	18.4		percent		
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7440-38-2	ARSENIC	11.8		mg/kg	0.098	0.49
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7440-39-3	BARIUM	117		mg/kg	0.0218	0.607
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.34		mg/kg	0.0243	0.607
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7440-47-3	CHROMIUM	22.2		mg/kg	0.17	1.82
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7439-92-1	LEAD	22.3		mg/kg	0.267	1.82
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0298	J	mg/kg	0.0083	0.118
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7782-49-2	SELENIUM	3.31		mg/kg	0.825	2.43
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.607
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	5	J	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	9	J	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	14	J	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	25		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	120		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	140		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	200		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	98		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	79		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	218-01-9	CHRYSENE	140		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	22		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	340		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	86-73-7	FLUORENE	8	J	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	88		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	160		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	SVOC	129-00-0	PYRENE	260		µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	78-93-3	2-BUTANONE	21		µg/kg	5	12
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	591-78-6	2-HEXANONE	4	U	µg/kg	4	12
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	4	U	µg/kg	4	12
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	67-64-1	ACETONE	180	J	µg/kg	8	24
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	12
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	12
SWMU24	S24-SS05	S24-SS05-0002-120811	12/8/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	16.4		percent		
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.7		mg/kg	0.0938	0.469
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7440-39-3	BARIUM	116		mg/kg	0.0209	0.581
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.41		mg/kg	0.0232	0.581
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7440-47-3	CHROMIUM	23.3		mg/kg	0.163	1.74
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7439-92-1	LEAD	17.4		mg/kg	0.255	1.74
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7439-97-6	MERCURY	0.027	J	mg/kg	0.0082	0.117
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7782-49-2	SELENIUM	3.85		mg/kg	0.79	2.32
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	METAL	7440-22-4	SILVER	0.0964	U	mg/kg	0.0964	0.581
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	39
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	5	J	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	8	J	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	38		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	44		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	59		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	33		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	26		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	218-01-9	CHRYSENE	41		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	8	J	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	80	U	µg/kg	80	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	100		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	29		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	200
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	49		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	SVOC	129-00-0	PYRENE	78		µg/kg	4	20
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	J	µg/kg	4	10
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	67-64-1	ACETONE	39	J	µg/kg	7	19
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS05	S24-SS05-0305-120811	12/8/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	18.6		percent		
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7440-38-2	ARSENIC	12		mg/kg	0.0954	0.477
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7440-39-3	BARIUM	136		mg/kg	0.0213	0.591
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.52		mg/kg	0.0236	0.591
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7440-47-3	CHROMIUM	22.1		mg/kg	0.165	1.77
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7439-92-1	LEAD	16.7		mg/kg	0.26	1.77
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0185	J	mg/kg	0.0082	0.117
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7782-49-2	SELENIUM	3.65		mg/kg	0.803	2.36
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	METAL	7440-22-4	SILVER	0.098	U	mg/kg	0.098	0.591
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	78-93-3	2-BUTANONE	5	U	µg/kg	5	11
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	67-64-1	ACETONE	8	U	µg/kg	8	23
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS05	S24-SS05-0810-120811	12/8/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	15.1		percent		
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7440-38-2	ARSENIC	13.4		mg/kg	0.0915	0.457
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7440-39-3	BARIUM	123		mg/kg	0.0204	0.566
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.38		mg/kg	0.0227	0.566
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7440-47-3	CHROMIUM	25.9		mg/kg	0.159	1.7
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7439-92-1	LEAD	17.1		mg/kg	0.249	1.7
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0163	J	mg/kg	0.0079	0.112
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7782-49-2	SELENIUM	3.13		mg/kg	0.77	2.27
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	METAL	7440-22-4	SILVER	0.094	U	mg/kg	0.094	0.566
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	390
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	390	U	µg/kg	390	1200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	7	J	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	390
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	590

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	590
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	14	J	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	45		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	100		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	450		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	430		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	520		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	300		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	330		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	590
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	25	J	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	218-01-9	CHRYSENE	450	J	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	63		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	24	J	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	79	U	µg/kg	79	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	1200	J	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	86-73-7	FLUORENE	29		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	590
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	39	U	µg/kg	39	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	250		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	39	U	µg/kg	39	200
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	720		µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	39
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	SVOC	129-00-0	PYRENE	930	J	µg/kg	4	20
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	67-64-1	ACETONE	35	J	µg/kg	8	22
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	71-43-2	BENZENE	2	J	µg/kg	0.5	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	UJ	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	5		µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	UJ	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	5	J	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	J	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	2	J	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	6		µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-88-3	TOLUENE	5	J	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0002-120911	12/9/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	20.9		percent		
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.8		mg/kg	0.1	0.501
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7440-39-3	BARIUM	140		mg/kg	0.0223	0.62
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.35		mg/kg	0.0248	0.62
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7440-47-3	CHROMIUM	32.3		mg/kg	0.174	1.86

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7439-92-1	LEAD	17.2		mg/kg	0.273	1.86
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7439-97-6	MERCURY	0.023	J	mg/kg	0.0083	0.118
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7782-49-2	SELENIUM	3.49		mg/kg	0.843	2.48
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	METAL	7440-22-4	SILVER	0.103	U	mg/kg	0.103	0.62
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	130	U	µg/kg	130	420
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1300
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	130	U	µg/kg	130	420
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	6	J	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	14	J	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	16	J	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	73		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	110		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	140		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	75		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	80		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	630
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	218-01-9	CHRYSENE	110		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	19	J	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	200		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	86-73-7	FLUORENE	7	J	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	630

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	64		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	210
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	86		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	SVOC	129-00-0	PYRENE	170		µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	67-64-1	ACETONE	68	J	µg/kg	8	21
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	UJ	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	UJ	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0305-120911	12/9/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.6		percent		
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7440-38-2	ARSENIC	14.5		mg/kg	0.0976	0.488
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7440-39-3	BARIUM	119		mg/kg	0.0215	0.598
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.34		mg/kg	0.0239	0.598
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7440-47-3	CHROMIUM	18.6		mg/kg	0.167	1.79
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7439-92-1	LEAD	13.7		mg/kg	0.263	1.79
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0087	U	mg/kg	0.0087	0.124
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7782-49-2	SELENIUM	2.98		mg/kg	0.813	2.39
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	METAL	7440-22-4	SILVER	0.0993	U	mg/kg	0.0993	0.598
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	78-93-3	2-BUTANONE	5	U	µg/kg	5	11
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	67-64-1	ACETONE	12	J	µg/kg	8	23
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS06	S24-SS06-0810-120911	12/9/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	17.8		percent		
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7440-38-2	ARSENIC	16.3		mg/kg	0.0964	0.482
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7440-39-3	BARIUM	92.1		mg/kg	0.0215	0.596
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.5		mg/kg	0.0239	0.596
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7440-47-3	CHROMIUM	26.8		mg/kg	0.167	1.79
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7439-92-1	LEAD	17.8		mg/kg	0.262	1.79
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0138	J	mg/kg	0.0085	0.122
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7782-49-2	SELENIUM	4.43		mg/kg	0.811	2.39
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	METAL	7440-22-4	SILVER	0.099	U	mg/kg	0.099	0.596
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	6	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	9	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	16	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	16	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	5	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	218-01-9	CHRYSENE	9	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	11	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	12	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	9	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	SVOC	129-00-0	PYRENE	12	J	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	67-64-1	ACETONE	13	J	µg/kg	7	20
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS07	S24-SS07-0002-120911	12/9/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.9		percent		
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7440-38-2	ARSENIC	15.9		mg/kg	0.0958	0.479
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7440-39-3	BARIUM	109		mg/kg	0.0213	0.593
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.38		mg/kg	0.0237	0.593
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7440-47-3	CHROMIUM	22.8		mg/kg	0.166	1.78
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7439-92-1	LEAD	16.4		mg/kg	0.261	1.78
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0153	J	mg/kg	0.0082	0.116
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7782-49-2	SELENIUM	3.59		mg/kg	0.806	2.37
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	METAL	7440-22-4	SILVER	0.0984	U	mg/kg	0.0984	0.593
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	J	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	78-93-3	2-BUTANONE	5	J	µg/kg	4	11
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	67-64-1	ACETONE	39	J	µg/kg	8	22
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-25-2	BROMOFORM	2	J	µg/kg	1	5

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	8		µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS07	S24-SS07-0305-120911	12/9/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	22.2		percent		
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7440-38-2	ARSENIC	13.9		mg/kg	0.0998	0.499
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7440-39-3	BARIUM	64.3		mg/kg	0.0227	0.63
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.17		mg/kg	0.0252	0.63
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7440-47-3	CHROMIUM	14.7		mg/kg	0.176	1.89
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7439-92-1	LEAD	12.9		mg/kg	0.277	1.89
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0151	J	mg/kg	0.0087	0.124
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7782-49-2	SELENIUM	2.87		mg/kg	0.857	2.52
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	METAL	7440-22-4	SILVER	0.105	U	mg/kg	0.105	0.63
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	130	U	µg/kg	130	430
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	430	U	µg/kg	430	1300

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	42
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	130	U	µg/kg	130	430
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	640
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	640
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	640
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	86	U	µg/kg	86	220
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	86	U	µg/kg	86	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	640
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	43	U	µg/kg	43	210
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	43	U	µg/kg	43	220
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	43
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	SVOC	129-00-0	PYRENE	5	J	µg/kg	4	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	78-93-3	2-BUTANONE	5	J	µg/kg	4	11
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	67-64-1	ACETONE	37	J	µg/kg	8	22
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	8		µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS07	S24-SS07-0810-120911	12/9/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	21.1		percent		
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7440-38-2	ARSENIC	14.2		mg/kg	0.0994	0.497
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7440-39-3	BARIUM	82.3		mg/kg	0.0219	0.609
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.55		mg/kg	0.0244	0.609
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7440-47-3	CHROMIUM	26.2		mg/kg	0.171	1.83
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7439-92-1	LEAD	17		mg/kg	0.268	1.83
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0169	J	mg/kg	0.0086	0.123
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7782-49-2	SELENIUM	4.19		mg/kg	0.829	2.44
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.609
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	130	U	µg/kg	130	420
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1300
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	5	J	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	130	U	µg/kg	130	420
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	630
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	5	J	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	5	J	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	9	J	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	41		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	57		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	76		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	43		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	44		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	630
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	84	U	µg/kg	84	220
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	218-01-9	CHRYSENE	57		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	10	J	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	84	U	µg/kg	84	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	110		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	630
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	43		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	220
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	50		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	SVOC	129-00-0	PYRENE	93		µg/kg	4	22
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	78-93-3	2-BUTANONE	10	J	µg/kg	5	12
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	591-78-6	2-HEXANONE	4	U	µg/kg	4	12
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	4	U	µg/kg	4	12
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	67-64-1	ACETONE	84	J	µg/kg	8	24
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	12
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	12
SWMU24	S24-SS08	S24-SS08-0002-120911	12/9/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	20		percent		
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7440-38-2	ARSENIC	12.6	J	mg/kg	0.0971	0.485
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7440-39-3	BARIUM	73.2		mg/kg	0.0218	0.607
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.35		mg/kg	0.0243	0.607
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7440-47-3	CHROMIUM	19.1		mg/kg	0.17	1.82
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7439-92-1	LEAD	14.6		mg/kg	0.267	1.82
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0208	J	mg/kg	0.0087	0.123
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.825	U	mg/kg	0.825	2.43
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.607
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	130	U	µg/kg	130	420
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1200
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	130	U	µg/kg	130	420
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	210
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	67-64-1	ACETONE	8	UJ	µg/kg	8	22
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	71-43-2	BENZENE	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	J	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU24	S24-SS08	S24-SS08-0305-120911	12/9/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	18.1		percent		

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7440-38-2	ARSENIC	11.1		mg/kg	0.093	0.465
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7440-39-3	BARIUM	48.6		mg/kg	0.0218	0.604
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.01		mg/kg	0.0242	0.604
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7440-47-3	CHROMIUM	11.2		mg/kg	0.169	1.81
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7439-92-1	LEAD	11.4		mg/kg	0.266	1.81
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0171	J	mg/kg	0.008	0.114
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.822	U	mg/kg	0.822	2.42
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	METAL	7440-22-4	SILVER	0.1	U	mg/kg	0.1	0.604
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200

Table E-1. Analytical Soil Data Used in the HHRA - SWMU 24

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	67-64-1	ACETONE	7	UJ	µg/kg	7	21
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5

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Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU24	S24-SS08	S24-SS08-0810-120911	12/9/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	14.4		percent		
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7440-38-2	ARSENIC	10		mg/kg	0.0907	0.454
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7440-39-3	BARIUM	123		mg/kg	0.021	0.584
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.14		mg/kg	0.0234	0.584
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7440-47-3	CHROMIUM	21.2		mg/kg	0.164	1.75
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7439-92-1	LEAD	20		mg/kg	0.257	1.75
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0328	J	mg/kg	0.0077	0.11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7782-49-2	SELENIUM	0.794	U	mg/kg	0.794	2.34
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	METAL	7440-22-4	SILVER	0.097	U	mg/kg	0.097	0.584
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	370		µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	580	U	µg/kg	580	1900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	1900	U	µg/kg	1900	5800
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	41	U	µg/kg	41	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	22	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	580	U	µg/kg	580	1900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	970	U	µg/kg	970	2900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	970	U	µg/kg	970	2900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	64	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	19	U	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	22	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	69	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	73	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	100		µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	60	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	65	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	970	U	µg/kg	970	2900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	130	J	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	218-01-9	CHRYSENE	88	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	19	U	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	390	U	µg/kg	390	970

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	390	U	µg/kg	390	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	160		µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	86-73-7	FLUORENE	52	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	19	U	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	970	U	µg/kg	970	2900
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	190	U	µg/kg	190	970
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	52	J	µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	190	U	µg/kg	190	990
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	150		µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	108-95-2	PHENOL	97	U	µg/kg	97	190
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	SVOC	129-00-0	PYRENE	140		µg/kg	19	99
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	78-93-3	2-BUTANONE	10	J	µg/kg	4	11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	67-64-1	ACETONE	43	J	µg/kg	8	22
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	71-43-2	BENZENE	2	J	µg/kg	0.6	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	5	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	2	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-88-3	TOLUENE	2	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	2	J	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS01	S01-SS01-0002-120911	12/9/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.7		percent		
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.8		mg/kg	0.0965	0.482
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7440-39-3	BARIUM	55		mg/kg	0.0213	0.591
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.37		mg/kg	0.0237	0.591
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7440-47-3	CHROMIUM	21.8		mg/kg	0.166	1.77
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7439-92-1	LEAD	15.8		mg/kg	0.26	1.77
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0219	J	mg/kg	0.0084	0.119
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.804	U	mg/kg	0.804	2.37
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	METAL	7440-22-4	SILVER	0.0982	U	mg/kg	0.0982	0.591
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	67-64-1	ACETONE	38	J	µg/kg	8	22
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	71-43-2	BENZENE	2	J	µg/kg	0.5	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-25-2	BROMOFORM	3	J	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	6		µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	12		µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-88-3	TOLUENE	2	J	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	2	J	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS01	S01-SS01-0305-120911	12/9/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	17.5		percent		
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7440-38-2	ARSENIC	10.9		mg/kg	0.0941	0.471
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7440-39-3	BARIUM	39.1		mg/kg	0.021	0.583
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.01		mg/kg	0.0233	0.583
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7440-47-3	CHROMIUM	12.4		mg/kg	0.163	1.75
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7439-92-1	LEAD	11.3		mg/kg	0.256	1.75
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0146	J	mg/kg	0.0081	0.115

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.793	U	mg/kg	0.793	2.33
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	METAL	7440-22-4	SILVER	0.0967	U	mg/kg	0.0967	0.583
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21

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Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	210
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	67-64-1	ACETONE	20	J	µg/kg	7	20
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-25-2	BROMOFORM	37		µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	6		µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS01	S01-SS01-0810-120911	12/9/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	15.6		percent		
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7440-38-2	ARSENIC	15.7		mg/kg	0.0911	0.456
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7440-39-3	BARIUM	104		mg/kg	0.0211	0.587
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.537	J	mg/kg	0.0235	0.587
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7440-47-3	CHROMIUM	10.6		mg/kg	0.164	1.76
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7439-92-1	LEAD	8.51		mg/kg	0.258	1.76
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0303	J	mg/kg	0.0079	0.113
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7782-49-2	SELENIUM	1.31	J	mg/kg	0.798	2.35
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	METAL	7440-22-4	SILVER	0.0974	U	mg/kg	0.0974	0.587
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	200		µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	590	U	µg/kg	590	2000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	2000	U	µg/kg	2000	5900
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	41	U	µg/kg	41	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	590	U	µg/kg	590	2000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	990	U	µg/kg	990	3000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	990	U	µg/kg	990	3000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	20	U	µg/kg	20	100

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	32	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	45	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	74	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	53	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	43	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	990	U	µg/kg	990	3000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	390	U	µg/kg	390	1000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	218-01-9	CHRYSENE	62	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	390	U	µg/kg	390	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	43	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	86-73-7	FLUORENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	20	U	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	990	U	µg/kg	990	3000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	200	U	µg/kg	200	990
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	42	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	200	1000
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	62	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	108-95-2	PHENOL	99	U	µg/kg	99	200
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	SVOC	129-00-0	PYRENE	62	J	µg/kg	20	100
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	78-93-3	2-BUTANONE	180	UJ	µg/kg	180	440
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	591-78-6	2-HEXANONE	130	UJ	µg/kg	130	440
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	130	UJ	µg/kg	130	440
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	67-64-1	ACETONE	310	UJ	µg/kg	310	890

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	71-43-2	BENZENE	22	UJ	µg/kg	22	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	96	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-25-2	BROMOFORM	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	67-66-3	CHLOROFORM	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	53	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	720	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	76-13-1	FREON 113	89	UJ	µg/kg	89	440
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	250	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	150	J	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	22	UJ	µg/kg	22	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	100	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	95-47-6	O-XYLENE	45	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	67	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	100-42-5	STYRENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1600	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-88-3	TOLUENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	68	J	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	89	UJ	µg/kg	89	220
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	89	UJ	µg/kg	89	440
SWMU01	S01-SS02	S01-SS02-0002-120911	12/9/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	44	UJ	µg/kg	44	220
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.4		percent		
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.1		mg/kg	0.0943	0.471
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7440-39-3	BARIUM	68.4		mg/kg	0.0214	0.595
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.18		mg/kg	0.0238	0.595
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7440-47-3	CHROMIUM	18.6		mg/kg	0.167	1.78
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7439-92-1	LEAD	14.1		mg/kg	0.262	1.78
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0263	J	mg/kg	0.008	0.114
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.809	U	mg/kg	0.809	2.38
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	METAL	7440-22-4	SILVER	0.0988	U	mg/kg	0.0988	0.595
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	1800		µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	100	J	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	19	J	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	SVOC	129-00-0	PYRENE	13	J	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	78-93-3	2-BUTANONE	200	UJ	µg/kg	200	510
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	591-78-6	2-HEXANONE	150	UJ	µg/kg	150	510
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	150	UJ	µg/kg	150	510
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	67-64-1	ACETONE	360	UJ	µg/kg	360	1000
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	71-43-2	BENZENE	55	J	µg/kg	26	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-25-2	BROMOFORM	120	J	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	67-66-3	CHLOROFORM	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	63	J	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	76-13-1	FREON 113	100	UJ	µg/kg	100	510
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	26	UJ	µg/kg	26	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	95-47-6	O-XYLENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	51	UJ	µg/kg	51	260

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	100-42-5	STYRENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	55	J	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-88-3	TOLUENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	100	UJ	µg/kg	100	260
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	100	UJ	µg/kg	100	510
SWMU01	S01-SS02	S01-SS02-0305-120911	12/9/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	51	UJ	µg/kg	51	260
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	17.1		percent		
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7440-38-2	ARSENIC	11.1		mg/kg	0.0946	0.473
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7440-39-3	BARIUM	39.7		mg/kg	0.0213	0.591
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7440-43-9	CADMIUM	1.05		mg/kg	0.0237	0.591
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7440-47-3	CHROMIUM	11.4		mg/kg	0.166	1.77
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7439-92-1	LEAD	11.5		mg/kg	0.26	1.77
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0178	J	mg/kg	0.0082	0.117
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.804	U	mg/kg	0.804	2.37
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	METAL	7440-22-4	SILVER	0.0982	U	mg/kg	0.0982	0.591
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	3800		µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	80	U	µg/kg	80	210
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	210
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	32		µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	78-93-3	2-BUTANONE	220	UJ	µg/kg	220	540
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	591-78-6	2-HEXANONE	160	UJ	µg/kg	160	540
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	160	UJ	µg/kg	160	540
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	67-64-1	ACETONE	380	UJ	µg/kg	380	1100
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	71-43-2	BENZENE	160	J	µg/kg	27	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-25-2	BROMOFORM	130	J	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	54	UJ	µg/kg	54	270

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	67-66-3	CHLOROFORM	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	260	J	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	76-13-1	FREON 113	110	UJ	µg/kg	110	540
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	27	UJ	µg/kg	27	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	95-47-6	O-XYLENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	100-42-5	STYRENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	320	J	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-88-3	TOLUENE	61	J	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	54	UJ	µg/kg	54	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	110	UJ	µg/kg	110	270
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	110	UJ	µg/kg	110	540
SWMU01	S01-SS02	S01-SS02-0810-120911	12/9/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	54	UJ	µg/kg	54	270
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	11.4		mg/kg	0.092	0.46
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	127	J	mg/kg	0.0201	0.558
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	1		mg/kg	0.0223	0.558
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	23.1		mg/kg	0.156	1.68
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	17.3	J	mg/kg	0.246	1.68
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0131	J	mg/kg	0.0081	0.115
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	0.759	U	mg/kg	0.759	2.23
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.0927	U	mg/kg	0.0927	0.558
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	25	J	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	390
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	390	U	µg/kg	390	1200
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	38

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	J	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	390
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	190	U	µg/kg	190	580
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	190	U	µg/kg	190	580
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	12	J	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	29		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	19	J	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	44		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	49		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	63		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	39		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	31		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	190	U	µg/kg	190	580
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	77	U	µg/kg	77	200
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	55		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	9	J	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	77	U	µg/kg	77	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	100		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	7	J	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	190	U	µg/kg	190	580
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	39	U	µg/kg	39	190
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	34		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	19	U	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	39	U	µg/kg	39	200
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	64		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	23	J	µg/kg	19	39
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	79		µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	UJ	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	R	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	UJ	µg/kg	4	10
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	UJ	µg/kg	3	10
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	UJ	µg/kg	3	10
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	98	J	µg/kg	7	19
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	0.6	J	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	UJ	µg/kg	2	10
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	R	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	UJ	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	R	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	3	J	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	UJ	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	UJ	µg/kg	2	10
SWMU01	S01-SS03	S01-SS03-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.9		mg/kg	0.0946	0.473
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	89.8		mg/kg	0.0217	0.603
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	0.988		mg/kg	0.0241	0.603
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	22.5		mg/kg	0.169	1.81
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	14.1		mg/kg	0.265	1.81
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0183	J	mg/kg	0.008	0.113
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.82	U	mg/kg	0.82	2.41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.1	U	mg/kg	0.1	0.603
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	19	J	µg/kg	7	20
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	17		µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	2	J	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS03	S01-SS03-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	16.5		percent		
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	9.26		mg/kg	0.0939	0.47
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	56.1		mg/kg	0.0207	0.576
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.772		mg/kg	0.023	0.576
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	12.3		mg/kg	0.161	1.73
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	11.1		mg/kg	0.253	1.73
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0149	J	mg/kg	0.0081	0.116
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.783	U	mg/kg	0.783	2.3
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.0956	U	mg/kg	0.0956	0.576
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	200
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	20
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	28	J	µg/kg	8	22
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS03	S01-SS03-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	GENERAL CHEM	MOIST	MOISTURE	17.7		percent		
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7440-38-2	ARSENIC	13.4		mg/kg	0.0972	0.486
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7440-39-3	BARIUM	99.8		mg/kg	0.0208	0.579
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7440-43-9	CADMIUM	0.979		mg/kg	0.0231	0.579
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7440-47-3	CHROMIUM	20.9		mg/kg	0.162	1.74

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7439-92-1	LEAD	15.4		mg/kg	0.255	1.74
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7439-97-6	MERCURY	0.017	J	mg/kg	0.008	0.114
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7782-49-2	SELENIUM	0.787	U	mg/kg	0.787	2.31
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	METAL	7440-22-4	SILVER	0.096	U	mg/kg	0.096	0.579
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	67-64-1	ACETONE	37	J	µg/kg	7	20
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	127-18-4	TETRACHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS04	HGR-121211-FD01	12/12/2011	3	5	FD	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	18.2		percent		
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	13.1		mg/kg	0.095	0.475
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	86.3		mg/kg	0.022	0.611
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.11		mg/kg	0.0244	0.611
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	23		mg/kg	0.171	1.83
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	18.6		mg/kg	0.269	1.83
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0234	J	mg/kg	0.0082	0.116
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	0.831	U	mg/kg	0.831	2.44
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.611
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	31	J	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	10	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	10	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	19	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	10	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	7	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	16	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	29		µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	9	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	19	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	35	J	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	23		µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	10	J	µg/kg	4	10
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	58	J	µg/kg	7	20
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	2	J	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	4	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	3	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	3	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS04	S01-SS04-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	17.9		percent		
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	11.9		mg/kg	0.0928	0.464
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	92.6		mg/kg	0.0215	0.597
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	0.923		mg/kg	0.0239	0.597
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	19.6		mg/kg	0.167	1.79
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	14		mg/kg	0.263	1.79
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0278	J	mg/kg	0.0085	0.121
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.812	U	mg/kg	0.812	2.39
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.0991	U	mg/kg	0.0991	0.597
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	J	µg/kg	4	10
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	40	J	µg/kg	7	20
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS04	S01-SS04-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.9		percent		
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	12.8		mg/kg	0.097	0.485
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	63.4		mg/kg	0.0225	0.624
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.798		mg/kg	0.025	0.624
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	14.9		mg/kg	0.175	1.87
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	12.1		mg/kg	0.275	1.87
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0175	J	mg/kg	0.0083	0.118
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.849	U	mg/kg	0.849	2.5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.104	U	mg/kg	0.104	0.624
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	420
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1200
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	420
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	J	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	210
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	8	J	µg/kg	4	11
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	64	J	µg/kg	8	22
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS04	S01-SS04-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	17		percent		
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	12.5		mg/kg	0.0936	0.468
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	103		mg/kg	0.0213	0.591
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.921		mg/kg	0.0236	0.591
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	26		mg/kg	0.165	1.77
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	15.2		mg/kg	0.26	1.77
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0098	J	mg/kg	0.008	0.114
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	0.803	U	mg/kg	0.803	2.36
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.098	U	mg/kg	0.098	0.591
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	600
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	600
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	5	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	6	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	600
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	5	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	80	U	µg/kg	80	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	8	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	600
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	200
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	8	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	9	J	µg/kg	4	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	8	J	µg/kg	7	20
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.3		percent		
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	12.1		mg/kg	0.0969	0.485
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	78.2		mg/kg	0.0216	0.6
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	0.953		mg/kg	0.024	0.6
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	19.7		mg/kg	0.168	1.8
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	14.8		mg/kg	0.264	1.8
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0236	J	mg/kg	0.008	0.114
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.816	U	mg/kg	0.816	2.4
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.0996	U	mg/kg	0.0996	0.6
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	15	J	µg/kg	7	20
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.4		percent		
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	15.2		mg/kg	0.0964	0.482
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	61.5		mg/kg	0.0217	0.602
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.868		mg/kg	0.0241	0.602
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	13.9		mg/kg	0.169	1.81
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	12		mg/kg	0.265	1.81
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.021	J	mg/kg	0.0081	0.115
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.819	U	mg/kg	0.819	2.41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.1	U	mg/kg	0.1	0.602
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	5	J	µg/kg	4	10
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	43	J	µg/kg	7	20
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	5	J	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS05	S01-SS05-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	17.8		percent		

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	11.3		mg/kg	0.0945	0.472
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	107		mg/kg	0.0213	0.591
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	1.04		mg/kg	0.0236	0.591
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	34.9		mg/kg	0.165	1.77
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	73.5		mg/kg	0.26	1.77
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0204	J	mg/kg	0.008	0.113
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	0.803	U	mg/kg	0.803	2.36
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.098	U	mg/kg	0.098	0.591
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	680		µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	610	U	µg/kg	610	2000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	2000	U	µg/kg	2000	6100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	43	U	µg/kg	43	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	610	U	µg/kg	610	2000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	1000	U	µg/kg	1000	3000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	1000	U	µg/kg	1000	3000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	78	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	73	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	100		µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	58	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	47	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	1000	U	µg/kg	1000	3000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	92	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	410	U	µg/kg	410	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	410	U	µg/kg	410	1000

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	130		µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	20	U	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	1000	U	µg/kg	1000	3000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	200	U	µg/kg	200	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	51	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	200	1000
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	73	J	µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	100	U	µg/kg	100	200
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	120		µg/kg	20	100
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	31	J	µg/kg	7	20
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	2	J	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.3		percent		
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	13.8		mg/kg	0.0942	0.471
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	62.1		mg/kg	0.0216	0.6
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	1		mg/kg	0.024	0.6
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	21.5		mg/kg	0.168	1.8
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	16.1		mg/kg	0.264	1.8
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0482	J	mg/kg	0.0084	0.119
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.816	U	mg/kg	0.816	2.4
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.0996	U	mg/kg	0.0996	0.6
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	J	µg/kg	4	10
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	33	J	µg/kg	7	20
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	2	J	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.7		percent		
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	10.8		mg/kg	0.0986	0.493
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	70.9		mg/kg	0.0222	0.616
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.869		mg/kg	0.0247	0.616
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	14.9		mg/kg	0.173	1.85
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	12.6		mg/kg	0.271	1.85
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0137	J	mg/kg	0.0084	0.119
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.838	U	mg/kg	0.838	2.47

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.102	U	mg/kg	0.102	0.616
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	420
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	420	U	µg/kg	420	1200
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	5	J	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	420
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	42	U	µg/kg	42	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	42

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	42	U	µg/kg	42	210
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	42
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	20	J	µg/kg	7	20
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	8		µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS06	S01-SS06-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	9.4		percent		
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	7.5		mg/kg	0.0874	0.437
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	795		mg/kg	0.0964	2.68
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.0461	J	mg/kg	0.0214	0.536
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	36.7		mg/kg	0.15	1.61
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	11		mg/kg	1.18	8.04
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0073	U	mg/kg	0.0073	0.104
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	8.74		mg/kg	0.729	2.14
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.0889	U	mg/kg	0.0889	0.536
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	1100	U	µg/kg	1100	3700
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	3700	U	µg/kg	3700	11000
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	77	U	µg/kg	77	360
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	37	U	µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	1100	U	µg/kg	1100	3700
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	1800	U	µg/kg	1800	5500
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	1800	U	µg/kg	1800	5500
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	37	U	µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	360		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	200		µg/kg	37	190

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	570		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	850		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	1200		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	770		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	470		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	1800	U	µg/kg	1800	5500
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	740	U	µg/kg	740	1900
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	480		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	210		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	740	U	µg/kg	740	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	600		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	37	U	µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	37	U	µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	1800	U	µg/kg	1800	5500
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	370	U	µg/kg	370	1800
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	570		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	370	U	µg/kg	370	1900
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	110	J	µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	180	U	µg/kg	180	370
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	580		µg/kg	37	190
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	2	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	UJ	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	12		µg/kg	5	12
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	17		µg/kg	4	12
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	5	J	µg/kg	4	12
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	50	J	µg/kg	9	24
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	3	J	µg/kg	0.6	6

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	14		µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	12
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	UJ	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	2	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.6	U	µg/kg	0.6	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	2	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	UJ	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	2	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	6	J	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	6
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	12
SWMU01	S01-SS07	S01-SS07-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	6
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.4		percent		
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	12.8		mg/kg	0.0952	0.476
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	85.5		mg/kg	0.0214	0.595
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	0.137	J	mg/kg	0.0238	0.595
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	21.4		mg/kg	0.167	1.78
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	15.9		mg/kg	0.262	1.78
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0147	J	mg/kg	0.0086	0.122
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.809	U	mg/kg	0.809	2.38
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.0988	U	mg/kg	0.0988	0.595
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	5	J	µg/kg	3	11
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	23	J	µg/kg	8	22
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS07	S01-SS07-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	19.4		percent		
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	10.1		mg/kg	0.0983	0.491
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	61.8		mg/kg	0.0213	0.591
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.199	J	mg/kg	0.0236	0.591
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	13.8		mg/kg	0.165	1.77
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	11.7		mg/kg	0.26	1.77
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0138	J	mg/kg	0.0083	0.118
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.803	U	mg/kg	0.803	2.36
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.0981	U	mg/kg	0.0981	0.591
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	21	UJ	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	210	U	µg/kg	210	620
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	210	U	µg/kg	210	620
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	21	U	µg/kg	21	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	21	UJ	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	83	U	µg/kg	83	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	210	U	µg/kg	210	620
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	UJ	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	21	U	µg/kg	21	41
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	18	J	µg/kg	7	21
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS07	S01-SS07-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	9.6		percent		
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	6.64		mg/kg	0.0868	0.434
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	611		mg/kg	0.0957	2.66
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.454	J	mg/kg	0.0213	0.532
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	26.1		mg/kg	0.149	1.6
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	15.4		mg/kg	0.234	1.6
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0278	J	mg/kg	0.0074	0.105
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	5.35		mg/kg	0.723	2.13
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.0883	U	mg/kg	0.0883	0.532
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	18	UJ	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	110	U	µg/kg	110	370
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	370	U	µg/kg	370	1100
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	37

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	6	J	µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	110	U	µg/kg	110	370
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	180	U	µg/kg	180	550
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	180	U	µg/kg	180	550
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	7	J	µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	100		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	80		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	220		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	310		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	420		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	350		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	210		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	180	U	µg/kg	180	550
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	74	U	µg/kg	74	190
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	220		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	84		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	18	UJ	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	260		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	15	J	µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	180	U	µg/kg	180	550
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	37	U	µg/kg	37	180
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	270		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	37	U	µg/kg	37	190
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	82	J	µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	250		µg/kg	4	19
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	0.9	U	µg/kg	0.9	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	9		µg/kg	4	9
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	9
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	9
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	68	J	µg/kg	6	18
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	1	J	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	9
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	0.9	UJ	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	4	J	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	0.9	U	µg/kg	0.9	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	9
SWMU01	S01-SS08	S01-SS08-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	0.9	U	µg/kg	0.9	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.4		percent		
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	14.9		mg/kg	0.0971	0.485
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	105		mg/kg	0.021	0.584
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	0.137	J	mg/kg	0.0233	0.584
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	22.1		mg/kg	0.163	1.75
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	18.3		mg/kg	0.257	1.75
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0229	J	mg/kg	0.0084	0.12
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.794	U	mg/kg	0.794	2.33
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.0969	U	mg/kg	0.0969	0.584
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	UJ	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	4	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	UJ	µg/kg	20	41

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	UJ	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	16	J	µg/kg	7	21
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	6		µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	70		µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	2	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS08	S01-SS08-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	18.6		percent		
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	10.3		mg/kg	0.0964	0.482
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	79.8		mg/kg	0.0211	0.585
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.263	J	mg/kg	0.0234	0.585
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	14.6		mg/kg	0.164	1.76
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	12.9		mg/kg	0.257	1.76
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0142	J	mg/kg	0.0084	0.12
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.796	U	mg/kg	0.796	2.34
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.0971	U	mg/kg	0.0971	0.585
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	UJ	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	82	U	µg/kg	82	200

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	82	U	µg/kg	82	210
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	UJ	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	82	U	µg/kg	82	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	UJ	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	11
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	11
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	11
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	14	J	µg/kg	7	21
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	11
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	97		µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	11
SWMU01	S01-SS08	S01-SS08-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	GENERAL CHEM	MOIST	MOISTURE	9.6		percent		
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7440-38-2	ARSENIC	6.57		mg/kg	0.0868	0.434
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7440-39-3	BARIUM	859		mg/kg	0.0996	2.77
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7440-43-9	CADMIUM	0.042	J	mg/kg	0.0221	0.553

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7440-47-3	CHROMIUM	44.4		mg/kg	0.155	1.66
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7439-92-1	LEAD	5.58		mg/kg	0.243	1.66
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7439-97-6	MERCURY	0.0214	J	mg/kg	0.0075	0.106
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7782-49-2	SELENIUM	15.1		mg/kg	0.752	2.21
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	METAL	7440-22-4	SILVER	0.256	J	mg/kg	0.0918	0.553
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	123-91-1	1,4-DIOXANE	110	U	µg/kg	110	370
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	25	J	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	51-28-5	2,4-DINITROPHENOL	370	U	µg/kg	370	1100
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	121-14-2	2,4-DINITROTOLUENE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	606-20-2	2,6-DINITROTOLUENE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	95-57-8	2-CHLOROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	26		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	95-48-7	2-METHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	88-74-4	2-NITROANILINE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	88-75-5	2-NITROPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	110	U	µg/kg	110	370
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	99-09-2	3-NITROANILINE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	180	U	µg/kg	180	550
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	106-47-8	4-CHLOROANILINE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	106-44-5	4-METHYLPHENOL	63		µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	100-01-6	4-NITROANILINE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	100-02-7	4-NITROPHENOL	180	U	µg/kg	180	550
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	83-32-9	ACENAPHTHENE	47		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	208-96-8	ACENAPHTHYLENE	1100		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	120-12-7	ANTHRACENE	1200		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	3700		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	3800		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	5800		µg/kg	37	190
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	3000		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	1800		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	100-51-6	BENZYL ALCOHOL	180	U	µg/kg	180	550
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	74	U	µg/kg	74	190
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	86-74-8	CARBAZOLE	120		µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	218-01-9	CHRYSENE	3500		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	890		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	132-64-9	DIBENZOFURAN	51		µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	84-66-2	DIETHYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	131-11-3	DIMETHYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	74	U	µg/kg	74	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	206-44-0	FLUORANTHENE	5600		µg/kg	37	190
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	86-73-7	FLUORENE	100		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	19

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	180	U	µg/kg	180	550
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	67-72-1	HEXACHLOROETHANE	37	U	µg/kg	37	180
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	2700		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	78-59-1	ISOPHORONE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	98-95-3	NITROBENZENE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	18	U	µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	37	U	µg/kg	37	190
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	85-01-8	PHENANTHRENE	1000		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	108-95-2	PHENOL	43		µg/kg	18	37
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	SVOC	129-00-0	PYRENE	4400		µg/kg	4	19
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	78-93-3	2-BUTANONE	9	J	µg/kg	5	14
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	591-78-6	2-HEXANONE	4	U	µg/kg	4	14
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-10-1	4-METHYL-2-PENTANONE	4	U	µg/kg	4	14
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	67-64-1	ACETONE	31	J	µg/kg	9	27
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	71-43-2	BENZENE	0.7	U	µg/kg	0.7	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	74-83-9	BROMOMETHANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-15-0	CARBON DISULFIDE	10	J	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-00-3	CHLOROETHANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	74-87-3	CHLOROMETHANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	76-13-1	FREON 113	3	U	µg/kg	3	14
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	87-68-3	HEXACHLOROBUTADIENE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	7

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	79-20-9	METHYL ACETATE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.7	U	µg/kg	0.7	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	53		µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	79-01-6	TRICHLOROETHENE	3	J	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	3	U	µg/kg	3	7
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	108-05-4	VINYL ACETATE	3	U	µg/kg	3	14
SWMU01	S01-SS09	S01-SS09-0002-121211	12/12/2011	0	2	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	7
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.2		percent		
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7440-38-2	ARSENIC	17.3		mg/kg	0.094	0.47
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7440-39-3	BARIUM	98.6		mg/kg	0.022	0.611
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7440-43-9	CADMIUM	1.04		mg/kg	0.0244	0.611
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7440-47-3	CHROMIUM	21.6		mg/kg	0.171	1.83
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7439-92-1	LEAD	17.1		mg/kg	0.269	1.83
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7439-97-6	MERCURY	0.0173	J	mg/kg	0.0081	0.115
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7782-49-2	SELENIUM	0.831	U	mg/kg	0.831	2.44
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	METAL	7440-22-4	SILVER	0.101	U	mg/kg	0.101	0.611
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	20	UJ	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	410
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	51-28-5	2,4-DINITROPHENOL	410	U	µg/kg	410	1200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	9	U	µg/kg	9	40
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	410
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	132-64-9	DIBENZOFURAN	20	UJ	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	67-72-1	HEXACHLOROETHANE	41	U	µg/kg	41	200
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	41	U	µg/kg	41	210
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	85-01-8	PHENANTHRENE	4	UJ	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	41
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	67-64-1	ACETONE	28	J	µg/kg	7	20
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	33		µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	79-01-6	TRICHLOROETHENE	4	J	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS09	S01-SS09-0305-121211	12/12/2011	3	5	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	GENERAL CHEM	MOIST	MOISTURE	17.4		percent		
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7440-38-2	ARSENIC	13.1		mg/kg	0.095	0.475
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7440-39-3	BARIUM	60		mg/kg	0.0218	0.605
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7440-43-9	CADMIUM	0.749		mg/kg	0.0242	0.605
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7440-47-3	CHROMIUM	11.9		mg/kg	0.169	1.82
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7439-92-1	LEAD	10.7		mg/kg	0.266	1.82
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7439-97-6	MERCURY	0.0174	J	mg/kg	0.0079	0.112
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7782-49-2	SELENIUM	0.823	U	mg/kg	0.823	2.42
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	METAL	7440-22-4	SILVER	0.1	U	mg/kg	0.1	0.605
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	20	UJ	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	95-50-1	1,2-DICHLOROBENZENE	1	J	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	541-73-1	1,3-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	106-46-7	1,4-DICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	123-91-1	1,4-DIOXANE	120	U	µg/kg	120	400
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	95-95-4	2,4,5-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	88-06-2	2,4,6-TRICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	120-83-2	2,4-DICHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	105-67-9	2,4-DIMETHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	51-28-5	2,4-DINITROPHENOL	400	U	µg/kg	400	1200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	121-14-2	2,4-DINITROTOLUENE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	606-20-2	2,6-DINITROTOLUENE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	91-58-7	2-CHLORONAPHTHALENE	8	U	µg/kg	8	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	95-57-8	2-CHLOROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	95-48-7	2-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	88-74-4	2-NITROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	88-75-5	2-NITROPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	91-94-1	3,3'-DICHLOROBENZIDINE	120	U	µg/kg	120	400
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	99-09-2	3-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	534-52-1	4,6-DINITRO-2-METHYLPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	101-55-3	4-BROMOPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	59-50-7	4-CHLORO-3-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	106-47-8	4-CHLOROANILINE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	7005-72-3	4-CHLOROPHENYL-PHENYLETHER	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	106-44-5	4-METHYLPHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	100-01-6	4-NITROANILINE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	100-02-7	4-NITROPHENOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	83-32-9	ACENAPHTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	208-96-8	ACENAPHTHYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	120-12-7	ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	191-24-2	BENZO(G,H,I)PERYLENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	207-08-9	BENZO(K)FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	100-51-6	BENZYL ALCOHOL	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	111-91-1	BIS(2-CHLOROETHOXY)METHANE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	111-44-4	BIS(2-CHLOROETHYL)ETHER	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	81	U	µg/kg	81	210
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	85-68-7	BUTYLBENZYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	86-74-8	CARBAZOLE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	218-01-9	CHRYSENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	132-64-9	DIBENZOFURAN	20	UJ	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	84-66-2	DIETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	131-11-3	DIMETHYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	84-74-2	DI-N-BUTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	117-84-0	DI-N-OCTYLPHTHALATE	81	U	µg/kg	81	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	206-44-0	FLUORANTHENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	86-73-7	FLUORENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	118-74-1	HEXACHLOROBENZENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	77-47-4	HEXACHLOROCYCLOPENTADIENE	200	U	µg/kg	200	610
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	67-72-1	HEXACHLOROETHANE	40	U	µg/kg	40	200
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	78-59-1	ISOPHORONE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	98-95-3	NITROBENZENE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	621-64-7	N-NITROSO-DI-N-PROPYLAMINE	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	86-30-6	N-NITROSODIPHENYLAMINE	20	U	µg/kg	20	40

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	40	U	µg/kg	40	210
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	85-01-8	PHENANTHRENE	4	UJ	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	108-95-2	PHENOL	20	U	µg/kg	20	40
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	SVOC	129-00-0	PYRENE	4	U	µg/kg	4	21
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	630-20-6	1,1,1,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	71-55-6	1,1,1-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	79-34-5	1,1,2,2-TETRACHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	79-00-5	1,1,2-TRICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-34-3	1,1-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-35-4	1,1-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	563-58-6	1,1-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	87-61-6	1,2,3-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	96-18-4	1,2,3-TRICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	95-63-6	1,2,4-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	106-93-4	1,2-DIBROMOETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	107-06-2	1,2-DICHLOROETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	78-87-5	1,2-DICHLOROPROPANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	142-28-9	1,3-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	594-20-7	2,2-DICHLOROPROPANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	78-93-3	2-BUTANONE	4	U	µg/kg	4	10
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	95-49-8	2-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	591-78-6	2-HEXANONE	3	U	µg/kg	3	10
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	106-43-4	4-CHLOROTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-10-1	4-METHYL-2-PENTANONE	3	U	µg/kg	3	10
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	67-64-1	ACETONE	14	J	µg/kg	7	20
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	71-43-2	BENZENE	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-86-1	BROMOBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	74-97-5	BROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-27-4	BROMODICHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-25-2	BROMOFORM	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	74-83-9	BROMOMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-15-0	CARBON DISULFIDE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	56-23-5	CARBON TETRACHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-90-7	CHLOROBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-00-3	CHLOROETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	67-66-3	CHLOROFORM	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	74-87-3	CHLOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	156-59-2	CIS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	10061-01-5	CIS-1,3-DICHLOROPROPENE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	110-82-7	CYCLOHEXANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	124-48-1	DIBROMOCHLOROMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	74-95-3	DIBROMOMETHANE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-71-8	DICHLORODIFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	100-41-4	ETHYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	76-13-1	FREON 113	2	U	µg/kg	2	10
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	87-68-3	HEXACHLOROBUTADIENE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	179601-23-1	M+P-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	79-20-9	METHYL ACETATE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	1634-04-4	METHYL TERTIARY BUTYL ETHER	0.5	U	µg/kg	0.5	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-87-2	METHYLCYCLOHEXANE	1	UJ	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	91-20-3	NAPHTHALENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	104-51-8	N-BUTYLBENZENE	1	U	µg/kg	1	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	95-47-6	O-XYLENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	99-87-6	P-ISOPROPYLTOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	135-98-8	SEC-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	100-42-5	STYRENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	98-06-6	TERT-BUTYLBENZENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	21		µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-88-3	TOLUENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	156-60-5	TRANS-1,2-DICHLOROETHENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1	U	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-69-4	TRICHLOROFLUOROMETHANE	2	U	µg/kg	2	5
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	108-05-4	VINYL ACETATE	2	U	µg/kg	2	10
SWMU01	S01-SS09	S01-SS09-0810-121211	12/12/2011	8	10	N	VOC	75-01-4	VINYL CHLORIDE	1	U	µg/kg	1	5
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	GENERAL CHEM	MOIST	MOISTURE	15.9		percent		
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	73000		µg/kg	33	780
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	11	J	µg/kg	4	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	132-64-9	DIBENZOFURAN	170		µg/kg	33	39
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	98-95-3	NITROBENZENE	39	U	µg/kg	33	39
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	107-13-1	ACRYLONITRILE	920	U	µg/kg	8	920
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	71-43-2	BENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	75-25-2	BROMOFORM	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	100-41-4	ETHYLBENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	179601-23-1	M+P-XYLENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	230	U	µg/kg	4	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	91-20-3	NAPHTHALENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	95-47-6	O-XYLENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	100-42-5	STYRENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0002-100615	10/6/2015	0	2	N	VOC	79-01-6	TRICHLOROETHENE	230	U	µg/kg	2	230
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	GENERAL CHEM	MOIST	MOISTURE	18.4		percent		
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	110000		µg/kg	33	1600
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	6	J	µg/kg	4	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	132-64-9	DIBENZOFURAN	170		µg/kg	33	40
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	107-13-1	ACRYLONITRILE	1300	U	µg/kg	8	1300
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	71-43-2	BENZENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	75-25-2	BROMOFORM	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	100-41-4	ETHYLBENZENE	340	U	µg/kg	2	340

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	179601-23-1	M+P-XYLENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	340	U	µg/kg	4	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	91-20-3	NAPHTHALENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	95-47-6	O-XYLENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	100-42-5	STYRENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	73	J	µg/kg	67	340
SWMU01	S01-SS10	S01-SS10-0305-100615	10/6/2015	3	5	N	VOC	79-01-6	TRICHLOROETHENE	340	U	µg/kg	2	340
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	GENERAL CHEM	MOIST	MOISTURE	18.6		percent		
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	92-52-4	1,1'-BIPHENYL	1500		µg/kg	33	40
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	107-13-1	ACRYLONITRILE	1100	U	µg/kg	8	1100
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	71-43-2	BENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	75-25-2	BROMOFORM	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	100-41-4	ETHYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	98-82-8	ISOPROPYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	179601-23-1	M+P-XYLENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	75-09-2	METHYLENE CHLORIDE	270	U	µg/kg	4	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	91-20-3	NAPHTHALENE	270	UJ	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	103-65-1	N-PROPYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	95-47-6	O-XYLENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	100-42-5	STYRENE	270	U	µg/kg	2	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	127-18-4	TETRACHLOROETHENE	170	J	µg/kg	55	270
SWMU01	S01-SS10	S01-SS10-0809-100615	10/6/2015	8	9	N	VOC	79-01-6	TRICHLOROETHENE	270	U	µg/kg	2	270
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	GENERAL CHEM	MOIST	MOISTURE	14.4		percent		
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	132-64-9	DIBENZOFURAN	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	98-95-3	NITROBENZENE	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	107-13-1	ACRYLONITRILE	19	U	µg/kg	8	19
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0002-100615	10/6/2015	0	2	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	GENERAL CHEM	MOIST	MOISTURE	18.3		percent		
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	107-13-1	ACRYLONITRILE	21	U	µg/kg	8	21
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	127-18-4	TETRACHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0304-100615	10/6/2015	3	4	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	GENERAL CHEM	MOIST	MOISTURE	15.6		percent		
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	132-64-9	DIBENZOFURAN	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	98-95-3	NITROBENZENE	39	U	µg/kg	33	39
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	8	20
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	38		µg/kg	2	5
SWMU01	S01-SS11	S01-SS11-0810-100615	10/6/2015	8	10	N	VOC	79-01-6	TRICHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	GENERAL CHEM	MOIST	MOISTURE	17.2		percent		

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	4	J	µg/kg	4	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	6	J	µg/kg	4	20
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	107-13-1	ACRYLONITRILE	970	U	µg/kg	8	970
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	71-43-2	BENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	75-25-2	BROMOFORM	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	100-41-4	ETHYLBENZENE	10000		µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	179601-23-1	M+P-XYLENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	240	U	µg/kg	4	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	91-20-3	NAPHTHALENE	240	UJ	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	95-47-6	O-XYLENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	100-42-5	STYRENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0002-100615	10/6/2015	0	2	N	VOC	79-01-6	TRICHLOROETHENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	GENERAL CHEM	MOIST	MOISTURE	16.8		percent		
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	107-13-1	ACRYLONITRILE	1100	U	µg/kg	8	1100
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	71-43-2	BENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	75-25-2	BROMOFORM	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	100-41-4	ETHYLBENZENE	21000		µg/kg	2	2700
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	98-82-8	ISOPROPYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	179601-23-1	M+P-XYLENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	75-09-2	METHYLENE CHLORIDE	270	U	µg/kg	4	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	91-20-3	NAPHTHALENE	270	UJ	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	103-65-1	N-PROPYLBENZENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	95-47-6	O-XYLENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	100-42-5	STYRENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	127-18-4	TETRACHLOROETHENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0305-100615	10/6/2015	3	5	N	VOC	79-01-6	TRICHLOROETHENE	270	U	µg/kg	2	270
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	GENERAL CHEM	MOIST	MOISTURE	14.6		percent		
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	92-52-4	1,1'-BIPHENYL	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	23		µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	50-32-8	BENZO(A)PYRENE	4	J	µg/kg	4	20
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	8	J	µg/kg	4	20

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	132-64-9	DIBENZOFURAN	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	98-95-3	NITROBENZENE	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	107-13-1	ACRYLONITRILE	970	U	µg/kg	8	970
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	71-43-2	BENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	75-25-2	BROMOFORM	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	100-41-4	ETHYLBENZENE	18000		µg/kg	2	2400
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	98-82-8	ISOPROPYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	179601-23-1	M+P-XYLENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	75-09-2	METHYLENE CHLORIDE	240	U	µg/kg	4	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	91-20-3	NAPHTHALENE	240	UJ	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	103-65-1	N-PROPYLBENZENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	95-47-6	O-XYLENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	100-42-5	STYRENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	127-18-4	TETRACHLOROETHENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0506-100615	10/6/2015	5	6	N	VOC	79-01-6	TRICHLOROETHENE	240	U	µg/kg	2	240
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	GENERAL CHEM	MOIST	MOISTURE	14.8		percent		
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	132-64-9	DIBENZOFURAN	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	98-95-3	NITROBENZENE	39	U	µg/kg	33	39
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	8	20
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	71-43-2	BENZENE	0.5	J	µg/kg	0.5	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	75-25-2	BROMOFORM	10		µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	62		µg/kg	2	5
SWMU01	S01-SS12	S01-SS12-0810-100615	10/6/2015	8	10	N	VOC	79-01-6	TRICHLOROETHENE	6		µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	GENERAL CHEM	MOIST	MOISTURE	17.8		percent		
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	8	J	µg/kg	4	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	26		µg/kg	13	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	J	µg/kg	4	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	28		µg/kg	13	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	12	J	µg/kg	4	20
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	107-13-1	ACRYLONITRILE	21	U	µg/kg	8	21
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	127-18-4	TETRACHLOROETHENE	1	J	µg/kg	1	5
SWMU01	S01-SS13	S01-SS13-0002-100615	10/6/2015	0	2	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	GENERAL CHEM	MOIST	MOISTURE	18.8		percent		
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	92-52-4	1,1'-BIPHENYL	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	130		µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	50-32-8	BENZO(A)PYRENE	110		µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	170		µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	23		µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	132-64-9	DIBENZOFURAN	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	66		µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	98-95-3	NITROBENZENE	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	8	20
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	100-41-4	ETHYLBENZENE	2	J	µg/kg	1	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	179601-23-1	M+P-XYLENE	9		µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	91-20-3	NAPHTHALENE	8		µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	95-47-6	O-XYLENE	3	J	µg/kg	1	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	127-18-4	TETRACHLOROETHENE	5		µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0506-100615	10/6/2015	5	6	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	GENERAL CHEM	MOIST	MOISTURE	20.7		percent		
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	92-52-4	1,1'-BIPHENYL	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	132-64-9	DIBENZOFURAN	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	98-95-3	NITROBENZENE	41	U	µg/kg	33	41
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	107-13-1	ACRYLONITRILE	22	U	µg/kg	8	22
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	127-18-4	TETRACHLOROETHENE	24		µg/kg	2	5
SWMU01	S01-SS13	S01-SS13-0810-100615	10/6/2015	8	10	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	GENERAL CHEM	MOIST	MOISTURE	16.5		percent		
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	8	20
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	127-18-4	TETRACHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS14	S01-SS14-0102-100715	10/7/2015	1	2	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	GENERAL CHEM	MOIST	MOISTURE	18.7		percent		
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	107-13-1	ACRYLONITRILE	21	U	µg/kg	8	21
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	127-18-4	TETRACHLOROETHENE	5		µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0304-100715	10/7/2015	3	4	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	GENERAL CHEM	MOIST	MOISTURE	20.2		percent		
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	92-52-4	1,1'-BIPHENYL	42	U	µg/kg	33	42
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	132-64-9	DIBENZOFURAN	42	U	µg/kg	33	42
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	98-95-3	NITROBENZENE	42	U	µg/kg	33	42
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	107-13-1	ACRYLONITRILE	23	U	µg/kg	8	23
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	71-43-2	BENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	75-25-2	BROMOFORM	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	100-41-4	ETHYLBENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	98-82-8	ISOPROPYLBENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	179601-23-1	M+P-XYLENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	75-09-2	METHYLENE CHLORIDE	6	U	µg/kg	4	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	91-20-3	NAPHTHALENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	103-65-1	N-PROPYLBENZENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	95-47-6	O-XYLENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	100-42-5	STYRENE	6	U	µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	127-18-4	TETRACHLOROETHENE	12		µg/kg	2	6
SWMU01	S01-SS14	S01-SS14-0809-100715	10/7/2015	8	9	N	VOC	79-01-6	TRICHLOROETHENE	6	U	µg/kg	2	6
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	GENERAL CHEM	MOIST	MOISTURE	19.1		percent		
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	92-52-4	1,1'-BIPHENYL	41	U	µg/kg	33	41
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	132-64-9	DIBENZOFURAN	41	U	µg/kg	33	41
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	98-95-3	NITROBENZENE	41	U	µg/kg	33	41
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	107-13-1	ACRYLONITRILE	19	U	µg/kg	8	19
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	127-18-4	TETRACHLOROETHENE	9		µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0102-100715	10/7/2015	1	2	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	GENERAL CHEM	MOIST	MOISTURE	21		percent		
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	92-52-4	1,1'-BIPHENYL	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	132-64-9	DIBENZOFURAN	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	98-95-3	NITROBENZENE	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	107-13-1	ACRYLONITRILE	21	U	µg/kg	8	21
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	127-18-4	TETRACHLOROETHENE	22		µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0405-100715	10/7/2015	4	5	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	GENERAL CHEM	MOIST	MOISTURE	19.9		percent		
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	92-52-4	1,1'-BIPHENYL	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	50-32-8	BENZO(A)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	132-64-9	DIBENZOFURAN	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	21	U	µg/kg	13	21
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	98-95-3	NITROBENZENE	42	U	µg/kg	33	42
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	SVOC	87-86-5	PENTACHLOROPHENOL	210	U	µg/kg	130	210
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	107-13-1	ACRYLONITRILE	22	U	µg/kg	8	22
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	127-18-4	TETRACHLOROETHENE	46		µg/kg	2	5
SWMU01	S01-SS15	S01-SS15-0809-100715	10/7/2015	8	9	N	VOC	79-01-6	TRICHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	GENERAL CHEM	MOIST	MOISTURE	16.2		percent		
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	107-13-1	ACRYLONITRILE	19	U	µg/kg	8	19
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	127-18-4	TETRACHLOROETHENE	18		µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0102-100715	10/7/2015	1	2	N	VOC	79-01-6	TRICHLOROETHENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	GENERAL CHEM	MOIST	MOISTURE	16.7		percent		
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	107-13-1	ACRYLONITRILE	20	U	µg/kg	8	20
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	127-18-4	TETRACHLOROETHENE	79		µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0304-100715	10/7/2015	3	4	N	VOC	79-01-6	TRICHLOROETHENE	3	J	µg/kg	1	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	GENERAL CHEM	MOIST	MOISTURE	17.6		percent		
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	92-52-4	1,1'-BIPHENYL	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	50-32-8	BENZO(A)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	132-64-9	DIBENZOFURAN	40	U	µg/kg	33	40
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	20	U	µg/kg	13	20
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	98-95-3	NITROBENZENE	40	U	µg/kg	33	40

Table E-2. Analytical Soil Data Used in the HHRA - SWMU 1

Phase II RFI Report

Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	SVOC	87-86-5	PENTACHLOROPHENOL	200	U	µg/kg	130	200
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	107-13-1	ACRYLONITRILE	21	U	µg/kg	8	21
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	71-43-2	BENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	75-25-2	BROMOFORM	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	100-41-4	ETHYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	98-82-8	ISOPROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	179601-23-1	M+P-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	75-09-2	METHYLENE CHLORIDE	5	U	µg/kg	4	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	91-20-3	NAPHTHALENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	103-65-1	N-PROPYLBENZENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	95-47-6	O-XYLENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	100-42-5	STYRENE	5	U	µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	127-18-4	TETRACHLOROETHENE	60		µg/kg	2	5
SWMU01	S01-SS16	S01-SS16-0809-100715	10/7/2015	8	9	N	VOC	79-01-6	TRICHLOROETHENE	4	J	µg/kg	1	5

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7782-49-2	SELENIUM	0.00087	J	mg/L	0.0005	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7440-47-3	CHROMIUM	0.0032		mg/L	0.0005	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7782-49-2	SELENIUM	0.00092	J	mg/L	0.0005	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7440-38-2	ARSENIC	0.0011	J	mg/L	0.00082	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7440-38-2	ARSENIC	0.0117		mg/L	0.00082	0.002
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.5	1
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.5	1
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	87-86-5	PENTACHLOROPHENOL	5	U	µg/L	1	5
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	50-32-8	BENZO(A)PYRENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	132-64-9	DIBENZOFURAN	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.051	U	µg/L	0.01	0.051
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7440-47-3	CHROMIUM	0.0023		mg/L	0.0005	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.0011	J	mg/L	0.00082	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7440-47-3	CHROMIUM	0.0293		mg/L	0.0005	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7782-49-2	SELENIUM	0.00085	J	mg/L	0.0005	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	METAL	7439-97-6	MERCURY	0.000064	J	mg/L	0.00006	0.0002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.6	1

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.6	1
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	87-86-5	PENTACHLOROPHENOL	6	R	µg/L	1	6
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	50-32-8	BENZO(A)PYRENE	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	132-64-9	DIBENZOFURAN	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.056	UJ	µg/L	0.011	0.056
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.018	J	µg/L	0.011	0.056
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.0014	J	mg/L	0.0005	0.002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.0017	J	mg/L	0.0005	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.5	1
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.5	1
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	87-86-5	PENTACHLOROPHENOL	5	U	µg/L	1	5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	50-32-8	BENZO(A)PYRENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	132-64-9	DIBENZOFURAN	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
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Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7440-38-2	ARSENIC	0.002	U	mg/L	0.00082	0.002
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.6	1
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.6	1
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	87-86-5	PENTACHLOROPHENOL	6	U	µg/L	1	6
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	50-32-8	BENZO(A)PYRENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	132-64-9	DIBENZOFURAN	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.058	U	µg/L	0.012	0.058
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	127-18-4	TETRACHLOROETHENE	1.7		µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	127-18-4	TETRACHLOROETHENE	0.4	J	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.6	1
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.6	1
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	87-86-5	PENTACHLOROPHENOL	6	U	µg/L	1	6
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	50-32-8	BENZO(A)PYRENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	132-64-9	DIBENZOFURAN	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.055	U	µg/L	0.011	0.055
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.5	1
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.5	1
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	87-86-5	PENTACHLOROPHENOL	5	U	µg/L	1	5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	50-32-8	BENZO(A)PYRENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	132-64-9	DIBENZOFURAN	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.053	U	µg/L	0.011	0.053
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	127-18-4	TETRACHLOROETHENE	90		µg/L	0.2	10
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	127-18-4	TETRACHLOROETHENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	127-18-4	TETRACHLOROETHENE	1.3		µg/L	0.2	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.6	1
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.6	1
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	87-86-5	PENTACHLOROPHENOL	6	U	µg/L	1	6
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.056	U	µg/L	0.011	0.056
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	50-32-8	BENZO(A)PYRENE	0.056	U	µg/L	0.011	0.056
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.056	U	µg/L	0.011	0.056
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.056	U	µg/L	0.011	0.056

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
Phase II RFI Report
Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	132-64-9	DIBENZOFURAN	0.056	U	µg/L	0.011	0.056
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.056	U	µg/L	0.011	0.056
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.056	U	µg/L	0.011	0.056
SWMU24	MW01	MW01-GW-0018-110414	11/4/2014	18	18	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW02	MW02-GW-0020-110514	11/5/2014	20	20	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7440-47-3	CHROMIUM	0.0031		mg/L	0.0005	0.002
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7782-49-2	SELENIUM	0.002	U	mg/L	0.0005	0.002
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	METAL	7439-97-6	MERCURY	0.0002	U	mg/L	0.00006	0.0002
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	1	5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.2	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW03	MW03-GW-0024-110514	11/5/2014	24	24	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW04	MW04-GW-0022-110614	11/6/2014	22	22	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	92-52-4	1,1'-BIPHENYL	1	U	µg/L	0.6	1
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	98-95-3	NITROBENZENE	1	U	µg/L	0.6	1
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	87-86-5	PENTACHLOROPHENOL	6	U	µg/L	1	6
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	56-55-3	BENZO(A)ANTHRACENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	50-32-8	BENZO(A)PYRENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	205-99-2	BENZO(B)FLUORANTHENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	53-70-3	DIBENZ(A,H)ANTHRACENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	132-64-9	DIBENZOFURAN	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	193-39-5	INDENO(1,2,3-CD)PYRENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	SVOC	91-57-6	2-METHYLNAPHTHALENE	0.061	U	µg/L	0.012	0.061
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	2	5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	71-43-2	BENZENE	0.2	J	µg/L	0.1	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.4	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	75-25-2	BROMOFORM	0.7		µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW05	HGR-110514-FD01	11/5/2014	24	24	FD	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW05	MW05-GW-0024-110514	11/5/2014	24	24	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	2	5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.4	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.2	0.5

Table E-3. Analytical Groundwater Data Used in the HHRA - Sitewide Groundwater
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Dow Hanging Rock, Ironton, Ohio

Site Name	Location Name	Sample Name	Sample Date	Sample Beginning Depth	Sample Ending Depth	Sample Type Code	Analytical Group	CAS Number	Analyte Name	Result Value	Result Flag	Result Units	Method Detection Limit	Reporting Limit
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW06	MW06-GW-0019-110514	11/5/2014	19	19	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW07	MW07-GW-0024-110614	11/6/2014	24	24	N	VOC	79-01-6	TRICHLOROETHENE	0.5	U	µg/L	0.1	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	2	5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.4	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW08	MW08-GW-2636-021616	2/16/2016	26	36	N	VOC	79-01-6	TRICHLOROETHENE	14		µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	HGR-021616-FD01	2/16/2016	25	35	FD	VOC	79-01-6	TRICHLOROETHENE	0.1	J	µg/L	0.1	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	107-13-1	ACRYLONITRILE	5	U	µg/L	2	5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	71-43-2	BENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	100-41-4	ETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	98-82-8	ISOPROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	75-09-2	METHYLENE CHLORIDE	0.5	U	µg/L	0.4	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	91-20-3	NAPHTHALENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	103-65-1	N-PROPYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW09	MW09-GW-2535-021616	2/16/2016	25	35	N	VOC	79-01-6	TRICHLOROETHENE	0.1	J	µg/L	0.1	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	100-42-5	STYRENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	75-25-2	BROMOFORM	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	120-82-1	1,2,4-TRICHLOROBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	79-01-6	TRICHLOROETHENE	0.6		µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	108-67-8	1,3,5-TRIMETHYLBENZENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	179601-23-1	M+P-XYLENE	0.5	U	µg/L	0.2	0.5
SWMU24	MW10	MW10-GW-2434-021616	2/16/2016	24	34	N	VOC	95-47-6	O-XYLENE	0.5	U	µg/L	0.2	0.5

Table E-4. SWMU 1 Soil: Detection Limit Evaluation

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte[a]	Minimum Detection Limit	Maximum Detection Limit	Units	Screening Level		Exceed Screening Level?
630-20-6	1,1,1,2-TETRACHLOROETHANE	9.0E-04	5.4E-02	mg/kg	8.8E+00	c	No
71-55-6	1,1,1-TRICHLOROETHANE	9.0E-04	5.4E-02	mg/kg	6.4E+02	Sat	No
79-34-5	1,1,2,2-TETRACHLOROETHANE	9.0E-04	5.4E-02	mg/kg	2.7E+00	c	No
79-00-5	1,1,2-TRICHLOROETHANE	9.0E-04	5.4E-02	mg/kg	6.3E-01	n	No
75-34-3	1,1-DICHLOROETHANE	9.0E-04	5.4E-02	mg/kg	1.6E+01	c	No
75-35-4	1,1-DICHLOROETHENE	9.0E-04	5.4E-02	mg/kg	1.0E+02	n	No
563-58-6	1,1-DICHLOROPROPENE	9.0E-04	5.4E-02	mg/kg	NA		NA
87-61-6	1,2,3-TRICHLOROBENZENE	9.0E-04	5.4E-02	mg/kg	9.3E+01	n	No
96-18-4	1,2,3-TRICHLOROPROPANE	9.0E-04	5.4E-02	mg/kg	1.1E-01	c	No
120-82-1	1,2,4-TRICHLOROBENZENE	9.0E-04	3.4E-01	mg/kg	2.6E+01	n	No
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	2.0E-03	1.1E-01	mg/kg	6.4E-02	c	Yes
106-93-4	1,2-DIBROMOETHANE	9.0E-04	5.4E-02	mg/kg	1.6E-01	c	No
107-06-2	1,2-DICHLOROETHANE	9.0E-04	5.4E-02	mg/kg	2.0E+00	c	No
78-87-5	1,2-DICHLOROPROPANE	9.0E-04	5.4E-02	mg/kg	4.4E+00	c	No
108-67-8	1,3,5-TRIMETHYLBENZENE	9.0E-04	3.4E-01	mg/kg	1.8E+02	Sat	No
142-28-9	1,3-DICHLOROPROPANE	9.0E-04	5.4E-02	mg/kg	1.5E+03	Sat	No
594-20-7	2,2-DICHLOROPROPANE	9.0E-04	5.4E-02	mg/kg	NA		NA
95-49-8	2-CHLOROTOLUENE	9.0E-04	5.4E-02	mg/kg	9.1E+02	Sat	No
106-43-4	4-CHLOROTOLUENE	9.0E-04	5.4E-02	mg/kg	2.5E+02	Sat	No
107-13-1	ACRYLONITRILE	1.9E-02	1.3E+00	mg/kg	1.1E+00	c	Yes
74-97-5	BROMOCHLOROMETHANE	9.0E-04	5.4E-02	mg/kg	6.3E+01	n	No
75-27-4	BROMODICHLOROMETHANE	9.0E-04	5.4E-02	mg/kg	1.3E+00	c	No
74-83-9	BROMOMETHANE	2.0E-03	1.1E-01	mg/kg	3.0E+00	n	No
56-23-5	CARBON TETRACHLORIDE	9.0E-04	5.4E-02	mg/kg	2.9E+00	c	No
75-00-3	CHLOROETHANE	2.0E-03	1.1E-01	mg/kg	2.1E+03	Sat	No
67-66-3	CHLOROFORM	9.0E-04	5.4E-02	mg/kg	1.4E+00	c	No
74-87-3	CHLOROMETHANE	2.0E-03	1.1E-01	mg/kg	4.6E+01	n	No
10061-01-5	CIS-1,3-DICHLOROPROPENE	9.0E-04	5.4E-02	mg/kg	NA		NA
124-48-1	DIBROMOCHLOROMETHANE	9.0E-04	5.4E-02	mg/kg	3.9E+01	c	No
74-95-3	DIBROMOMETHANE	9.0E-04	5.4E-02	mg/kg	9.9E+00	n	No
75-71-8	DICHLORODIFLUOROMETHANE	2.0E-03	1.1E-01	mg/kg	3.7E+01	n	No
76-13-1	FREON 113	2.0E-03	1.1E-01	mg/kg	9.1E+02	Sat	No
87-68-3	HEXACHLOROBUTADIENE	2.0E-03	1.1E-01	mg/kg	5.3E+00	c	No
1634-04-4	METHYL TERTIARY BUTYL ETHER	5.0E-04	2.7E-02	mg/kg	2.1E+02	c	No
108-87-2	METHYLCYCLOHEXANE	9.0E-04	5.4E-02	mg/kg	1.4E+02	Sat	No
75-09-2	METHYLENE CHLORIDE	2.0E-03	3.4E-01	mg/kg	3.2E+02	n	No
104-51-8	N-BUTYLBENZENE	9.0E-04	5.4E-02	mg/kg	1.1E+02	Sat	No
99-87-6	P-ISOPROPYLTOLUENE	9.0E-04	5.4E-02	mg/kg	NA		NA
100-42-5	STYRENE	9.0E-04	3.4E-01	mg/kg	8.7E+02	Sat	No
98-06-6	TERT-BUTYLBENZENE	9.0E-04	5.4E-02	mg/kg	1.8E+02	Sat	No
10061-02-6	TRANS-1,3-DICHLOROPROPENE	9.0E-04	5.4E-02	mg/kg	NA		NA
75-69-4	TRICHLOROFLUOROMETHANE	2.0E-03	1.1E-01	mg/kg	1.2E+03	Sat	No
108-05-4	VINYL ACETATE	2.0E-03	1.1E-01	mg/kg	3.8E+02	n	No
75-01-4	VINYL CHLORIDE	9.0E-04	5.4E-02	mg/kg	1.7E+00	c	No
541-73-1	1,3-DICHLOROBENZENE	9.0E-04	5.4E-02	mg/kg	NA		NA
123-91-1	1,4-DIOXANE	1.1E-01	1.1E+00	mg/kg	2.4E+01	c	No
95-95-4	2,4,5-TRICHLOROPHENOL	1.8E-02	1.8E-01	mg/kg	8.2E+03	n	No
88-06-2	2,4,6-TRICHLOROPHENOL	1.8E-02	1.8E-01	mg/kg	8.2E+01	n	No
120-83-2	2,4-DICHLOROPHENOL	1.8E-02	1.8E-01	mg/kg	2.5E+02	n	No
51-28-5	2,4-DINITROPHENOL	3.7E-01	3.7E+00	mg/kg	1.6E+02	n	No
121-14-2	2,4-DINITROTOLUENE	7.4E-02	7.4E-01	mg/kg	7.4E+00	c	No
606-20-2	2,6-DINITROTOLUENE	1.8E-02	1.8E-01	mg/kg	1.5E+00	c	No
91-58-7	2-CHLORONAPHTHALENE	8.0E-03	7.7E-02	mg/kg	6.0E+03	n	No
95-57-8	2-CHLOROPHENOL	1.8E-02	1.8E-01	mg/kg	5.8E+02	n	No
95-48-7	2-METHYLPHENOL	1.8E-02	1.8E-01	mg/kg	4.1E+03	n	No
88-74-4	2-NITROANILINE	1.8E-02	1.8E-01	mg/kg	8.0E+02	n	No
88-75-5	2-NITROPHENOL	1.8E-02	1.8E-01	mg/kg	NA		NA
91-94-1	3,3'-DICHLOROBENZIDINE	1.1E-01	1.1E+00	mg/kg	5.1E+00	c	No

Table E-4. SWMU 1 Soil: Detection Limit Evaluation

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte[a]	Minimum Detection Limit	Maximum Detection Limit	Units	Screening Level		Exceed Screening Level?
534-52-1	4,6-DINITRO-2-METHYLPHENOL	1.8E-01	1.8E+00	mg/kg	6.6E+00	n	No
101-55-3	4-BROMOPHENYL-PHENYLETHER	1.8E-02	1.8E-01	mg/kg	NA		NA
59-50-7	4-CHLORO-3-METHYLPHENOL	1.8E-02	1.8E-01	mg/kg	8.2E+03	n	No
106-47-8	4-CHLOROANILINE	1.8E-02	1.8E-01	mg/kg	1.1E+01	c	No
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	1.8E-02	1.8E-01	mg/kg	NA		NA
100-01-6	4-NITROANILINE	7.4E-02	7.4E-01	mg/kg	1.1E+02	c	No
100-02-7	4-NITROPHENOL	1.8E-01	1.8E+00	mg/kg	NA		NA
100-51-6	BENZYL ALCOHOL	1.8E-01	1.8E+00	mg/kg	8.2E+03	n	No
111-91-1	BIS(2-CHLOROETHOXY)METHANE	1.8E-02	1.8E-01	mg/kg	2.5E+02	n	No
111-44-4	BIS(2-CHLOROETHYL)ETHER	1.8E-02	1.8E-01	mg/kg	1.0E+00	c	No
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	7.4E-02	7.4E-01	mg/kg	1.6E+02	c	No
85-68-7	BUTYLBENZYLPHTHALATE	7.4E-02	7.4E-01	mg/kg	1.2E+03	c	No
84-66-2	DIETHYLPHTHALATE	7.4E-02	7.4E-01	mg/kg	6.6E+04	n	No
131-11-3	DIMETHYLPHTHALATE	7.4E-02	7.4E-01	mg/kg	NA		NA
84-74-2	DI-N-BUTYLPHTHALATE	7.4E-02	7.4E-01	mg/kg	8.2E+03	n	No
117-84-0	DI-N-OCTYLPHTHALATE	7.4E-02	7.4E-01	mg/kg	8.2E+02	n	No
118-74-1	HEXACHLOROBENZENE	4.0E-03	3.7E-02	mg/kg	9.6E-01	c	No
77-47-4	HEXACHLOROCYCLOPENTADIENE	1.8E-01	1.8E+00	mg/kg	7.5E-01	n	Yes
67-72-1	HEXACHLOROETHANE	3.7E-02	3.7E-01	mg/kg	8.0E+00	c	No
78-59-1	ISOPHORONE	1.8E-02	1.8E-01	mg/kg	2.4E+03	c	No
98-95-3	NITROBENZENE	1.8E-02	1.8E-01	mg/kg	2.2E+01	c	No
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	1.8E-02	1.8E-01	mg/kg	3.3E-01	c	No
86-30-6	N-NITROSODIPHENYLAMINE	1.8E-02	1.8E-01	mg/kg	4.7E+02	c	No
87-86-5	PENTACHLOROPHENOL	3.7E-02	3.7E-01	mg/kg	4.0E+00	c	No

[a] Chemicals included in table had 100% non-detect results in the analytical data set.

Screening Level = U.S. Environmental Protection Agency Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2015).

c = carcinogenic

mg/kg = milligrams per kilogram

n = noncarcinogenic

NA = not applicable/not available

SAT = calculated RSL exceeds the saturation limit, therefore the saturation limit is used as screening level

Table E-5. Sitewide Groundwater: Detection Limit Evaluation

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte[a]	Minimum Detection Limit	Maximum Detection Limit	Units	Screening Level		Exceed Screening Level?
120-82-1	1,2,4-TRICHLOROBENZENE	5.0E-01	5.0E-01	µg/L	4.0E-01	n	Yes
108-67-8	1,3,5-TRIMETHYLBENZENE	5.0E-01	5.0E-01	µg/L	1.2E+01	n	No
107-13-1	ACRYLONITRILE	5.0E+00	5.0E+00	µg/L	5.2E-02	c	Yes
100-41-4	ETHYLBENZENE	5.0E-01	5.0E-01	µg/L	1.5E+00	c	No
98-82-8	ISOPROPYLBENZENE	5.0E-01	5.0E-01	µg/L	4.5E+01	n	No
179601-23-1	M+P-XYLENE	5.0E-01	5.0E-01	µg/L	1.9E+01	n	No
75-09-2	METHYLENE CHLORIDE	5.0E-01	5.0E-01	µg/L	1.1E+01	n	No
91-20-3	NAPHTHALENE	5.0E-01	5.0E-01	µg/L	1.7E-01	c	Yes
103-65-1	N-PROPYLBENZENE	5.0E-01	5.0E-01	µg/L	6.6E+01	n	No
95-47-6	O-XYLENE	5.0E-01	5.0E-01	µg/L	1.9E+01	n	No
100-42-5	STYRENE	5.0E-01	5.0E-01	µg/L	1.2E+02	n	No
92-52-4	1,1'-BIPHENYL	1.0E+00	1.0E+00	µg/L	8.3E-02	n	Yes
56-55-3	BENZO(A)ANTHRACENE	5.1E-02	6.1E-02	µg/L	1.2E-02	c	Yes
50-32-8	BENZO(A)PYRENE	5.1E-02	6.1E-02	µg/L	3.4E-03	c	Yes
205-99-2	BENZO(B)FLUORANTHENE	5.1E-02	6.1E-02	µg/L	3.4E-02	c	Yes
53-70-3	DIBENZ(A,H)ANTHRACENE	5.1E-02	6.1E-02	µg/L	3.4E-03	c	Yes
132-64-9	DIBENZOFURAN	5.1E-02	6.1E-02	µg/L	7.9E-01	n	No
193-39-5	INDENO(1,2,3-CD)PYRENE	5.1E-02	6.1E-02	µg/L	3.4E-02	c	Yes
98-95-3	NITROBENZENE	1.0E+00	1.0E+00	µg/L	1.4E-01	c	Yes
87-86-5	PENTACHLOROPHENOL	5.0E+00	6.0E+00	µg/L	4.1E-02	c	Yes
7439-97-6	MERCURY, dissolved	2.0E-01	2.0E-01	µg/L	5.7E-01	n	No

[a] Chemicals included in table had 100% non-detect results in the analytical data set.

Screening Level = U.S. Environmental Protection Agency Tap Water Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2015).

c = Carcinogenic

J = estimated value

n = noncarcinogenic

NA = not applicable/not available

µg/L = micrograms per liter