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US EPA RECORDS CENTER REGION 5
1000710

Environmental Indicators Assessment Report

Keystone Steel & Wire Company

Peoria, Illinois

January 2002

Prepared For

Keystone Steel & Wire Company
7000 S.W. Adams Street
Peoria, Illinois 61641

U.S. EPA Facility ID No.: ILD 000 714 881

RMT, Inc.

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Table of Contents

Executive Summary iii

Section 1 Introduction 1-1
- 1.1 Background 1-1
- 1.2 Purpose 1-1

Section 2 Current Human Exposures Assessment 2-1
- 2.1 Data Considered 2-1
- 2.2 Contaminated Media 2-1
  - 2.2.1 Units Being Closed Under the Illinois Consent Order 2-2
  - 2.2.2 Units Listed in U.S. EPA AOC 2-5
  - 2.2.3 Other Areas of Potential Concern 2-8
  - 2.2.4 Site-Wide Contaminated Media Summary 2-11
  - 2.2.5 Site-Wide Key Contaminants Summary 2-11
- 2.3 Exposure Pathways 2-12
- 2.4 Exposure Assessment for Hazardous Constituents 2-12
  - 2.4.1 Groundwater 2-12
  - 2.4.2 Surface Water 2-14
  - 2.4.3 Sediment and Soil 2-14
  - 2.4.4 Air 2-16
- 2.5 Current Human Exposures Under Control (CA725) 2-17

Section 3 Current Human Exposures Assessment 3-1
- 3.1 Data Considered 3-1
- 3.2 Groundwater Contamination 3-1
- 3.3 Groundwater Management Zone (GMZ) Status 3-1
  - 3.3.1 Contaminated Groundwater Remediation Activities 3-3
  - 3.3.2 Current Extent of Contaminated Groundwater Plume 3-3
  - 3.3.3 Surface Water Exposure to Contaminated Groundwater 3-5
- 3.4 Ongoing Groundwater Management Activities 3-5
- 3.5 Migration of Contaminated Groundwater Under Control (CA750) 3-5

Section 4 Conclusions 4-1

List of Figures

Figure 1-1 USGS Site Map 1-2
Figure 1-2 Facility Site Plan 1-3
Figure 3-1 Original 1994 GMZ Boundary 3-2
Figure 3-2 Current Status of GMZ 3-4

List of Appendices

Appendix A Environmental Indicators Form CA725
Appendix B Environmental Indicators Form CA750
Appendix C Summary of 2001 Sampling Results

Executive Summary

The Keystone Steel & Wire Company facility located in Peoria, Illinois entered into a Administrative Order on Consent with U.S. Environmental Protection Agency Region 5 to perform an Environmental Indicators assessment of its facility. This assessment, required as part of the Government Performance and Results Act, requires that the status of contaminated media at the facility be reviewed to determine if any unacceptable human exposures are present, and to evaluate if physical migration of contaminated groundwater is being controlled.

Keystone has completed a draft Environmental Indicator determination for the facility. This Report documents the history and current status of contamination at Keystone, and provides the rationale used in preparing the required draft *Documentation of Environmental Indicator Determination* forms. Based upon current conditions at the site, Keystone believes that both Current Human Exposures (RCRIS Code CA725) and Migration of Contaminated Groundwater (RCRIS Code CA750) are controlled.

Section 1
Introduction

1.1 Background

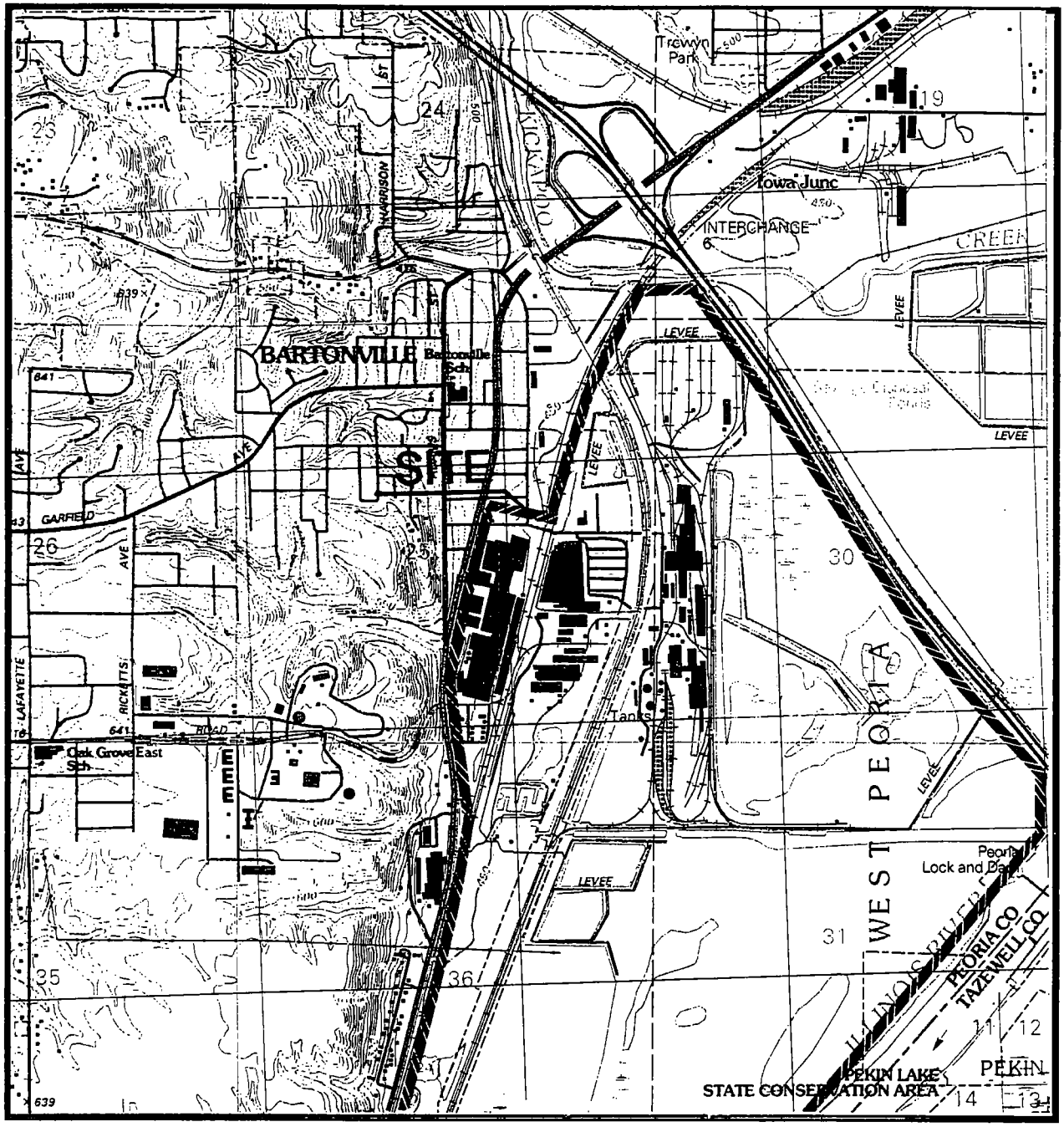
RMT, Inc. has prepared this Environmental Indicators (EI) Assessment Report on behalf of Keystone Steel and Wire Company (Keystone) for its manufacturing facility located in Peoria, Illinois (see **Figure 1-1**). This Report is being submitted as per requirements established in Section 16 of the December 20, 2000 Administrative Order on Consent (AOC) between Keystone and U.S. Environmental Protection Agency (EPA) Region 5.

The AOC was established as part of EPA's implementation of the EI program under the Government Performance and Results Act (GPRA), as a follow-up to the original RCRA Facility Assessment (RFA) performed at Keystone in 1987. The 1989 RFA Report identified several areas of potential concern, and five of these areas were targeted for further investigation during an EPA site visit conducted in November 1999. Those five units were specifically listed in the AOC. In late summer 2001, Keystone procured new samples and analytical data at the five units identified as the Sheen Pond, F-Pond, Tail Tracks Landfill, East Pond, and Oil Skimmer Basin. For reference, the areas and units discussed in this Report are shown on a layout map of the Keystone facility (see **Figure 1-2**).

Following the completion of the new investigations, the AOC required Keystone to complete and submit draft EI determinations regarding the status of contaminated media at its Peoria, Illinois facility. Specifically, Keystone was to show that Current Human Exposures (RCRIS Code CA725) and Migration of Contaminated Groundwater (RCRIS Code CA750) are both under control.

1.2 Purpose

This Report has been prepared to accompany the two draft EI determination forms, which were used to assess the status of Current Human Exposures and Migration of Contaminated Groundwater at Keystone's Peoria, Illinois facility. The data and rationale used to complete each step in Keystone's EI Determination are compiled herein. The appropriate sections of this report are cross-referenced on Keystone's draft EI forms. Copies of the completed forms entitled *"Documentation of Environmental Indicator Determination"* for both the Current Human Exposures and Migration of Contaminated Groundwater EIs (RCRIS Codes CA725 and CA750) are also included within this Report (see **Appendix A** and **Appendix B**, respectively).



SCALE 1:24000

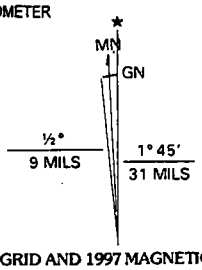
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

QUADRANGLE LOCATION

Contour interval: 10 feet
Source: Peoria West Quadrangle
Illinois, 7.5 Minute Series
U.S.G.S. Topographic Map



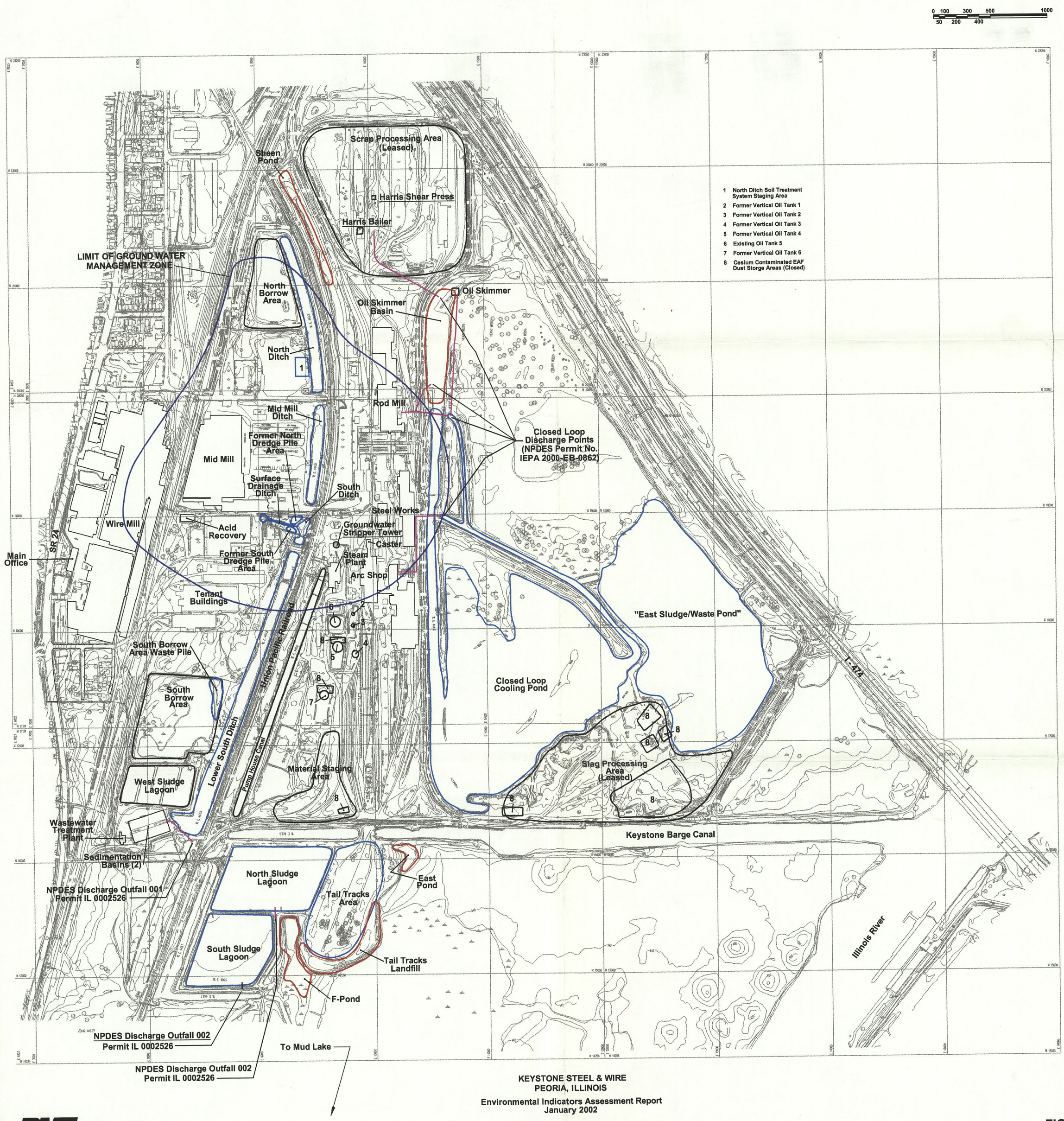
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

1670-012 1=1 12-21-98 RCW 20010

Keystone Steel & Wire – Peoria, Illinois

SITE MAP

FIGURE 1-1



KEYSTONE STEEL & WIRE
PEORIA, ILLINOIS

Environmental Indicators Assessment Report
January 2002

RMT

FACILITY SITE PLAN

FIGURE 1-2

Section 2
Current Human Exposures Assessment

2.1 Data Considered

In order to complete the draft EI determination, Keystone reviewed all of the available historical data included in the 1989 RFA Report, the data collected from various areas during corrective actions undertaken at the site since 1989 under oversight of the Illinois Environmental Protection Agency (IEPA), and newly procured data for the five units listed in the 2000 AOC. In February 2001, Keystone submitted a *Current Conditions Report* to EPA that provided a summary of all of the relevant data available for the site at that time. Since the completion of the *Current Conditions Report*, Keystone has also performed new sampling activities at the Sheen Pond, F-Pond, Tail Tracks Landfill, East Pond, and Oil Skimmer Basin.

Keystone's draft EI determination is based upon the data review performed for the *Current Conditions Report*, and an evaluation of the new data procured in 2001. The *Sampling Report for Environmental Indicators Assessment Investigation* summarizing the results of the investigations conducted at the Sheen Pond, F-Pond, Tail Tracks Landfill, East Pond, and Oil Skimmer Basin to evaluate possible human exposure risks has been compiled as a separate report to be submitted in January 2002 for EPA review. For ease of reference, copies of the analytical data summary sheets presented in the accompanying Sampling Report are included herein at **Appendix C.**

2.2 Contaminated Media

Under a Consent Order with the State of Illinois, RCRA corrective action is currently being conducted at Keystone's Peoria facility to deal with a plume of groundwater contaminated with volatile organic compounds (VOCs) and soil and sediment in several units contaminated with metals, as a result of historical operations. Keystone has also investigated contaminated soil, sediment, groundwater, and surface water at the five units listed in the AOC to determine whether any impact by hazardous constituents has occurred in these areas. Media at several other locations at the facility also warrant consideration regarding possible contaminant impact based upon the available historical site data (which were summarized in the February 2001 *Current Conditions Report*). The locations of the areas of potential concern discussed in this section are identified on **Figure 1-2.**

2.2.1 Units Being Closed Under the Illinois Consent Order

Corrective action to close several ditches and piles of dredged soil and to remediate a plume of contaminated groundwater has been ongoing at Keystone's Peoria, Illinois facility since 1992. Keystone entered into a Consent Order with the State of Illinois to close these units in 1993, and has been working under the supervision of IEPA to implement the closure plan approved under that agreement. Clean closure of several units has been achieved, and activities at several units are still in progress.

Groundwater Management Zone (GMZ): Keystone's GMZ was established in April 1994 (and approved by IEPA under the Illinois Consent Order) in order to control and begin remediation of a plume of contaminated groundwater that extends under most of the Mid Mill, a section of the Steel Works, and a portion of the Wire Mill (see **Figure 1-2**). The plume contains chlorinated volatile organic compounds, specifically 1,4-dioxane, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), trans-1,2-DCE, cis-1,2-DCE, tetrachloroethene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and vinyl chloride. The maximum total volatiles concentrations observed in any well during the quarterly groundwater monitoring sampling conducted in August and November 2001 were 690 µg/L and 555 µg/L, respectively (*i.e.*, less than 1 part per million (ppm)).

North Ditch Soil Treatment System Staging Area: Following the completion of remedial activity at the North Ditch in 1996, soil testing was conducted in the area used for the soil treatment system after the pad and one foot of underlying soil were excavated. The results of this sampling indicated the presence of concentrations of lead above the clean-closure cleanup objectives (CUOs) in the layer of fill soil overlying the native silty clay. Concentrations ranged from non-detect to 22.0 mg/L TCLP lead and 380 mg/kg to 12,000 mg/kg total lead. Groundwater sampling conducted in the area in 1998 confirmed that no migration of this lead was occurring (allowing clean closure of the adjacent North Ditch to be approved). Closure of this area adjacent to the North Ditch will be coordinated as part of the Illinois Consent Order under IEPA oversight.

South Ditch: Soil, sediment, and groundwater characterization samples were collected from this unit in 2000 so that Keystone could conduct an assessment of possible risk-based closure options in lieu of clean closure. Due to the presence of characteristic hazardous waste (sediment exceeding the toxicity characteristic for lead and/or the reactivity characteristic for sulfide) widely distributed within the sediments of the ditch, excavation of the entire unit will be required. Remedial excavation to achieve in place soil concentrations below Illinois risk-based remedial objectives (ROs) or CUOs is being

planned, and will be coordinated as part of the Illinois Consent Order under IEPA oversight.

Arsenic, chromium, and lead are the major contaminants observed at levels exceeding the applicable ROs in the sediment of the South Ditch. Arsenic was observed at concentrations ranging from 1.0 mg/kg to 343 mg/kg, chromium from 16.8 mg/kg to 2,090 mg/kg, and lead from 8.0 mg/kg to 106,000 mg/kg. Four individual samples from this unit also contained polynuclear aromatic hydrocarbons (PNAs) at concentrations above the Illinois ROs. Shallow groundwater in the area does not appear to have been impacted by the presence of these contaminants, due in part to the low mobility of the metal precipitates bound in the sediment matrix, and also to the low permeability of the native soil (silty clay) that underlies the sediment. Only iron and manganese are routinely detected in the shallow groundwater downgradient of the South Ditch at concentrations above the Illinois ROs. Cadmium was also detected in one historical sample (collected in 1990) above the Illinois groundwater RO but the concentration of this metal has remained well below the limit in all other quarterly samples since 1988.

South Borrow Area Waste Pile: Soil and groundwater characterization samples were collected from this unit in 2000 so that Keystone could conduct an assessment of possible risk-based closure options in lieu of clean closure. Due to the presence of characteristic hazardous waste (soil exceeding the toxicity characteristic for lead, with one sample also exceeding the reactivity characteristic for sulfide) widely distributed within the soil pile, excavation of the entire unit will be required. Remedial excavation to achieve in place soil concentrations below Illinois risk-based ROs or CUOs is being planned, and will be coordinated as part of the Illinois Consent Order under IEPA oversight.

Arsenic and lead are the major contaminants observed at levels exceeding the applicable ROs in the sediment of the South Borrow Area Waste Pile. Arsenic was observed in the sediment at concentrations ranging from 1.5 mg/kg to 73 mg/kg, and lead from 6.2 mg/kg to 35,000 mg/kg. Three individual samples from this unit also contained PNAs at concentrations slightly above the Illinois ROs. Shallow groundwater in the area does not appear to have been impacted by the presence these contaminants, due in part to the low mobility of the metal precipitates bound in the soil matrix. No contaminants have been observed in the shallow groundwater downgradient of the South Borrow Area Waste Pile at concentrations above the Illinois ROs.

Lower South Ditch: Soil, sediment, and groundwater characterization samples were collected from this unit in 2000 so that Keystone could conduct an assessment of possible risk-based closure options in lieu of clean closure. Characteristic hazardous waste

(sediment exceeding the toxicity characteristic for lead) was observed in two samples from this ditch. Targeted remedial excavation to remove hazardous soil and sediment in these two areas is being planned. This approach will allow risk-based closure (using institutional controls and/or engineered barriers where remaining contaminant concentrations exceed ROs) to be applied at the remainder of the ditch. These remedial efforts will be coordinated as part of the Illinois Consent Order under IEPA oversight.

Arsenic, chromium, lead, and mercury are the major contaminants observed at levels exceeding the applicable ROs in the sediment of the Lower South Ditch. Arsenic was observed at concentrations ranging from below detection to 280 mg/kg, chromium from 1.9 mg/kg to 501 mg/kg, lead from 3.6 mg/kg to 24,100 mg/kg, and mercury from below detection to 133 mg/kg. Five individual samples from this unit also contained PNAs at concentrations slightly above the Illinois ROs. Shallow groundwater in the area does not appear to have been impacted by the presence these contaminants, due in part to the low mobility of the metal precipitates bound in the sediment matrix, and also to the low permeability of the native soil (silty clay) that underlies the sediment. Only iron is routinely detected in the shallow groundwater downgradient of the Lower South Ditch at concentrations above the Illinois ROs.

IEPA accepted certify areas

Surface Drainage Ditch Area: This area includes three adjacent units, the Surface Drainage Ditch, South Dredge Pile, and North Dredge Pile All three are being closed as part of the Illinois Consent Order, under IEPA oversight. Soil samples were collected from this area in September 2000 at the request of IEPA, in order to obtain additional clean-closure verification data after the remedial excavation action performed in 1996, and also to characterize a lens of stained soil identified in the original closure report.

The results of this additional investigation indicated that in several areas where excavation had been conducted, the clean closure CUOs were not met for lead and cadmium (TCLP objectives of 0.1 mg/L and 0.05 mg/L, respectively). An assessment was then performed to determine if these areas could be closed using risk-based limits. Where clean closure had not been achieved, total lead concentrations ranged from 15 mg/kg to 3,860 mg/kg, and total cadmium concentrations ranged from 8.8 mg/kg to 56 mg/kg. Keystone is coordinating the cleanup of those areas where residual contamination exceeds IEPA risk-based standard, some of which will occur with the remediation of the adjacent South Ditch.

A lens of stained soil (buried below 8 to 10 feet of cover) was left in place at the end of the western end of the Surface Drainage Ditch during remediation in 1996 (to avoid undermining the foundations of a compressed oxygen and nitrogen tank farm and several in-service buried pipelines). Samples from this material collected in 2000

indicated the presence of characteristic hazardous waste (soil exceeding the toxicity characteristic for lead). Total lead concentrations in this lens of stained soil ranged from 128 mg/kg to 29,500 mg/kg. Keystone is currently working with IEPA to revise the closure plan for this area.

2.2.2 Units Listed in U.S. EPA AOC

Investigations at the five units listed in the AOC were conducted in late summer and fall of 2001. The results of these investigations are described in the accompanying *Sampling Report for Environmental Indicators Assessment Investigation,* and the analytical results summary tables have also been included in this report (see **Appendix C**). A brief summary describing the current status of each of the units is presented below.

Clean O.K *Sheen Pond:* Groundwater and soil samples collected from this area in 2001 were analyzed for several metals and a polychlorinated biphenyl (PCB) congener detected during the RCRA Facility Assessment (RFA) sampling performed in 1987. No surface water was present in the unit in 1987, and only surface soil samples were collected. None of the analytes detected in 1987 exceeded any of the contaminant-specific U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) for industrial land use.

During the 2001 investigation, again, no surface water was present, but two existing groundwater monitor wells adjacent to the unit were sampled. All of the detected metals concentrations in all of the analytical samples were well below the respective tap water PRGs or Federal drinking water standards (the latter were used to screen results for metals for which no tap water PRGs have been set). PCB was not detected in any of the groundwater samples.

Likewise, in all of the soil samples from the unit, metal concentrations were well below the industrial soil PRGs. Arochlor 1254 was detected, but only at concentrations estimated below the calibration range for the analysis, and well below the industrial PRG. It is worth noting that all of results obtained for the 2001 samples from this unit were also below the residential land use PRGs.

F-Pond: Surface water and sediment samples collected from this area in 2001 were analyzed for several metals and volatile organic compounds (VOCs) detected during the 1987 RFA sampling event. The data from 1987 indicated that iron and manganese were present in the surface water above the tap water PRGs, and lead (for which no aqueous PRG has been set) was detected at concentrations above the Federal drinking water standard. The 1987 data also included sediment sample concentrations for cadmium and lead above the industrial soil PRGs.

The 2001 results again detected iron and manganese above the tap water PRGs in one of the two surface water samples, and both samples contained lead (29 µg/L to 47 µg/L) above the Federal drinking water standard (15 µg/L), but well below Keystone's NPDES-permitted discharge limit (200 µg/L). TCE was the also detected in one sample at 2 µg/L, just barely above the method detection limit and EPA Region 9 tap water PRG of 1.6 µg/L. However, the observed concentration in this sample is less than one-half of the Federal drinking water standard for TCE (5 µg/L).

In the sediment samples, only lead and iron (a non-hazardous constituent) were detected at concentrations above the industrial PRGs. Iron concentrations in the sediment ranged from 21,000 mg/kg to 140,000 mg/kg, and lead concentrations ranged from 210 mg/kg to 3,100 mg/kg. The concentrations of both of these metals were below the PRGs in the two southernmost samples (closest to the outlet of the F-Pond). The maximum cadmium concentration observed in the seven samples analyzed in 2001 (including one duplicate) was 3.7 mg/kg. VOCs were only detected in one of the sediment samples, and all were at concentrations well below the industrial soil PRGs.

East Pond: Surface water and sediment samples collected from this area in 2001 were analyzed for several metals detected during the 1987 RFA sampling event. The data from 1987 included one sediment sample containing lead at 569 mg/kg, below the industrial PRG (750 mg/kg). None of the five soil samples analyzed in 2001 (including one duplicate) contained metal concentrations above a residential PRG. For example, the lead concentrations from the 2001 sediment samples ranged from 60 mg/kg to 110 mg/kg, which are below the residential PRG of 400 mg/kg for this metal. The three surface water samples (including one duplicate) collected in 2001 exceeded the drinking water standard for lead (with concentrations ranging from 16 µg/L to 50 µg/L), but all were well below Keystone's NPDES-permitted discharge limit. All of the other metals in the surface water were well below their respective tap water screening levels (PRGs or drinking water standards).

Tail Tracks Landfill: The samples collected from this area during the 1987 RFA sampling event did not contain any constituents at levels significantly above those found in the background samples collected at the time. As per the request for additional investigation in the AOC, Keystone collected soil, groundwater, and surface water samples from the area in 2001. The samples were screened for hazardous constituent metals in electric arc furnace dust (as described in the August 2001 *Environmental Indicators Phase 1 Sampling Plan*), which is known be contained within the capped landfill.

The soil and groundwater samples were collected at various points below the toe of the landfill cap, and surface water was collected from the current shoreline of Mud Lake, south of the landfill. One of the seven soil samples from the Tail Tracks Landfill area slightly exceeded the industrial PRG for lead (750 mg/kg), exhibiting a lead concentration of 790 mg/kg. None of the other samples contained any metals at concentrations above the industrial PRGs. Residential soil PRGs were only exceeded in one other sample from this area, which contained lead at 690 mg/kg and chromium at 220 mg/kg (compared to the residential PRGs of 400 mg/kg and 210 mg/kg, respectively).

None of the measured metal concentrations in the surface water samples from the shore of Mud Lake or from groundwater at the toe of the landfill cap exceeded any of the established tap water PRGs. Two of the surface water samples and two of the groundwater samples contained lead at concentrations above the Federal drinking water standard (15 µg/L), however, none of these concentrations exceeded Keystone's NPDES-permitted discharge limit (200 µg/L).

Oil Skimmer Basin: No samples were known to have been collected from the area which is now the Oil Skimmer Basin during the 1987 RFA sampling visit. To investigate possible impact to this area by hazardous constituents, Keystone collected samples of influent water to, groundwater downgradient of, and sediment within the unit. The samples were screened for a variety of metal constituents based upon IEPA's NPDES permit requirements, and included all of the analytes detected elsewhere in the Closed-Loop Cooling Pond system during the RFA. The groundwater samples collected for this investigation were drawn from the five monitor wells downgradient from the entire Closed-Loop Cooling Pond, which are used to monitor compliance with Keystone's NPDES permit for this system (the first part of which is the Oil Skimmer Basin).

The only metal that was detected in any of the influent or groundwater samples for this unit at a concentration above a tap water PRG or Federal drinking water standard was manganese. Concentrations of this non-hazardous metal in the groundwater downgradient from the cooling pond system ranged from 0.71 mg/L to 12 mg/L (the tap water PRG for manganese is 0.88 mg/L). The only metal in the sediment sample from the Oil Skimmer Basin that exceeded the industrial PRG was iron (also a non-hazardous constituent). The high iron content in the sediment of this basin (measured at 460,000 mg/kg) results from the settling of residual iron scale from the contact cooling water that is discharged into the unit.

2.2.3 Other Areas of Potential Concern

There are several other areas of the facility from which samples were collected in 1987, or which were discussed in the February 2001 *Current Conditions Report* that must be included in this assessment. Relevant information from the *Current Conditions Report* is summarized herein, and more detailed information can be found in the earlier report. Most of the areas listed in this section have some historical data that indicate the possible presence of contaminated media. A discussion regarding the Waste Solvents Area has been included here in order to clarify its status and to address some concerns raised by EPA Region 5, although no contamination or impact associated with this area is currently known to exist.

North and South Sludge Lagoons: These two settling lagoons are used to dewater and store lime precipitate sludge generated at Keystone's on-site wastewater treatment plant (WWTP). The treatment plant is designed to remove dissolved metals from Keystones wastewater, to meet the effluent discharge limits of the plant's NPDES permit. A sample of the sludge from one of these lagoons collected during the 1987 RFA investigation indicated the presence of iron, lead, and zinc at concentrations (399,000 mg/kg, 4,000 mg/kg, and 286,000 mg/kg, respectively) above the industrial PRGs for soil.

East Sludge/Waste Pond: A part of the historical Illinois river floodplain located to the east of the Closed-Loop Cooling Pond which was isolated by the construction of various levees and I-474A was "named" the East Sludge/Waste Pond in the 1989 RFA Report. Data from this area collected during the 1987 RFA sampling event indicated the presence of lead and chromium in sediment at levels slightly above the industrial PRGs. Lead was observed in the sediment sample collected from the area at a concentration of 1,810 mg/kg, and chromium at a concentration of 529 mg/kg. Although the chromium concentration in the sample from this area is above the 450 mg/kg industrial soil PRG, this limit is based upon the lower carcinogenic exposure risk level (10^{-6}). The chromium concentration in this sample is below the 45,000 mg/kg PRG at the upper carcinogenic risk level (10^{-4}). [Note that the non-cancer PRG for total chromium is greater than the upper carcinogenic PRG.]

Former Vertical Oil Tanks 1, 2, and 3: Soil samples were collected from the secondary containment areas around these tanks during the 1987 RFA sampling event, prior to their removal in the mid-1990s. The 1987 samples indicated the presence of arsenic and lead at levels above industrial soil PRGs. Arsenic was observed at a maximum concentration of 14 mg/kg, which is not statistically different than the IEPA-established, state background soil concentration of 13 mg/kg (the non-carcinogenic industrial PRG

for arsenic is 440 mg/kg and the carcinogenic industrial PRG for lifetime exposure to this metal is 2.7 mg/kg). The maximum lead concentration observed in these areas prior to the tanks being closed was at 847 mg/kg. Removal of the tanks in the 1990s included the excavation and proper disposal of the concrete floors, piping systems, and contaminated soil below and around the tanks. The former secondary containment areas were then backfilled to be level with the surrounding area, and are now plant driveways and railroad spurs. No residual contamination is known exist in these areas.

Former Vertical Oil Tanks 4 and 6: Soil samples were collected from the areas around these two tanks after their removal in 1995 as part of the closure of several temporary cesium-contaminated material storage areas (see Section 5.3 of the February 2001 *Current Conditions Report*). Closure of these two locations with regard to the removal of the cesium-contaminated material has been approved by IEPA, but residual soil concentrations exceeding industrial PRGs for arsenic (at a maximum of 36 mg/kg) and chromium (at a maximum of 3,300 mg/kg) were observed in the closure-confirmation samples from these areas.

Although the maximum arsenic concentration in the samples from this area is above the 2.7 mg/kg carcinogenic industrial PRG for the lower exposure risk level (10^{-6}), it is significantly below the 440 mg/kg non-carcinogenic industrial PRG and well below the upper carcinogenic risk level (10^{-4}) for industrial soil exposure (270 mg/kg). [Note that the Illinois-established background soil arsenic concentration of 13 mg/kg also exceeds the lower industrial carcinogenic risk level]. In addition, although the chromium concentration in the sample from this area is above the 450 mg/kg industrial soil PRG, this limit is based upon the lower carcinogenic exposure risk level (10^{-6}). The chromium concentration in this sample is below the 45,000 mg/kg PRG at the upper carcinogenic risk level (10^{-4}). [Note that the non-cancer PRG for total chromium is greater than the upper carcinogenic PRG.]

Slag Processing Area: Soil samples were collected from several locations in the current slag processing area in 1995 as part of the closure of several temporary cesium-contaminated material storage areas (see Section 5.3 of the February 2001 *Current Conditions Report*). Closure of these areas with regard to the removal of the cesium-contaminated (radioactive) material has been approved by IEPA, but residual soil concentrations exceeding industrial PRGs for arsenic (at a maximum of 48 mg/kg), chromium (at a maximum of 5,000 mg/kg), and lead (at a maximum of 20,000 mg/kg) were observed in the closure-confirmation samples. At the slag processing area, these samples were taken at the former ground surface where roll-off boxes and trailers containing cesium-contaminated equipment, dust, and debris had been staged. Since

1995, the former ground surface in the area has been covered with several layers of new compacted slag aggregate.

Steel Works Material Staging Area: This area in the southeast corner of the Steel Works is used for the storage of segregated scrap unloaded from barges, prior to reclamation in the electric arc furnace. Soil samples were collected from this area in 1995 as part of the sampling conducted to confirm the closure of several temporary cesium-contaminated material storage areas (see Section 5.3 of the February 2001 *Current Conditions Report*). Soil concentrations exceeding industrial PRGs for arsenic (at a maximum of 32 mg/kg) and chromium (at a maximum of 2,200 mg/kg) were observed in the samples from this area. Although the maximum arsenic concentration in the samples from this area is above the 2.7 mg/kg carcinogenic industrial PRG for the lower exposure risk level (10^{-6}), it is significantly below the 440 mg/kg non-carcinogenic industrial PRG and well below the upper carcinogenic risk level (10^{-4}) for industrial soil exposure (270 mg/kg). [Note that the Illinois-established background soil arsenic concentration of 13 mg/kg also exceeds the lower industrial carcinogenic risk level]. In addition, although the chromium concentration in the sample from this area is above the 450 mg/kg industrial soil PRG, this limit is based upon the lower carcinogenic exposure risk level (10^{-6}). The chromium concentration in this sample is below the 45,000 mg/kg PRG at the upper carcinogenic risk level (10^{-4}). [Note that the non-cancer PRG for total chromium is greater than the upper carcinogenic PRG.]

Waste Solvents Area: The February 2001 *Current Conditions Report* included a summary describing a cleanup at Keystone as it was reported in the 1989 RFA report. Cleanup of the area was completed prior to the RFA, and was noted in the RFA report to document a historical remedial action that had been performed at the facility. Keystone has not been able to identify any additional information regarding the exact location of this area, and concern has recently been voiced by EPA Region 5, that this area may have been a possible source of contamination to the GMZ groundwater plume.

The information at hand makes this scenario unlikely, since the waste solvents removed from that area were identified as toluene and xylene (paint thinner) and waste paint, whereas the contaminants in the GMZ are chlorinated solvents. In addition, the location of this "waste solvents area" was identified as having been in the "in the southern portion of the facility," whereas the main concentration of contaminants in the GMZ are located the central and northern areas of the plant.

2.2.4 Site-Wide Contaminated Media Summary

Existing site data indicate that groundwater, soil, and sediment are known to be contaminated with organic and/or inorganic constituents above protective risk-based levels. Deep groundwater (greater than 10 feet below ground surface) at the facility is known to be contaminated with several chlorinated organic compounds, forming a plume that is centered in the Mid Mill. Soil and sediment in several RCRA units are known to be contaminated with metals. Surface water and shallow groundwater around known contamination in sediment or soil may reasonably be suspected to be contaminated, however, current site data indicate that these media have not been significantly impacted above appropriately protective risk-based levels.

2.2.5 Site-Wide Key Contaminants Summary

Groundwater: A contaminated groundwater plume in the deep (greater than 10 feet below ground surface) aquifer at Keystone contains 1,4-dioxane, 1,1-DCA, 1,1-DCE, *trans*-1,2-DCE, *cis*-1,2-DCE, PCE, TCE, 1,1,1-TCA, and vinyl chloride. Shallow groundwater at the site has the potential to be contaminated with metals in the vicinity of the RCRA units undergoing closure, but only the non-hazardous constituents iron and manganese have been detected above their tap water PRGs in this media. Lead (for which no PRG has been established) was observed above its Federal drinking water standard in two shallow groundwater samples near the Tail Tracks Landfill.

Soil and Sediment: Surface soil (<2 ft), deep soil (>2 ft), and sediment in several areas of the facility have been impacted by metals. Key soil and sediment contaminants observed at the site are arsenic, cadmium, chromium, mercury, and lead. These metals are present predominantly in the on-site ditches undergoing RCRA corrective action under IEPA oversight. Some areas have also been shown to contain high concentrations of the non-hazardous constituents iron and zinc (*e.g.*, sludge in the WWTP storage lagoons).

Surface Water: Some surface water at the site has been shown to contain lead at levels above the Federal drinking water standard, however, lead in surface water was never detected above Keystone's NPDES-permitted discharge limit. The non-hazardous constituents iron and manganese have also been observed in some areas above the U.S. EPA Region 9 tap water PRGs.

2.3 Exposure Pathways

Construction and operation of the Steel Works and Wire Mill at Keystone began shortly after 1900. The plant began producing steel and wire products, and later (in the 1950's) added the Mid Mill complex, to add wire production capacity. Steel was produced in open hearth furnaces until 1967, when the transition to electric arc furnaces was initiated. The last open hearth furnace was decommissioned in the 1980's, and Keystone now operates two electric arc furnaces (one melting furnace and one refining furnace). All of the areas where contaminated media exist are located within the confines of Keystone's industrial complex, on land that is zoned for industrial use. Operation of the property has been industrial for over 100 years, and its use is anticipated to be industrial for the foreseeable future.

The facility is fenced and entry points are controlled with guard houses manned by security personnel and/or monitored by closed-circuit television. At least three plant security officers and one fire safety officer are on site 24 hours per day, 7 days per week. Security personnel continuously patrol the area in vehicles and/or on foot. The site is not used for habitation, has no full time residents, and does not house any educational, health care, day-care, or playground facilities. No recreational areas are located within the facility boundary, and no growth of crops, grazing of livestock, harvesting of fish or shellfish, etc. occurs on Keystone property.

Based upon the current conditions, potential human receptors at the site are plant workers, construction workers, and trespassers. Engineered barriers that can actively prevent any possible contact between all potential human receptors and all contaminated media do not currently exist at the facility. For the purpose of this assessment, therefore, exposure pathways between all potential human receptors (plant workers, construction workers, and trespassers) and all contaminated media (groundwater, soil, sediment, and surface water) have been conservatively considered to be complete.

2.4 Exposure Assessment for Hazardous Constituents

2.4.1 Groundwater

The deep aquifer at the facility has been contaminated by chlorinated organic compounds as a result of past industrial use of chlorinated solvents at the site. The plume is currently being remediated by an on site pump and treat system, which currently employs four purge wells and an air stripper tower. The current extent of the GMZ (as approved by IEPA on October 31, 2000) is shown on **Figure 1-2**.

The entire extent of the plume is contained on Keystone property. The results of the two most recent quarterly groundwater monitoring events (August and November 2001), indicate that total volatile concentrations throughout the GMZ have been reduced to below 1 ppm. At this time, the concentrations of 1,1,1-TCA and TCE in the plume continue to exceed Illinois Class 1 groundwater standards (*i.e.*, standards for groundwater that can be used as a potable water source), while concentrations of PCE, vinyl chloride, and 1,1-DCE are only occasionally detected above these standards.

There are currently no drinking water wells on Keystone's property, which extends at least ¾ of a mile beyond (downgradient of) the southeast edge of the GMZ to the Illinois River). The area and extent of the plume is currently being reduced due to the action of the pump and treat system. The deep aquifer does not intersect any surface water bodies within the perimeter of the plume, and all purged water is treated through both the air stripper tower, and Keystone's on-site WWTP prior to discharge (in compliance with the facility NPDES permit). Contaminants in the deep aquifer do not pose an on-site health risk through volatilization since organic constituents have not impacted the shallow groundwater above the plume (indicating that the VOCs in the deep aquifer are not migrating upwards).

Plant workers can not be exposed to contaminated groundwater pumped from the purge wells until it has been treated through the air stripper to remove VOCs. The required health and safety plan for operation and control of the GMZ requires proper safety protocols for construction workers whose work could result in direct contact with contaminated groundwater (either through work on the groundwater treatment system itself, or earthwork, drilling, etc. that would extend into the contaminated aquifer). No trespasser exposure to contaminated groundwater is possible since there is no potable use of water generated on site, and no migration to surface water is occurring in any portion of the GMZ.

Shallow groundwater in a remote area of the site (near the Tail Tracks Landfill) contains lead above tap water standards. The concentrations of lead in the two samples which exceed the Federal drinking water standard are below Keystone's NPDES permitted discharge limit, so the potential threat to surface water due to migration of the shallow groundwater is not a concern. Human exposure to this groundwater does not pose a significant risk since, as noted above, no drinking water wells are located at Keystone, and no potable use of any water generated on site is occurring. In addition, any incidental exposure to shallow groundwater that could occur on site (to plant workers, construction workers, or trespassers) does not pose a significant risk beyond that which exists for process water, wastewater, or treated effluent at or from the facility.

Based upon the current conditions at the site, as outlined in the discussion above, plausible human exposures to groundwater contamination are controlled.

2.4.2 Surface Water

Surface water in several remote areas of the site (East Pond, F-Pond, and Tail Tracks Landfill Area) contains lead above the Federal drinking water standard. All of the observed lead concentrations from these areas are below Keystone's NPDES permitted discharge limit and, therefore, are not a concern for possible off-site transport. Human exposure to these metals does not pose a significant risk since no potable use of any water generated at Keystone is occurring. In addition, any incidental exposure to surface water that could occur on site (to plant workers, construction workers, or trespassers) does not pose a significant risk beyond that which exists for process water, wastewater, or treated effluent at or from the facility.

Based upon the current conditions at the site, as outlined in the discussion above, plausible human exposures to surface water contamination are controlled.

2.4.3 Sediment and Soil

Units Being Closed Under the Illinois Consent Order: Sediment and soil in the North Ditch Soil Treatment System Staging Area, South Ditch, South Borrow Area Waste Pile, Lower South Ditch, and Surface Drainage Ditch Area are known to be contaminated above relevant action levels and are undergoing RCRA corrective action as per a Consent Order with the State of Illinois. The primary contaminant impacting all of these units is lead, and most of the units are also contaminated with one or more of the following: arsenic, cadmium, chromium, and/or mercury.

A health and safety plan was implemented as part of the original IEPA-approved closure plan to ensure that proper personnel protection would be utilized during closure activities. Keystone requires that contractors prepare and implement task-specific health and safety plans whenever work is to be performed in and around the restricted areas on site. These safety protocols ensure that plant worker and construction worker (including sampling crews, remediation contractors, etc.) exposure to contaminated soil and sediment is controlled.

All of these units are distanced from main manufacturing areas at the facility and worker presence in these areas is typically limited to inspections by maintenance personnel and engineering staff. Plant and construction worker exposure to the contaminated soil and sediment in these units (that could result in ingestion or

inhalation through direct contact) is not significant since work in these areas is limited, proper health and safety protocols are in place to limit worker exposure, and water and vegetative covers over the impacted media minimize the threat of incidental contact. Plant security (guard houses, patrols, etc.), fencing, the relatively continuous presence of plant employees, and otherwise restricted access to these units via plant roads in the Mid Mill (in the center of Keystone's industrial complex), also ensure that the risk of exposure to trespassers is controlled.

U.S. EPA AOC-Referenced Units: Soil at the toe of the Tail Tracks Landfill and sediment in the F-Pond were observed to contain lead at concentrations exceeding the industrial PRG of 750 mg/kg for this metal. Both of these (adjacent) areas are located in a very remote area of the facility, well removed from any current plant activities. Water and/or vegetative cover in these areas also provide protection against incidental contact with the impacted sediment and soil. No construction actions are currently planned or anticipated in these areas, and Keystone will require a health and safety plan for the protection of plant or contractor employees for any investigations, etc. to be carried out in the area (as is standard practice at the facility). Plant security (guard houses, patrols, etc.), fencing, and the general inaccessibility of the area (the most direct route to which requires passage through the heart of the Steel Works complex) ensures that the risk of exposure to trespassers is controlled.

Other Areas: Some sediment in North and South Sludge Lagoons contains lead exceeding the industrial PRG. Lead was observed at 4,000 mg/kg in one sample collected in 1987 during the RFA. These two lagoons are individually fenced, are located in a remote area of the facility (adjacent to the Tail Tracks Area), isolated from normal plant activities, and are components of Keystone's NPDES-permitted wastewater treatment process. Exposure to the settled sludge in these lagoons by plant workers, construction crews, contractors, etc. are be controlled by Keystone's WWTP standard operating procedures, and health and safety protocols. Plant security (guard houses, patrols, etc.), fencing, and the general inaccessibility of the area (the most direct route to which requires passage through the wastewater treatment plant) ensures that the risk of exposure to trespassers is controlled.

Soil in several of the samples from the slag yard where some containers containing radioactive mixed waste had been staged were found to contain arsenic and lead above the industrial PRGs. Since 1995 when these samples were collected, the former ground surface in the former storage areas has been backfilled several times with layers of compacted slag aggregate. Therefore, employees who may occasionally visit this part of the slag yard cannot be exposed by direct or incidental contact to the soil from the

former ground surface. In addition, no construction that could expose workers to the former ground surface is currently planned in the area. Access to this area of the Steel Works by trespassers is unlikely due to plant security measures, and in any case, the possibility of incidental contact is precluded by the presence of the compacted aggregate cover.

A sediment sample from the area east of the Closed-Loop Cooling Pond that was called the East Sludge/Waste Pond in the 1989 RFA report contained lead at 1,810 mg/kg, above the 750 mg/kg industrial soil PRG. This area is located in a remote part of the facility, beyond the eastern levee of the cooling pond. No industrial activities occur in, or are planned in the area, so exposure by plant workers, construction crews, contractors, etc. are controlled, since no direct contact to this sediment is currently occurring (nor is such contact anticipated). Plant security and the general inaccessibility of the area control access by trespassers.

Overall Sediment and Soil Exposure Assessment: Based upon the current conditions at the site, as outlined in the discussion above, plausible human exposures to soil and sediment contamination are controlled.

2.4.4 Air

Although direct contamination of air is not occurring at the facility, migration of hazardous constituents into the air from media on site that is contaminated above health-based risk levels is plausible. However, the potential for migration to air is limited by site conditions, and the available analytical data indicate that indirect exposure to hazardous constituents via air does not present an unacceptable health risk at the site.

Organic contaminants in the GMZ are contained in the deep aquifer and upward migration through volatilization is not significant since these contaminants have not been observed in shallow groundwater above the plume. The risk of migration of inorganic soil and sediment contaminants to air is minimal at Keystone, due to site conditions. Impacted areas are located in inactive parts of the facility (not associated with normal daily operations or regularly occupied by employees), are not subject to regular vehicle traffic, and/or are covered with water, soil, or vegetation.

Industrial hygiene data collected at the facility also confirms that inorganic hazardous constituents from contaminated soil on site are not posing an airborne health threat to workers. Keystone annually collects approximately 200 personal air monitoring samples in compliance with OSHA's general industry Lead and Cadmium Exposure Standards.

Employees in job classifications with the potential for lead or cadmium exposure are outfitted with portable air samplers that are then worn through a normal work shift. The samples from these units are screened for metals (including arsenic, chromium, and lead) to ensure that worker exposures are below the OSHA Permissible Exposure Levels (PELs). No industrial hygiene sample outside of a process area with a known (attributable) air contaminant source has ever recorded a concentration above ½ the Threshold Limit Value (TLV) for any metal. [Note that TLVs are at least as stringent, and are typically more stringent than the respective PELs.]

Based upon the current conditions at the site, as outlined in the discussion above, plausible human exposures to potential air contamination as a result of releases from impacted soil, sediment, and groundwater are controlled.

2.5 Current Human Exposures Under Control (CA725)

Based upon the current conditions at Keystone, exposures to hazardous constituents present in soil, sediment, ground water, or surface water are not reasonably expected to be significant (*i.e.*, are not unacceptable). All contamination at the facility is either below acceptable levels (*e.g.*, U.S. EPA Region 9 Preliminary Remediation Goals) or the potential exposure intensity, frequency, and/or duration are controlled at levels well below those assumed in the derivation of the PRGs, due to the current site conditions.

Section 3
Current Human Exposures Assessment

3.1 Data Considered

In order to complete this EI determination, Keystone reviewed all of the historical data collected during the groundwater investigations and quarterly monitoring events conducted prior to, and under the 1993 Consent Order with the State of Illinois. Regular groundwater monitoring activities have been conducted at the facility since at least 1987. Additional groundwater data collected in 2001 as per the U.S. EPA Region 5 AOC was also considered.

3.2 Groundwater Contamination

A contaminated groundwater plume in the deep (greater than 10 feet below ground surface) aquifer at Keystone contains 1,4-dioxane, 1,1-DCA, 1,1-DCE, *trans*-1,2-DCE, *cis*-1,2-DCE, PCE, TCE, 1,1,1-TCA, and vinyl chloride. Currently, only TCE and 1,1,1-TCA are observed at concentrations exceeding federal drinking water standards. This plume was delineated as required under the Illinois Consent Order, and Keystone's Groundwater Management Zone (GMZ) was established by IEPA in April 1994 as part of the initial effort to control and remediate the impacted area. The original size and extent of the GMZ, delineating the area of contaminated groundwater impact is shown on **Figure 3-1**.

Shallow groundwater at the site has the potential to be contaminated with metals in the vicinity of several RCRA units undergoing closure under IEPA oversight, but only the non-hazardous constituents iron and manganese have been detected above their tap water PRGs in this media. Keystone has been collecting quarterly groundwater samples from the shallow groundwater in vicinity of these units since 1988. Lead was observed above its Federal drinking water standard during sampling in 2001 in two shallow groundwater samples near the Tail Tracks Landfill Area, but at concentrations below Keystone's NPDES permitted discharge limit.

3.3 Groundwater Management Zone (GMZ) Status

The contaminated groundwater plume in the GMZ as originally defined was centered in the Mid Mill and extended underneath some of the Wire Mill and Steel Works segments of the plant. The entire plume was, and continues to be contained on Keystone property. The groundwater remedial action plan for the facility includes groundwater capture using a network of recovery wells, treatment of recovered groundwater using air stripping, use of

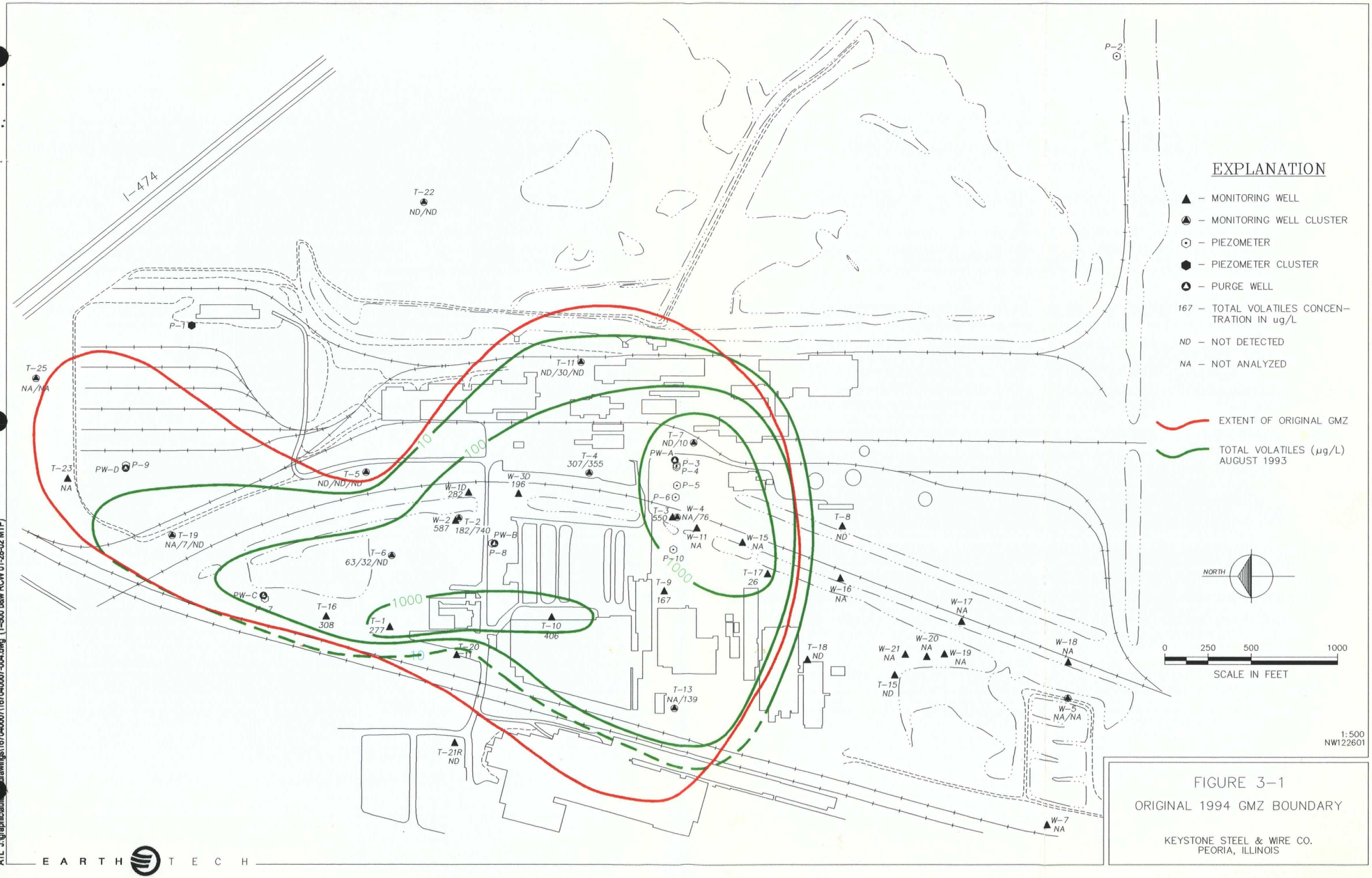


FIGURE 3-1

ORIGINAL 1994 GMZ BOUNDARY

KEYSTONE STEEL & WIRE CO.
PEORIA, ILLINOIS

EARTH TECH

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treated groundwater as process water in the Mid Mill wire production plant, and final treatment of the process water through Keystone's on-site WWTP prior to discharge (as per the facility's NPDES permit).

3.3.1 Contaminated Groundwater Remediation Activities

The groundwater capture and management system currently consists of four purge wells that are operated simultaneously and used to prevent further migration of contaminants, and remediate the impacted area. The locations of these wells (designated as PW-A, PW-B, PW-C, and PW-D) are shown on **Figure 3-1**. The approximate pumping rates of the four wells are 50, 100, 40, and 400 gallons per minute (gpm), respectively. A large depression has been created in the piezometric surface of the deep aquifer due to the operation of these purge wells, and all groundwater flow directions within the GMZ are towards one of the four wells.

Quarterly groundwater monitoring is performed in accordance with Keystone's Groundwater Remediation Program (initiated in 1992) to monitor the status of the contaminants and to evaluate the effectiveness of the groundwater remediation system. Construction of the pump and treat system began in 1993 and operation of the system began in 1994. Approximately 200 to 300 million gallons of groundwater are processed by the system annually. By the end of 2001, over two billion gallons of water had been purged from the GMZ and treated through the air stripper tower.

3.3.2 Current Extent of Contaminated Groundwater Plume

Operation of the purge wells has stabilized the plume and reduced both the area (extent) and concentrations of contaminants within the GMZ. There is no threat of further migration of the plume, as it has been substantially reduced in size since 1994, and contaminant concentrations have decreased significantly. Keystone submitted a *Groundwater Management Zone Status Report* to IEPA in August 2000 documenting the reduction in size and contaminant concentrations in the remaining plume. As a result of the documented effect of the groundwater remediation program, IEPA approved a new, smaller boundary for the GMZ in October 2000. The current extent and status of the GMZ and the contaminant plume is shown on **Figure 3-2**.

The results of the two most recent quarterly groundwater monitoring events (August and November 2001), indicate that total volatile concentrations throughout the GMZ have been reduced to below 1 ppm. A trend analysis of the GMZ data (presented to IEPA in Keystone's *2001 Annual Summary Report on the Groundwater Remediation System*)

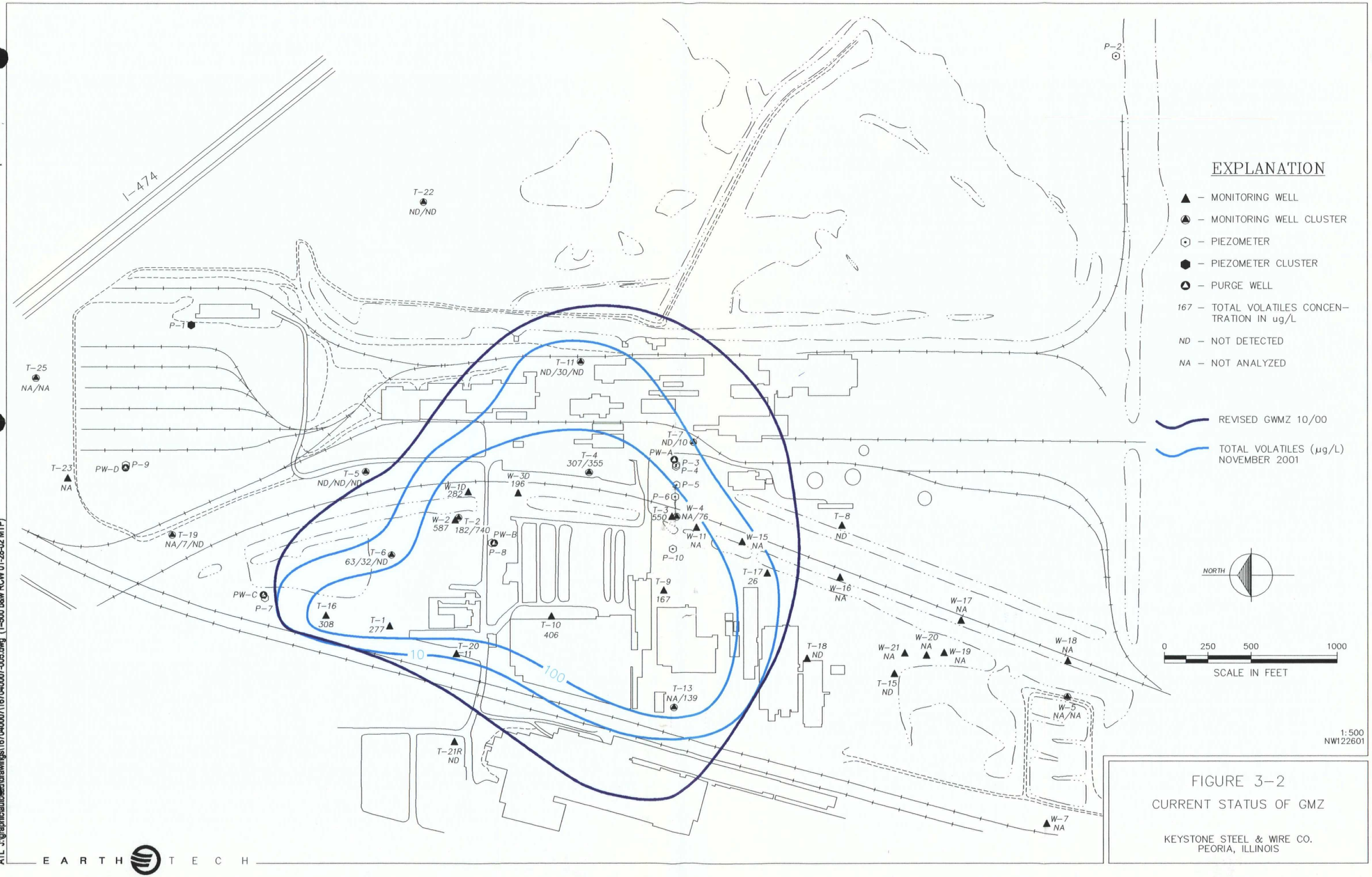

FIGURE 3-2

CURRENT STATUS OF GMZ

KEYSTONE STEEL & WIRE CO.
PEORIA, ILLINOIS

EARTH TECH

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indicated that operation of the pump and treat system has caused statistically significant decreases in VOC concentrations in most of the GMZ monitor wells. It is also important to note that the 10 μg/L total volatiles isopleth shown on **Figure 3-2** is surrounded by wells in which no VOCs were detected above the detection limit of 5 μg/L. The vertical extent of contamination is bounded by the presence of shale bedrock below the contaminated groundwater aquifer.

3.3.3 Surface Water Exposure to Contaminated Groundwater

The deep aquifer containing the contaminated groundwater plume does not intersect any surface water bodies within the perimeter of the GMZ, nor anywhere on Keystone property. All water produced from the purge wells is treated through both the air stripper tower and Keystone's on-site WWTP prior to discharge in compliance with the facility's NPDES permit. The volatile organic contaminants have remained confined in the deep aquifer and are not migrating upwards since organic constituents have not impacted the shallow groundwater above the plume.

3.4 Ongoing Groundwater Management Activities

Keystone is required to continue implementation of the approved Groundwater Remediation Program under the Consent Order with IEPA until such time as all contaminant concentrations within the GMZ are shown to comply with Illinois' Class I groundwater standards. Operation of the four purge wells will continue until IEPA approves closure of the GMZ or otherwise authorizes discontinuation of pumping from any purge well. Plans are also being prepared to add a fifth purge well near the current center of the plume (to be designated PW-E) to speed contaminant reduction in the GMZ. The proposed location of this new purge well is indicated on **Figure 3-2**.

3.5 Migration of Contaminated Groundwater Under Control (CA750)

Groundwater remediation measures currently being performed at Keystone are controlling the physical migration of contaminated groundwater at the site. Historical monitoring data for the GMZ indicate that the plume containing volatile organics has been stabilized, and is in fact shrinking. Contaminated groundwater is expected to remain within the existing area of impact because Keystone must continue operating the existing pump and treat system (and performing quarterly groundwater monitoring to confirm the status of the plume) as required under the IEPA Consent Order.

Section 4
Conclusions

Keystone has completed a draft Environmental Indicator determination for its Peoria, Illinois facility. This Report document documents the history and current status of contamination at the Keystone, and provides the rationale used in preparing the draft *Documentation of Environmental Indicator Determination* forms in **Appendix A** and **Appendix B**. Based upon current conditions at the site, Keystone believes that both Current Human Exposures (RCRIS Code CA725) and Migration of Contaminated Groundwater (RCRIS Code CA750) are controlled.

Appendix A
Environmental Indicators Form CA725

Current Human Exposures Under Control

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99
(Facility-Completed Draft)

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Keystone Steel & Wire Company
Facility Address: 7000 S.W. Adams Street, Peoria, Illinois 61641
Facility EPA ID #: ILD 000 714 881

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

✓ If yes - check here and continue with #2 below.

____ If no - re-evaluate existing data, or

____ if data are not available skip to #6 and enter IN (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of Current Human Exposures Under Control EI

A positive Current Human Exposures Under Control EI determination (YE status code) indicates that there are no unacceptable human exposures to contamination (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all contamination subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The Current Human Exposures Under Control EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **contaminated**[1] above appropriately protective risk-based levels (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	✓			-- See reference below --
Air (indoors)[2]		✓		-- See reference below --
Surface Soil (e.g., <2 ft)	✓			-- See reference below --
Surface Water	✓			-- See reference below --
Sediment	✓			-- See reference below --
Subsurf. Soil (e.g., >2 ft)	✓			-- See reference below --
Air (outdoors)		✓		-- See reference below --

_____ If no (for all media) - skip to #6, and enter YE, status code after providing or citing appropriate levels, and referencing sufficient supporting documentation demonstrating that these levels are not exceeded.

✓ If yes (for any media) - continue after identifying key contaminants in each contaminated medium, citing appropriate levels (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter IN status code.

Rationale and Reference(s): -- See **Section 2.2** of the accompanying *Environmental Indicators Assessment Report* --

Footnotes:

[1] Contamination and contaminated describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based levels (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between contamination and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	no	yes	no	yes			no
~~Air (indoors)~~	~~—~~	~~—~~	~~—~~				
Soil (surface, e.g., <2 ft)	no	yes	no	yes	yes	no	no
Surface Water	no	yes			yes	no	no
Sediment	no	yes			yes	no	no
Soil (subsurface e.g., >2 ft)				yes			no
~~Air (outdoors)~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors spaces for Media which are not contaminated) as identified in #2 above.

2. Enter yes or no for potential completeness under each Contaminated Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential Contaminated Media - Human Receptor combinations (Pathways) do not have check spaces (___). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter YE status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__✓__ If yes (pathways are complete for any Contaminated Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any Contaminated Media - Human Receptor combination) - skip to #6 and enter IN status code

Rationale and Reference(s): -- See **Section 2.3** of the accompanying *Environmental Indicators Assessment Report* --

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **significant**[4] (i.e., potentially unacceptable because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable levels (used to identify the contamination); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable levels) could result in greater than acceptable risks)?

✓ If no (exposures can not be reasonably expected to be significant (i.e., potentially unacceptable) for any complete exposure pathway) - skip to #6 and enter YE status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to contamination (identified in #3) are not expected to be significant.

_____ If yes (exposures could be reasonably expected to be significant (i.e., potentially unacceptable) for any complete exposure pathway) - continue after providing a description (of each potentially unacceptable exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to contamination (identified in #3) are not expected to be significant.

_____ If unknown (for any complete pathway) - skip to #6 and enter IN status code

Rationale and Reference(s): -- See **Section 2.4** of the accompanying *Environmental Indicators Assessment Report* --

[4] If there is any question on whether the identified exposures are significant (i.e., potentially unacceptable) consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the significant **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all significant exposures have been shown to be within acceptable limits) - continue and enter YE after summarizing and referencing documentation justifying why all significant exposures to contamination are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be unacceptable)- continue and enter NO status code after providing a description of each potentially unacceptable exposure.

_____ If unknown (for any potentially unacceptable exposure) - continue and enter IN status code

Rationale and Reference(s): -- Not Applicable --

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

✓ YE - Yes, Current Human Exposures Under Control has been verified. Based on a review of the information contained in this EI Determination, Current Human Exposures are expected to be Under Control at the Keystone Steel & Wire Company facility, EPA ID # ILD 000 714 881, located at Peoria, Illinois under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - Current Human Exposures are NOT Under Control.

____ IN - More information is needed to make a determination.

Completed by ** Facility Prepared Draft ** Date January 2002
** Keystone Steel & Wire Company **
** EPA ID #: ILD 000 714 881 **

Supervisor (signature) Date _____
(print)
(title)
(EPA Region or State)

Locations where References may be found:

An *Environmental Indicators Assessment Report* accompanies this draft EI determination submittal. Also refer to the *Current Conditions Report* submitted by Keystone Steel & Wire Company to U.S. EPA Region 5 in February 2001, and the *RCRA Facility Assessment Report* prepared in 1989 by Metcalf & Eddy (under contract with U.S. EPA Region 5).

Facility Contact, telephone number, and e-mail address:

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

Appendix B
Environmental Indicators Form CA750

Migration of Contaminated Groundwater Under Control

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99
(Facility-Completed Draft)

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Keystone Steel & Wire Company
Facility Address: 7000 S.W. Adams Street, Peoria, Illinois 61641
Facility EPA ID #: ILD 000 714 881

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   ✓ If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ if data are not available skip to #8 and enter IN (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of Migration of Contaminated Groundwater Under Control EI

A positive Migration of Contaminated Groundwater Under Control EI determination (YE status code) indicates that the migration of contaminated groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original area of contaminated groundwater (for all groundwater contamination subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The Migration of Contaminated Groundwater Under Control EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **contaminated**[1] above appropriately protective levels (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

   ✓ If yes - continue after identifying key contaminants, citing appropriate levels, and referencing supporting documentation.

   _____ If no - skip to #8 and enter YE status code, after citing appropriate levels, and referencing supporting documentation to demonstrate that groundwater is not contaminated.

   _____ If unknown - skip to #8 and enter IN status code.

Rationale and Reference(s): -- See **Section 3.2** of the accompanying *Environmental Indicators Assessment Report* --

Footnotes:

[1] Contamination and contaminated describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate levels (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within existing area of contaminated groundwater[2] as defined by the monitoring locations designated at the time of this determination)?

✓ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the existing area of groundwater contamination[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the existing area of groundwater contamination[2]) - skip to #8 and enter NO status code, after providing an explanation.

_____ If unknown - skip to #8 and enter IN status code.

Rationale and Reference(s): -- See **Section 3.3** and **Section 3.4** of the accompanying *Environmental Indicators Assessment Report* --

[2] Existing area of contaminated groundwater is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of contamination that can and will be sampled/tested in the future to physically verify that all contaminated groundwater remains within this area, and that the further migration of contaminated groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does contaminated groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

__✓__ If no - skip to #7 (and enter a YE status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater contamination does not enter surface water bodies.

_____ If unknown - skip to #8 and enter IN status code.

Rationale and Reference(s): -- See **Section 3.3.3** of the accompanying *Environmental Indicators Assessment Report* --

5. Is the **discharge** of contaminated groundwater into surface water likely to be **insignificant** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater level, and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or ecosystems at these concentrations)?

_____ If yes - skip to #7 (and enter YE status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater level, the value of the appropriate level(s), and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of contaminated groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater level, the value of the appropriate level(s), and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater levels, the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter IN status code in #8.

Rationale and Reference(s): -- Not Applicable --

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of contaminated groundwater into surface water be shown to be **currently acceptable** (i.e., not cause impacts to surface water, sediments or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and ecosystems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and ecosystems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment levels, as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of contaminated groundwater can not be shown to be currently acceptable) - skip to #8 and enter NO status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or ecosystems.

_____ If unknown - skip to 8 and enter IN status code.

Rationale and Reference(s): -- Not Applicable --

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or ecosystems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the existing area of contaminated groundwater?

✓ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the existing area of groundwater contamination.

_____ If no - enter NO status code in #8.

_____ If unknown - enter IN status code in #8.

Rationale and Reference(s): -- See **Section 3.5** of the accompanying *Environmental Indicators Assessment Report* --

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

✓ YE - Yes, Migration of Contaminated Groundwater Under Control has been verified. Based on a review of the information contained in this EI determination, it has been determined that the Migration of Contaminated Groundwater is Under Control at the Keystone Steel & Wire Company facility, EPA ID # ILD 000 714 881, located at Peoria, Illinois. Specifically, this determination indicates that the migration of contaminated groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the existing area of contaminated groundwater. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by ** Facility Prepared Draft **
** Keystone Steel & Wire Company **
** EPA ID #: ILD 000 714 881 **
Date January 2002

Supervisor (signature) _____
(print) _____
(title) _____
(EPA Region or State) _____
Date _____

Locations where References may be found:

An *Environmental Indicators Assessment Report* accompanies this draft EI determination submittal. Also refer to the *Current Conditions Report* submitted by Keystone Steel & Wire Company to U.S. EPA Region 5 in February 2001, and the *RCRA Facility Assessment Report* prepared in 1989 by Metcalf & Eddy (under contract with U.S. EPA Region 5).

Facility Contact, telephone number, and e-mail address:

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(title) Manager, Energy & Environmental Engineering
(phone #) (309) 697-7538
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Appendix C
Summary of 2001 Sampling Results

Keystone Steel & Wire Company

Analytical Results Summary
for
Environmental Indicators Assessment
Phase 1 Sampling Event

Samples Collected 09/10/01 to 10/11/01
and 12/06/01

Oil Skimmer Basin
Sheen Pond
Tail Tracks Landfill
F-Pond
East Pond

US EPA Region 9 Preliminary Remediation Goals (PRGs):

Ground/Surface Water PRG	Tap Water PRG	Drinking Water MCL
Aluminum (mg/l)	36	
Arsenic (mg/l)		0.05
Barium (mg/l)	2.6	
Cadmium (mg/l)	0.018	
Chromium (mg/l)		0.1
Copper (mg/l)	1.4	
Iron (mg/l)	11	
Lead (mg/l)		0.015
Manganese (mg/l)	0.88	
Mercury (μg/l)	11	
Nickel (mg/l)	0.73	
Zinc (mg/l)	11	
1,1-Dichloroethane (μg/l)	810	
trans-1,2-Dichloroethene (μg/l)	120	
Trichloroethene (μg/l)	1.6	5.0
Xylenes (Total) (μg/l)	1,400	
Phenol (mg/l)	22	
Arochlor 1254 (PCBs) (μg/l)	0.034	

Soil/Sediment PRG	Residential	Industrial	Migration to GW: DAF 20	DAF 1
Aluminum (mg/kg-dry)	76,000	100,000	na	na
Arsenic (mg/kg-dry)	22	440	na	na (noncancer)
Barium (mg/kg-dry)	5,400	100,000	1,600	82
Cadmium (mg/kg-dry)	37	810	8	0.4
Chromium (mg/kg-dry)	210	450	38	2
Copper (mg/kg-dry)	2,900	76,000	na	na
Iron (mg/kg-dry)	23,000	100,000	na	na
Lead (mg/kg-dry)	400	750	na	na
Manganese (mg/kg-dry)	1,800	32,000	na	na
Mercury (mg/kg-dry)	23	610	na	na
Nickel (mg/kg-dry)	1,600	41,000	130	7
Zinc (mg/kg-dry)	23,000	100,000	12,000	620
1,1-Dichloroethane (μg/kg-dry)	590,000	2,100,000	23,000	1,000
trans-1,2-Dichloroethene (μg/kg-dry)	63,000	210,000	700	30
Trichloroethene (μg/kg-dry)	2,800	6,100	60	3
m/p-Xylene (μg/kg-dry)	na	na	na	na
o-Xylene (μg/kg-dry)	na	na	na	na
Total xylenes (μg/kg-dry)	210,000	210,000	210,000	10,000
Arochlor 1254 (PCBs) (μg/kg-dry)	220	1000	na	na

Note: DAF = Dilution-Attenuation Factor
(a DAF of 1 assumes no dilution and no natural attenuation of soil leachate)

Oil Skimmer Basin Area Groundwater Analysis

	Well ID	CL-1	CL-2	CL-3	CL-4	CL-5	CL-5	BT-15	Field Blank
	Sample No.	1	1	1	1	1	2 (dup)	1	1
	Lab ID	01092683-1	01092683-2	01092683-3	01092683-4	01092683-5	01092683-6	01092683-7	01092683-8
	Sample ID	BCL-1-G-01	BCL-2-G-01	BCL-3-G-01	BCL-4-G-01	BCL-5-G-01	BCL-5-G-02	BT-15-G-01	BFB2-G-01
	Date	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01
	Time	18:00	18:15	17:50	17:40	17:30	17:30	18:40	14:40
Parameter:	**PRG** [b]								
Aluminum (mg/l)	36	0.52	0.1 J	0.068 J	0.04 J	0.016 J	0.015 J	0.35	0.0059 J
Arsenic (mg/l)	0.05 [c]	0.0068	0.0011	0.0024	0.026	0.0082	0.0078	0.0008 J	0.00018 J
Barium (mg/l)	2.6	0.13 J	0.069 J	0.14 J	0.24	0.097 J	0.11 J	0.19 J	0.00027 J
Cadmium (mg/l)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium (mg/l)	0.1 [c]	0.004 J	0.0028 J	0.004 J	0.0035 J	0.0034 J	0.0042 J	0.0026 J	0.00036 J
Copper (mg/l)	1.4	0.0057 J	0.0018 J	0.002 J	0.001 J	0.0014 J	0.0016 J	0.0027 J	0.0003 J
Iron (mg/l)	11	1.9	0.1	0.42	4.6	2.1	2.1	1.9	0.1 U
Lead (mg/l)	0.015 [c]	0.0018 J	0.00019 J	0.00081 J	0.00016 J	0.0011 J	0.0007 J	0.015	0.0002 J
Manganese (mg/l)	0.88	**12**	0.71	**1.8**	**1.2**	**5.7**	**5.4**	0.54	0.00039 J
Mercury (μg/l)	11	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEM [a] (mg/l)		6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Phenolics (mg/l)	22	0.01	0.015	0.005 U	0.0089	0.0039 J	0.0069	0.005 U	0.005 U

[a] HEM = Hexane Extractable Materials (includes both Oil & Grease and Total Petroleum Hydrocarbons)
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Oil Skimmer Basin Sediment Sample

	Location	Oil Skimmer Basin
	Sample No.	1
	Lab ID	01093292-1
	Sample ID	Grab
	Date	09/28/01
	Time	09:00
Parameter:	**PRG** [a]	
Total Solids (%)		69
Total Metals (mg/kg-dry)		
Aluminum	100,000	490
Antimony	820	35
Arsenic	440	1.0 U
Barium	100,000	22
Beryllium	2,200	9.7
Boron	79,000	5.2
Cadmium	810	0.14 U
Chromium	450	290
Cobalt	100,000	28
Copper	76,000	1,400
Iron	100,000	**460,000**
Lead	750	7.1
Magnesium	--	590 U
Manganese	32,000	2,800
Mercury	610	0.029 U
Molybdenum	10,000	74
Nickel	41,000	380
Selenium	10,000	1.2 U
Silver	10,000	0.14 U
Thallium	130	26
Tin	100,000	56
Titanium	--	16
Zinc	100,000	97
BOD [b] (mg/kg-dry)		6,700
COD [c] (mg/kg-dry)		240,000
HEM [d] (mg/kg-dry)		67,000

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
[b] BOD = Biochemical Oxygen Demand
[c] COD = Chemical Oxygen Demand
[d] HEM = Hexane Extractable Materials (includes both Oil & Grease and Total Petroleum Hydrocarbons)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.

Oil Skimmer Basin Influent Water

	Node	CL #2	CL #3
	Sample No.	1	1
	Lab ID	01101807-1	01101807-2
	Sample ID	Grab	Grab
	Date	10/09/01	10/09/01
	Time	13:43	13:50
Parameter:	**PRG** [a]		
Arsenic (mg/l)	0.05 [b]	0.02 U	0.02 U
Barium (mg/l)	2.6	0.04	0.038
Boron (mg/l)	3.3	0.33	0.33
Cadmium (mg/l)	0.018	0.002 U	0.002 U
Chromium (mg/l)	0.1 [b]	0.004 U	0.004 U
Copper (mg/l)	1.4	0.005 U	0.025
Iron (mg/l)	11	0.47	1.5
Lead (mg/l)	0.015 [b]	0.01 U	0.01 U
Manganese (mg/l)	0.88	0.071	0.066
Mercury (μg/l)	11	0.2 U	0.2 U
Nickel (mg/l)	0.73	0.016	0.027
Selenium (mg/l)	0.18	0.05 U	0.05 U
Silver (mg/l)	0.18	0.01 U	0.01 U
Zinc (mg/l)	11	0.006 U	0.006 U
pH		8.18	8.22
TDS [c] (mg/l)		670	680
TSS [d] (mg/l)		5.0	22
BOD [e] (mg/l)		3.0	3.0
HEM [f] (mg/l)		6.0 U	5.0 U

[a] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[b] Drinking Water MCL (no PRG listed)
[c] TDS = Total Dissolved Solids
[d] TSS = Total Suspended Solids
[e] BOD = Biochemical Oxygen Demand
[f] HEM = Hexane Extractable Materials (includes Oil & Grease and Total Petroleum Hydrocarbons)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.

Sheen Pond Groundwater Analysis

	Well ID	T-5	T-19B	T-19B	Field Blank	Rinse Blank [a]
	Sample No.	1	1	2 (dup)	1	1
	Lab ID	01092688-1	01092688-2	01092688-3	01092688-4	1092688-5
	Sample ID	NT-5A-G-01	NT-19B-G-01	NT-19B-G-02	NFB-G-01	NRB-G-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	12:45	13:10	13:15	11:45	11:55
Parameter:	**PRG [b]**					
Arsenic (mg/L)	0.05 [c]	0.00085 J	0.0016	0.0005 J	0.001 U	0.001 U
Cadmium (mg/L)	0.018	0.005 U	0.005 U	0.005 U	0.018	0.005 U
Chromium (mg/L)	0.1 [c]	0.0086 J	0.0047 J	0.001 J	0.01 U	0.01 U
Copper (mg/L)	1.4	0.0045 J	0.0084 J	0.00034 J	0.025 U	0.025 U
Lead (mg/L)	0.015 [c]	0.0074	0.0066	0.0005 J	0.001 J	0.003 U
Zinc (mg/L)	11	0.022	0.09	0.01 J	0.016 J	0.0073 J

	Well ID	T-5	T-19B	T-19B	Field Blank	Rinse Blank [a]
	Sample No.	1	1	2	1	1
	Lab ID	01092688-7	01092688-8	01092688-9	01092688-6	01092688-5
	Sample ID	NT-5A-G-01	NT-19B-G-01	NT-19-G-02	NFB-G-01	NRB-G-01
	Date	10/11/01	10/11/01	10/11/01	10/11/01	09/19/01
	Time	11:40	12:40	12:50	10:30	11:55
Parameter:	**PRG [b]**					
Aroclor 1254 (μg/L)	0.034	1 U	1 U	1 U	1 U	1 U

[a] Equipment rinse blank for Sheen Pond sediment sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Sheen Pond Soil Analysis

	Node ID	N1	N2	N2	N3	N4	N5
	Sample No.	1	1	2 (dup)	1	1	1
	Lab ID	01092691-1	01092691-2	01092691-3	01092691-4	01092691-5	01092691-6
	Sample ID	N-01-S-01	N-02-S-01	N-02-S-02	N-03-S-01	N-04-S-01	N-05-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	13:55	14:00	14:02	14:15	14:25	14:35
Parameter:	**PRG** [a]						
Moisture (%)		16	21	21	18	19	16
Arsenic (mg/kg-dry)	440	10	8.9	6.7	6.8	6.5	3.8
Cadmium (mg/kg-dry)	810	1.9	0.75 J	0.63 J	1.6	0.57 J	0.8 J
Chromium (mg/kg-dry)	450	98 C	24 C	24 C	89 C	22 C	26 C
Copper (mg/kg-dry)	76,000	83	20	18	23	17	18
Lead (mg/kg-dry)	750	140	26	28	50	26	27
Zinc (mg/kg-dry)	100,000	260	110	110	200	100	110
Aroclor 1254 (μg/kg-dry)	1,000	61 J	200 U	18 J	100 J	28 J	54 J

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values are also below their respective Residential PRGs)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.

Tail Tracks Landfill Area Groundwater Analysis

	Well ID	TL-1	TL-2	TL-3	TL-3	TL-4	W-7	Field Blank	Rinse Blank [a]
	Sample No.	1	1	1	2 (dup)	1	1	1	1
	Lab ID	01092694-1	01092694-2	01092694-3	01092694-4	01092694-5	01092694-6	01092694-7	01092694-8
	Sample ID	TTL-1-G-01	TTL-2-G-01	TTL-3-G-01	TTL-3-G-02	TTL-4-G-01	TW-7-G-01	TFB-G-01	TRB-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	15:10	15:17	15:25	15:25	15:35	14:55	07:40	07:40
Parameter:	**PRG [b]**								
Cadmium (mg/L)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium (mg/L)	0.1 [c]	0.0056 J	0.0082 J	0.0066 J	0.0068 J	0.0095 J	0.0029 J	0.00057 J	0.0002 J
Lead (mg/L)	0.015 [c]	0.00064 J	0.021	0.0088	0.0078	0.2	0.0005 J	0.003 U	0.003 U
Nickel (mg/L)	0.73	0.0092	0.011	0.0064	0.0049 J	0.012	0.0074	0.005 U	0.005 U
Zinc (mg/L)	11	0.012 J	0.1	0.025	0.049	0.15	0.0054 J	0.0045 J	0.0024 J

[a] Equipment rinse blank for Tail Tracks Landfill Area soil sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Tail Tracks Landfill Area Soil Analysis

	Node ID	T1	T2	T3	T4	T5	T5	T6
	Sample No.	1	1	1	1	1	2 (dup)	1
	Lab ID	01092695-1	01092695-2	01092695-3	01092695-4	01092695-5	01092695-6	01092695-7
	Sample ID	T-01-S-01	T-02-S-01	T-03-S-01	T-04-S-01	T-05-S-01	T-05-S-02	T-06-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	11:00	10:50	10:30	10:20	09:55	10:00	09:45
Parameter:	**PRG** [a]							
Moisture (%)		32	20	19	29	34	36	13
Cadmium (mg/kg-dry)	810	2.6	2	0.99 J	6.6	4.5	3.1	16
Chromium (mg/kg-dry)	450	43	58	27	59	47	38	220
Lead (mg/kg-dry)	750	220	110	68	**790**	240	150	690
Nickel (mg/kg-dry)	41,000	26	22	25	24	36	33	95
Zinc (mg/kg-dry)	100,000	660	480	150	1,800	910	550	4,200

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values except Pb at T4, and Pb and Cr at T6 are also below their respective Residential PRGs)
(Residential Pb = 400 mg/kg)
(Residential Cr = 210 mg/kg)

Data Flags:
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

F-Pond Surface Water Analysis

	Node	F7	F7	F8	Rinse Blank	Trip Blank	Rinse Blank [a]
	Sample No.	1	2 (dup)	1	1	1	1
	Lab ID	01092801-4	01092801-5	01092801-6	01092801-2	01092801-1	01092801-3
	Sample ID	F07-W-01	F07-W-02	F08-W-01	FRB-W-01	Trip Blank	FRB-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	12:30	12:30	15:15	10:10	07:00	10:00
Parameter:	**PRG [b]**						
Aluminum (mg/l)	36	0.1 J	0.076 J	0.087 J	0.0094 J	na	0.014 J
Barium (mg/l)	2.6	0.034 J	0.034 J	0.038 J	0.00027 J	na	0.00083 J
Cadmium (mg/l)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	na	0.005 U
Chromium (mg/l)	0.1 [c]	0.0065 J	0.0055 J	0.0046 J	0.0011 J	na	0.01 U
Copper (mg/l)	1.4	0.0092 J	0.0084 J	0.0021 J	0.0026 J	na	0.025 U
Iron (mg/l)	11	**16**	**15**	0.19	0.77	na	0.018 J
Lead (mg/l)	0.015 [c]	**0.047**	**0.038**	**0.029**	0.003 U	na	0.003 U
Manganese (mg/l)	0.88	**16**	**16**	0.2	0.00053 J	na	0.00046 J
Mercury (μg/l)	11	0.2 U	0.2 U	0.2 U	0.2 U	na	0.2 U
Zinc (mg/l)	11	0.27	0.22	0.026	0.0019 J	na	0.002 J
1,1-Dichloroethane (μg/l)	810	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,2-Dichloroethene (μg/l)	120	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene (μg/l)	1.6	1.6 U	1.6 U	**2**	1.6 U	1.6 U	1.6 U
Xylenes (Total) (μg/l)	1,400	10 U	10 U	10 U	10 U	10 U	10 U

na = not applicable

[a] Equipment rinse blank for F-Pond sediment sampling equipment.

[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)

[c] Drinking Water MCL (no PRG listed)
(Note: EPA drinking water std. For TCE is 5 μg/L.)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

F-Pond Sediment Analysis

	Node ID	F1	F1	F2	F3	F4	F5	F6
	Sample No.	1	2 (dup)	1	1	1	1	1
	Lab ID	01092802-2	01092802-1	01092802-3	01092802-4	01092802-5	01092802-6	01092802-7
	Sample ID	F-01-D-01	F-01-D-02	F-02-D-01	F-03-D-01	F-04-D-01	F-05-D-01	F-06-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	12:30	12:30	14:15	14:00	15:00	14:40	15:15
Parameter:	**PRG** [a]							
Moisture (%)		86	80	73	81	55	73	75
Aluminum (mg/kg-dry)	100,000	21,000	16,000	18,000	31,000	19,000	36,000	26,000
Barium (mg/kg-dry)	100,000	160 J	120 J	170	200 J	240	220	150 J
Cadmium (mg/kg-dry)	810	3.6 J	2.8 J	3.2 J	2.2 J	1.6 J	3.7	2.2 J
Chromium (mg/kg-dry)	450	170	130	70	95	51	74	68
Copper (mg/kg-dry)	76,000	210	140	63	140	47	85	64
Iron (mg/kg-dry)	100,000	**140,000**	100,000	28,000	63,000	21,000	41,000	36,000
Lead (mg/kg-dry)	750	**1,600**	**1,200**	**780**	530	**3,100**	210	320
Manganese (mg/kg-dry)	32,000	9,300	6,500	1,600	4,200	760	440	560
Mercury (mg/kg-dry)	610	0.28 U	0.20 U	0.15 U	0.21 U	0.07 J	0.18	0.18
Zinc (mg/kg-dry)	100,000	11,000	8,500	1,200	1,800	440	630	560
1,1-Dichloroethane (μg/kg-dry)	2,100,000	36 UFR	25 U	18 U	26 U	31	18 U	20 U
m/p-Xylene (μg/kg-dry)	--	36 UF	25 U	18 U	26 U	130	18 U	20 U
o-Xylene (μg/kg-dry)	--	36 UF	25 U	18 U	26 U	120	18 U	20 U
Total xylenes (μg/kg-dry)	210,000	71 UF	50 U	37 U	53 U	240	37 U	40 U
trans-1,2-Dichloroethene (μg/kg-dry)	210,000	36 UF	25 U	18 U	26 U	11	18 U	20 U
Trichloroethene (μg/kg-dry)	6,100	36 UFR	25 U	18 U	26 U	57	18 U	20 U

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note that all values except for Iron, Lead and Manganese also meet residential PRGs.)
(Residential PRGs for: Fe = 23,000 mg/kg; Pb = 400 mg/kg; and Mn = 1,800 mg/kg.)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
F = Result qualified due to internal standard result outside the required acceptance criteria.
R = Result qualified due matrix spike/matrix spike duplicate (MS/MSD) results outside the required acceptance criteria.

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Sampling Report for Environmental Indicators Assessment Investigation

Keystone Steel & Wire Company

Peoria, Illinois

January 2002

Prepared For

Keystone Steel & Wire Company
7000 S.W. Adams Street
Peoria, Illinois 61641

U.S. EPA Facility ID No.: ILD 000 714 881

RMT, Inc.

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January 29, 2002

Mr. Jonathan Adenuga
Enforcement and Compliance Assurance
Waste, Pesticides, and Toxics Division
U.S. Environmental Protection Agency, Region 5 (RE-9J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

RE: Environmental Indicators Assessment Report and Sampling Report for Environmental Indicators Assessment Investigation for Keystone Steel & Wire Company, Peoria, Illinois (EPA Facility ID No. ILD 000 714 881) as per the Administrative Order on Consent dated December 20, 2000

Dear Mr. Adenuga:

RMT, Inc. is submitting the above-referenced reports on behalf of Keystone Steel & Wire Company for U.S. Environmental Protection Agency (EPA) Region 5 review. Keystone is submitting these reports in compliance with the Administrative Order on Consent (AOC) that was entered into with USEPA Region 5 on December 20, 2000.

Please find enclosed two (2) copies of the *Environmental Indicators Assessment Report* and two (2) copies of the *Sampling Report for Environmental Indicators Assessment Investigation* as required in AOC under Paragraphs 16 and 17.

If you have any questions or need any additional information, please do not hesitate to contact me or Russ Perry of Keystone at (309) 697-7538.

Sincerely,
RMT, Inc.

Mark T. Prytula

Mark T. Prytula, Ph.D., P.E.
Senior Environmental Engineer

Enclosures

cc: Russ Perry, P.G., Keystone Steel & Wire Company
Andrew Running, Kirkland & Ellis
Robert Aten Ph.D, L.P.G., Earth Tech
Jeffery Pierce, P.E., RMT, Inc.

Table of Contents

Section 1 Introduction 1-1

Section 2 Objectives 2-1

Section 3 Procedures 3-1

3.1 Sample Locations 3-1
3.2 Sample Collection and Handling 3-1
3.3 Equipment Decontamination 3-3
3.4 Sample Media and Constituents of Concern 3-3
3.5 Analytical Methods and Procedures 3-4

Section 4 Results 4-1

4.1 Soil Classification and Boring Logs 4-1
4.2 Data Summary and Discussion 4-1
4.3 Data Quality Assurance/Quality Control 4-3

Section 5 Conclusions 5-1

List of Figures

Figure 1-1 USGS Site Map 1-2
Figure 1-2 Facility Site Plan 1-3

List of Tables

Table 3-1 Constituents Of Concern Summary 3-4
Table 3-2 Required Parameters For Total Metals Analyses 3-5
Table 3-3 Required Parameters For Organic Analyses 3-6

List of Appendices

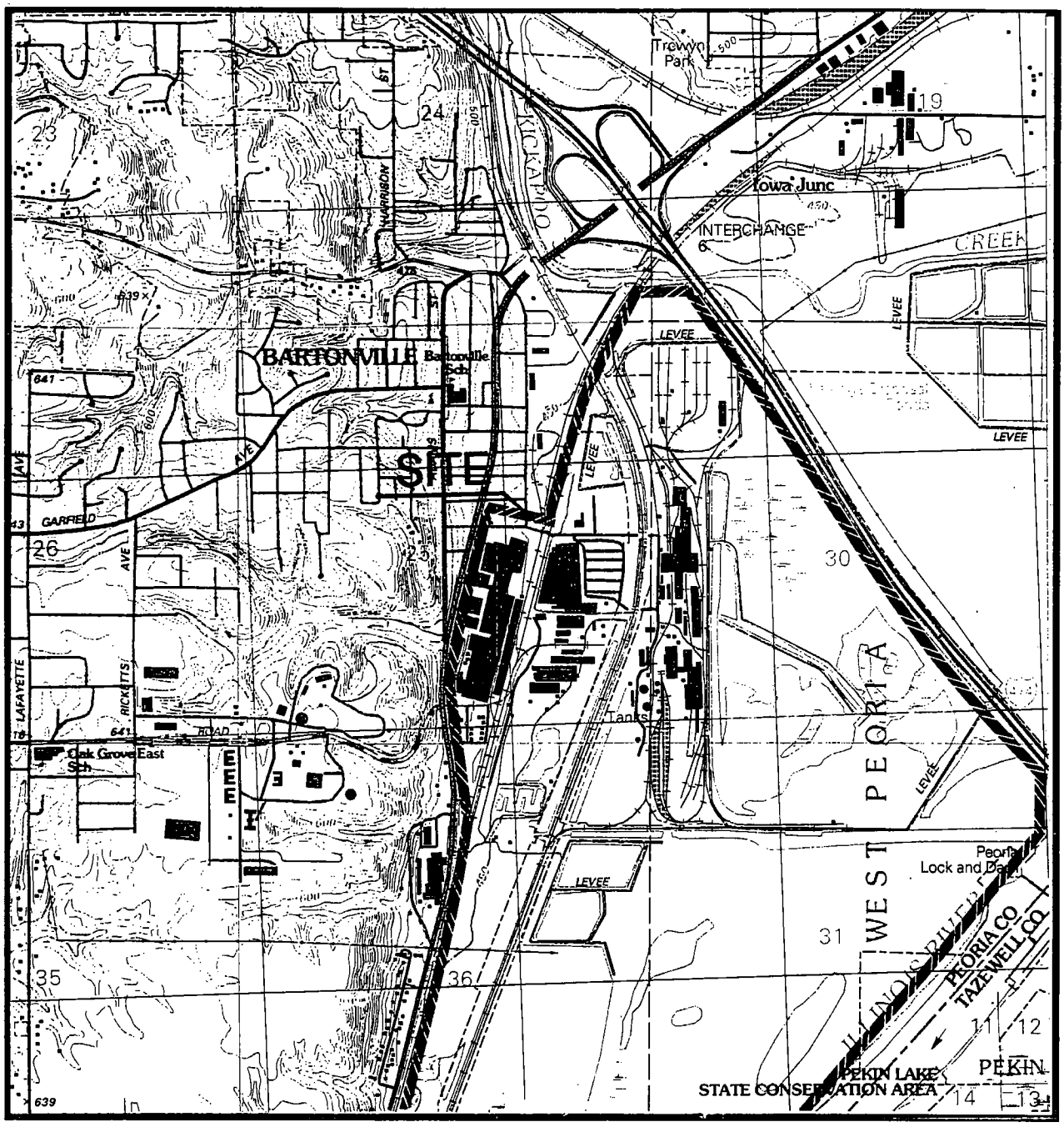
Appendix A	Summary of 2001 Sampling Results
Appendix B	Soil Boring Logs
Appendix C	Well Completion Reports
Appendix D	Oil Skimmer Basin Groundwater Data Report
Appendix E	Sheen Pond Groundwater Data Report
Appendix F	Sheen Pond Soil Data Report
Appendix G	Tail Tracks Landfill Groundwater Data Report
Appendix H	Tail Tracks Landfill Soil Data Report
Appendix I	Tail Tracks Area Surface Water Data Report
Appendix J	F-Pond Surface Water Data Report
Appendix K	F-Pond Soil/Sediment Data Report
Appendix L	East Pond Soil/Sediment Data Report
Appendix M	East Pond Surface Water Data Report
Appendix N	Oil Skimmer Basin Sediment & Influent Water Data Report

Section 1
Introduction

RMT, Inc. has prepared this Sampling Report (Report) on behalf of Keystone Steel & Wire Company (Keystone). This Report summarizes the results of sampling performed to investigate several potential areas of concern at Keystone's manufacturing facility, which is located just south of Peoria, Illinois (**Figure 1-1**). Keystone has performed this sampling as part of its ongoing effort to comply with the Administrative Order on Consent (AOC) entered into with U.S. Environmental Protection Agency (EPA) Region 5 on December 20, 2000.

The five areas addressed in this Report are located in the Steel Works segment of the Peoria facility. The areas investigated have been identified as (1) Sheen Pond, (2) F-Pond, (3) Tail Tracks Landfill, (4) East Pond, and (5) Oil Skimmer Basin. The locations of these units at the facility are shown on **Figure 1-2**. These five areas were listed in the AOC as requiring investigation to evaluate if they had been impacted by any releases of hazardous waste and/or hazardous constituents.

Limited sampling in these areas was originally performed as part of the Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) conducted by EPA in 1987. The purpose of this Report is to summarize the analytical results of samples collected at these areas in 2001 to determine the nature and/or to confirm the presence of constituents detected during the 1987 sampling activities.



SCALE 1:24000

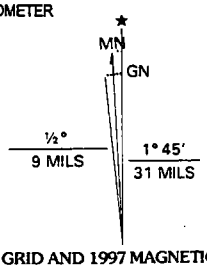
1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0.5 0 1 KILOMETER

QUADRANGLE LOCATION

Contour interval: 10 feet
Source: Peoria West Quadrangle
Illinois, 7.5 Minute Series
U.S.G.S. Topographic Map



UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

1870-012 1=1 12-21-98 RCW 20010

Keystone Steel & Wire — Peoria, Illinois

SITE MAP

FIGURE 1-1

Section 2
Objectives

The goal of this sampling effort was to determine the nature and/or to confirm the presence of constituents detected by EPA during the 1987 RFA. The 2001 investigation included sampling performed at five units that were identified as areas of potential concern after a site visit by EPA Region 5 representatives in November 1999. This investigation was designed to provide information on the current status of the Sheen Pond, F-Pond, Tail Tracks Landfill, East Pond, and Oil Skimmer Basin based upon more representative sampling than the single sample results typical of the historical data. The results have been used to complete an Environmental Indicators Assessment for the facility.

Section 3
Procedures

The field and analytical methodologies used to collect and analyze soil, sediment, groundwater, and surface water samples for certain metals, volatile organic compounds (VOCs), and/or semivolatile organic compounds (SVOCs) are described below. Sample collection, field preservation (for volatiles analysis samples), sample handling, and soil classifications were performed by Earth Tech, Inc. (Bloomington, Indiana). PDC Laboratories, Inc. (Peoria, Illinois) performed sample preservation, extraction, and analysis.

All field sampling activities, sample handling, laboratory analysis, and data quality control methods conformed to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* with updates (referenced as SW-846) and the EPA Region 5 *RCRA Quality Assurance Project Plan Instructions* (1998).

3.1 Sample Locations

Sampling locations for this event were chosen as described in the RMT *Environmental Indicators Phase I Sampling Plan* (August 2001). The as-sampled soil, sediment, surface water, and groundwater sample locations are shown on **Figure 1-2**. All soil and surface water locations were staked at the time of collection for subsequent survey. The three Tail Tracks Landfill Area surface water sample locations are approximate, as they were collected after the field survey had been completed. The positions of these samples were determined relative to the surveyed wells and soil sample stakes in the area.

3.2 Sample Collection and Handling

Samples were collected in new and/or properly cleaned and decontaminated equipment and sample containers (the latter were provided by PDC). Only discrete grab samples were collected (no compositing was employed).

Surface water samples were collected either by dipping the sample containers into the water being sampled or using a decontaminated, pole-mounted stainless steel scoop to draw the water sample and then transfer it into the sample container. Care was taken in filling of sample containers to prevent displacing preservatives that were pre-added by PDC. Surface water

samples were collected prior to collecting sediment samples to prevent cross-contamination of the aqueous samples by resuspended sediment.

Soil samples in the two areas without standing water (i.e., the Tail Tracks Landfill and the Sheen Pond) were collected using stainless steel hand augers and/or trowels. At each sample location, a shallow hole was created by digging or augering down through the topsoil to a depth of six inches. Soil samples were then collected from the freshly exposed soil at the 6-12 inch depth interval. The soil was transferred from the trowel or auger into a stainless steel bowl for classification and sample containerization. At the Sheen Pond, organic analyses samples were containerized first, followed by samples for total metals analysis. Samples collected for analyses other than VOCs were homogenized prior to containerization to ensure that PDC analyzed a representative sample aliquot.

Sediment samples at the East Pond and F-Pond were collected 10 to 12 feet from the shore using a pole-mounted stainless steel scoop. At the time of sampling, the water level in both units was too shallow to allow sampling from a boat or barge. Surface sediment samples were transferred to a stainless steel bowl for classification and containerization. The sediment samples were collected from the surface layer (i.e., 0-12 inch depth interval) at these two units. At the F-Pond, En-Core® sample containers for VOA analysis were filled first, followed by containerization of samples for total metals analysis.

Groundwater samples were collected using clean disposable bailers. Prior to sampling, three well volumes of water were purged from each well. Samples were carefully poured directly from the bailers into laboratory supplied sample containers. All samples were placed in coolers containing ice and handled and picked up by PDC under proper Chain of Custody procedures. All purge water was containerized and disposed of at the Keystone wastewater treatment facility.

Rinsate blank samples were collected by unwrapping decontaminated soil sampling equipment and rinsing with distilled/deionized water into a decontaminated stainless steel bowl. The rinsate was then transferred directly into laboratory supplied sample containers. Based upon the relatively small number of samples, only one rinsate blank was necessary at each unit. These samples were analyzed as per the constituents of concern (COC) list for the unit at which they were collected. Field Blanks for aqueous samples were collected by pouring distilled/deionized water into water sampling equipment and then filling the appropriate sample containers. One field blank was collected during sampling at each unit.

Field duplicates for each media at each unit were given fictitious sample identifiers and were not identified as duplicates on container labels or chain-of-custody forms. One matrix spike/matrix spike duplicate (MS/MSD) sample was collected for each unit and each media.

These samples were identified with the appropriate nomenclature followed by "MS/MSD" on all labels and forms. Trip blanks were supplied by PDC and enclosed in each cooler containing aqueous samples.

Excess soil sample material, cuttings generated during hand augering, personal protective equipment, and solid residues generated during equipment cleaning and decontamination were collected in a 55-gallon steel drum. These collected wastes were transferred to an appropriate waste disposal company for characterization testing and final disposition. Wastewater generated during decontamination procedures, purge water, excess sample, etc. was collected in 55-gallon steel drums and transferred to Keystone's on-site wastewater treatment plant for treatment.

3.3 Equipment Decontamination

All sampling equipment were thoroughly decontaminated to prevent sample cross-contamination between uses. Equipment were decontaminated prior to initial use, between subsequent uses (between sampling nodes), and prior to leaving the site. The following procedures were used to decontaminate sampling equipment with regard to both metal and organic compound residues:

1. Check equipment for damage and proper working order.
2. Rinse equipment with potable water; wash with potable water, a nylon brush, and phosphate-free detergent (Liquinox® or equivalent); and rinse with potable water.
3. Rinse with pesticide-grade isopropanol.
4. Rinse with distilled/deionized water and allow to air dry.
5. Wrap equipment in clean aluminum foil (shiny side out) to prevent contamination during storage and transportation in the field (unless equipment will be reused immediately – in which case, use clean plastic sheeting or aluminum foil to prevent contact of decontaminated equipment with the ground, truck beds, etc.).

3.4 Sample Media and Constituents of Concern

The types of samples collected from each area and the analytical parameters for which the samples were tested are detailed in **Table 3-1**. The COC lists were compiled by reviewing the historical data from each unit and including any chemical detected above background concentrations for which a EPA Region 9 Preliminary Remediation Goal (PRG) has been established (i.e., only hazardous or potentially hazardous constituents). For example, although calcium and sodium were detected in all of the 1987 RFA soil samples, there are no remediation

goals established for these compounds and they have not been included as COCs for this sampling event. Additional analytes were also included in the COC lists for the Tail Tracks Landfill and Oil Skimmer Basin.

Several additional samples not described as part of the August 2001 Sampling Plan were also collected from two of the subject units in 2001. One sediment sample and two influent water samples were collected from the Oil Skimmer Basin as part of Keystone's NPDES permit renewal activities. Three surface water samples were also collected in the Tail Tracks Landfill area from the nearby shoreline of Mud Lake, as per concerns raised by EPA Region 5 in December 2001. The analytical results summaries and the laboratory data reports for these additional samples are included herein.

Table 3-1
Constituents Of Concern Summary

Unit	Media Sampled	Inorganic Analytes	Organic Analytes
Sheen Pond	Soil & Groundwater	As, Cd, Cr, Cu, Pb, & Zn	Arochlor-1254
F-Pond	Sediment & Surface Water	Al, Ba, Cd, Cr, Cu, Fe, Hg, Pb, Mn, & Zn	*trans*-1,2-DCE, TCE, 1,1-DCA, & xylenes (total)
Tail Tracks Landfill	Soil, Surface Water, & Groundwater	Cd, Cr, Ni, Pb, & Zn	none
East Pond	Sediment & Surface Water	Cr, Cu, Pb, & Zn	none
Oil Skimmer Basin	Influent Water, Sediment, & Groundwater	As, Al, Ba, Cd, Cr, Cu, Fe, Hg, Mn, & Pb,	Oil & Grease, Total Phenols, & TPH

3.5 Analytical Methods and Procedures

The samples collected from the five units were analyzed for total metals and/or total organics (as per the parameter lists in **Table 3-1**). The SW-846 and EPA methods that were employed for these analyses are listed in **Table 3-2** and **Table 3-3**. Also shown in these tables are the requisite sample holding times and detection limits (expressed as practical quantitation limits or PQLs) for each method.

Table 3-2
Required Parameters For Total Metals Analyses

Parameter	Sample Preservative	Preserved Sample Hold Time (at 4°C)	Method[1]	PQL[2]
Soil Samples				
Aluminum	4°C	6 months	6010B	40
Arsenic	4°C	6 months	6010B	0.3
Barium	4°C	6 months	6010B	40
Cadmium	4°C	6 months	6010B	1.0
Chromium	4°C	6 months	6010B	2.0
Copper	4°C	6 months	6010B	5.0
Iron	4°C	6 months	6010B	20
Lead	4°C	6 months	6010B	0.6
Manganese	4°C	6 months	6010B	3.0
Mercury	4°C	28 days	7471A	0.04
Zinc	4°C	6 months	6010B	4.0
Aqueous Samples				
Aluminum	HNO_3 to pH<2	6 months	200.8	200
Arsenic	HNO_3 to pH<2	6 months	200.8	1.0
Barium	HNO_3 to pH<2	6 months	200.8	200
Cadmium	HNO_3 to pH<2	6 months	200.8	5.0
Chromium	HNO_3 to pH<2	6 months	200.8	10
Copper	HNO_3 to pH<2	6 months	200.8	25
Iron	HNO_3 to pH<2	6 months	200.7	100
Lead	HNO_3 to pH<2	6 months	200.8	3.0
Manganese	HNO_3 to pH<2	6 months	200.8	15
Mercury	HNO_3 to pH<2	28 days	200.8 R5.4	0.2
Zinc	HNO_3 to pH<2	6 months	200.8	20

[1] Method numbers for soil samples are SW-846, method numbers for aqueous samples are EPA.
[2] Method Practical Quantitation Limits in mg/kg for soil samples (wet weight basis) and µg/L for aqueous samples. PQLs shown are the lower of the EPA Region 9 PRG or the State of Illinois requirement for RCRA investigations (35 IAC Part 740), whichever is lower (except for aqueous arsenic, where the PRG (0.045 µg/L) is below the analytical detection limit).

Table 3-3
Required Parameters For Organic Analyses

Procedure	Sample Preservative	Sample Hold Time[1]	Extract Hold Time[2]	Method[3]	PQL[4]
Soil Samples					
Volatile Organics[5]	Cool to 4°C, (bisulfate or methanol)[7]	48 hours, (14 days)[7]	N/A	8260B / 5035	10 µg/kg
Pesticides/ PCBs[6]	Cool to 4°C	14 days	40 days	8082 / 3550B	160 µg/kg
Aqueous Samples					
Volatile Organics	HCl to pH<2, Cool to 4°C	14 days	N/A	624	*trans*-1,2-DCE ...10 µg/L TCE ..... 1.6 µg/L 1,1-DCA .....10 µg/L total xylene .....10 µg/L
Pesticides/ PCBs[6]	Cool to 4°C	7 days	40 days	608	0.03 µg/L
Oil & Grease	HCl to pH<2, Cool to 4°C	28 days	N/A	1664 Modified[8]	5 mg/L
Total Phenols	H_3PO_4 to pH<2, 1g $CuSO_4$ / L Cool to 4°C	28 days	N/A	9066	5 mg/L
Total Petroleum Hydrocarbons	HCl to pH<2, Cool to 4°C	28 days	N/A	418.1	1 mg/L

[1] Maximum hold time for preserved sample prior to analysis or extraction.
[2] Maximum hold time for extract at 4°C prior to analysis.
[3] Method numbers for soil samples are SW-846, method numbers for aqueous samples are EPA.
[4] Method Practical Quantitation Limits in for soil samples are wet-weight based. PQLs shown for volatiles and PCBs are the lower of the EPA Region 9 PRG or the State of Illinois requirement for RCRA investigations (35 IAC Part 740), whichever is lower.
[5] *trans*-1,2-DCE, TCE, 1,1-DCA, and total xylene.
[6] Arochlor-1254.
[7] Samples collected using EnCore™ samplers per Method 5035 must either be analyzed (Method 5032) or preserved with sodium bisulfate solution or methanol (Method 5035) within 48 hours of collection. Preserved samples (Method 5035) must be analyzed within 14 days of collection.
[8] By Hexane Extractable Material (HEM)

Section 4
Results

4.1 Soil Classification and Boring Logs

Soil classification information for each node sampled was described on Illinois Environmental Protection Agency (IEPA) Field Boring Log Forms. The logs for this sampling event are included in **Appendix B** of this Report. These logs include the total depth of each boring, the intervals sampled, the sample collection techniques employed, groundwater elevations, and continuous classification and description of the types of soil encountered at each node.

Well Completion Report forms (also using IEPA format) have been prepared for the four groundwater monitor wells that were installed for this sampling event in the Tail Tracks Landfill area. These forms are presented as **Appendix C** of this Report. The Well Completion Reports provide details for each well, including total depth, screen interval, well construction information, static water level, etc.

4.2 Data Summary and Discussion

Tables summarizing the analytical data obtained during this sampling event have been compiled and are presented in **Appendix A** of this Report. A table summarizing the applicable EPA Region 9 PRGs that were used for data screening purposes has also been included in **Appendix A**. The raw data for this sampling event (copies of the analytical laboratory data reports) are located in **Appendix D** through **Appendix N**.

Sheen Pond: Groundwater and soil samples were collected from this area and analyzed for several metals and a polychlorinated biphenyl (PCB) congener that were detected during EPA's 1987 RFA sampling event. No surface water was present in the unit at the time of sampling, and the water table was below the screen interval on one nearby groundwater well, so only two of the existing monitor wells adjacent to the unit were sampled.

All of the detected metals concentrations in all of the analytical samples were well below the respective tap water PRGs or Federal drinking water standards (the latter were used to screen results for metals for which no tap water PRGs have been set). PCB was not detected in any of the groundwater samples. Likewise, in all of the soil samples from the unit, metal concentrations were well below the industrial soil PRGs. Arochlor 1254 was detected, but only

at concentrations estimated below the calibration range for the analysis, and well below the industrial PRG.

F-Pond: Surface water and sediment samples collected from this were analyzed for several metals and VOCs detected during EPA's 1987 RFA sampling event. Iron and manganese were detected above the tap water PRGs in one of the two surface water samples, and both samples contained lead (29 μg/L to 47 μg/L) above the Federal drinking water standard (15 μg/L), but well below Keystone's NPDES-permitted discharge limit (200 μg/L). TCE was also detected in one sample at 2 μg/L, just barely above the method detection limit and EPA Region 9 tap water PRG of 1.6 μg/L. However, the observed concentration in this sample is less than one-half of the Federal drinking water standard for TCE (5 μg/L).

In the sediment samples, only iron (a non-hazardous constituent) and lead were detected at concentrations above the industrial PRGs. Iron concentrations in the sediment ranged from 21,000 mg/kg to 140,000 mg/kg, and lead concentrations ranged from 210 mg/kg to 3,100 mg/kg. The concentrations of both of these metals were below the PRGs in the two southernmost samples (closest to the outlet of the F-Pond). The maximum cadmium concentration observed in the seven samples analyzed in 2001 (including one duplicate) was 3.7 mg/kg. VOCs were only detected in one of the sediment samples, and all were at concentrations well below the industrial soil PRGs. ??

East Pond: Surface water and sediment samples collected from this area were analyzed for several metals detected during EPA's 1987 RFA sampling event. None of the five soil samples analyzed in 2001 (including one duplicate) contained metal concentrations above a residential PRG. For example, the lead concentrations from the 2001 sediment samples ranged from 60 mg/kg to 110 mg/kg, which are below the residential PRG of 400 mg/kg for this metal. The three surface water samples (including one duplicate) collected in 2001 exceeded the drinking water standard for lead (with concentrations ranging from 16 μg/L to 50 μg/L), but all were well below Keystone's NPDES-permitted discharge limit. All of the other metals in the surface water were well below their respective tap water screening levels (PRGs or drinking water standards).

Tail Tracks Landfill: The samples collected from this area during EPA's 1987 RFA sampling event did not contain any constituents at levels significantly above those found in the background samples collected at the time. As per the request for additional investigation in the AOC, Keystone collected soil, groundwater, and surface water samples from the area in 2001. The samples were screened for hazardous constituent metals in electric arc furnace dust (as described in the August 2001 Sampling Plan), which is known be contained within the capped landfill.

The soil and groundwater samples were collected at various points below the toe of the landfill cap, and surface water was collected from the current shoreline of Mud Lake, located south of the landfill. One of the seven soil samples from the Tail Tracks Landfill area slightly exceeded the industrial PRG for lead (750 mg/kg), exhibiting a lead concentration of 790 mg/kg. None of the other samples contained any metals at concentrations above the industrial PRGs. Residential soil PRGs were only exceeded in one other sample from this area, which contained lead at 690 mg/kg and chromium at 220 mg/kg (compared to the residential PRGs of 400 mg/kg and 210 mg/kg, respectively).

None of the measured metal concentrations in the surface water samples from the shore of Mud Lake or from groundwater at the toe of the landfill cap exceeded any of the established tap water PRGs. Two of the surface water samples and two of the groundwater samples contained lead at concentrations above the Federal drinking water standard (15 µg/L), however, none of these concentrations exceeded Keystone's NPDES-permitted discharge limit (200 µg/L).

Oil Skimmer Basin: To investigate possible impact to this unit by hazardous constituents, Keystone collected samples of influent water to, groundwater downgradient of, and sediment within this unit. The samples were screened for a variety of metal constituents based upon IEPA's NPDES permit requirements, and included all of the analytes detected elsewhere in the Closed-Loop Cooling Pond system during EPA's 1987 RFA. The groundwater samples collected for this investigation were drawn from the five monitor wells located hydraulically downgradient from the entire Closed-Loop Cooling Pond, which are used to monitor compliance with Keystone's NPDES permit for this system (the first part of which is the Oil Skimmer Basin).

The only metal that was detected in any of the influent or groundwater samples for this unit at a concentration above a tap water PRG or Federal drinking water standard was manganese. Concentrations of this non-hazardous constituent metal in the groundwater hydraulically downgradient from the cooling pond system ranged from 0.71 mg/L to 12 mg/L (the tap water PRG for manganese is 0.88 mg/L). The only metal in the sediment sample from the Oil Skimmer Basin that exceeded the industrial PRG was iron (also a non-hazardous constituent). The high iron content in the sediment of this basin (measured at 460,000 mg/kg) results from the settling of residual iron scale from the contact cooling water that is discharged into the unit.

4.3 Data Quality Assurance/Quality Control

The laboratory quality assurance/quality control (QA/QC) protocol included initial calibration verification samples, method blanks, lab duplicates, MS/MSD samples for sample matrix effects, and continuing calibration verification samples. Full data reports containing QA/QC

data collected during the specified SW-846 analysis procedures (instrument blanks, matrix spikes, matrix spike duplicates, etc.) were obtained from PDC. Keystone reviewed these results to ensure that the analytical data were valid and acceptable. All QA/QC sample results are included within the laboratory reports reproduced herein as **Appendix D** through **Appendix N**.

Field duplicates and field rinsate blanks were also analyzed as part of the sampling protocol. Field duplicate sample results are presented alongside the analytical results for the "parent" sample in the data summaries included as **Appendix A**. A total of 44 samples (22 water samples and 22 soil samples), 9 field duplicates, 5 rinsate blanks, 4 field blanks, and 9 MS/MSD samples were collected and analyzed as part of this sampling effort.

Section 5
Conclusions

Characterization sampling was conducted during September, October, and December 2001 to comply with the AOC Keystone entered into with EPA Region 5. The results of this investigation and the historical data collected in 1987 were used to complete an Environmental Indicators Assessment of the facility. This Report has been prepared to accompany Keystone's *Environmental Indicators Assessment Report* also being submitted in January 2002.

The data obtained in 2001 indicate the presence of lead in the sediment of the F-Pond at concentrations ranging from 210 mg/kg to 3,100 mg/kg, with several samples above the risk-based standards for industrial land use (750 mg/kg). One soil sample at the toe of the Tail Tracks Landfill also contained lead at a concentration (790 mg/kg) just slightly above the EPA Region 9 industrial soil PRG (750 mg/kg). Lead was also observed in several surface water samples and two groundwater samples in the Tail Tracks Area, F-Pond, and East Pond at concentrations above the Federal drinking water standard (15 μg/L), but none exceeded Keystone's NPDES permitted discharge limit for this metal (200 μg/L). Moderate concentrations of the non-hazardous metals iron and manganese were also detected in various soil, sediment, and water samples during this event.

Appendix A
Summary of 2001 Sampling Results

Keystone Steel & Wire Company

Analytical Results Summary
for
Environmental Indicators Assessment
Phase 1 Sampling Event

Samples Collected 09/10/01 to 10/11/01
and 12/06/01

Oil Skimmer Basin
Sheen Pond
Tail Tracks Landfill
F-Pond
East Pond

US EPA Region 9 Preliminary Remediation Goals (PRGs):

Ground/Surface Water PRG	Tap Water PRG	Drinking Water MCL
Aluminum (mg/l)	36	
Arsenic (mg/l)		0.05
Barium (mg/l)	2.6	
Cadmium (mg/l)	0.018	
Chromium (mg/l)		0.1
Copper (mg/l)	1.4	
Iron (mg/l)	11	
Lead (mg/l)		0.015
Manganese (mg/l)	0.88	
Mercury (μg/l)	11	
Nickel (mg/l)	0.73	
Zinc (mg/l)	11	
1,1-Dichloroethane (μg/l)	810	
trans-1,2-Dichloroethene (μg/l)	120	
Trichloroethene (μg/l)	1.6	5.0
Xylenes (Total) (μg/l)	1,400	
Phenol (mg/l)	22	
Arochlor 1254 (PCBs) (μg/l)	0.034	

Soil/Sediment PRG	Residential	Industrial	Migration to GW: DAF 20	DAF 1
Aluminum (mg/kg-dry)	76,000	100,000	na	na
Arsenic (mg/kg-dry)	22	440	na	na (noncancer)
Barium (mg/kg-dry)	5,400	100,000	1,600	82
Cadmium (mg/kg-dry)	37	810	8	0.4
Chromium (mg/kg-dry)	210	450	38	2
Copper (mg/kg-dry)	2,900	76,000	na	na
Iron (mg/kg-dry)	23,000	100,000	na	na
Lead (mg/kg-dry)	400	750	na	na
Manganese (mg/kg-dry)	1,800	32,000	na	na
Mercury (mg/kg-dry)	23	610	na	na
Nickel (mg/kg-dry)	1,600	41,000	130	7
Zinc (mg/kg-dry)	23,000	100,000	12,000	620
1,1-Dichloroethane (μg/kg-dry)	590,000	2,100,000	23,000	1,000
trans-1,2-Dichloroethene (μg/kg-dry)	63,000	210,000	700	30
Trichloroethene (μg/kg-dry)	2,800	6,100	60	3
m/p-Xylene (μg/kg-dry)	na	na	na	na
o-Xylene (μg/kg-dry)	na	na	na	na
Total xylenes (μg/kg-dry)	210,000	210,000	210,000	10,000
Arochlor 1254 (PCBs) (μg/kg-dry)	220	1000	na	na

Note: DAF = Dilution-Attenuation Factor
(a DAF of 1 assumes no dilution and no natural attenuation of soil leachate)

Oil Skimmer Basin Area Groundwater Analysis

	Well ID	CL-1	CL-2	CL-3	CL-4	CL-5	CL-5	BT-15	Field Blank
	Sample No.	1	1	1	1	1	2 (dup)	1	1
	Lab ID	01092683-1	01092683-2	01092683-3	01092683-4	01092683-5	01092683-6	01092683-7	01092683-8
	Sample ID	BCL-1-G-01	BCL-2-G-01	BCL-3-G-01	BCL-4-G-01	BCL-5-G-01	BCL-5-G-02	BT-15-G-01	BFB2-G-01
	Date	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01	09/18/01
	Time	18:00	18:15	17:50	17:40	17:30	17:30	18:40	14:40
Parameter:	**PRG[b]**								
Aluminum (mg/l)	36	0.52	0.1 J	0.068 J	0.04 J	0.016 J	0.015 J	0.35	0.0059 J
Arsenic (mg/l)	0.05[c]	0.0068	0.0011	0.0024	0.026	0.0082	0.0078	0.0008 J	0.00018 J
Barium (mg/l)	2.6	0.13 J	0.069 J	0.14 J	0.24	0.097 J	0.11 J	0.19 J	0.00027 J
Cadmium (mg/l)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium (mg/l)	0.1[c]	0.004 J	0.0028 J	0.004 J	0.0035 J	0.0034 J	0.0042 J	0.0026 J	0.00036 J
Copper (mg/l)	1.4	0.0057 J	0.0018 J	0.002 J	0.001 J	0.0014 J	0.0016 J	0.0027 J	0.0003 J
Iron (mg/l)	11	1.9	0.1	0.42	4.6	2.1	2.1	1.9	0.1 U
Lead (mg/l)	0.015[c]	0.0018 J	0.00019 J	0.00081 J	0.00016 J	0.0011 J	0.0007 J	0.015	0.0002 J
Manganese (mg/l)	0.88	12	0.71	1.8	1.2	5.7	5.4	0.54	0.00039 J
Mercury (μg/l)	11	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEM[a] (mg/l)		6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Phenolics (mg/l)	22	0.01	0.015	0.005 U	0.0089	0.0039 J	0.0069	0.005 U	0.005 U

[a] HEM = Hexane Extractable Materials (includes both Oil & Grease and Total Petroleum Hydrocarbons)
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Oil Skimmer Basin Sediment Sample

	Location	Oil Skimmer Basin
	Sample No.	1
	Lab ID	01093292-1
	Sample ID	Grab
	Date	09/28/01
	Time	09:00
Parameter:	**PRG** [a]	
Total Solids (%)		69
Total Metals (mg/kg-dry)		
Aluminum	100,000	490
Antimony	820	35
Arsenic	440	1.0 U
Barium	100,000	22
Beryllium	2,200	9.7
Boron	79,000	5.2
Cadmium	810	0.14 U
Chromium	450	290
Cobalt	100,000	28
Copper	76,000	1,400
Iron	100,000	**460,000**
Lead	750	7.1
Magnesium	--	590 U
Manganese	32,000	2,800
Mercury	610	0.029 U
Molybdenum	10,000	74
Nickel	41,000	380
Selenium	10,000	1.2 U
Silver	10,000	0.14 U
Thallium	130	26
Tin	100,000	56
Titanium	--	16
Zinc	100,000	97
BOD [b] (mg/kg-dry)		6,700
COD [c] (mg/kg-dry)		240,000
HEM [d] (mg/kg-dry)		67,000

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
[b] BOD = Biochemical Oxygen Demand
[c] COD = Chemical Oxygen Demand
[d] HEM = Hexane Extractable Materials (includes both Oil & Grease and Total Petroleum Hydrocarbons)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.

Oil Skimmer Basin Influent Water

	Node	CL #2	CL #3
	Sample No.	1	1
	Lab ID	01101807-1	01101807-2
	Sample ID	Grab	Grab
	Date	10/09/01	10/09/01
	Time	13:43	13:50
Parameter:	**PRG** [a]		
Arsenic (mg/l)	0.05 [b]	0.02 U	0.02 U
Barium (mg/l)	2.6	0.04	0.038
Boron (mg/l)	3.3	0.33	0.33
Cadmium (mg/l)	0.018	0.002 U	0.002 U
Chromium (mg/l)	0.1 [b]	0.004 U	0.004 U
Copper (mg/l)	1.4	0.005 U	0.025
Iron (mg/l)	11	0.47	1.5
Lead (mg/l)	0.015 [b]	0.01 U	0.01 U
Manganese (mg/l)	0.88	0.071	0.066
Mercury (μg/l)	11	0.2 U	0.2 U
Nickel (mg/l)	0.73	0.016	0.027
Selenium (mg/l)	0.18	0.05 U	0.05 U
Silver (mg/l)	0.18	0.01 U	0.01 U
Zinc (mg/l)	11	0.006 U	0.006 U
pH		8.18	8.22
TDS [c] (mg/l)		670	680
TSS [d] (mg/l)		5.0	22
BOD [e] (mg/l)		3.0	3.0
HEM [f] (mg/l)		6.0 U	5.0 U

[a] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[b] Drinking Water MCL (no PRG listed)
[c] TDS = Total Dissolved Solids
[d] TSS = Total Suspended Solids
[e] BOD = Biochemical Oxygen Demand
[f] HEM = Hexane Extractable Materials (includes Oil & Grease and Total Petroleum Hydrocarbons)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.

Sheen Pond Groundwater Analysis

	Well ID	T-5	T-19B	T-19B	Field Blank	Rinse Blank [a]
	Sample No.	1	1	2 (dup)	1	1
	Lab ID	01092688-1	01092688-2	01092688-3	01092688-4	1092688-5
	Sample ID	NT-5A-G-01	NT-19B-G-01	NT-19B-G-02	NFB-G-01	NRB-G-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	12:45	13:10	13:15	11:45	11:55
Parameter:	**PRG [b]**					
Arsenic (mg/L)	0.05 [c]	0.00085 J	0.0016	0.0005 J	0.001 U	0.001 U
Cadmium (mg/L)	0.018	0.005 U	0.005 U	0.005 U	0.018	0.005 U
Chromium (mg/L)	0.1 [c]	0.0086 J	0.0047 J	0.001 J	0.01 U	0.01 U
Copper (mg/L)	1.4	0.0045 J	0.0084 J	0.00034 J	0.025 U	0.025 U
Lead (mg/L)	0.015 [c]	0.0074	0.0066	0.0005 J	0.001 J	0.003 U
Zinc (mg/L)	11	0.022	0.09	0.01 J	0.016 J	0.0073 J

	Well ID	T-5	T-19B	T-19B	Field Blank	Rinse Blank [a]
	Sample No.	1	1	2	1	1
	Lab ID	01092688-7	01092688-8	01092688-9	01092688-6	01092688-5
	Sample ID	NT-5A-G-01	NT-19B-G-01	NT-19-G-02	NFB-G-01	NRB-G-01
	Date	10/11/01	10/11/01	10/11/01	10/11/01	09/19/01
	Time	11:40	12:40	12:50	10:30	11:55
Parameter:	**PRG [b]**					
Aroclor 1254 (μg/L)	0.034	1 U	1 U	1 U	1 U	1 U

[a] Equipment rinse blank for Sheen Pond sediment sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Sheen Pond Soil Analysis

	Node ID	N1	N2	N2	N3	N4	N5
	Sample No.	1	1	2 (dup)	1	1	1
	Lab ID	01092691-1	01092691-2	01092691-3	01092691-4	01092691-5	01092691-6
	Sample ID	N-01-S-01	N-02-S-01	N-02-S-02	N-03-S-01	N-04-S-01	N-05-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	13:55	14:00	14:02	14:15	14:25	14:35
Parameter:	**PRG** [a]						
Moisture (%)		16	21	21	18	19	16
Arsenic (mg/kg-dry)	440	10	8.9	6.7	6.8	6.5	3.8
Cadmium (mg/kg-dry)	810	1.9	0.75 J	0.63 J	1.6	0.57 J	0.8 J
Chromium (mg/kg-dry)	450	98 C	24 C	24 C	89 C	22 C	26 C
Copper (mg/kg-dry)	76,000	83	20	18	23	17	18
Lead (mg/kg-dry)	750	140	26	28	50	26	27
Zinc (mg/kg-dry)	100,000	260	110	110	200	100	110
Aroclor 1254 (μg/kg-dry)	1,000	61 J	200 U	18 J	100 J	28 J	54 J

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values are also below their respective Residential PRGs)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.

Tail Tracks Landfill Area Groundwater Analysis

	Well ID	TL-1	TL-2	TL-3	TL-3	TL-4	W-7	Field Blank	Rinse Blank [a]
	Sample No.	1	1	1	2 (dup)	1	1	1	1
	Lab ID	01092694-1	01092694-2	01092694-3	01092694-4	01092694-5	01092694-6	01092694-7	01092694-8
	Sample ID	TTL-1-G-01	TTL-2-G-01	TTL-3-G-01	TTL-3-G-02	TTL-4-G-01	TW-7-G-01	TFB-G-01	TRB-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	15:10	15:17	15:25	15:25	15:35	14:55	07:40	07:40
Parameter:	**PRG [b]**								
Cadmium (mg/L)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium (mg/L)	0.1 [c]	0.0056 J	0.0082 J	0.0066 J	0.0068 J	0.0095 J	0.0029 J	0.00057 J	0.0002 J
Lead (mg/L)	0.015 [c]	0.00064 J	0.021	0.0088	0.0078	0.2	0.0005 J	0.003 U	0.003 U
Nickel (mg/L)	0.73	0.0092	0.011	0.0064	0.0049 J	0.012	0.0074	0.005 U	0.005 U
Zinc (mg/L)	11	0.012 J	0.1	0.025	0.049	0.15	0.0054 J	0.0045 J	0.0024 J

[a] Equipment rinse blank for Tail Tracks Landfill Area soil sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

Tail Tracks Landfill Area Soil Analysis

	Node ID	T1	T2	T3	T4	T5	T5	T6
	Sample No.	1	1	1	1	1	2 (dup)	1
	Lab ID	01092695-1	01092695-2	01092695-3	01092695-4	01092695-5	01092695-6	01092695-7
	Sample ID	T-01-S-01	T-02-S-01	T-03-S-01	T-04-S-01	T-05-S-01	T-05-S-02	T-06-S-01
	Date	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01	09/19/01
	Time	11:00	10:50	10:30	10:20	09:55	10:00	09:45
Parameter:	**PRG** [a]							
Moisture (%)		32	20	19	29	34	36	13
Cadmium (mg/kg-dry)	810	2.6	2	0.99 J	6.6	4.5	3.1	16
Chromium (mg/kg-dry)	450	43	58	27	59	47	38	220
Lead (mg/kg-dry)	750	220	110	68	**790**	240	150	690
Nickel (mg/kg-dry)	41,000	26	22	25	24	36	33	95
Zinc (mg/kg-dry)	100,000	660	480	150	1,800	910	550	4,200

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values except Pb at T4, and Pb and Cr at T6 are also below their respective Residential PRGs)
(Residential Pb = 400 mg/kg)
(Residential Cr = 210 mg/kg)

Data Flags:
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

F-Pond Surface Water Analysis

	Node	F7	F7	F8	Rinse Blank	Trip Blank	Rinse Blank[a]
	Sample No.	1	2 (dup)	1	1	1	1
	Lab ID	01092801-4	01092801-5	01092801-6	01092801-2	01092801-1	01092801-3
	Sample ID	F07-W-01	F07-W-02	F08-W-01	FRB-W-01	Trip Blank	FRB-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	12:30	12:30	15:15	10:10	07:00	10:00
Parameter:	**PRG[b]**						
Aluminum (mg/l)	36	0.1 J	0.076 J	0.087 J	0.0094 J	na	0.014 J
Barium (mg/l)	2.6	0.034 J	0.034 J	0.038 J	0.00027 J	na	0.00083 J
Cadmium (mg/l)	0.018	0.005 U	0.005 U	0.005 U	0.005 U	na	0.005 U
Chromium (mg/l)	0.1[c]	0.0065 J	0.0055 J	0.0046 J	0.0011 J	na	0.01 U
Copper (mg/l)	1.4	0.0092 J	0.0084 J	0.0021 J	0.0026 J	na	0.025 U
Iron (mg/l)	11	**16**	**15**	0.19	0.77	na	0.018 J
Lead (mg/l)	0.015[c]	**0.047**	**0.038**	**0.029**	0.003 U	na	0.003 U
Manganese (mg/l)	0.88	**16**	**16**	0.2	0.00053 J	na	0.00046 J
Mercury (μg/l)	11	0.2 U	0.2 U	0.2 U	0.2 U	na	0.2 U
Zinc (mg/l)	11	0.27	0.22	0.026	0.0019 J	na	0.002 J
1,1-Dichloroethane (μg/l)	810	10 U	10 U	10 U	10 U	10 U	10 U
trans-1,2-Dichloroethene (μg/l)	120	10 U	10 U	10 U	10 U	10 U	10 U
Trichloroethene (μg/l)	1.6	1.6 U	1.6 U	**2**	1.6 U	1.6 U	1.6 U
Xylenes (Total) (μg/l)	1,400	10 U	10 U	10 U	10 U	10 U	10 U

na = not applicable

[a] Equipment rinse blank for F-Pond sediment sampling equipment.

[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)

[c] Drinking Water MCL (no PRG listed)
(Note: EPA drinking water std. For TCE is 5 μg/L.)

Data Flags:

U = Analyte not detected at method reporting limit concentration shown.

J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

F-Pond Sediment Analysis

	Node ID	F1	F1	F2	F3	F4	F5	F6
	Sample No.	1	2 (dup)	1	1	1	1	1
	Lab ID	01092802-2	01092802-1	01092802-3	01092802-4	01092802-5	01092802-6	01092802-7
	Sample ID	F-01-D-01	F-01-D-02	F-02-D-01	F-03-D-01	F-04-D-01	F-05-D-01	F-06-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	12:30	12:30	14:15	14:00	15:00	14:40	15:15
Parameter:	**PRG** [a]							
Moisture (%)		86	80	73	81	55	73	75
Aluminum (mg/kg-dry)	100,000	21,000	16,000	18,000	31,000	19,000	36,000	26,000
Barium (mg/kg-dry)	100,000	160 J	120 J	170	200 J	240	220	150 J
Cadmium (mg/kg-dry)	810	3.6 J	2.8 J	3.2 J	2.2 J	1.6 J	3.7	2.2 J
Chromium (mg/kg-dry)	450	170	130	70	95	51	74	68
Copper (mg/kg-dry)	76,000	210	140	63	140	47	85	64
Iron (mg/kg-dry)	100,000	**140,000**	100,000	28,000	63,000	21,000	41,000	36,000
Lead (mg/kg-dry)	750	**1,600**	**1,200**	**780**	530	**3,100**	210	320
Manganese (mg/kg-dry)	32,000	9,300	6,500	1,600	4,200	760	440	560
Mercury (mg/kg-dry)	610	0.28 U	0.20 U	0.15 U	0.21 U	0.07 J	0.18	0.18
Zinc (mg/kg-dry)	100,000	11,000	8,500	1,200	1,800	440	630	560
1,1-Dichloroethane (μg/kg-dry)	2,100,000	36 UFR	25 U	18 U	26 U	31	18 U	20 U
m/p-Xylene (μg/kg-dry)	--	36 UF	25 U	18 U	26 U	130	18 U	20 U
o-Xylene (μg/kg-dry)	--	36 UF	25 U	18 U	26 U	120	18 U	20 U
Total xylenes (μg/kg-dry)	210,000	71 UF	50 U	37 U	53 U	240	37 U	40 U
trans-1,2-Dichloroethene (μg/kg-dry)	210,000	36 UF	25 U	18 U	26 U	11	18 U	20 U
Trichloroethene (μg/kg-dry)	6,100	36 UFR	25 U	18 U	26 U	57	18 U	20 U

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note that all values except for Iron, Lead and Manganese also meet residential PRGs.)
(Residential PRGs for: Fe = 23,000 mg/kg; Pb = 400 mg/kg; and Mn = 1,800 mg/kg.)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
F = Result qualified due to internal standard result outside the required acceptance criteria.
R = Result qualified due matrix spike/matrix spike duplicate (MS/MSD) results outside the required acceptance criteria.

East Pond Surface Water Analysis

	Node	A5		A5		A6		Field Blank		Rinse Blank [a]	
	Sample No.	1		2 (dup)		1		1		1	
	Lab ID	01092804-1		01092804-2		01092804-3		01092804-5		01092804-4	
	Sample ID	A-05-W-01		A-05-W-02		A-06-W-01		ARB-W-01		ARB-D-01	
	Date	09/21/01		09/21/01		09/21/01		09/21/01		09/21/01	
	Time	11:00		11:15		11:45		10:10		10:10	
Parameter:	**PRG [b]**										
Chromium (mg/l)	0.1 [c]	0.018		0.018		0.02		0.00028	J	0.00038	J
Copper (mg/l)	1.4	0.0022	J	0.0017	J	0.0023	J	0.00036	J	0.025	U
Lead (mg/l)	0.015 [c]	**0.017**		**0.016**		**0.05**		0.003	U	0.003	U
Zinc (mg/l)	11	0.0091	J	0.0088	J	0.012	J	0.0017	J	0.0023	J

[a] Equipment rinse blank for East Pond sediment sampling equipment.
[b] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[c] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.

East Pond Sediment Analysis

	Node ID	A1	A1	A2	A3	A4
	Sample No.	1	2 (dup)	1	1	1
	Lab ID	01092803-1	01092803-2	01092803-3	01092803-4	01092803-5
	Sample ID	A-01-D-01	A-01-D-02	A-02-D-01	A-03-D-01	A-04-D-01
	Date	09/21/01	09/21/01	09/21/01	09/21/01	09/21/01
	Time	11:15	11:20	12:05	11:45	11:30
Parameter:	**PRG** [a]					
Moisture (%)		54	45	59	56	60
Chromium (mg/kg Dry)	450	70	62	83	59	58
Copper (mg/kg Dry)	76,000	7.4 J	6.4 J	13	21	16
Lead (mg/kg Dry)	750	67	64	93	110	60
Zinc (mg/kg Dry)	100,000	120	100	160	320	150

[a] US EPA Region 9 Industrial Preliminary Remediation Goal (PRG)
(Note: all values are also below the respective Residential PRGs)

Data Flags:

U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.
F = Result qualified due to internal standard result outside the required acceptance criteria.

Tail Tracks Area Surface Water Analysis

	Node ID	TO1	TO2	TO4
	Sample No.	1	1	1
	Lab ID	01121541-3	01121541-2	01121541-1
	Sample ID	TO-1	TO-2	TO-4
	Date	12/06/01	12/06/01	12/06/01
	Time	15:30	15:15	15:00
Parameter:	**PRG** [a]			
Cadmium (mg/l)	0.018	0.002 U	0.002 U	0.002 U
Chromium (mg/l)	0.1 [b]	0.004 U	0.05	0.011
Nickel (mg/l)	0.73	0.027	0.005 U	0.005 U
Lead (mg/l)	0.015 [b]	0.09	0.05	0.01 U
Zinc (mg/l)	11	0.45	0.027	0.15

[a] US EPA Region 9 Tap Water Preliminary Remediation Goal (PRG)
[b] Drinking Water MCL (no PRG listed)

Data Flags:
U = Analyte not detected at method reporting limit concentration shown.
J = Analyte detected below calibration range. Reported concentration is estimated based upon extrapolation below calibration range.
C = Result qualified due to batch control sample failing to meet the required acceptance critera.
F = Result qualified due to internal standard result outside the required acceptance criteria.

Appendix B
Soil Boring Logs

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. A-01 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~444 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 16084.37 E.(Y) 10199.78

Latitude 40 ° 38 ' 0 " Longitude 89 ° 38 ' 23 "

Boring Location East Pond (~10' NE of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt, white & gray (10YR8/1) & (10YR6/1), wet, ooze contains organic matter (pond sediment).									
	Total depth 0.50'.									Samples: A-01-D-01 A-01-D-02 MS/MSD

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. A-02 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~444 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15982.45 E.(Y) 10369.23

Latitude 40 ° 38 ' 0 " Longitude 89 ° 38 ' 23 "

Boring Location East Pond (~10' W. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt, white & grayish brown (10YR7/1) & (10YR5/2), wet, ooze, organic matter (pond sediment).									
	Total depth 0.5'.									Sample: A-02-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. A-03 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~444 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15950.00 E.(Y) 10233.47

Latitude 40 ° 38 ' 0 " Longitude 89 ° 38 ' 23 "

Boring Location East Pond (~10' E. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt, white & grayish brown (10YR8/1) & (10YR5/2), wet, ooze, contains organic matter (pond sediment).									
	Total depth 0.50'.									Sample: A-03-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. A-04 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~444 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 16021.28 E.(Y) 10262.45

Latitude 40 ° 38 ' 0 " Longitude 89 ° 38 ' 23 "

Boring Location East Pond (~10' E. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt, white & gray (10YR8/1) & (10YR6/1), wet, ooze, contains organic matter (pond sediment).									
	Total depth 0.5'.									Sample: A-04-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-01 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~442 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15499.82 E.(Y) 9253.46

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' S. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt (organic), black (10YR2/1), wet, ooze, non-calcareous, contains abundant plant material (pond sediment).									
	Total depth 0.5'.									Sample: F-01-D-01 & MS/MSD, F-01-D-02

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-02 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~442 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15301.33 E.(Y) 9288.62

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' W. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt (organic), black (10YR2/1), wet, ooze, non-calcareous, contains abundant plant material (pond sediment).									
	Total depth 0.5'.									Sample: F-02-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-03 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~442 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15244.79 E.(Y) 9206.27

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' E. of Site Coord.)

Drilling Equipment Scoop

SAMPLES

PERSONNEL

G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt (organic), black (10YR2/1), wet, ooze, non-calcareous, contains abundant plant material (pond sediment).									
	Total depth 0.5'.									Sample: F-03-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-04 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~442 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 15016.31 E.(Y) 9206.27

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' S. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt, white & gray (10YR8/1) & (10YR6/1), wet, ooze, contains plant material (pond sediment) (white - calcareous).									
	Total depth 0.5'.									Sample: F-04-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-05 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~441 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 14838.44 E.(Y) 9260.26

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' NE of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt (organic), black (10YR2/1), wet, ooze, non-calcareous contains abundant plant material (pond sediment). Total depth 0.5'.									Sample: F-05-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. F-06 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation ~442 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 0.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/21/01 Finish 9/21/01

Site Coord. N.(X) 14703.48 E.(Y) 9405.98

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 39 "

Boring Location F-Pond (~10' W. of Site Coord.)

Drilling Equipment Scoop

PERSONNEL
G - JA Duwelius
D - Scoop
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silt (organic), black (10YR2/1), wet, ooze, non-calcareous, contains abundant plant material (pond sediment).									
	Total depth 0.5'.									Sample: F-06-D-01

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. N-01 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 447.14 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 25 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 21892.73 E.(Y) 9230.63

Latitude 40 ° 38 ' 43 " Longitude 89 ° 38 ' 33 "

Boring Location Sheen Pond

Drilling Equipment Trowel

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL:
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay, yellowish brown (10YR5/6), moist, friable, slightly calcareous.									Sample: N-01-S-01
446.1	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. N-02 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 439.01 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 25 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 21727.46 E.(Y) 9342.85

Latitude 40 ° 38 ' 43 " Longitude 89 ° 38 ' 33 "

Boring Location Sheen Pond

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay, yellowish brown (10YR5/6), moist, friable, slightly calcareous.									Samples: N-02-S-01, MS/MSD N-02-S-02
438.0	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. N-03 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 437.93 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 25 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 21496.02 E.(Y) 9446.78

Latitude 40 ° 38 ' 43 " Longitude 89 ° 38 ' 33 "

Boring Location Sheen Pond

Drilling Equipment Trowel

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, yellowish brown (10YR5/6), moist, friable, slightly calcareous.									Sample: N-03-S-01
436.9	Total Depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. N-04 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 438.04 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 25 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 21335.93 E.(Y) 9507.50

Latitude 40 ° 38 ' 43 " Longitude 89 ° 38 ' 33 "

Boring Location Sheen Pond

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, yellowish brown (10YR5/6), moist, friable, slightly calcareous, organic mottles.									Sample: N-04-S-01
437.0	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. N-05 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 441.36 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 25 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 21147.84 E.(Y) 9572.92

Latitude 40 ° 38 ' 43 " Longitude 89 ° 38 ' 33 "

Boring Location Sheen Pond

Drilling Equipment Trowel

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	Silty clay loam, yellowish brown (10YR5/6), moist, friable, slightly calcareous.			Sample: N-05-S-01
440.4	Total depth 1.0'.		1	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-01 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 444.24 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 15559.52 E.(Y) 10044.31

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, brown w/gray (10YR5/3) & (10YR5/1), moist, friable, non-calcareous, contains organic material.									Sample: T-01-S-01
443.2	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-02 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 443.72 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 15261.52 E.(Y) 10027.20

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, grayish brown (10YR5/2), moist, friable, blocky structure, non-calcareous, contains organic material.									Sample: T-02-S-01
442.7	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-03 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 444.36 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 15115.10 E.(Y) 9840.85

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, brown (10YR4/3), moist, friable, non-calcareous, contains organic material.									Sample: T-03-S-01
443.4	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-04 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 442.65 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 15017.59 E.(Y) 9659.36

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, dark brown (10YR3/3), moist, sticky, non-calcareous, contains organic material.									Sample: T-04-S-01
441.7	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-05 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 443.28 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 14987.88 E.(Y) 9521.82

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

SAMPLES

PERSONNEL

G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Silty clay loam, dark brown (10YR4/3), moist, sticky, non-calcareous, common organic material.									Sample: T-05-S-01, MS/MSD, T-05-S-02
442.3	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. T-06 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 451.1 ft. Completion Depth NA

Fed. ID. No. ILD000714881 Auger Depth 1.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/19/01 Finish 9/19/01

Site Coord. N.(X) 15131.44 E.(Y) 9351.21

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Trowel

PERSONNEL
G - JA Duwelius
D - Trowel
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Loam, dark brown (10YR4/3), dry, friable, calcareous, abundant slag, organic material (fill material).									Sample: T-06-S-01
450.1	Total depth 1.0'.		1							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. TL-1 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 443.61 ft. Completion Depth 10.45

Fed. ID. No. ILD000714881 Auger Depth 11.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/17/01 Finish 9/17/01

Site Coord. N.(X) 15493.81 E.(Y) 10028.76

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Hand Auger

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL
G - JA Duwelius
D - Hand Auger
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	Silty clay loam, dark grayish brown (10YR4/2), moist, slightly plastic, non-calcareous contains organic material, wet at 1.0'.			
442.6			1	
441.6			2	
440.6	Silty clay loam, gray (10YR6/1), wet, plastic, non-calcareous, clear contact at 6.0' to,		3	
439.6			4	
438.6			5	
437.6	Sand, fine, grayish brown (10YR5/2), color change at 7.0' to brown (10YR4/3), wet, loose, non-plastic, non-calcareous, clear contact at 9.0' to,		6	
436.6			7	
435.6			8	
434.6	Silty clay, gray (10YR6/1), moist, plastic, non-calcareous.		9	
433.6			10	
	Total depth 11.0'.			

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. TL-2 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 442.71 ft. Completion Depth 10.64

Fed. ID. No. ILD000714881 Auger Depth 11.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 31 T. 8N R. 8E Date: Start 9/17/01 Finish 9/17/01

Site Coord. N.(X) 15133.74 E.(Y) 9909.75

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Hand Auger

PERSONNEL
G - JA Duwelius
D - Hand Auger
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Arc dust (?), reddish brown (5YR4/4), moist, friable, calcareous, trace slag, wet at 1.2', clear contact at 2.2' to,									
441.7			1							
440.7			2							
	Clay, greenish gray (5GY5/1), moist, plastic, non-calcareous, clear contact at 2.7' to,									
439.7	Organic material, black (10YR2/1), wet, non-calcareous, (original ground surface) clear contact at 3.0' to,		3							
438.7	Silty clay, gray (10YR5/1), moist, plastic (stiff), non-calcareous, yellowish brown (10YR5/6) mottles common, distinct, coarse.		4							
437.7			5							
436.7			6							
435.7			7							
434.7			8							
433.7			9							
432.7			10							
	Total depth 11.0'.									

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. TL-3 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 444.01 ft. Completion Depth 10.39

Fed. ID. No. ILD000714881 Auger Depth 10.50 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/17/01 Finish 9/17/01

Site Coord. N.(X) 14991.00 E.(Y) 9557.00

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Hand Auger

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL
G - JA Duwelius
D - Hand Auger
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Depth in feet	REMARKS
443.0	Silty clay loam, very dark brown (10YR2/2), color change at 1.5' to brown (10YR5/3), slightly moist, friable, contains organic material, non-calcareous, clear contact at 2.5' to,	1	
442.0		2	
441.0	Silty clay loam, gray & yellowish brown (10YR5/1) & (10YR5/4), moist, sticky, wet at 3.0', non-calcareous, clear contact at 6.0' to,	3	
440.0		4	
439.0		5	
438.0	Loamy sand, fine-medium, gray (10YR5/1), wet, loose, non-plastic, non-calcareous, clear contact at 7.0' to,	6	
437.0	Sand, medium, gray (10YR5/1), wet, loose, non-plastic, non-calcareous, clear contact at 9.5' to,	7	
436.0		8	
435.0		9	
434.0	Silty clay, gray (10YR5/1), moist, plastic, non-calcareous.	10	
	Total depth 10.5		

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1430050001 County Peoria Boring No. TL-4 Monitor Well No. NA

Site File Name Keystone Steel & Wire Co. Surface Elevation 443.53 ft. Completion Depth 8.71

Fed. ID. No. ILD000714881 Auger Depth 9.00 ft. Rotary Depth

Quadrangle Peoria West Sec. 36 T. 8N R. 7E Date: Start 9/17/01 Finish 9/17/01

Site Coord. N.(X) 15021.00 E.(Y) 9406.00

Latitude 40 ° 37 ' 53 " Longitude 89 ° 38 ' 33 "

Boring Location Trail Tracks Landfill

Drilling Equipment Hand Auger

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (%) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL
G - JA Duwelius
D - Hand Auger
H - RE Aten
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	Silty clay loam, brown (10YR4/3), moist, slightly plastic, non-calcareous, contains trace slag at 1.5', wet at 1.5', clear contact at 5.0' to,			
442.5			1	
441.5			2	
440.5			3	
439.5			4	
438.5	Silty clay, dark gray (10YR4/1), wet, plastic, non-calcareous, contains plant material.		5	
437.5			6	
436.5			7	
435.5			8	
434.5	Total depth 9.0'.		9	

(950226)

Appendix C
Well Completion Reports

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1430050001 COUNTY: Peoria WELL #: TL-1

SITE NAME: Keystone Steel & Wire Co. BOREHOLE #: TL-1

SITE GRID COORDINATE: X 15493.81 Y 10028.76 (or) LATITUDE 40 ° 37 ' 53 " LONGITUDE 89 ° 38 ' 33 "

SURVEYED BY: Daily & Assoc. ILL. REGISTRATION #: NA

DRILLING CONTRACTOR: NA DRILLER: Hand Auger

CONSULTING FIRM: Earth Tech GEOLOGIST: JA Duwelius

DRILLING METHOD: Hand Auger DRILLING FLUIDS (TYPE): None

LOGGED BY: JA Duwelius DATE STARTED: 9/17/01 DATE FINISHED: 9/18/01

REPORT FORM COMPLETED BY: JA Duwelius DATE: 9/18/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Granular Bentonite

INSTALLATION METHOD: Pour

SETTING TIME:

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME:

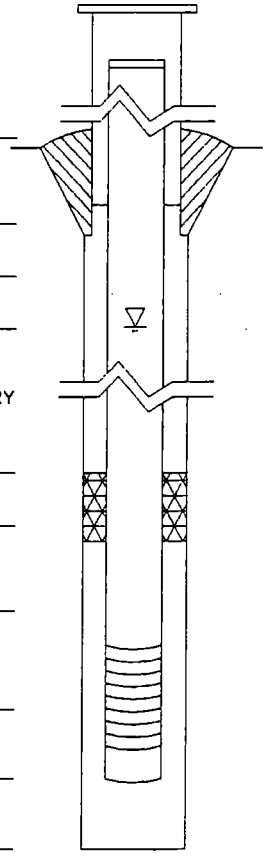
TYPE OF SAND PACK: Silica Sand

GRAIN SIZE: (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
445.97	-2.36	TOP OF PROTECTIVE CASING
445.67	-2.06	TOP OF RISER PIPE
443.61	0.00	GROUND SURFACE
440.81	2.80	TOP OF ANNULAR SEALANT
442.61	1.00	STATIC WATER LEVEL (AFTER COMPLETION)
440.81	2.80	TOP OF SEAL
439.91	3.70	TOP OF SANDPACK
438.21	5.40	TOP OF SCREEN
433.64	9.97	BOTTOM OF SCREEN
433.16	10.45	BOTTOM OF WELL
432.61	11.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	PVC	OTHER: (Steel)
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER: (PVC)
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER: (PVC)
SCREEN	SS304	SS316	PTFE	PVC	OTHER: (PVC)

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6.0
ID OF RISER PIPE	(in)	2.0
PROTECTIVE CASING LENGTH	(ft)	5.0
RISER PIPE LENGTH	(ft)	7.46
BOTTOM OF SCREEN TO END CAP	(ft)	0.48
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	4.57
TOTAL LENGTH OF CASING	(ft)	12.51
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1430050001 COUNTY: Peoria WELL #: TL-2

SITE NAME: Keystone Steel & Wire Co. BOREHOLE #: TL-2

SITE GRID COORDINATE: X 15133.74 Y 9909.75 (or) LATITUDE 40 ° 37 ' 53 " LONGITUDE 89 ° 38 ' 33 "

SURVEYED BY: Daily & Assoc. ILL. REGISTRATION #: NA

DRILLING CONTRACTOR: NA DRILLER: Hand Auger

CONSULTING FIRM: Earth Tech GEOLOGIST: JA Duwelius

DRILLING METHOD: Hand Auger DRILLING FLUIDS (TYPE): None

LOGGED BY: JA Duwelius DATE STARTED: 9/17/01 DATE FINISHED: 9/18/01

REPORT FORM COMPLETED BY: JA Duwelius DATE: 9/18/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Granular Bentonite

INSTALLATION METHOD: Pour

SETTING TIME:

TYPE OF BENTONITE SEAL - GRANULAR PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME:

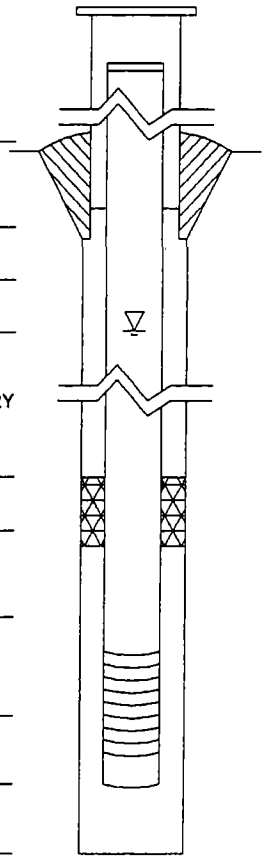
TYPE OF SAND PACK: Silica Sand

GRAIN SIZE: (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
446.47	-3.76	TOP OF PROTECTIVE CASING
446.14	-3.43	TOP OF RISER PIPE
442.71	0.00	GROUND SURFACE
441.21	1.50	TOP OF ANNULAR SEALANT
441.51	1.20	STATIC WATER LEVEL (AFTER COMPLETION)
441.21	1.50	TOP OF SEAL
438.31	4.40	TOP OF SANDPACK
437.10	5.61	TOP OF SCREEN
432.54	10.17	BOTTOM OF SCREEN
432.07	10.64	BOTTOM OF WELL
431.71	11.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	PVC	OTHER: Steel
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER: PVC
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER: PVC
SCREEN	SS304	SS316	PTFE	PVC	OTHER: PVC

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6.0
ID OF RISER PIPE	(in)	2.0
PROTECTIVE CASING LENGTH	(ft)	5.0
RISER PIPE LENGTH	(ft)	9.04
BOTTOM OF SCREEN TO END CAP	(ft)	0.47
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	4.56
TOTAL LENGTH OF CASING	(ft)	14.07
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1430050001 COUNTY: Peoria WELL #: TL-3

SITE NAME: Keystone Steel & Wire Co. BOREHOLE #: TL-3

SITE GRID COORDINATE: X 14991.00 Y 9557.00 (or) LATITUDE 40 ° 37 ' 53 " LONGITUDE 89 ° 38 ' 33 "

SURVEYED BY: Daily & Assoc. ILL. REGISTRATION #: NA

DRILLING CONTRACTOR: NA DRILLER: Hand Auger

CONSULTING FIRM: Earth Tech GEOLOGIST: JA Duwelius

DRILLING METHOD: Hand Auger DRILLING FLUIDS (TYPE): None

LOGGED BY: JA Duwelius DATE STARTED: 9/17/01 DATE FINISHED: 9/18/01

REPORT FORM COMPLETED BY: JA Duwelius DATE: 9/18/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Granular Bentonite

INSTALLATION METHOD: Pour

SETTING TIME:

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME:

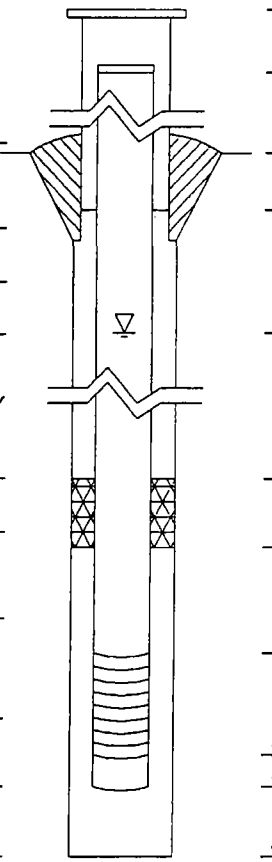
TYPE OF SAND PACK: Silica Sand

GRAIN SIZE: (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
446.95	-2.94	TOP OF PROTECTIVE CASING
446.60	-2.59	TOP OF RISER PIPE
444.01	0.00	GROUND SURFACE
441.81	2.20	TOP OF ANNULAR SEALANT
441.01	3.00	STATIC WATER LEVEL (AFTER COMPLETION)
441.81	2.20	TOP OF SEAL
440.81	3.20	TOP OF SANDPACK
438.67	5.34	TOP OF SCREEN
434.11	9.90	BOTTOM OF SCREEN
433.62	10.39	BOTTOM OF WELL
433.51	10.50	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	PVC	OTHER: (Steel)
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER: (PVC)
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER: (PVC)
SCREEN	SS304	SS316	PTFE	PVC	OTHER: (PVC)

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6.0
ID OF RISER PIPE	(in)	2.0
PROTECTIVE CASING LENGTH	(ft)	5.0
RISER PIPE LENGTH	(ft)	7.93
BOTTOM OF SCREEN TO END CAP	(ft)	0.49
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	4.56
TOTAL LENGTH OF CASING	(ft)	12.98
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1430050001 COUNTY: Peoria WELL #: TL-4

SITE NAME: Keystone Steel & Wire Co. BOREHOLE #: TL-4

SITE GRID COORDINATE: X 15021.00 Y 9406.00 (or) LATITUDE 40 ° 37 ' 53 " LONGITUDE 89 ° 38 ' 33 "

SURVEYED BY: Daily & Assoc. ILL. REGISTRATION #: NA

DRILLING CONTRACTOR: NA DRILLER: Hand Auger

CONSULTING FIRM: Earth Tech GEOLOGIST: JA Duwelius

DRILLING METHOD: Hand Auger DRILLING FLUIDS (TYPE): None

LOGGED BY: JA Duwelius DATE STARTED: 9/17/01 DATE FINISHED: 9/18/01

REPORT FORM COMPLETED BY: JA Duwelius DATE: 9/18/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Granular Bentonite

INSTALLATION METHOD: Pour

SETTING TIME:

TYPE OF BENTONITE SEAL - GRANULAR PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME:

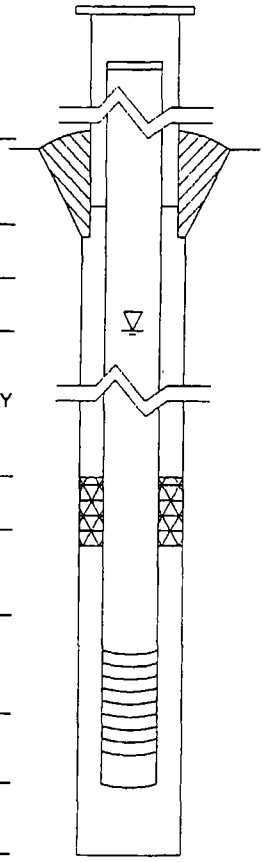
TYPE OF SAND PACK: Silica Sand

GRAIN SIZE: (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
447.52	-3.99	TOP OF PROTECTIVE CASING
447.19	-3.66	TOP OF RISER PIPE
443.53	0.00	GROUND SURFACE
442.13	1.40	TOP OF ANNULAR SEALANT
442.03	1.50	STATIC WATER LEVEL (AFTER COMPLETION)
442.13	1.40	TOP OF SEAL
440.13	3.40	TOP OF SANDPACK
439.87	3.66	TOP OF SCREEN
435.30	8.23	BOTTOM OF SCREEN
434.82	8.71	BOTTOM OF WELL
434.53	9.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	PVC	OTHER: Steel
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER: PVC
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER: PVC
SCREEN	SS304	SS316	PTFE	PVC	OTHER: PVC

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6.0
ID OF RISER PIPE	(in)	2.0
PROTECTIVE CASING LENGTH	(ft)	5.0
RISER PIPE LENGTH	(ft)	7.32
BOTTOM OF SCREEN TO END CAP	(ft)	0.48
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	4.57
TOTAL LENGTH OF CASING	(ft)	12.37
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Appendix D
Oil Skimmer Basin
Groundwater Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092683

November 7, 2001

Earth Tech

**Project: Oil Skim Basin/
Waters**

SDG #01092683

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092683

Case Narrative	01
Tabulated Results	05
Dates and Dilutions	08
QC Summary	11
Shipping and Receiving	21

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

Oil Skim Basin-Waters Project No. 19718.09

PDC Laboratories, Inc. received 8 water samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092683, for Total Metals, Hexane Ext. Material (HEM) by SPE, TPH, and Phenolics analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
BCL-1-G-01 (M,X)	01092683-1	09/19/01	09/19/01
BCL-2-G-01 (M,X)	01092683-2	09/19/01	09/19/01
BCL-3-G-01 (M,X)	01092683-3	09/19/01	09/19/01
BCL-4-G-01 (M,X)	01092683-4	09/19/01	09/19/01
BCL-5-G-01 (M,X)	01092683-5	09/19/01	09/19/01
BCL-5-G-02 (M,X)	01092683-6	09/19/01	09/19/01
BT-15-G-01 (M,X)	01092683-7	09/19/01	09/19/01
BFB2-G-01 (M,X)	01092683-8	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by Method 200.8 and 200.7; Hexane Ext. Material (HEM) by SPE by Method 1664; TPH by Method 1664, and Phenolics by Method 420.2.

Metals QC Summary (200.8)

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092683-5. All recoveries were within the specified QC limits except for Chromium, Manganese, Arsenic, and Mercury. A Post Digestion Spike was performed for these elements, and recoveries were within QC criteria.

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All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

Metals QC Summary (200.7)

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092683-5. Recovery was within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

Hexane Ext. Material (HEM) by SPE QC Summary

This test is sometimes referred to as Oil and Grease.

All holding time criteria were met for all samples.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092683-5. Recovery was within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

TPH analysis was also requested on these samples. Total Petroleum Hydrocarbons are a subset of the organic material identified by HEM. TPH analysis uses the extract generated during HEM to further characterize this organic material as specifically total petroleum hydrocarbons. When no organic material is detected in HEM analysis, we are unable to perform a TPH analysis because there is no extract to analyze. As no Hexane Extractable Material was detected in any of the samples in this SDG, we were not able to perform a TPH analysis on them.

Phenolics QC Summary

All holding time criteria were met for all samples.

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All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092683-5. Recovery was within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 7, 01	Title:	Project Manager

EAR01092683.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

11/02/01

	Laboratory Sample No.:		01092683-1	01092683-2	01092683-3
	Client Description:		205746	205746	205746
	Site/Locator:		BCL-1-G-01	BCL-2-G-01	BCL-3-G-01
	Date Collected:		18-SEP-01 18:00:00	18-SEP-01 18:15:00	18-SEP-01 17:50:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 200.7	Iron	mg/l	1.9	0.1	0.42
EPA 200.8	Aluminum	mg/l	0.52	0.1 J	0.068 J
EPA 200.8	Arsenic	mg/l	0.0068	0.0011	0.0024
EPA 200.8	Barium	mg/l	0.13 J	0.069 J	0.14 J
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.004 J	0.0028 J	0.004 J
EPA 200.8	Copper	mg/l	0.0057 J	0.0018 J	0.002 J
EPA 200.8	Lead	mg/l	0.0018 J	0.00019 J	0.00081 J
EPA 200.8	Manganese	mg/l	12	0.71	1.8
EPA 200.8 R5.4	Mercury	ug/l	0.2 U	0.2 U	0.2 U
	Hexane Ext. Material (HEM) by SPE	mg/l	6 U	6 U	6 U
	Phenolics	mg/l	0.01	0.015	0.005 U

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11/02/01

	Laboratory Sample No.:		01092683-4	01092683-5	01092683-6
	Client Description:		205746	205746	205746
	Site/Locator:		BCL-4-G-01	BCL-5-G-01	BCL-5-G-02
	Date Collected:		18-SEP-01 17:40:00	18-SEP-01 17:30:00	18-SEP-01 17:30:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 200.7	Iron	mg/l	4.6	2.1	2.1
EPA 200.8	Aluminum	mg/l	0.04 J	0.016 J	0.015 J
EPA 200.8	Arsenic	mg/l	0.026	0.0082	0.0078
EPA 200.8	Barium	mg/l	0.24	0.097 J	0.11 J
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.0035 J	0.0034 J	0.0042 J
EPA 200.8	Copper	mg/l	0.001 J	0.0014 J	0.0016 J
EPA 200.8	Lead	mg/l	0.00016 J	0.0011 J	0.0007 J
EPA 200.8	Manganese	mg/l	1.2	5.7	5.4
EPA 200.8 R5.4	Mercury	ug/l	0.2 U	0.2 U	0.2 U
	Hexane Ext. Material (HEM) by SPE	mg/l	6 U	6 U	6 U
	Phenolics	mg/l	0.0089	0.0039 J	0.0069

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11/02/01

	Laboratory Sample No.:		01092683-7	01092683-8
	Client Description:		205746	205746
	Site/Locator:		BT-15-G-01	BFB2-G-01
	Date Collected:		18-SEP-01 18:40:00	18-SEP-01 14:40:00
Method	Parameter		undiluted	undiluted
EPA 200.7	Iron	mg/l	1.9	0.1 U
EPA 200.8	Aluminum	mg/l	0.35	0.0059 J
EPA 200.8	Arsenic	mg/l	0.0008 J	0.00018 J
EPA 200.8	Barium	mg/l	0.19 J	0.00027 J
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.0026 J	0.00036 J
EPA 200.8	Copper	mg/l	0.0027 J	0.0003 J
EPA 200.8	Lead	mg/l	0.015	0.0002 J
EPA 200.8	Manganese	mg/l	0.54	0.00039 J
EPA 200.8 R5.4	Mercury	ug/l	0.2 U	0.2 U
	Hexane Ext. Material (HEM) by SPE	mg/l	6 U	6 U
	Phenolics	mg/l	0.005 U	0.005 U

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092683-1		Client ID BCL-1-G-01			Collect Date: 09/18/01 18:00		Receive Date: 09/19/01 18:20		
FED GO HEXANE SPE						1	09/21/01 07:00	10/16/01 18:00	WG49457
FED PHENOL						1	09/25/01 15:47	10/16/01 18:00	WG49603
FED AL, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED AS, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED BA, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED CD, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED CR, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED CU, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED FE, 200.7		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 09:10	03/17/02 18:00	WG50201
FED HG, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	10/16/01 18:00	WG50240
FED MN, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
FED PB, 200.8		09/24/01 12:00	03/17/02 18:00	WG50053	PREP FOR	1	09/27/01 12:05	03/17/02 18:00	WG50240
Lab ID: 01092683-2		Client ID BCL-2-G-01			Collect Date: 09/18/01 18:15		Receive Date: 09/19/01 18:20		
FED GO HEXANE SPE						1	09/21/01 07:00	10/16/01 18:15	WG49457
FED PHENOL						1	09/25/01 15:48	10/16/01 18:15	WG49603
FED AL, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED AS, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED BA, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED CD, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED CR, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
[illegible], 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED FE, 200.7		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 09:15	03/17/02 18:15	WG50201
FED HG, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	10/16/01 18:15	WG50240
FED MN, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
FED PB, 200.8		09/24/01 12:00	03/17/02 18:15	WG50053	PREP FOR	1	09/27/01 12:10	03/17/02 18:15	WG50240
Lab ID: 01092683-3		Client ID BCL-3-G-01			Collect Date: 09/18/01 17:50		Receive Date: 09/19/01 18:20		
FED GO HEXANE SPE						1	09/21/01 07:00	10/16/01 17:50	WG49457
FED PHENOL						1	09/25/01 15:48	10/16/01 17:50	WG49603
FED AL, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED AS, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED BA, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED CD, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED CR, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED CU, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED FE, 200.7		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 09:21	03/17/02 17:50	WG50201
FED HG, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	10/16/01 17:50	WG50240
FED MN, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240
FED PB, 200.8		09/24/01 12:00	03/17/02 17:50	WG50053	PREP FOR	1	09/27/01 12:15	03/17/02 17:50	WG50240

Lab ID: 01092683-4 Client ID: BCL-4-G-01 Collect Date: 09/18/01 17:40 Receive Date: 09/19/01 18:20

FED GO HEXANE SPE					1	09/21/01 07:00	10/16/01 17:40	WG49457
FED PHENOL					1	09/25/01 15:49	10/16/01 17:40	WG49603
FED AL, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED AS, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED BA, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED CD, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED CR, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED CU, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED FE, 200.7	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 09:27	03/17/02 17:40	WG50201
FED HG, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	10/16/01 17:40	WG50240
FED MN, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240
FED PB, 200.8	09/24/01 12:00	03/17/02 17:40	WG50053	PREP FOR	1	09/27/01 12:21	03/17/02 17:40	WG50240

Lab ID: 01092683-5 Client ID: BCL-5-G-01 Collect Date: 09/18/01 17:30 Receive Date: 09/19/01 18:20

FED GO HEXANE SPE					1	09/21/01 06:00	10/16/01 17:30	WG49457
FED PHENOL					1	09/25/01 15:50	10/16/01 17:30	WG49603
FED AL, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED AS, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED BA, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED CD, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED CR, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED CU, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED FE, 200.7	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 09:33	03/17/02 17:30	WG50201
FED HG, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	10/16/01 17:30	WG50240
FED MN, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240
FED PB, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:37	03/17/02 17:30	WG50240

Lab ID: 01092683-6 Client ID: BCL-5-G-02 Collect Date: 09/18/01 17:30 Receive Date: 09/19/01 18:20

FED GO HEXANE SPE					1	09/21/01 07:00	10/16/01 17:30	WG49457
FED PHENOL					1	09/25/01 15:53	10/16/01 17:30	WG49603
FED AL, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED AS, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED BA, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED CD, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED CR, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED CU, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED FE, 200.7	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 10:03	03/17/02 17:30	WG50201
FED HG, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	10/16/01 17:30	WG50240
FED MN, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240
FED PB, 200.8	09/24/01 12:00	03/17/02 17:30	WG50053	PREP FOR	1	09/27/01 12:26	03/17/02 17:30	WG50240

Lab ID: 01092683-7 Client ID: BT-15-G-01 Collect Date: 09/18/01 18:40 Receive Date: 09/19/01 18:20

FED GO HEXANE SPE					1	09/21/01 07:00	10/16/01 18:40	WG49457
FED PHENOL					1	09/25/01 15:58	10/16/01 18:40	WG49603
FED AL, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED AS, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED BA, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED CD, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED CR, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED CU, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED FE, 200.7	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 10:09	03/17/02 18:40	WG50201
FED HG, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	10/16/01 18:40	WG50240
FED MN, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240
FED PB, 200.8	09/24/01 12:00	03/17/02 18:40	WG50053	PREP FOR	1	09/27/01 12:32	03/17/02 18:40	WG50240

Lab ID: 01092683-8 Client ID: BFB2-G-01 Collect Date: 09/18/01 14:40 Receive Date: 09/19/01 18:20

FED GO HEXANE SPE					1	09/21/01 07:00	10/16/01 14:40	WG49457
FED PHENOL					1	09/25/01 15:59	10/16/01 14:40	WG49603
FED AL, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED AS, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED BA, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED CD, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED CR, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED CU, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED FE, 200.7	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 10:15	03/17/02 14:40	WG50201
FED HG, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	10/16/01 14:40	WG50240
FED MN, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240
FED PB, 200.8	09/24/01 12:00	03/17/02 14:40	WG50053	PREP FOR	1	09/27/01 13:36	03/17/02 14:40	WG50240

QC SUMMARY

PDC Laboratories Quality Control Summary Report

ROJECT: 01092683

S ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092683-1	BCL-1-G-01	WG50053	WG50240	27-Sep-01 12:05	JTM	EPA 200.8	
01092683-2	BCL-2-G-01	WG50053	WG50240	27-Sep-01 12:10	JTM	EPA 200.8	
01092683-3	BCL-3-G-01	WG50053	WG50240	27-Sep-01 12:15	JTM	EPA 200.8	
01092683-4	BCL-4-G-01	WG50053	WG50240	27-Sep-01 12:21	JTM	EPA 200.8	
01092683-5	BCL-5-G-01	WG50053	WG50240	27-Sep-01 12:37	JTM	EPA 200.8	
01092683-6	BCL-5-G-02	WG50053	WG50240	27-Sep-01 12:26	JTM	EPA 200.8	
01092683-7	BT-15-G-01	WG50053	WG50240	27-Sep-01 12:32	JTM	EPA 200.8	
01092683-8	BFB2-G-01	WG50053	WG50240	27-Sep-01 13:36	JTM	EPA 200.8	

METHOD BLANK

Laboratory ID: WG50053-1 Analysis Lot: WG50240 Sample Tag: WG50053

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.0092J	0.20	27-Sep-01 13:31
Chromium	MG/L	0.010U	0.010	27-Sep-01 13:31
Manganese	MG/L	0.015U	0.015	27-Sep-01 13:31
Copper	MG/L	0.025U	0.025	27-Sep-01 13:31
Arsenic	MG/L	6.1e-05J	0.0010	27-Sep-01 13:31
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 13:31
Barium	MG/L	0.20U	0.20	27-Sep-01 13:31
Lead	MG/L	0.0030U	0.0030	27-Sep-01 13:31
Mercury	UG/L	0.20U	0.20	27-Sep-01 13:31

LABORATORY CONTROL SAMPLE

oratory ID: WG50053-2 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Chromium	MG/L	5.55	5.80	104	85.0-115	27-Sep-01 14:22
Manganese	MG/L	5.55	5.50	99.1	85.0-115	27-Sep-01 14:22
Copper	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Arsenic	MG/L	5.55	5.80	104	85.0-115	27-Sep-01 14:22
Cadmium	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Barium	MG/L	5.55	5.30	95.5	85.0-115	27-Sep-01 14:22
Lead	MG/L	5.55	5.50	99.1	85.0-115	27-Sep-01 14:22
Mercury	UG/L	4.40	4.10	93.0	85.0-115	27-Sep-01 14:22

TRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG50053-3, WG50053-4 Analysis Lot: WG50240 Sample Spiked: 01092683-5 Site: BCL-5-G-01 Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits	
Aluminum	MG/L	5.5	5.5	0.016	5.8	6.8	104	122	70.0-130	15.9	20.0	
Chromium	MG/L	5.5	5.5	0.0034	6.3	7.3	114	132	70.0-130	14.6	20.0	*
Manganese	MG/L	5.5	5.5	5.7	12	13	216	234	70.0-130	8.00	20.0	*
Copper	MG/L	5.5	5.5	0.0014	6.0	7.0	108	126	70.0-130	15.4	20.0	
Arsenic	MG/L	5.5	5.5	0.0082	6.5	7.6	117	137	70.0-130	15.7	20.0	*
Cadmium	MG/L	5.5	5.5	0.0050U	5.9	6.9	106	124	70.0-130	15.6	20.0	
Barium	MG/L	5.5	5.5	0.097	6.0	6.9	108	124	70.0-130	13.8	20.0	

PDC Laboratories Quality Control Summary Report

ROJECT: 01092683

S ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
ATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG50053-3, WG50053-4 Analysis Lot: Sample Spiked: 01092683-5 Site: BCL-5-G-01 Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits	
Lead	MG/L	5.5	5.5	0.0011	6.1	7.1	110	128	70.0-130	15.1	20.0	
Mercury	UG/L	4.4	4.4	0.20U	5.4	6.3	122	142	70.0-130	15.2	20.0	*

INITIAL CALIBRATION VERIFICATION

boratory ID: WG50240-1 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.0250	0.025	100	90.0-110	27-Sep-01 09:52
Chromium	MG/L	0.0250	0.026	104	90.0-110	27-Sep-01 09:52
Manganese	MG/L	0.0250	0.026	104	90.0-110	27-Sep-01 09:52
Copper	MG/L	0.0250	0.027	108	90.0-110	27-Sep-01 09:52
Arsenic	MG/L	0.0250	0.025	100	90.0-110	27-Sep-01 09:52
Cadmium	MG/L	0.0250	0.026	104	90.0-110	27-Sep-01 09:52
Barium	MG/L	0.0250	0.026	104	90.0-110	27-Sep-01 09:52
Lead	MG/L	0.0250	0.027	108	90.0-110	27-Sep-01 09:52
Mercury	UG/L	1.50	1.6	107	90.0-110	27-Sep-01 09:52

ITIAL CALIBRATION BLANK

bo ory ID: WG50240-2 Analysis Lot: WG50240

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 10:01
Chromium	MG/L	0.010U	0.010	27-Sep-01 10:01
Manganese	MG/L	0.015U	0.015	27-Sep-01 10:01
Copper	MG/L	0.025U	0.025	27-Sep-01 10:01
Arsenic	MG/L	0.0010U	0.0010	27-Sep-01 10:01
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 10:01
Barium	MG/L	0.20U	0.20	27-Sep-01 10:01
Lead	MG/L	0.0030U	0.0030	27-Sep-01 10:01
Mercury	UG/L	0.20U	0.20	27-Sep-01 10:01

NTINUING CALIBRATION BLANK

Laboratory ID: WG50240-10 Analysis Lot: WG50240

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 14:40
Chromium	MG/L	0.010U	0.010	27-Sep-01 14:40
Manganese	MG/L	0.015U	0.015	27-Sep-01 14:40
Copper	MG/L	0.025U	0.025	27-Sep-01 14:40
Arsenic	MG/L	4.7e-05J	0.0010	27-Sep-01 14:40
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 14:40
Barium	MG/L	0.20U	0.20	27-Sep-01 14:40
Lead	MG/L	0.0030U	0.0030	27-Sep-01 14:40
Mercury	UG/L	0.20U	0.20	27-Sep-01 14:40

Laboratory ID: WG50240-12 Analysis Lot: WG50240

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 15:53
Chromium	MG/L	0.010U	0.010	27-Sep-01 15:53
Manganese	MG/L	0.015U	0.015	27-Sep-01 15:53
Copper	MG/L	0.025U	0.025	27-Sep-01 15:53
Arsenic	MG/L	0.0010U	0.0010	27-Sep-01 15:53
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 15:53
Barium	MG/L	0.20U	0.20	27-Sep-01 15:53

PDC Laboratories Quality Control Summary Report

ROJECT: 01092683

ES ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
ONTINUING CALIBRATION BLANK

Laboratory ID: WG50240-12 Analysis Lot: WG50240 Sample Tag: WG50053

Analyte	Units	Value	RDL	Analysis Date
Lead	MG/L	0.0030U	0.0030	27-Sep-01 15:53
Mercury	UG/L	0.20U	0.20	27-Sep-01 15:53

boratory ID: WG50240-5 Analysis Lot: WG50240

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 11:35
Chromium	MG/L	0.010U	0.010	27-Sep-01 11:35
Manganese	MG/L	0.015U	0.015	27-Sep-01 11:35
Copper	MG/L	0.025U	0.025	27-Sep-01 11:35
Arsenic	MG/L	3.4e-05J	0.0010	27-Sep-01 11:35
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 11:35
Barium	MG/L	0.20U	0.20	27-Sep-01 11:35
Lead	MG/L	0.0030U	0.0030	27-Sep-01 11:35
Mercury	UG/L	0.20U	0.20	27-Sep-01 11:35

boratory ID: WG50240-7 Analysis Lot: WG50240

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 13:06
Chromium	MG/L	0.010U	0.010	27-Sep-01 13:06
Manganese	MG/L	0.015U	0.015	27-Sep-01 13:06
Copper	MG/L	0.025U	0.025	27-Sep-01 13:06
Arsenic	MG/L	3.6e-05J	0.0010	27-Sep-01 13:06
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 13:06
Barium	MG/L	0.20U	0.20	27-Sep-01 13:06
Lead	MG/L	0.0030U	0.0030	27-Sep-01 13:06
Mercury	UG/L	0.20U	0.20	27-Sep-01 13:06

TERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50240-3 Analysis Lot: WG50240

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Aluminum	MG/L	50	50.42629175	101	80.0-120	27-Sep-01 10:16
Chromium	MG/L	0.0	0.00065	N/A	N/A	27-Sep-01 10:16
Manganese	MG/L	0.0	0.0017	N/A	N/A	27-Sep-01 10:16
Copper	MG/L	0.0	0.00070	N/A	N/A	27-Sep-01 10:16
Arsenic	MG/L	0.0	2.2e-05	N/A	N/A	27-Sep-01 10:16
Cadmium	MG/L	0.0	-6.4e-05	N/A	N/A	27-Sep-01 10:16
Barium	MG/L	0.0	0.0031	N/A	N/A	27-Sep-01 10:16
Lead	MG/L	0.0	0.00029	N/A	N/A	27-Sep-01 10:16
Mercury	UG/L	0.0	0.0017	N/A	N/A	27-Sep-01 10:16

INTERFERENCE CHECK SAMPLE - AB

boratory ID: WG50240-4 Analysis Lot: WG50240

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	50	52.00765268	104	80.0-120	27-Sep-01 10:22
Chromium	MG/L	0.050	0.054	108	80.0-120	27-Sep-01 10:22
Manganese	MG/L	0.050	0.055	110	80.0-120	27-Sep-01 10:22
Copper	MG/L	0.050	0.053	106	80.0-120	27-Sep-01 10:22
Arsenic	MG/L	0.010	0.010	104	80.0-120	27-Sep-01 10:22
Cadmium	MG/L	0.10	0.11	106	80.0-120	27-Sep-01 10:22
Barium	MG/L	0.050	0.058	117	80.0-120	27-Sep-01 10:22

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

LS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
NTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50240-4 Analysis Lot: WG50240

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Lead	MG/L	0.0050	0.0059	118	80.0-120	27-Sep-01 10:22
Mercury	ug/l	0.0	-0.0019	N/A	N/A	27-Sep-01 10:22

ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50240-13 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	85.0-115	27-Sep-01 16:16
Chromium	MG/L	0.025	0.025	100	85.0-115	27-Sep-01 16:16
Manganese	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 16:16
Copper	MG/L	0.025	0.027	108	85.0-115	27-Sep-01 16:16
Arsenic	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 16:16
Cadmium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 16:16
Barium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 16:16
Lead	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 16:16
Mercury	UG/L	1.5	1.6	107	85.0-115	27-Sep-01 16:16

Laboratory ID: WG50240-6 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	85.0-115	27-Sep-01 11:50
Chromium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 11:50
Manganese	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 11:50
Copper	MG/L	0.025	0.028	112	85.0-115	27-Sep-01 11:50
Arsenic	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 11:50
Cadmium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 11:50
Barium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 11:50
Lead	MG/L	0.025	0.027	108	85.0-115	27-Sep-01 11:50
Mercury	UG/L	1.5	1.6	107	85.0-115	27-Sep-01 11:50

Laboratory ID: WG50240-8 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	85.0-115	27-Sep-01 13:22
Chromium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Manganese	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Copper	MG/L	0.025	0.027	108	85.0-115	27-Sep-01 13:22
Arsenic	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Cadmium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Barium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Lead	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 13:22
Mercury	UG/L	1.5	1.7	113	85.0-115	27-Sep-01 13:22

Laboratory ID: WG50240-9 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	85.0-115	27-Sep-01 14:31
Chromium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31
Manganese	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31
Copper	MG/L	0.025	0.027	108	85.0-115	27-Sep-01 14:31
Arsenic	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31
Cadmium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31
Barium	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

ILS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50240-9 Analysis Lot: WG50240 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Lead	MG/L	0.025	0.026	104	85.0-115	27-Sep-01 14:31
Mercury	UG/L	1.5	1.7	113	85.0-115	27-Sep-01 14:31

POST DIGESTION SPIKE

Laboratory ID: WG50240-11 Analysis Lot: WG50240

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.560	0.59	106	85.0-115	27-Sep-01 15:36
Manganese	MG/L	0.560	6.2	90.1	85.0-115	27-Sep-01 15:36
Arsenic	MG/L	0.560	0.60	107	85.0-115	27-Sep-01 15:36
Cadmium	MG/L	0.560	0.57	103	85.0-115	27-Sep-01 15:36
Mercury	UG/L	5.55	5.3	95.0	70.0-130	27-Sep-01 15:36

PDC Laboratories Quality Control Summary Report

ROJECT: 01092683

S ANALYSIS (EPA 200.7) AND PREPARATION (SW3051)
: CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092683-1	BCL-1-G-01	WG50053	WG50201	27-Sep-01 09:10	DWK	EPA 200.7	
01092683-2	BCL-2-G-01	WG50053	WG50201	27-Sep-01 09:15	DWK	EPA 200.7	
01092683-3	BCL-3-G-01	WG50053	WG50201	27-Sep-01 09:21	DWK	EPA 200.7	
01092683-4	BCL-4-G-01	WG50053	WG50201	27-Sep-01 09:27	DWK	EPA 200.7	
01092683-5	BCL-5-G-01	WG50053	WG50201	27-Sep-01 09:33	DWK	EPA 200.7	
01092683-6	BCL-5-G-02	WG50053	WG50201	27-Sep-01 10:03	DWK	EPA 200.7	
01092683-7	BT-15-G-01	WG50053	WG50201	27-Sep-01 10:09	DWK	EPA 200.7	
01092683-8	BFB2-G-01	WG50053	WG50201	27-Sep-01 10:15	DWK	EPA 200.7	

METHOD BLANK

boratory ID: WG50053-1 Analysis Lot: WG50201 Sample Tag: WG50053

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.011J	0.10	27-Sep-01 08:57

LABORATORY CONTROL SAMPLE

boratory ID: WG50053-2 Analysis Lot: WG50201 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	5.55	5.40	97.0	85.0-115	27-Sep-01 09:03

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

01092683 - 5 BLB 11-05-01

boratory IDs: WG50053-3, WG50053-4 Analysis Lot: WG50201 Sample Spiked: ~~not found~~ Site: Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Iron	MG/L	5.5	5.5	0.0	7.6	7.5	99.0	97.0	70.0-130	1.32	20.0

ITIAL CALIBRATION VERIFICATION

Laboratory ID: WG50201-1 Analysis Lot: WG50201 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.00	4.0	100	90.0-110	27-Sep-01 08:32

ITIAL CALIBRATION BLANK

Laboratory ID: WG50201-2 Analysis Lot: WG50201

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.10U	0.10	27-Sep-01 08:39

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

ANALYSIS (EPA 200.7) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

CONTINUING CALIBRATION BLANK

Laboratory ID: WG50201-6 Analysis Lot: WG50201

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.10U	0.10	27-Sep-01 09:50

Laboratory ID: WG50201-8 Analysis Lot: WG50201

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.0038J	0.10	27-Sep-01 11:07

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50201-3 Analysis Lot: WG50201

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Iron	MG/L	200	201.92	101	80.0-120	27-Sep-01 08:45

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50201-4 Analysis Lot: WG50201

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	200	216.13	108	80.0-120	27-Sep-01 08:51

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50201-5 Analysis Lot: WG50201 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.0	4.0	100	90.0-110	27-Sep-01 09:45

Laboratory ID: WG50201-7 Analysis Lot: WG50201 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.0	4.0	100	90.0-110	27-Sep-01 11:02

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

CHEMISTRY ANALYSIS AND PREPARATION
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092683-1	BCL-1-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-2	BCL-2-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-3	BCL-3-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-4	BCL-4-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-5	BCL-5-G-01		WG49457	21-Sep-01 06:00	ECH	EPA 1664	
01092683-6	BCL-5-G-02		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-7	BT-15-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	
01092683-8	BFB2-G-01		WG49457	21-Sep-01 07:00	ECH	EPA 1664	

METHOD BLANK

Laboratory ID: WG49457-1 Analysis Lot: WG49457 Sample Tag: N/A

Analyte	Units	Value	RDL	Analysis Date
Hexane Ext. Material (HEM) by	MG/L	5.0U	5.0	

LABORATORY CONTROL SAMPLE

Laboratory ID: WG49457-2 Analysis Lot: WG49457 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Hexane Ext. Material (HEM) by	MG/L	40.0	41.0	102	78.0-114	21-Sep-01 06:00

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG49457-3, WG49457-4 Analysis Lot: WG49457 Sample Spiked: 01092683-5 Site: BCL-5-G-01 Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Hexane Ext. Material (HEM) by	MG/L	40	40	6.0U	40	40	98.0	98.0	78.0-114	0.00	18.0

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

CHEMISTRY ANALYSIS AND PREPARATION

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092683-1	BCL-1-G-01		WG49603	25-Sep-01 15:47	JEA	SW9066	
01092683-2	BCL-2-G-01		WG49603	25-Sep-01 15:48	JEA	SW9066	
01092683-3	BCL-3-G-01		WG49603	25-Sep-01 15:48	JEA	SW9066	
01092683-4	BCL-4-G-01		WG49603	25-Sep-01 15:49	JEA	SW9066	
01092683-5	BCL-5-G-01		WG49603	25-Sep-01 15:50	JEA	SW9066	
01092683-6	BCL-5-G-02		WG49603	25-Sep-01 15:53	JEA	SW9066	
01092683-7	BT-15-G-01		WG49603	25-Sep-01 15:58	JEA	SW9066	
01092683-8	BFB2-G-01		WG49603	25-Sep-01 15:59	JEA	SW9066	

METHOD BLANK

Laboratory ID: WG49603-3 Analysis Lot: WG49603 Sample Tag: N/A

Analyte	Units	Value	RDL	Analysis Date
Phenolics	MG/L	0.0050U	0.0050	25-Sep-01 15:45

LABORATORY CONTROL SAMPLE

Laboratory ID: WG49603-4 Analysis Lot: WG49603 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Phenolics	MG/L	0.100	0.0920	92.0	80.0-120	25-Sep-01 15:46

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG49603-5, WG49603-6 Analysis Lot: WG49603 Sample Spiked: 01092683-5 Site: BCL-5-G-01 Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Phenolics	MG/L	0.10	0.10	0.0039	0.095	0.10	91.1	96.1	75.0-125	5.34	20.0

INITIAL CALIBRATION VERIFICATION

Laboratory ID: WG49603-1 Analysis Lot: WG49603 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Phenolics	MG/L	0.100	0.095	95.0	90.0-110	25-Sep-01 15:41

INITIAL CALIBRATION BLANK

Laboratory ID: WG49603-2 Analysis Lot: WG49603

Analyte	Units	Value	RDL	Analysis Date
Phenolics	MG/L	0.0050U	0.0050	25-Sep-01 15:42

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49603-7 Analysis Lot: WG49603 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Phenolics	MG/L	0.10	0.094	94.0	90.0-110	25-Sep-01 16:01

PDC Laboratories Quality Control Summary Report

PROJECT: 01092683

CHEMISTRY ANALYSIS AND PREPARATION
CONTINUING CALIBRATION BLANK

CONTINUING CALIBRATION BLANK

Laboratory ID: WG49603-8 Analysis Lot: WG49603

Analyte	Units	Value	RDL	Analysis Date
Phenolics	MG/L	0.0050U	0.0050	25-Sep-01 16:02

SHIPPING & RECEIVING

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

0927 PBB 9/28

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1			
CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: Pick-up
ADDRESS: 5010 STONE MILL ROAD	PHONE NUMBER:	FAX NUMBER:	DATE SHIPPED: 9/19/01
CITY STATE ZIP: Bloomington, IN 47408	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: Jon A. Dwolle		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 01092683-8
LOGGED BY: PJI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METALS	OIL + GREASE	TOTAL PHENOLS	TPH	(SEE ATTACHED PARAMETER LIST)			REMARKS
BCL-1-G-01 (m,x)	9/18/01	18:00	X		GW	3	X	X	X	X				
BCL-2-G-01 (m,x)	9/18/01	18:15	X		GW	3	X	X	X	X				
BCL-3-G-01 (m,x)	9/18/01	17:50	X		GW	3	X	X	X	X				
BCL-4-G-01 (m,x)	9/18/01	17:40	X		GW	3	X	X	X	X				
BCL-5-G-01 (m,x)	9/18/01	17:30	X		GW	9	X	X	X	X				EXTRA VOLUME FOR MS/MSD
BCL-5-G-02 (m,x)	9/18/01	17:30	X		GW	3	X	X	X	X				
BT-15-G-01 (m,x)	9/18/01	18:40	X		GW	3	X	X	X	X				
BFB2-G-01 (m,x)	9/18/01	14:40	X		GW	3	X	X	X	X				

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) NORMAL ~~RUSH~~
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7			
RELINQUISHED BY: (SIGNATURE) Robert E. Aten	DATE 9/19/01 TIME 1730	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE) Pam Tegusoll	DATE 9/19/01 TIME 1820

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 6 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N

000021

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off / Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Earth Tech / Keystone **Cooler** 3 of 4

Shipping Container # (PDC / Other): _____

Received (date time) 9-19-01 18:20 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO NA

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... YES NO*

If YES, a: Were the custody seals intact upon arrival? ..... YES NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 9-19-01

Was the Chain of Custody (COC) documentation provided with the shipment? ..... YES NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... YES NO*

b: COC #: 0927 RAP 9/27/01

c: Was the project identifiable from the COC? ..... YES NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... YES NO*

What was the temperature in the Cooler? 6 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES NO*

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... YES NO*

Did all sample containers arrive intact and sealed? ..... YES NO*

Did all sample containers have secure and completed labels? ..... YES NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... YES NO*

Did all labels and/or tags agree with COC? ..... YES NO*

Were QC samples included? ..... YES NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO NA

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... YES NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

Appendix E
Sheen Pond
Groundwater Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092688

November 7, 2001

Earth Tech

Project: Sheen Pond/Waters

SDG #01092688

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092688

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	08
QC Summary	09
Shipping and Receiving	16

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

Sheen Pond-Waters Project No. 19718.09

PDC Laboratories, Inc. received 5 water samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092688 for total metals and PCB analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
NT-5A-G-01 (M,P)	01092688-1	09/19/01	09/19/01
NT-19B-G-01 (M,P)	01092688-2	09/19/01	09/19/01
NT-19B-G-02 (M,P)	01092688-3	09/19/01	09/19/01
NFB-G-01 (M,P)	01092688-4	09/19/01	09/19/01
NRB-G-01 (M,P)	01092688-5	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed for Earth Tech/ Keystone by the following methods: Total Metals by Method 200.8; PCBs by Method 608.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092688-1 for the total metal analyses. All recoveries were within specified QC criteria.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

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(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

PCBs QC Summary

All holding time criteria were met for all samples.

All Continuing Calibration Standards met the acceptance criteria of the method.

All Method Blanks were free of contamination for target analytes.

All Surrogate recoveries were within method QC criteria.

The associated Laboratory Control Samples (LCS) were within acceptance criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 7, 01	Title:	Project Manager

EAR01092688.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/19/01
Date Reported: 11/05/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092688-1	01092688-2	01092688-3
	Client Description:		205746	205746	205746
	Site/Locator:		NT-5A-G-01 (M,P)	NT-19B-G-01 (M,P)	NT-19B-G-02 (M,P)
	Date Collected:		19-SEP-01 12:45:00	19-SEP-01 13:10:00	19-SEP-01 13:15:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 608	Aroclor 1254	ug/l			
EPA 200.8	Arsenic	mg/l	0.00085 J	0.0016	0.0005 J
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.0086 J	0.0047 J	0.001 J
EPA 200.8	Copper	mg/l	0.0045 J	0.0084 J	0.00034 J
EPA 200.8	Lead	mg/l	0.0074	0.0066	0.0005 J
EPA 200.8	Zinc	mg/l	0.022	0.09	0.01 J

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ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/19/01
Date Reported: 11/05/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092688-4	01092688-5	01092688-5
	Client Description:		205746	205746	205746
	Site/Locator:		NFB-G-01 (M,P)	NRB-G-01 (M,P)	NRB-G-01 (M,P)
	Date Collected:		19-SEP-01 11:45:00	19-SEP-01 11:55:00	19-SEP-01 11:55:00
Method	Parameter		undiluted	undiluted	C1:D1:1
EPA 608	Aroclor 1254	ug/l			1 U
EPA 200.8	Arsenic	mg/l	0.001 U	0.001 U	
EPA 200.8	Cadmium	mg/l	0.018	0.005 U	
EPA 200.8	Chromium	mg/l	0.01 U	0.01 U	
EPA 200.8	Copper	mg/l	0.025 U	0.025 U	
EPA 200.8	Lead	mg/l	0.001 J	0.003 U	
EPA 200.8	Zinc	mg/l	0.016 J	0.0073 J	

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Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/19/01
Date Reported: 11/05/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092688-6	01092688-7	01092688-8
	Client Description:		205746	205746	205746
	Site/Locator:		NFB-213-G-01	NT-5A-G-01	NT-19B-G-01
	Date Collected:		11-OCT-01 10:30:00	11-OCT-01 11:40:00	11-OCT-01 12:40:00
Method	Parameter		C1:D1:1	C1:D1:1	C1:D1:1
EPA 608	Aroclor 1254	ug/l	1 U	1 U	1 U
EPA 200.8	Arsenic	mg/l			
EPA 200.8	Cadmium	mg/l			
EPA 200.8	Chromium	mg/l			
EPA 200.8	Copper	mg/l			
EPA 200.8	Lead	mg/l			
EPA 200.8	Zinc	mg/l			

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PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/19/01
Date Reported: 11/05/01
Purchase Order:
Customer No. 205746

Laboratory Sample No.:	01092688-9
Client Description:	205746
Site/Locator:	NT-19-G-02
Date Collected:	11-OCT-01 12:50:00

Method	Parameter		C1:D1:1
EPA 608	Aroclor 1254	ug/l	1 U
EPA 200.8	Arsenic	mg/l	
EPA 200.8	Cadmium	mg/l	
EPA 200.8	Chromium	mg/l	
EPA 200.8	Copper	mg/l	
EPA 200.8	Lead	mg/l	
EPA 200.8	Zinc	mg/l	

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DATES & DILUTIONS REPORT

Id	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092688-1		Client ID NT-5A-G-01 (M,P)			Collect Date: 09/19/01 12:45		Receive Date: 09/19/01 18:20		
FED AS, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
FED CD, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
FED CR, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
FED CU, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
FED PB, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
FED ZN, 200.8		09/24/01 13:00	03/18/02 12:45	WG50197	PREP FOR	1	09/26/01 12:25	03/18/02 12:45	WG50238
Lab ID: 01092688-2		Client ID NT-19B-G-01 (M,P)			Collect Date: 09/19/01 13:10		Receive Date: 09/19/01 18:20		
FED AS, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
FED CD, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
FED CR, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
FED CU, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
FED PB, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
FED ZN, 200.8		09/24/01 13:00	03/18/02 13:10	WG50197	PREP FOR	1	09/26/01 12:03	03/18/02 13:10	WG50238
Lab ID: 01092688-3		Client ID NT-19B-G-02 (M,P)			Collect Date: 09/19/01 13:15		Receive Date: 09/19/01 18:20		
FED AS, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
FED CD, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
FED CR, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
FED CU, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
FED PB, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
FED ZN, 200.8		09/24/01 13:00	03/18/02 13:15	WG50197	PREP FOR	1	09/26/01 12:08	03/18/02 13:15	WG50238
Lab ID: 01092688-4		Client ID NFB-G-01 (M,P)			Collect Date: 09/19/01 11:45		Receive Date: 09/19/01 18:20		
FED AS, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
FED CD, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
FED CR, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
FED CU, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
FED PB, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
FED ZN, 200.8		09/24/01 13:00	03/18/02 11:45	WG50197	PREP FOR	1	09/26/01 12:13	03/18/02 11:45	WG50238
Lab ID: 01092688-5		Client ID NRB-G-01 (M,P)			Collect Date: 09/19/01 11:55		Receive Date: 09/19/01 18:20		
FED AS, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED CD, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED CR, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED CU, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED PB, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED ZN, 200.8		09/24/01 13:00	03/18/02 11:55	WG50197	PREP FOR	1	09/26/01 12:19	03/18/02 11:55	WG50238
FED M6080						1	10/19/01 18:16	10/29/01 11:55	WG50477
Lab ID: 01092688-6		Client ID NFB-213-G-01			Collect Date: 10/11/01 10:30		Receive Date: 10/11/01 15:00		
FED M6080						1	10/19/01 18:52	11/24/01 12:00	WG50477
Lab ID: 01092688-7		Client ID NT-5A-G-01			Collect Date: 10/11/01 11:40		Receive Date: 10/11/01 15:00		
FED M6080						1	10/19/01 19:28	11/24/01 12:00	WG50477
Lab ID: 01092688-8		Client ID NT-19B-G-01			Collect Date: 10/11/01 12:40		Receive Date: 10/11/01 15:00		
FED M6080						1	10/19/01 20:04	11/24/01 12:00	WG50477
Lab ID: 01092688-9		Client ID NT-19-G-02			Collect Date: 10/11/01 12:50		Receive Date: 10/11/01 15:00		
FED M6080						1	10/19/01 20:40	11/24/01 12:00	WG50477

QC SUMMARY

PDC Laboratories Quality Control Summary Report

PROJECT: 01092688

METALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092688-1	NT-5A-G-01 (M,P)	WG50197	WG50238	26-Sep-01 12:25	JTM	EPA 200.8	
01092688-2	NT-19B-G-01 (M,P)	WG50197	WG50238	26-Sep-01 12:03	JTM	EPA 200.8	
01092688-3	NT-19B-G-02 (M,P)	WG50197	WG50238	26-Sep-01 12:08	JTM	EPA 200.8	
01092688-4	NFB-G-01 (M,P)	WG50197	WG50238	26-Sep-01 12:13	JTM	EPA 200.8	
01092688-5	NRB-G-01 (M,P)	WG50197	WG50238	26-Sep-01 12:19	JTM	EPA 200.8	

METHOD BLANK

Laboratory ID: WG50197-1 Analysis Lot: WG50238 Sample Tag: WG50197

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 11:57
Copper	MG/L	0.025U	0.025	26-Sep-01 11:57
Zinc	MG/L	0.0034J	0.020	26-Sep-01 11:57
Arsenic	MG/L	0.0010U	0.0010	26-Sep-01 11:57
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 11:57
Lead	MG/L	0.0030U	0.0030	26-Sep-01 11:57

LABORATORY CONTROL SAMPLE

Laboratory ID: WG50197-2 Analysis Lot: WG50238 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	5.55	6.00	108	85.0-115	26-Sep-01 12:43
Copper	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 12:43
Zinc	MG/L	5.55	5.90	106	85.0-115	26-Sep-01 12:43
Arsenic	MG/L	5.55	5.80	104	85.0-115	26-Sep-01 12:43
Cadmium	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 12:43
Lead	MG/L	5.55	5.80	104	85.0-115	26-Sep-01 12:43

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG50197-3, WG50197-4 Analysis Lot: WG50238 Sample Spiked: 01092688-1 Site: NT-5A-G-01 (M,P) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Chromium	MG/L	5.5	5.5	0.0086	5.4	5.5	90.3	92.1	70.0-130	1.97	20.0
Copper	MG/L	5.5	5.5	0.0045	5.1	5.1	88.2	88.2	70.0-130	0.00	20.0
Zinc	MG/L	5.5	5.5	0.022	5.4	5.5	79.4	81.3	70.0-130	2.36	20.0
Arsenic	MG/L	5.5	5.5	0.00085	5.4	5.5	96.6	98.4	70.0-130	1.85	20.0
Cadmium	MG/L	5.5	5.5	0.0050U	5.2	5.3	93.7	95.5	70.0-130	1.90	20.0
Lead	MG/L	5.5	5.5	0.0074	5.3	5.5	89.5	93.1	70.0-130	3.94	20.0

CONTINUING CALIBRATION BLANK

Laboratory ID: WG50238-2 Analysis Lot: WG50238

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 11:11
Copper	MG/L	0.025U	0.025	26-Sep-01 11:11

PDC Laboratories Quality Control Summary Report

PROJECT: 01092688

METALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

Laboratory ID: WG50238-2, WG50197-4 Analysis Lot: WG50238 Sample Tag: 01092688-1 NT-5A-G-01 (M,P) Sample Tag:

Analyte	Units	Value	RDL	Analysis Date								RPD
Analyte	Units	Spiked	Spiked	Value	Value	Value	% Rec	% Rec	Limits	RPD	Limits	
Zinc	MG/L	0.020U	0.020	26-Sep-01 11:11								
Arsenic	MG/L	0.0010U	0.0010	26-Sep-01 11:11								
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 11:11								
Lead	MG/L	0.0030U	0.0030	26-Sep-01 11:11								

Laboratory ID: WG50238-6 Analysis Lot: WG50238

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 12:55
Copper	MG/L	0.025U	0.025	26-Sep-01 12:55
Zinc	MG/L	0.00020J	0.020	26-Sep-01 12:55
Arsenic	MG/L	6.5e-05J	0.0010	26-Sep-01 12:55
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 12:55
Lead	MG/L	0.0030U	0.0030	26-Sep-01 12:55

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50238-3 Analysis Lot: WG50238

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Chromium	MG/L	0.0	0.00076	N/A	N/A	26-Sep-01 11:41
Copper	MG/L	0.0	0.00073	N/A	N/A	26-Sep-01 11:41
Zinc	MG/L	0.0	0.0036	N/A	N/A	26-Sep-01 11:41
Arsenic	MG/L	0.0	3.4e-05	N/A	N/A	26-Sep-01 11:41
Cadmium	MG/L	0.0	-6.9e-05	N/A	N/A	26-Sep-01 11:41
Lead	MG/L	0.0	0.00029	N/A	N/A	26-Sep-01 11:41

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50238-4 Analysis Lot: WG50238

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.050	0.052	104	80.0-120	26-Sep-01 11:47
Copper	MG/L	0.050	0.048	96.3	80.0-120	26-Sep-01 11:47
Zinc	MG/L	0.10	0.10	99.6	80.0-120	26-Sep-01 11:47
Arsenic	MG/L	0.010	0.0098	98.0	80.0-120	26-Sep-01 11:47
Cadmium	MG/L	0.10	0.097	97.5	80.0-120	26-Sep-01 11:47
Lead	MG/L	0.0050	0.0056	112	80.0-120	26-Sep-01 11:47

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50238-1 Analysis Lot: WG50238 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 11:06
Copper	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 11:06
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 11:06
Arsenic	MG/L	0.025	0.024	96.0	90.0-110	26-Sep-01 11:06
Cadmium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 11:06
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 11:06

Laboratory ID: WG50238-5 Analysis Lot: WG50238 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date

PDC Laboratories Quality Control Summary Report

PROJECT: 01092688

METALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50238-5 Analysis Lot: WG50238 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 12:50
Copper	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50
Arsenic	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 12:50
Cadmium	MG/L	0.025	0.024	96.0	90.0-110	26-Sep-01 12:50
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50

PDC Laboratories Quality Control Summary Report

PROJECT: 01092688

SEMI-VOLATILE PESTICIDES BY GC (EPA METHOD 608)
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092688-5	NRB-G-01 (M,P)		WG50477	19-Oct-01 18:16	AG	EPA 608	C1:D1:1
01092688-6	NFB-213-G-01		WG50477	19-Oct-01 18:52	AG	EPA 608	C1:D1:1
01092688-7	NT-5A-G-01		WG50477	19-Oct-01 19:28	AG	EPA 608	C1:D1:1
01092688-8	NT-19B-G-01		WG50477	19-Oct-01 20:04	AG	EPA 608	C1:D1:1
01092688-9	NT-19-G-02		WG50477	19-Oct-01 20:40	AG	EPA 608	C1:D1:1

METHOD BLANK

Laboratory ID: WG50141-5 Analysis Lot: WG50477 Prep Batch: N/A Sample Tag: C1:D1:1

Analyte	Units	Value	RDL	Analysis Date
Aroclor 1221	UG/L	1.0U	1.0	19-Oct-01 14:05
Aroclor 1232	UG/L	0.50U	0.50	19-Oct-01 14:05
Aroclor 1242	UG/L	0.50U	0.50	19-Oct-01 14:05
Aroclor 1248	UG/L	0.50U	0.50	19-Oct-01 14:05
Aroclor 1254	UG/L	1.0U	1.0	19-Oct-01 14:05
Aroclor 1260	UG/L	1.0U	1.0	19-Oct-01 14:05

Laboratory ID: WG50434-1 Analysis Lot: WG50477 Prep Batch: N/A Sample Tag: C1:D1:1

Analyte	Units	Value	RDL	Analysis Date
Aroclor 1254	UG/L	1.0U	1.0	19-Oct-01 15:53

LABORATORY CONTROL SAMPLE

Laboratory ID: WG50141-6 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/L	2.00	1.90	95.0	50.0-150	19-Oct-01 14:41
Aroclor 1260	UG/L	2.00	2.00	100	50.0-150	19-Oct-01 14:41

Laboratory ID: WG50141-7 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/L	2.00	1.89	94.5	50.0-150	19-Oct-01 15:17
Aroclor 1260	UG/L	2.00	2.05	102	50.0-150	19-Oct-01 15:17

Laboratory ID: WG50434-2 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/L	2.00	1.80	90.0	50.0-150	19-Oct-01 16:29

PDC Laboratories Quality Control Summary Report

ROJECT: 01092688

SEMI-VOLATILE PESTICIDES BY GC (EPA METHOD 608)
ABORATORY CONTROL SAMPLE

Laboratory ID: WG50434-2 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1260	UG/L	2.00	1.90	95.0	50.0-150	19-Oct-01 16:29

ATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG50434-3, WG50434-4 Analysis Lot: WG50477 Sample Spiked: 01092688-7 Client ID: NT-5A-G-01 Sample Tag: C1:D1:1

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Aroclor 1016	UG/L	4.0	4.0	0.50U	3.7	3.7	92.5	92.5	70.0-130	0.00	20.0
Aroclor 1260	UG/L	4.0	4.0	1.0U	3.9	3.9	97.5	97.5	70.0-130	0.00	20.0

ONTINUING CALIBRATION VERIFICATION

boratory ID: WG50477-2 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1254	UG/L	500	450	90.0	85.0-115	19-Oct-01 21:52

boratory ID: WG50477-3 Analysis Lot: WG50477 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/L	500	520	104	85.0-115	19-Oct-01 22:28
Aroclor 1260	UG/L	500	510	102	85.0-115	19-Oct-01 22:28
Decachlorobiphenyl (Surr.)	UG/L	200	213.2	107	85.0-115	19-Oct-01 22:28
Tetrachloro-m-xylene (Surr.)	UG/L	200	207.4	104	85.0-115	19-Oct-01 22:28

URROGATE RECOVERIES

boratory ID: 01092688-5 Analysis Lot: WG50477 Client ID: NRB-G-01 (M,P) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.518	104	20.0-173.83	19-Oct-01 18:16
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.447	89.4	35.2-143.88	19-Oct-01 18:16

Laboratory ID: 01092688-6 Analysis Lot: WG50477 Client ID: NFB-213-G-01 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.407	81.4	20.0-173.83	19-Oct-01 18:52
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.330	66.0	35.2-143.88	19-Oct-01 18:52

boratory ID: 01092688-7 Analysis Lot: WG50477 Client ID: NT-5A-G-01 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.576	115	20.0-173.83	19-Oct-01 19:28
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.500	100	35.2-143.88	19-Oct-01 19:28

PDC Laboratories Quality Control Summary Report

ROJECT: 01092688

SEMI-VOLATILE PESTICIDES BY GC (EPA METHOD 608)
URROGATE RECOVERIES

Laboratory ID: 01092688-8 Analysis Lot: WG50477 Client ID: NT-19B-G-01 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.383	76.6	20.0-173.83	19-Oct-01 20:04
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.445	89.0	35.2-143.88	19-Oct-01 20:04

oratory ID: 01092688-9 Analysis Lot: WG50477 Client ID: NT-19-G-02 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.381	76.2	20.0-173.83	19-Oct-01 20:40
etrachloro-m-xylene (Surr.)	UG/L	0.500	0.476	95.2	35.2-143.88	19-Oct-01 20:40

Laboratory ID: WG50141-5 Analysis Lot: WG50477 Client ID: MB Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.510	102	20.0-173.83	19-Oct-01 14:05
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.396	79.2	35.2-143.88	19-Oct-01 14:05

oratory ID: WG50141-6 Analysis Lot: WG50477 Client ID: LCS Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.583	117	20.0-173.83	19-Oct-01 14:41
etrachloro-m-xylene (Surr.)	UG/L	0.500	0.452	90.4	35.2-143.88	19-Oct-01 14:41

Laboratory ID: WG50141-7 Analysis Lot: WG50477 Client ID: LCSD Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.590	118	20.0-173.83	19-Oct-01 15:17
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.431	86.2	35.2-143.88	19-Oct-01 15:17

oratory ID: WG50434-1 Analysis Lot: WG50477 Client ID: MB Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.566	113	20.0-173.83	19-Oct-01 15:53
etrachloro-m-xylene (Surr.)	UG/L	0.500	0.464	92.8	35.2-143.88	19-Oct-01 15:53

PDC Laboratories Quality Control Summary Report

PROJECT: 01092688

SEMI-VOLATILE PESTICIDES BY GC (EPA METHOD 608)
SURROGATE RECOVERIES

Laboratory ID: WG50434-2 Analysis Lot: WG50477 Client ID: LCS Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	0.500	0.571	114	20.0-173.83	19-Oct-01 16:29
Tetrachloro-m-xylene (Surr.)	UG/L	0.500	0.480	96.0	35.2-143.88	19-Oct-01 16:29

Laboratory ID: WG50434-3 Analysis Lot: WG50477 Client ID: MS Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	1.00	1.18	118	20.0-173.83	19-Oct-01 17:05
Tetrachloro-m-xylene (Surr.)	UG/L	1.00	0.989	98.9	35.2-143.88	19-Oct-01 17:05

Laboratory ID: WG50434-4 Analysis Lot: WG50477 Client ID: MSD Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/L	1.00	1.17	117	20.0-173.83	19-Oct-01 17:41
Tetrachloro-m-xylene (Surr.)	UG/L	1.00	0.981	98.1	35.2-143.88	19-Oct-01 17:41

SHIPPING & RECEIVING

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

Resample to replace samples collected on 9/19/01

0220

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	Keystone (Earth Tech)
PROJECT NUMBER	19718.09
P.O. NUMBER	
MEANS SHIPPED	PDC Pick Up
ADDRESS	5010 Stonemill Road
PHONE NUMBER	812 336 0972
FAX NUMBER	812-336 3991
DATE SHIPPED	10/11/01
CITY STATE ZIP	Bloomington, IN 47408
SAMPLER (PLEASE PRINT)	R. Aten
CONTACT PERSON	Bob Aten
SAMPLER'S SIGNATURE	Robert E. Aten
MATRIX TYPES:	~~WW-WASTEWATER~~ ~~DW-DRINKING WATER~~ GW-GROUND WATER ~~WWSL-SLUDGE~~ ~~NAS-SOLID~~ OTHER:
3 ANALYSIS REQUESTED	PCB (See attached Parameter list)
4 (FOR LAB USE ONLY)	LOGIN # 01C92688-60thru9; LOGGED BY: PJI; LAB PROJ. #; TEMPLATE; PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	PCB (See attached Parameter list)	REMARKS
NFB-213-G-01	10/11/01	10:30	X		GW	1	X	
NT-5A-G-01	10/11/01	11:40	X		GW	2	X	Extra sample for MS/MSD
NT-19B-G-01	10/11/01	12:40	X		GW	1	X	
NT-19-G-02	10/11/01	12:50	X		GW	1	X	

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7			
RELINQUISHED BY: (SIGNATURE)	Robert E. Aten	DATE	10/11/01
		TIME	1320
RECEIVED BY: (SIGNATURE)		DATE	
		TIME	
RELINQUISHED BY: (SIGNATURE)		DATE	
		TIME	
RECEIVED AT LAB BY: (SIGNATURE)	[illegible]	DATE	10-11-01
		TIME	15:00

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT	14 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT	Y OR N
SAMPLE(S) RECEIVED ON ICE	Y OR N
BOTTLES RECEIVED IN GOOD CONDITION	Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME	Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S)	Y OR N

PAGE 1 OF 1

000016

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Tetra Tech / Keystone Cooler 1 of 1

Shipping Container # (PDC / Other): _____

Received (date time) 10-11-01 15:00 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO NA

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... YES NO*

If YES, a: Were the custody seals intact upon arrival? ..... YES NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 10-11-01

Was the Chain of Custody (COC) documentation provided with the shipment? ..... YES NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... YES NO*

b: COC #: 220

c: Was the project identifiable from the COC? ..... YES NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... YES NO*

What was the temperature in the Cooler? 14 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES NO*

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... YES NO*

Did all sample containers arrive intact and sealed? ..... YES NO*

Did all sample containers have secure and completed labels? ..... YES NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... YES NO*

Did all labels and/or tags agree with COC? ..... YES NO*

Were QC samples included? ..... YES NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO NA

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... YES NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

091901A BLB 9/21/01

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: pick-up
ADDRESS: 5010 STONE Mill ROAD	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9/19/01
CITY STATE ZIP: BLOOMINGTON, IN 47404	SAMPLER (PLEASE PRINT): JAD/RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: Robert E. Aten		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 0109~~2624~~2688-5
LOGGED BY: PJI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METALS	PCBS	(SEE ATTACHED)	PARAMETER LIST				REMARKS
NT-5A-G-01 (m, p)	9/19/01	12:45	X		GW	4	X	X						EXTRA VOLUME FOR MS/MSD
NT-19B-G-01 (m, p)	9/19/01	13:10	X		GW	2	X	X						
NT-19B-G-02 (m, p)	9/19/01	13:15	X		GW	2	X	X						
NFB-G-01 (m, p)	9/19/01	11:45	X		GW	2	X	X						
NRB-G-01 (m, p)	9/13/01	11:55	X		WTR	2	X	X						

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) NORMAL ~~RUSH~~
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7 RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Robert E. Aten	9/19/01 1730		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED AT LAB BY: (SIGNATURE)	DATE 9/19/01 TIME 18:20
		Ann R. Hogan	

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 6 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

PAGE 1 OF 1

000018

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Earth Tech / Keystone **Cooler** 2 of 4

Shipping Container # (PDC / Other): _____

Received (date time) 9-19-01 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip?..... YES NO NA
If YES, carrier name & air bill #: _____
(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container?..... YES NO*
If YES, a: Were the custody seals intact upon arrival?..... YES NO*
b: Enter the Seal Date and Name (enter "NA" if not available): 9-19-01

Was the Chain of Custody (COC) documentation provided with the shipment?..... YES NO*
If YES, a: Was the COC fully executed in ink by the shipper?..... YES NO*
b: COC #: 091901A BlBenk 9/21/01
c: Was the project identifiable from the COC?..... YES NO*
If No, how was this determined? _____
d: Was the COC properly signed as received by the Laboratory..... YES NO*

What was the temperature in the Cooler? 6 ° Deg C.
Were samples received within criteria of 2-6° Deg C?..... YES NO*
(Processed Water/Wastewater are excluded from the temperature criteria)
Did the cooler contain Ice?..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices?..... YES NO*

Did all sample containers arrive intact and sealed?..... YES NO*
Did all sample containers have secure and completed labels?..... YES NO*
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals?..... YES NO*
Did all labels and/or tags agree with COC?..... YES NO*

Were QC samples included?..... YES NO

Did pH checks confirm indicated preservations? (if applicable)..... YES NO NA
Did volumes, containers, & preservatives seem appropriate to indicate tests?..... YES NO*
Were VOA vials (waters) free from bubbles? (if applicable)..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____
_____
_____

Appendix F
Sheen Pond
Soil Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092691

November 7, 2001

Earth Tech

Project: Sheen Pond/Soils

SDG #01092691

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092691

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	08
QC Summary	10
Shipping and Receiving	17

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

Sheen Pond-Soils Project No. 19718.09

PDC Laboratories, Inc. received 6 soil samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092691 for Metals and PCB analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
N-01-S-01 (P,M)	01092691-1	09/19/01	09/19/01
N-02-S-01 (P,M)	01092691-2	09/19/01	09/19/01
N-02-S-02 (P,M)	01092691-3	09/19/01	09/19/01
N-03-S-01 (P,M)	01092691-4	09/19/01	09/19/01
N-04-S-01 (P,M)	01092691-5	09/19/01	09/19/01
N-05-S-01 (P,M)	01092691-6	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/Keystone by the following methods: Total Metals by SW-846 6010; PCBs by Method 8082.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092691-2. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

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A Sample Duplicate was performed on sample 01092691-2. All recoveries were within the method specified QC recovery limits.

All Interference Check Samples were within QC criteria.

PCB QC Summary

All holding time criteria were met for all samples.

All Initial, Continuing Calibration, and Initial Calibration Verification Standards met QC acceptance criteria. Surrogates are not included in the ICV.

All Method Blanks were free of contamination for target analytes.

Surrogate recoveries were within QC acceptance criteria for all samples.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092691-2. All recoveries were within specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	Nov. 7, 01	Title:	Project Manager

EAR01092691.DOC

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PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

11/07/01

	Laboratory Sample No.:	01092691-1	01092691-1	01092691-2
	Client Description:	EARTH_TEC	EARTH_TEC	EARTH_TEC
	Site/Locator:	N-01-S-01 (P,M)	N-01-S-01 (P,M)	N-02-S-01 (P,M)
	Date Collected:	19-SEP-01 13:55:00	19-SEP-01 13:55:00	19-SEP-01 14:00:00
Method	Parameter	undiluted	C1:D1:1	undiluted
SW8082/SW3550B	Aroclor 1254	ug/kg	51 J	
SW8082/SW3550B	Aroclor 1254	ug/kg Dry	61 J	
SW6010B	Arsenic	mg/kg	8.6	7
SW6010B	Cadmium	mg/kg	1.6	0.59 J
SW6010B	Chromium	mg/kg	82 C	19 C
SW6010B	Copper	mg/kg	70	16
SW6010B	Lead	mg/kg	120	21
SW6010B	Zinc	mg/kg	220	88
SW6010B	Arsenic	mg/kg Dry	10	8.9
SW6010B	Cadmium	mg/kg Dry	1.9	0.75 J
SW6010B	Chromium	mg/kg Dry	98 C	24 C
SW6010B	Copper	mg/kg Dry	83	20
SW6010B	Lead	mg/kg Dry	140	26
SW6010B	Zinc	mg/kg Dry	260	110
SM (18) 2540B	Moisture	%	16	21

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(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

	Laboratory Sample No.:		01092691-2	01092691-3	01092691-3
	Client Description:		EARTH_TEC	EARTH_TEC	11/07/01 EARTH_TEC
	Site/Locator:		N-02-S-01 (P,M)	N-02-S-02 (P,M)	N-02-S-02 (P,M)
	Date Collected:		19-SEP-01 14:00:00	19-SEP-01 14:02:00	19-SEP-01 14:02:00
Method	Parameter		C1:D1:1	undiluted	C1:D1:1
SW8082/SW3550B	Aroclor 1254	ug/kg	160 U		14 J
W8082/SW3550B	Aroclor 1254	ug/kg Dry	200 U		18 J
SW6010B	Arsenic	mg/kg		5.3	
W6010B	Cadmium	mg/kg		0.5 J	
W6010B	Chromium	mg/kg		19 C	
SW6010B	Copper	mg/kg		14	
W6010B	Lead	mg/kg		22	
W6010B	Zinc	mg/kg		84	
SW6010B	Arsenic	mg/kg Dry		6.7	
W6010B	Cadmium	mg/kg Dry		0.63 J	
SW6010B	Chromium	mg/kg Dry		24 C	
W6010B	Copper	mg/kg Dry		18	
W6010B	Lead	mg/kg Dry		28	
SW6010B	Zinc	mg/kg Dry		110	
(18) 2540B	Moisture	%		21	

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11/07/01

	Laboratory Sample No.:		01092691-4	01092691-4	01092691-5
	Client Description:		EARTH_TEC	EARTH_TEC	EARTH_TEC
	Site/Locator:		N-03-S-01 (P,M)	N-03-S-01 (P,M)	N-04-S-01 (P,M)
	Date Collected:		19-SEP-01 14:15:00	19-SEP-01 14:15:00	19-SEP-01 14:25:00
Method	Parameter		undiluted	C1:D1:1	undiluted
SW8082/SW3550B	Aroclor 1254	ug/kg		82 J	
SW8082/SW3550B	Aroclor 1254	ug/kg Dry		100 J	
SW6010B	Arsenic	mg/kg	5.6		5.3
SW6010B	Cadmium	mg/kg	1.3		0.46 J
SW6010B	Chromium	mg/kg	73 C		18 C
SW6010B	Copper	mg/kg	19		14
SW6010B	Lead	mg/kg	41		21
SW6010B	Zinc	mg/kg	160		81
SW6010B	Arsenic	mg/kg Dry	6.8		6.5
SW6010B	Cadmium	mg/kg Dry	1.6		0.57 J
SW6010B	Chromium	mg/kg Dry	89 C		22 C
SW6010B	Copper	mg/kg Dry	23		17
SW6010B	Lead	mg/kg Dry	50		26
SW6010B	Zinc	mg/kg Dry	200		100
SM (18) 2540B	Moisture	%	18		19

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	Laboratory Sample No.:	01092691-5	01092691-6	01092691-6
	Client Description:	EARTH_TEC	EARTH_TEC	EARTH_TEC
	Site/Locator:	N-04-S-01 (P,M)	N-05-S-01 (P,M)	N-05-S-01 (P,M)
	Date Collected:	19-SEP-01 14:25:00	19-SEP-01 14:35:00	19-SEP-01 14:35:00
Method	Parameter	C1:D1:1	undiluted	C1:D1:1
SW8082/SW3550B	Aroclor 1254	23 J		45 J
W8082/SW3550B	Aroclor 1254	28 J		54 J
SW6010B	Arsenic		3.2	
W6010B	Cadmium		0.67 J	
W6010B	Chromium		22 C	
SW6010B	Copper		15	
W6010B	Lead		23	
SW6010B	Zinc		92	
W6010B	Arsenic		3.8	
V6010B	Cadmium		0.8 J	
SW6010B	Chromium		26 C	
W[illegible]B	Copper		18	
W6010B	Lead		27	
SW6010B	Zinc		110	
1 (18) 2540B	Moisture		16	

11/07/01

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092691-1		Client ID N-01-S-01 (P,M)			Collect Date: 09/19/01 13:55			Receive Date: 09/19/01 18:20	
MOIST						1	09/24/01 11:51	09/26/01 13:55	WG49582
FED AS, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED CD, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED CR, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED CU, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED PB, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED ZN, 6010		09/25/01 14:00	03/18/02 13:55	WG49640	PREP FOR	1	09/26/01 13:33	03/18/02 13:55	WG49769
FED M8082		09/28/01 12:00	10/03/01 13:55	WG49741	PREP FOR	1	10/02/01 04:06	11/07/01 12:00	WG49802
FED M8082		09/28/01 12:00	10/03/01 13:55	WG49741	PREP FOR	1	10/02/01 04:42	11/07/01 12:00	WG49802
Lab ID: 01092691-2		Client ID N-02-S-01 (P,M)			Collect Date: 09/19/01 14:00			Receive Date: 09/19/01 18:20	
MOIST						1	09/24/01 11:51	09/26/01 14:00	WG49582
FED AS, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED CD, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED CR, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED CU, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED PB, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED ZN, 6010		09/25/01 14:00	03/18/02 14:00	WG49640	PREP FOR	1	09/26/01 13:38	03/18/02 14:00	WG49769
FED M8082		09/28/01 12:00	10/03/01 14:00	WG49741	PREP FOR	1	10/02/01 03:29	11/07/01 12:00	WG49802
Lab ID: 01092691-3		Client ID N-02-S-02 (P,M)			Collect Date: 09/19/01 14:02			Receive Date: 09/19/01 18:20	
MOIST						1	09/24/01 11:51	09/26/01 14:02	WG49582
FED AS, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED CD, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED CR, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED CU, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED PB, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED ZN, 6010		09/25/01 14:00	03/18/02 14:02	WG49640	PREP FOR	1	09/26/01 14:15	03/18/02 14:02	WG49769
FED M8082		09/28/01 12:00	10/03/01 14:02	WG49741	PREP FOR	1	10/02/01 04:42	11/07/01 12:00	WG49802
Lab ID: 01092691-4		Client ID N-03-S-01 (P,M)			Collect Date: 09/19/01 14:15			Receive Date: 09/19/01 18:20	
MOIST						1	09/24/01 11:51	09/26/01 14:15	WG49582
FED AS, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED CD, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED CR, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED CU, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED PB, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED ZN, 6010		09/25/01 14:00	03/18/02 14:15	WG49640	PREP FOR	1	09/26/01 14:20	03/18/02 14:15	WG49769
FED M8082		09/28/01 12:00	10/03/01 14:15	WG49741	PREP FOR	1	10/02/01 05:19	11/07/01 12:00	WG49802
Lab ID: 01092691-5		Client ID N-04-S-01 (P,M)			Collect Date: 09/19/01 14:25			Receive Date: 09/19/01 18:20	
MOIST						1	09/24/01 11:51	09/26/01 14:25	WG49582
FED AS, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED CD, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED CR, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED CU, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED PB, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED ZN, 6010		09/25/01 14:00	03/18/02 14:25	WG49640	PREP FOR	1	09/26/01 14:25	03/18/02 14:25	WG49769
FED M8082		09/28/01 12:00	10/03/01 14:25	WG49741	PREP FOR	1	10/02/01 05:56	11/07/01 12:00	WG49802

Lab ID: 01092691-6 Client ID: N-05-S-01 (P,M) Collect Date: 09/19/01 14:35 Receive Date: 09/19/01 18:20

MOIST					1	09/24/01 11:51	09/26/01 14:35	WG49582
FED AS, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED CD, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED CR, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED CU, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED PB, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED ZN, 6010	09/25/01 14:00	03/18/02 14:35	WG49640	PREP FOR	1	09/26/01 14:30	03/18/02 14:35	WG49769
FED M8082	09/28/01 12:00	10/03/01 14:35	WG49741	PREP FOR	1	10/02/01 06:33	11/07/01 12:00	WG49802

QC SUMMARY

PDC Laboratories Quality Control Summary Report

ROJECT: 01092691

TALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092691-1	N-01-S-01 (P,M)	WG49640	WG49769	26-Sep-01 13:33	DWK	SW6010B	
01092691-2	N-02-S-01 (P,M)	WG49640	WG49769	26-Sep-01 13:38	DWK	SW6010B	
01092691-3	N-02-S-02 (P,M)	WG49640	WG49769	26-Sep-01 14:15	DWK	SW6010B	
01092691-4	N-03-S-01 (P,M)	WG49640	WG49769	26-Sep-01 14:20	DWK	SW6010B	
01092691-5	N-04-S-01 (P,M)	WG49640	WG49769	26-Sep-01 14:25	DWK	SW6010B	
01092691-6	N-05-S-01 (P,M)	WG49640	WG49769	26-Sep-01 14:30	DWK	SW6010B	

ETHOD BLANK

oratory ID: WG49640-1 Analysis Lot: WG49769 Prep Batch: WG49640 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Arsenic	MG/KG	0.30U	0.30	26-Sep-01 13:23
Cadmium	MG/KG	1.0U	1.0	26-Sep-01 13:23
Chromium	MG/KG	2.0U	2.0	26-Sep-01 13:23
Copper	MG/KG	5.0U	5.0	26-Sep-01 13:23
Lead	MG/KG	0.60U	0.60	26-Sep-01 13:23
Zinc	MG/KG	4.0U	4.0	26-Sep-01 13:23

LABORATORY CONTROL SAMPLE

ry ID: WG49640-2 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	MG/KG	25.0	23.0	92.0	80.0-120	26-Sep-01 13:27
Cadmium	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Chromium	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Copper	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Lead	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Zinc	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27

ATRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG49640-3, WG49640-4 Analysis Lot: WG49769 Sample Spiked: 01092691-2 Site: N-02-S-01 (P,M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Arsenic	MG/KG	508	498	7.0	450	440	85.8	85.6	75.0-125	0.233	20.0
Cadmium	MG/KG	508	498	0.59	460	450	90.3	90.1	75.0-125	0.222	20.0
Chromium	MG/KG	510	498	19	480	480	86.8	88.8	75.0-125	2.28	20.0
Copper	MG/KG	508	498	16	490	480	90.1	90.0	75.0-125	0.111	20.0
Lead	MG/KG	508	498	21	470	470	84.1	86.0	75.0-125	2.23	20.0
Zinc	MG/KG	508	498	88	550	560	92.0	94.0	75.0-125	5.58	20.0

ORATORY DUPLICATE

aboratory ID: WG49640-5 Duplicate Sample: 01092691-2 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Arsenic	MG/KG	7.0	7.30	4.20	20.0	26-Sep-01 13:43

PDC Laboratories Quality Control Summary Report

PROJECT: 01092691

METALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
LABORATORY DUPLICATE

Laboratory ID: WG49640-5 Duplicate Sample: WG49769 Analysis Lot:

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Cadmium	MG/KG	0.59	0.690	15.6	20.0	26-Sep-01 13:43
Chromium	MG/KG	19	22.0	14.6	20.0	26-Sep-01 13:43
Copper	MG/KG	16	16.0	0.00	20.0	26-Sep-01 13:43
Lead	MG/KG	21	24.0	13.3	20.0	26-Sep-01 13:43
Zinc	MG/KG	88	100	12.8	20.0	26-Sep-01 13:43

INITIAL CALIBRATION VERIFICATION

Laboratory ID: WG49769-1 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	UG/ML	4.00	3.8	95.0	90.0-110	26-Sep-01 09:14
Cadmium	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Chromium	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14
Copper	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Lead	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Zinc	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14

INITIAL CALIBRATION BLANK

Laboratory ID: WG49769-2 Analysis Lot: WG49769

Analyte	Units	Value	RDL	Analysis Date
Arsenic	PPB	0.30U	0.30	26-Sep-01 09:22
Cadmium	PPB	1.0U	1.0	26-Sep-01 09:22
Chromium	PPB	2.0U	2.0	26-Sep-01 09:22
Copper	PPB	5.0U	5.0	26-Sep-01 09:22
Lead	PPB	0.60U	0.60	26-Sep-01 09:22
Zinc	PPB	4.0U	4.0	26-Sep-01 09:22

CONTINUING CALIBRATION BLANK

Laboratory ID: WG49769-10 Analysis Lot: WG49769

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 13:58
Chromium	UG/ML	2.0U	2.0	26-Sep-01 13:58
Copper	UG/ML	5.0U	5.0	26-Sep-01 13:58
Lead	UG/ML	0.60U	0.60	26-Sep-01 13:58
Zinc	UG/ML	4.0U	4.0	26-Sep-01 13:58

Laboratory ID: WG49769-12 Analysis Lot: WG49769

Analyte	Units	Value	RDL	Analysis Date
Arsenic	UG/ML	0.30U	0.30	26-Sep-01 14:59
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 14:59
Chromium	UG/ML	2.0U	2.0	26-Sep-01 14:59
Copper	UG/ML	5.0U	5.0	26-Sep-01 14:59
Lead	UG/ML	0.60U	0.60	26-Sep-01 14:59
Zinc	UG/ML	4.0U	4.0	26-Sep-01 14:59

Laboratory ID: WG49769-6 Analysis Lot: WG49769

Analyte	Units	Value	RDL	Analysis Date

PDC Laboratories Quality Control Summary Report

ROJECT: 01092691

ICP ANALYSIS (SW6010) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

Laboratory ID: WG49769-6 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Arsenic	UG/ML	0.30U	0.30	26-Sep-01 12:55
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 12:55
Chromium	UG/ML	2.0U	2.0	26-Sep-01 12:55
Copper	UG/ML	5.0U	5.0	26-Sep-01 12:55
Lead	UG/ML	0.60U	0.60	26-Sep-01 12:55
Zinc	UG/ML	4.0U	4.0	26-Sep-01 12:55

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG49769-3 Analysis Lot: WG49769

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Arsenic	UG/ML	0.0	0.0036	N/A	N/A	26-Sep-01 09:27
Cadmium	UG/ML	0.0	-0.0051	N/A	N/A	26-Sep-01 09:27
Chromium	UG/ML	0.0	-0.00078	N/A	N/A	26-Sep-01 09:27
Copper	UG/ML	0.0	-0.0042	N/A	N/A	26-Sep-01 09:27
Lead	UG/ML	0.0	-0.0014	N/A	N/A	26-Sep-01 09:27
Zinc	UG/ML	0.0	-0.013	N/A	N/A	26-Sep-01 09:27

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG49769-4 Analysis Lot: WG49769

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	UG/ML	0.10	0.10	104	80.0-120	26-Sep-01 09:32
Cadmium	UG/ML	1.0	0.97	97.4	80.0-120	26-Sep-01 09:32
Chromium	UG/ML	0.50	0.48	96.2	80.0-120	26-Sep-01 09:32
Copper	UG/ML	0.50	0.55	110	80.0-120	26-Sep-01 09:32
Lead	UG/ML	0.050	0.047	93.8	80.0-120	26-Sep-01 09:32
Zinc	UG/ML	1.0	0.93	93.0	80.0-120	26-Sep-01 09:32

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49769-11 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	UG/ML	4.0	3.9	97.5	90.0-110	26-Sep-01 14:55
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 14:55
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 14:55
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55
Zinc	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55

Laboratory ID: WG49769-5 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	UG/ML	4.0	3.8	95.0	90.0-110	26-Sep-01 12:50
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50

PDC Laboratories Quality Control Summary Report

PROJECT: 01092691

TAL ANALYSIS (SW6010) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49769-9 Analysis Lot: WG49769 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Arsenic	UG/ML	4.0	3.8	95.0	90.0-110	26-Sep-01 13:54
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54

PDC Laboratories Quality Control Summary Report

ROJECT: 01092691

B S BY GC (SW8082)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092691-1	N-01-S-01 (P,M)	WG49741	WG49802	02-Oct-01 04:06	AG	SW8082/SW3550B	C1:D1:1
01092691-2	N-02-S-01 (P,M)	WG49741	WG49802	02-Oct-01 03:29	AG	SW8082/SW3550B	C1:D1:1
01092691-2	N-02-S-01 (P,M)	WG49741	WG49802	02-Oct-01 04:06	AG	SW8082/SW3550B	C2:D1:1
01092691-3	N-02-S-02 (P,M)	WG49741	WG49802	02-Oct-01 04:42	AG	SW8082/SW3550B	C1:D1:1
01092691-3	N-02-S-02 (P,M)	WG49741	WG49802	02-Oct-01 05:19	AG	SW8082/SW3550B	C2:D1:1
01092691-4	N-03-S-01 (P,M)	WG49741	WG49802	02-Oct-01 05:19	AG	SW8082/SW3550B	C1:D1:1
01092691-4	N-03-S-01 (P,M)	WG49741	WG49802	02-Oct-01 05:56	AG	SW8082/SW3550B	C2:D1:1
01092691-5	N-04-S-01 (P,M)	WG49741	WG49802	02-Oct-01 05:56	AG	SW8082/SW3550B	C1:D1:1
01092691-5	N-04-S-01 (P,M)	WG49741	WG49802	02-Oct-01 06:33	AG	SW8082/SW3550B	C2:D1:1
01092691-6	N-05-S-01 (P,M)	WG49741	WG49802	02-Oct-01 06:33	AG	SW8082/SW3550B	C1:D1:1
01092691-6	N-05-S-01 (P,M)	WG49741	WG49802	02-Oct-01 07:09	AG	SW8082/SW3550B	C2:D1:1

METHOD BLANK

oratory ID: WG49741-1 Analysis Lot: WG49802 Prep Batch: WG49741 Sample Tag: C1:D1:1

Analyte	Units	Value	RDL	Analysis Date
Aroclor 1016	UG/KG	80U	80	02-Oct-01 01:01
Aroclor 1221	UG/KG	160U	160	02-Oct-01 01:01
Aroclor 1232	UG/KG	80U	80	02-Oct-01 01:01
Aroclor 1242	UG/KG	80U	80	02-Oct-01 01:01
Aroclor 1248	UG/KG	80U	80	02-Oct-01 01:01
Aroclor 1254	UG/KG	160U	160	02-Oct-01 01:01
Aroclor 1260	UG/KG	160U	160	02-Oct-01 01:01

LABORATORY CONTROL SAMPLE

oratory ID: WG49741-2 Analysis Lot: WG49802 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/KG	66.7	52.0	78.0	51.8-172.06	02-Oct-01 01:38
Aroclor 1260	UG/KG	66.7	69.0	104	42.6-180	02-Oct-01 01:38

TRIX SPIKE/MATRIX SPIKE DUPLICATE

aboratory IDs: WG49741-3, WG49741-4 Analysis Lot: WG49802 Sample Spiked: 01092691-2 Client ID: N-02-S-01 (P,M) Sample Tag: C1

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Aroclor 1016	UG/KG	66.4	66.7	80U	59	63	88.8	94.5	51.8-172.06	6.22	40.0
Aroclor 1260	UG/KG	66.4	66.7	160U	80	79	120	118	42.6-180	1.68	40.0

ONTINUING CALIBRATION VERIFICATION

ratory ID: WG49802-2 Analysis Lot: WG49802 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/ML	0.75	0.70	93.0	70.0-130	02-Oct-01 07:46
Aroclor 1260	UG/ML	0.75	0.71	94.7	70.0-130	02-Oct-01 07:46

PDC Laboratories Quality Control Summary Report

OJECT: 01092691

3 BY GC (SW8082)

NTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49802-2 Analysis Lot: WG49802 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/ML	0.30	0.27	91.1	70.0-130	02-Oct-01 07:46
Tetrachloro-m-xylene (Surr.)	UG/ML	0.30	0.28	94.0	70.0-130	02-Oct-01 07:46

ITIAL CALIBRATION VERIFICATION

Laboratory ID: WG49802-1 Analysis Lot: WG49802 Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aroclor 1016	UG/ML	0.500	0.52	104	80.0-120	02-Oct-01 00:24
Aroclor 1260	UG/ML	0.500	0.57	114	80.0-120	02-Oct-01 00:24
~~Decachlorobiphenyl (Surr.)~~	~~UG/ML~~	~~911666911~~	~~0.0~~	~~0.00~~	~~80.0-120~~	~~02-Oct-01 00:24~~ *
~~Tetrachloro-m-xylene (Surr.)~~	~~UG/ML~~	~~911666911~~	~~0.0~~	~~0.00~~	~~80.0-120~~	~~02-Oct-01 00:24~~ *

BLD 11-7-01

SURROGATE RECOVERIES

Laboratory ID: 01092691-1 Analysis Lot: WG49802 Client ID: N-01-S-01 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.7	17.9	107	45.0-155	02-Oct-01 04:06
Tetrachloro-m-xylene (Surr.)	UG/KG	16.7	15.4	92.4	58.0-141	02-Oct-01 04:06

ID: 01092691-2 Analysis Lot: WG49802 Client ID: N-02-S-01 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.6	16.4	98.7	45.0-155	02-Oct-01 03:29
trachloro-m-xylene (Surr.)	UG/KG	16.6	14.0	84.3	58.0-141	02-Oct-01 03:29

ratory ID: 01092691-3 Analysis Lot: WG49802 Client ID: N-02-S-02 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
ecachlorobiphenyl (Surr.)	UG/KG	16.6	17.3	104	45.0-155	02-Oct-01 04:42
etrachloro-m-xylene (Surr.)	UG/KG	16.6	15.2	91.5	58.0-141	02-Oct-01 04:42

ratory ID: 01092691-4 Analysis Lot: WG49802 Client ID: N-03-S-01 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.6	17.4	105	45.0-155	02-Oct-01 05:19
rachloro-m-xylene (Surr.)	UG/KG	16.6	15.5	93.3	58.0-141	02-Oct-01 05:19

atory ID: 01092691-5 Analysis Lot: WG49802 Client ID: N-04-S-01 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
ecachlorobiphenyl (Surr.)	UG/KG	16.7	19.2	115	45.0-155	02-Oct-01 05:56
rachloro-m-xylene (Surr.)	UG/KG	16.7	16.7	100	58.0-141	02-Oct-01 05:56

PDC Laboratories Quality Control Summary Report

ROJECT: 01092691

BY GC (SW8082)
URROGATE RECOVERIES

Laboratory ID: 01092691-6 Analysis Lot: WG49802 Client ID: N-05-S-01 (P,M) Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.7	19.0	114	45.0-155	02-Oct-01 06:33
Tetrachloro-m-xylene (Surr.)	UG/KG	16.7	16.4	98.4	58.0-141	02-Oct-01 06:33

oratory ID: WG49741-1 Analysis Lot: WG49802 Client ID: MB Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.7	19.1	115	45.0-155	02-Oct-01 01:01
etrachloro-m-xylene (Surr.)	UG/KG	16.7	16.2	97.2	58.0-141	02-Oct-01 01:01

Laboratory ID: WG49741-2 Analysis Lot: WG49802 Client ID: LCS Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.7	16.7	100	45.0-155	02-Oct-01 01:38
Tetrachloro-m-xylene (Surr.)	UG/KG	16.7	14.5	87.0	58.0-141	02-Oct-01 01:38

oratory ID: WG49741-3 Analysis Lot: WG49802 Client ID: MS Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.6	20.4	123	45.0-155	02-Oct-01 02:15
etrachloro-m-xylene (Surr.)	UG/KG	16.6	17.2	104	58.0-141	02-Oct-01 02:15

aboratory ID: WG49741-4 Analysis Lot: WG49802 Client ID: MSD Sample Tag: C1:D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Decachlorobiphenyl (Surr.)	UG/KG	16.7	20.8	125	45.0-155	02-Oct-01 02:52
Tetrachloro-m-xylene (Surr.)	UG/KG	16.7	17.5	105	58.0-141	02-Oct-01 02:52

SHIPPING & RECEIVING

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

011901 B

BJB 9/21/01

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: PICK-UP
ADDRESS: 5010 STONE MILL ROAD	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9/19/01
CITY STATE ZIP: BLOOMINGTON, IN 47408	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: J. A. Dawchin		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 010926 2691-6
LOGGED BY: PEI
LAB PROJ. #:
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METAL	PCBS	SEE ATTACHED PARAMETER LIST					REMARKS
N-01-S-01 (P, M)	9/19/01	13:55	X		NAS	1	X	X						
N-02-S-01 (P, M)	9/19/01	14:00	X		NAS	2	X	X						EXTRA VOLUME FOR MS/MSD
N-02-S-02 (P, M)	9/19/01	14:02	X		NAS	1	X	X						
N-03-S-01 (P, M)	9/19/01	14:15	X		NAS	1	X	X						
N-04-S-01 (P, M)	9/19/01	14:25	X		NAS	1	X	X						
N-05-S-01 (P, M)	9/19/01	14:35	X		NAS	1	X	X						

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7 RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Robert E. Aten	9/19/01 1730		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED AT LAB BY: (SIGNATURE)	DATE 9-19-01 TIME 18:20

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

PAGE 1 OF 1

000017

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Earth Tech / Keystone Cooler 1 of 4

Shipping Container # (PDC / Other): _____

Received (date time) 9-19-01 18:20 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO NA

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... YES NO*

If YES, a: Were the custody seals intact upon arrival? ..... YES NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 9-19-01

Was the Chain of Custody (COC) documentation provided with the shipment? ..... YES NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... YES NO*

b: COC #: ~~201~~ 011901 B BJB 9/21/01

c: Was the project identifiable from the COC? ..... YES NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... YES NO*

What was the temperature in the Cooler? 5 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES NO*

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... YES NO*

Did all sample containers arrive intact and sealed? ..... YES NO*

Did all sample containers have secure and completed labels? ..... YES NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... YES NO*

Did all labels and/or tags agree with COC? ..... YES NO*

Were QC samples included? ..... YES NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO NA

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... YES NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

Appendix G
Tail Tracks Landfill
Groundwater Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092694

November 2, 2001

Earth Tech

Project: Tail Tracks/Waters

SDG #01092694

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092694

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	07
QC Summary	09
Shipping and Receiving	12

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

Tail Tacks - Waters Project No. 19718.09

PDC Laboratories, Inc. received 8 water samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092694 for total metals.

Sample Id's		Date	
Field	Lab	Collected	Received
T-TL-1-G-01 (M)	01092694-1	09/19/01	09/19/01
T-TL-2-G-01 (M)	01092694-2	09/19/01	09/19/01
T-TL-3-G-01 (M)	01092694-3	09/19/01	09/19/01
T-TL-3-G-02 (M)	01092694-4	09/19/01	09/19/01
T-TL-4-G-01 (M)	01092694-5	09/19/01	09/19/01
TW-7-G-01 (M)	01092694-6	09/19/01	09/19/01
TFB-G-01 (M)	01092694-7	09/19/01	09/19/01
TRB-S-01 (M)	01092694-8	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by Method 200.8.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met QC acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092694-3. All recoveries were within the specified QC limits.

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 2, 2001	Title:	Project Manager

EAR01092694.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

ACCREDITED IN ACCORDANCE WITH nelac

10/23/01

	Laboratory Sample No.:		01092694-1	01092694-2	01092694-3
	Client Description:		20576	20576	20576
	Site/Locator:		T-TL-1-G-01 (M)	T-TL-2-G-01 (M)	T-TL-3-G-01 (M)
	Date Collected:		19-SEP-01 15:10:00	19-SEP-01 15:17:00	19-SEP-01 15:25:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.0056 J	0.0082 J	0.0066 J
EPA 200.8	Lead	mg/l	0.00064 J	0.021	0.0088
EPA 200.8	Nickel	mg/l	0.0092	0.011	0.0064
EPA 200.8	Zinc	mg/l	0.012 J	0.1	0.025

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	Laboratory Sample No.:		01092694-4	01092694-5	01092694-6
	Client Description:		20576	20576	10/23/01 20576
	Site/Locator:		T-TL-3-G-02 (M)	T-TL-4-G-01 (M)	TW-7-G-01 (M)
	Date Collected:		19-SEP-01 15:25:00	19-SEP-01 15:35:00	19-SEP-01 14:55:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.0068 J	0.0095 J	0.0029 J
EPA 200.8	Lead	mg/l	0.0078	0.2	0.0005 J
EPA 200.8	Nickel	mg/l	0.0049 J	0.012	0.0074
EPA 200.8	Zinc	mg/l	0.049	0.15	0.0054 J

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10/23/01

	Laboratory Sample No.:		01092694-7	01092694-8
	Client Description:		20576	20576
	Site/Locator:		TFB-G-01 (M)	TRB-S-01 (M)
	Date Collected:		19-SEP-01 07:40:00	19-SEP-01 07:40:00
Method	Parameter		undiluted	undiluted
EPA 200.8	Cadmium	mg/l	0.005 U	0.005 U
EPA 200.8	Chromium	mg/l	0.00057 J	0.0002 J
EPA 200.8	Lead	mg/l	0.003 U	0.003 U
EPA 200.8	Nickel	mg/l	0.005 U	0.005 U
EPA 200.8	Zinc	mg/l	0.0045 J	0.0024 J

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092694-1		Client ID: T-TL-1-G-01 (M)			Collect Date: 09/19/01 15:10			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 15:10	WG50195	PREP FOR	1	09/26/01 13:09	03/18/02 15:10	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 15:10	WG50195	PREP FOR	1	09/26/01 13:09	03/18/02 15:10	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 15:10	WG50195	PREP FOR	1	09/26/01 13:09	03/18/02 15:10	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 15:10	WG50195	PREP FOR	1	09/26/01 13:09	03/18/02 15:10	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 15:10	WG50195	PREP FOR	1	09/26/01 13:09	03/18/02 15:10	WG50239
Lab ID: 01092694-2		Client ID: T-TL-2-G-01 (M)			Collect Date: 09/19/01 15:17			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 15:17	WG50195	PREP FOR	1	09/26/01 13:14	03/18/02 15:17	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 15:17	WG50195	PREP FOR	1	09/26/01 13:14	03/18/02 15:17	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 15:17	WG50195	PREP FOR	1	09/26/01 13:14	03/18/02 15:17	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 15:17	WG50195	PREP FOR	1	09/26/01 13:14	03/18/02 15:17	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 15:17	WG50195	PREP FOR	1	09/26/01 13:14	03/18/02 15:17	WG50239
Lab ID: 01092694-3		Client ID: T-TL-3-G-01 (M)			Collect Date: 09/19/01 15:25			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:41	03/18/02 15:25	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:41	03/18/02 15:25	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:41	03/18/02 15:25	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:41	03/18/02 15:25	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:41	03/18/02 15:25	WG50239
Lab ID: 01092694-4		Client ID: T-TL-3-G-02 (M)			Collect Date: 09/19/01 15:25			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:19	03/18/02 15:25	WG50239
FED 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:19	03/18/02 15:25	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:19	03/18/02 15:25	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:19	03/18/02 15:25	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 15:25	WG50195	PREP FOR	1	09/26/01 13:19	03/18/02 15:25	WG50239
Lab ID: 01092694-5		Client ID: T-TL-4-G-01 (M)			Collect Date: 09/19/01 15:35			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 15:35	WG50195	PREP FOR	1	09/26/01 13:25	03/18/02 15:35	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 15:35	WG50195	PREP FOR	1	09/26/01 13:25	03/18/02 15:35	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 15:35	WG50195	PREP FOR	1	09/26/01 13:25	03/18/02 15:35	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 15:35	WG50195	PREP FOR	1	09/26/01 13:25	03/18/02 15:35	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 15:35	WG50195	PREP FOR	1	09/26/01 13:25	03/18/02 15:35	WG50239
Lab ID: 01092694-6		Client ID: TW-7-G-01 (M)			Collect Date: 09/19/01 14:55			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 14:55	WG50195	PREP FOR	1	09/26/01 13:30	03/18/02 14:55	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 14:55	WG50195	PREP FOR	1	09/26/01 13:30	03/18/02 14:55	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 14:55	WG50195	PREP FOR	1	09/26/01 13:30	03/18/02 14:55	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 14:55	WG50195	PREP FOR	1	09/26/01 13:30	03/18/02 14:55	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 14:55	WG50195	PREP FOR	1	09/26/01 13:30	03/18/02 14:55	WG50239
Lab ID: 01092694-7		Client ID: TFB-G-01 (M)			Collect Date: 09/19/01 07:40			Receive Date: 09/19/01 18:20	
FED CD, 200.8		09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 13:35	03/18/02 07:40	WG50239
FED CR, 200.8		09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 13:35	03/18/02 07:40	WG50239
FED NI, 200.8		09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 13:35	03/18/02 07:40	WG50239
FED PB, 200.8		09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 13:35	03/18/02 07:40	WG50239
FED ZN, 200.8		09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 13:35	03/18/02 07:40	WG50239

Lab ID: 01092694-8	Client ID: TRB-S-01 (M)	Collect Date: 09/19/01 07:40	Receive Date: 09/19/01 18:20

FED CD, 200.8	09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 14:07	03/18/02 07:40	WG50239
FED CR, 200.8	09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 14:07	03/18/02 07:40	WG50239
FED NI, 200.8	09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 14:07	03/18/02 07:40	WG50239
FED PB, 200.8	09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 14:07	03/18/02 07:40	WG50239
FED ZN, 200.8	09/24/01 16:00	03/18/02 07:40	WG50195	PREP FOR	1	09/26/01 14:07	03/18/02 07:40	WG50239

QC SUMMARY

PDC Laboratories Quality Control Summary Report

ROJECT: 01092694

S ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092694-1	T-TL-1-G-01 (M)	WG50195	WG50239	26-Sep-01 13:09	JTM	EPA 200.8	
01092694-2	T-TL-2-G-01 (M)	WG50195	WG50239	26-Sep-01 13:14	JTM	EPA 200.8	
01092694-3	T-TL-3-G-01 (M)	WG50195	WG50239	26-Sep-01 13:41	JTM	EPA 200.8	
01092694-4	T-TL-3-G-02 (M)	WG50195	WG50239	26-Sep-01 13:19	JTM	EPA 200.8	
01092694-5	T-TL-4-G-01 (M)	WG50195	WG50239	26-Sep-01 13:25	JTM	EPA 200.8	
01092694-6	TW-7-G-01 (M)	WG50195	WG50239	26-Sep-01 13:30	JTM	EPA 200.8	
01092694-7	TFB-G-01 (M)	WG50195	WG50239	26-Sep-01 13:35	JTM	EPA 200.8	
01092694-8	TRB-S-01 (M)	WG50195	WG50239	26-Sep-01 14:07	JTM	EPA 200.8	

METHOD BLANK

Laboratory ID: WG50195-1 Analysis Lot: WG50239 Sample Tag: WG50195

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 13:03
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 13:03
Zinc	MG/L	0.0042J	0.020	26-Sep-01 13:03
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 13:03
Lead	MG/L	0.0030U	0.0030	26-Sep-01 13:03

LABORATORY CONTROL SAMPLE

oratory ID: WG50195-2 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12
Nickel	MG/L	5.55	5.40	97.3	85.0-115	26-Sep-01 14:12
Zinc	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12
Cadmium	MG/L	5.55	5.40	97.3	85.0-115	26-Sep-01 14:12
Lead	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG50195-3, WG50195-4 Analysis Lot: WG50239 Sample Spiked: 01092694-3 Site: T-TL-3-G-01 (M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Chromium	MG/L	5.5	5.5	0.0066	5.6	5.6	95.5	95.5	70.0-130	0.00	20.0
Nickel	MG/L	5.5	5.5	0.0064	5.3	5.4	90.3	92.1	70.0-130	1.97	20.0
Zinc	MG/L	5.5	5.5	0.025	5.6	5.7	80.6	82.4	70.0-130	2.21	20.0
Cadmium	MG/L	5.5	5.5	0.0050U	5.4	5.4	97.3	97.3	70.0-130	0.00	20.0
Lead	MG/L	5.5	5.5	0.0088	5.6	5.7	93.8	95.6	70.0-130	1.90	20.0

CONTINUING CALIBRATION BLANK

oratory ID: WG50239-10 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 14:24
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 14:24

PDC Laboratories Quality Control Summary Report

PROJECT: 01092694

METALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

Laboratory ID: WG50239-10, WG50195-4 Analysis Lot: WG50239 Sample Tag: 01092694-3 T-TL-3-G-01 (M) Sample Tag:

Analyte	Units	Value Spiked	RDL Spiked	Analysis Date Value	Value	% Rec	% Rec	Limits	RPD	RPD Limits
Zinc	MG/L	0.00017J	0.020	26-Sep-01 14:24						
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 14:24						
Lead	MG/L	0.0030U	0.0030	26-Sep-01 14:24						

Laboratory ID: WG50239-2 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 11:11
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 11:11
Zinc	MG/L	-5.2e-05J	0.020	26-Sep-01 11:11
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 11:11
Lead	MG/L	0.0030U	0.0030	26-Sep-01 11:11

Laboratory ID: WG50239-6 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 12:55
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 12:55
Zinc	MG/L	0.00020J	0.020	26-Sep-01 12:55
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 12:55
Lead	MG/L	0.0030U	0.0030	26-Sep-01 12:55

Laboratory ID: WG50239-8 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 14:03
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 14:03
Zinc	MG/L	0.00020J	0.020	26-Sep-01 14:03
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 14:03
Lead	MG/L	0.0030U	0.0030	26-Sep-01 14:03

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50239-3 Analysis Lot: WG50239

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Chromium	MG/L	0.0	0.00076	N/A	N/A	26-Sep-01 11:41
Nickel	MG/L	0.0	0.0023	N/A	N/A	26-Sep-01 11:41
Zinc	MG/L	0.0	0.0036	N/A	N/A	26-Sep-01 11:41
Cadmium	MG/L	0.0	-6.9e-05	N/A	N/A	26-Sep-01 11:41
Lead	MG/L	0.0	0.00029	N/A	N/A	26-Sep-01 11:41

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50239-4 Analysis Lot: WG50239

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.050	0.052	104	80.0-120	26-Sep-01 11:47
Nickel	MG/L	0.10	0.10	99.6	80.0-120	26-Sep-01 11:47
Zinc	MG/L	0.10	0.10	99.6	80.0-120	26-Sep-01 11:47
Cadmium	MG/L	0.10	0.097	97.5	80.0-120	26-Sep-01 11:47
Lead	MG/L	0.0050	0.0056	112	80.0-120	26-Sep-01 11:47

PDC Laboratories Quality Control Summary Report

PROJECT: 01092694

METALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50239-1 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 11:06
Nickel	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 11:06
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 11:06
Cadmium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 11:06
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 11:06

Laboratory ID: WG50239-5 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 12:50
Nickel	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50
Cadmium	MG/L	0.025	0.024	96.0	90.0-110	26-Sep-01 12:50
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 12:50

Laboratory ID: WG50239-7 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 13:58
Nickel	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 13:58
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 13:58
Cadmium	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 13:58
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 13:58

Laboratory ID: WG50239-9 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 14:20
Nickel	MG/L	0.025	0.025	100	90.0-110	26-Sep-01 14:20
Zinc	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 14:20
Cadmium	MG/L	0.025	0.024	96.0	90.0-110	26-Sep-01 14:20
Lead	MG/L	0.025	0.026	104	90.0-110	26-Sep-01 14:20

SHIPPING & RECEIVING

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Earth Tech / Keystone Cooler 4 of 4

Shipping Container # (PDC / Other): _____

Received (date time) 9-19-01 18:20 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO NA

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... YES NO*

If YES, a: Were the custody seals intact upon arrival? ..... YES NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 9-19-01

Was the Chain of Custody (COC) documentation provided with the shipment? ..... YES NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... YES NO*

b: COC #: 201

c: Was the project identifiable from the COC? ..... YES NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... YES NO*

What was the temperature in the Cooler? 5 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES NO*

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... YES NO*

Did all sample containers arrive intact and sealed? ..... YES NO*

Did all sample containers have secure and completed labels? ..... YES NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... YES NO*

Did all labels and/or tags agree with COC? ..... YES NO*

Were QC samples included? ..... YES NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO NA

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... YES NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

[redacted] JH[redacted]RIES [redacted]C.
2231 WEST ALTORFER DRIVE
PEORIA, [redacted]61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

0201

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: pick-up
ADDRESS: 5010 Stone Mill Rd	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9/19/01
CITY STATE ZIP: Bloomington, IN 47408	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:
CONTACT PERSON: Bob Aten	SAMPLER'S SIGNATURE: Robert E. Aten		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
01092694-8
LOGIN # 01092695-7
LOGGED BY: PJI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

(2) SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METALS	(SEE ATTACHED PARAMETER LIST)					REMARKS
T-TL-1-G-01(m) 2694-1	9/19/01	15:10	X		GW	1	X						
T-TL-2-G-01 (m) -2	9/19/01	15:17	X		GW	1	X						
T-TL-3-G-01 (m) -3	9/19/01	15:25	X		GW	2	X						EXTRA VOLUME FOR MS/MSD
T-TL-3-G-02 (m) -4	9/19/01	15:25	X		GW	1	X						
T-TL-4 G-01 (m) -5	9/19/01	15:35	X		GW	1	X						
TW-7-G-01 (m) -6	9/19/01	14:55	X		GW	1	X						
TFB-G-01 (m) -7	9/19/01	07:40	X		GW	1	X						
TRB-S-01 (m) -8	9/19/01	07:40	X		WTR	1	X						
T-01-S-01 (m)	9/19/01	11:00	X		NAS	1	X						
T-02-S-01 (m)	9/19/01	10:50	X		NAS	1	X						
T-03-S-01 (m)	9/19/01	10:30	X		NAS	1	X						
T-04-S-01 (m)	9/19/01	10:20	X		NAS	1	X						

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) 8+B (NORMAL) ~~RUSH~~
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) 10-25-01
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

(7) RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Robert E. Aten	9/19/01 1730		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED AT LAB BY: (SIGNATURE)	DATE 9-19-01 TIME 18:20

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

000013

Appendix H
Tail Tracks Landfill
Soil Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092695

November 7, 2001

Earth Tech

Project: Tail Tracks/Soils

SDG #01092695

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092695

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	09
QC Summary	11
Shipping and Receiving	15

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

Tail Tacks - Soils Project No. 19718.09

PDC Laboratories, Inc. received 7 soil samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092695 for total metals.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
T-01-S-01 (M)	01092695-1	09/19/01	09/19/01
T-02-S-01 (M)	01092695-2	09/19/01	09/19/01
T-03-S-01 (M)	01092695-3	09/19/01	09/19/01
T-04-S-01 (M)	01092695-4	09/19/01	09/19/01
T-05-S-01 (M)	01092695-5	09/19/01	09/19/01
T-05-S-02 (M)	01092695-6	09/19/01	09/19/01
T-06-S-02 (M)	01092695-7	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by SW-846 6010.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met QC acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092695- 5. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

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A Sample Duplicate was performed on sample 01082695-5. All recoveries were within QC criteria.

All Interference Check Samples were within QC criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 7, 2001	Title:	Project Manager

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DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

11/07/01

	Laboratory Sample No.:	01092695-1	01092695-2	01092695-3
	Client Description:	205746	205746	205746
	Site/Locator:	T-01-S-01 (M)	T-02-S-01 (M)	T-03-S-01 (M)
	Date Collected:	19-SEP-01 11:00:00	19-SEP-01 10:50:00	19-SEP-01 10:30:00
Method	Parameter	undiluted	undiluted	undiluted
SW6010B	Cadmium	mg/kg	1.8	1.6	0.8 J
SW6010B	Chromium	mg/kg	29	46	22
SW6010B	Lead	mg/kg	150	90	55
SW6010B	Nickel	mg/kg	18	18	20
SW6010B	Zinc	mg/kg	450	380	120
SW6010B	Cadmium	mg/kg Dry	2.6	2	0.99 J
SW6010B	Chromium	mg/kg Dry	43	58	27
SW6010B	Lead	mg/kg Dry	220	110	68
SW6010B	Nickel	mg/kg Dry	26	22	25
SW6010B	Zinc	mg/kg Dry	660	480	150
SM2540B	Moisture	%	32	20	19

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	Laboratory Sample No.:		01092695-4	01092695-5	01092695-6
	Client Description:		205746	205746	11/07/01 205746
	Site/Locator:		T-04-S-01 (M)	T-05-S-01 (M)	T-05-S-02 (M)
	Date Collected:		19-SEP-01 10:20:00	19-SEP-01 09:55:00	19-SEP-01 10:00:00
Method	Parameter		undiluted	undiluted	undiluted
SW6010B	Cadmium	mg/kg	4.7	3	2
SW6010B	Chromium	mg/kg	42	31	24
SW6010B	Lead	mg/kg	560	160	98
SW6010B	Nickel	mg/kg	17	24	21
SW6010B	Zinc	mg/kg	1,300	600	350
SW6010B	Cadmium	mg/kg Dry	6.6	4.5	3.1
SW6010B	Chromium	mg/kg Dry	59	47	38
SW6010B	Lead	mg/kg Dry	790	240	150
SW6010B	Nickel	mg/kg Dry	24	36	33
SW6010B	Zinc	mg/kg Dry	1,800	910	550
SM2540B	Moisture	%	29	34	36

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T-06-S-01 (see chain of custody) (pg 000016)

11/07/01

Laboratory Sample No.:	01092695-7
Client Description:	205746
Site/Locator:	T-06-S-02 (M)
Date Collected:	19-SEP-01 09:45:00

Method	Parameter		undiluted
SW6010B	Cadmium	mg/kg	14
SW6010B	Chromium	mg/kg	190
SW6010B	Lead	mg/kg	600
SW6010B	Nickel	mg/kg	83
SW6010B	Zinc	mg/kg	3,700
SW6010B	Cadmium	mg/kg Dry	16
SW6010B	Chromium	mg/kg Dry	220
SW6010B	Lead	mg/kg Dry	690
SW6010B	Nickel	mg/kg Dry	95
SW6010B	Zinc	mg/kg Dry	4,200
SM2540B	Moisture	%	13

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CASE NARRATIVE – Earth Tech/Keystone

Tail Tacks - Soils Project No. 19718.09

PDC Laboratories, Inc. received 7 soil samples on September 19, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092695 for total metals.

Sample Id's		Date	
Field	Lab	Collected	Received
T-01-S-01 (M)	01092695-1	09/19/01	09/19/01
T-02-S-01 (M)	01092695-2	09/19/01	09/19/01
T-03-S-01 (M)	01092695-3	09/19/01	09/19/01
T-04-S-01 (M)	01092695-4	09/19/01	09/19/01
T-05-S-01 (M)	01092695-5	09/19/01	09/19/01
T-05-S-02 (M)	01092695-6	09/19/01	09/19/01
T-06-S-02 (M)	01092695-7	09/19/01	09/19/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by SW-846 6010.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met QC acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092695- 5. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

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A Sample Duplicate was performed on sample 01082695-5. All recoveries were within QC criteria.

All Interference Check Samples were within QC criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature: _____ Name: Barbara Beard

Date: _____ Title: Project Manager

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092695-1		Client ID: T-01-S-01 (M)			Collect Date: 09/19/01 11:00			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 11:00	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 11:00	WG50761	PREP FOR	1	09/26/01 14:34	03/18/02 11:00	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 11:00	WG50761	PREP FOR	1	09/26/01 14:34	03/18/02 11:00	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 11:00	WG50761	PREP FOR	1	09/26/01 14:34	03/18/02 11:00	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 11:00	WG50761	PREP FOR	1	09/26/01 14:34	03/18/02 11:00	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 11:00	WG50761	PREP FOR	1	09/26/01 14:34	03/18/02 11:00	WG50762
Lab ID: 01092695-2		Client ID: T-02-S-01 (M)			Collect Date: 09/19/01 10:50			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 10:50	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 10:50	WG50761	PREP FOR	1	09/26/01 14:39	03/18/02 10:50	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 10:50	WG50761	PREP FOR	1	09/26/01 14:39	03/18/02 10:50	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 10:50	WG50761	PREP FOR	1	09/26/01 14:39	03/18/02 10:50	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 10:50	WG50761	PREP FOR	1	09/26/01 14:39	03/18/02 10:50	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 10:50	WG50761	PREP FOR	1	09/26/01 14:39	03/18/02 10:50	WG50762
Lab ID: 01092695-3		Client ID: T-03-S-01 (M)			Collect Date: 09/19/01 10:30			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 10:30	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 10:30	WG50761	PREP FOR	1	09/26/01 14:44	03/18/02 10:30	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 10:30	WG50761	PREP FOR	1	09/26/01 14:44	03/18/02 10:30	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 10:30	WG50761	PREP FOR	1	09/26/01 14:44	03/18/02 10:30	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 10:30	WG50761	PREP FOR	1	09/26/01 14:44	03/18/02 10:30	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 10:30	WG50761	PREP FOR	1	09/26/01 14:44	03/18/02 10:30	WG50762
Lab ID: 01092695-4		Client ID: T-04-S-01 (M)			Collect Date: 09/19/01 10:20			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 10:20	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 10:20	WG50761	PREP FOR	1	09/26/01 14:49	03/18/02 10:20	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 10:20	WG50761	PREP FOR	1	09/26/01 14:49	03/18/02 10:20	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 10:20	WG50761	PREP FOR	1	09/26/01 14:49	03/18/02 10:20	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 10:20	WG50761	PREP FOR	1	09/26/01 14:49	03/18/02 10:20	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 10:20	WG50761	PREP FOR	1	09/26/01 14:49	03/18/02 10:20	WG50762
Lab ID: 01092695-5		Client ID: T-05-S-01 (M)			Collect Date: 09/19/01 09:55			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 09:55	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 09:55	WG50761	PREP FOR	1	09/26/01 15:59	03/18/02 09:55	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 09:55	WG50761	PREP FOR	1	09/26/01 15:59	03/18/02 09:55	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 09:55	WG50761	PREP FOR	1	09/26/01 15:59	03/18/02 09:55	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 09:55	WG50761	PREP FOR	1	09/26/01 15:59	03/18/02 09:55	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 09:55	WG50761	PREP FOR	1	09/26/01 15:59	03/18/02 09:55	WG50762
Lab ID: 01092695-6		Client ID: T-05-S-02 (M)			Collect Date: 09/19/01 10:00			Receive Date: 09/19/01 18:20	
FED MOIST						1	09/21/01 09:33	03/18/02 10:00	WG49494
FED CD, 6010		09/25/01 14:00	03/18/02 10:00	WG50761	PREP FOR	1	09/26/01 15:32	03/18/02 10:00	WG50762
FED CR, 6010		09/25/01 14:00	03/18/02 10:00	WG50761	PREP FOR	1	09/26/01 15:32	03/18/02 10:00	WG50762
FED NI, 6010		09/25/01 14:00	03/18/02 10:00	WG50761	PREP FOR	1	09/26/01 15:32	03/18/02 10:00	WG50762
FED PB, 6010		09/25/01 14:00	03/18/02 10:00	WG50761	PREP FOR	1	09/26/01 15:32	03/18/02 10:00	WG50762
FED ZN, 6010		09/25/01 14:00	03/18/02 10:00	WG50761	PREP FOR	1	09/26/01 15:32	03/18/02 10:00	WG50762

Lab ID: 01092695-7 Client ID: T-06-S-02 (M) Collect Date: 09/19/01 09:45 Receive Date: 09/19/01 18:20

FED MOIST					1	09/21/01 09:33	03/18/02 09:45	WG49494
FED CD, 6010	09/25/01 14:00	03/18/02 09:45	WG50761	PREP FOR	1	09/26/01 15:47	03/18/02 09:45	WG50762
FED CR, 6010	09/25/01 14:00	03/18/02 09:45	WG50761	PREP FOR	1	09/26/01 15:47	03/18/02 09:45	WG50762
FED NI, 6010	09/25/01 14:00	03/18/02 09:45	WG50761	PREP FOR	1	09/26/01 15:47	03/18/02 09:45	WG50762
FED PB, 6010	09/25/01 14:00	03/18/02 09:45	WG50761	PREP FOR	1	09/26/01 15:47	03/18/02 09:45	WG50762
FED ZN, 6010	09/25/01 14:00	03/18/02 09:45	WG50761	PREP FOR	1	09/26/01 15:47	03/18/02 09:45	WG50762

QC SUMMARY

PDC Laboratories Quality Control Summary Report

ROJECT: 01092695

TALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092695-1	T-01-S-01 (M)	WG50761	WG50762	26-Sep-01 14:34	DWK	SW6010B	
01092695-2	T-02-S-01 (M)	WG50761	WG50762	26-Sep-01 14:39	DWK	SW6010B	
01092695-3	T-03-S-01 (M)	WG50761	WG50762	26-Sep-01 14:44	DWK	SW6010B	
01092695-4	T-04-S-01 (M)	WG50761	WG50762	26-Sep-01 14:49	DWK	SW6010B	
01092695-5	T-05-S-01 (M)	WG50761	WG50762	26-Sep-01 15:59	DWK	SW6010B	
01092695-6	T-05-S-02 (M)	WG50761	WG50762	26-Sep-01 15:32	DWK	SW6010B	
01092695-7	T-06-S-02 (M)	WG50761	WG50762	26-Sep-01 15:47	DWK	SW6010B	

METHOD BLANK

oratory ID: WG50761-1 Analysis Lot: WG50762 Prep Batch: WG50761 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Cadmium	MG/KG	1.0U	1.0	26-Sep-01 13:23
Chromium	MG/KG	2.0U	2.0	26-Sep-01 13:23
Nickel	MG/KG	0.30U	0.30	26-Sep-01 13:23
Lead	MG/KG	0.60U	0.60	26-Sep-01 13:23
Zinc	MG/KG	4.0U	4.0	26-Sep-01 13:23

LABORATORY CONTROL SAMPLE

ry ID: WG50761-2 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Chromium	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Nickel	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Lead	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27
Zinc	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 13:27

TRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG50761-4, WG50761-5 Analysis Lot: WG50762 Sample Spiked: 01092695-5 Site: T-05-S-01 (M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Cadmium	MG/KG	500	500	3.0	450	440	89.0	87.0	75.0-125	3.39	20.0
Chromium	MG/KG	500	500	31	475	460	89.0	86.0	75.0-125	2.77	20.0
Nickel	MG/KG	500	500	24	470	450	89.0	85.0	75.0-125	4.34	20.0
Lead	MG/KG	500	500	160	620	600	92.0	88.0	75.0-125	3.28	20.0
Zinc	MG/KG	500	500	600	1050	1050	90.0	90.0	75.0-125	0.00	20.0

ABORATORY DUPLICATE

oratory ID: WG50761-3 Duplicate Sample: 01092695-5 Analysis Lot: WG50762

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Cadmium	MG/KG	3.0	3.1	3.23	20.0	26-Sep-01 16:03
Chromium	MG/KG	31	32	3.17	20.0	26-Sep-01 16:03
Nickel	MG/KG	24	23	4.25	20.0	26-Sep-01 16:03

PDC Laboratories Quality Control Summary Report

ROJECT: 01092695

IES ANALYSIS (SW6010) AND PREPARATION (SW3051)

ABORATORY DUPLICATE

Laboratory ID: WG50761-3 Duplicate Sample: WG50762 Analysis Lot:

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Lead	MG/KG	160	174	10.9	20.0	26-Sep-01 16:03
Zinc	MG/KG	600	640	6.45	20.0	26-Sep-01 16:03

ITIAL CALIBRATION VERIFICATION

Laboratory ID: WG50762-1 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 09:14
Chromium	UG/ML	4.0	3.9	97.5	90.0-110	26-Sep-01 09:14
Nickel	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 09:14
Lead	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 09:14
Zinc	UG/ML	4.0	3.9	97.5	90.0-110	26-Sep-01 09:14

ITIAL CALIBRATION BLANK

Laboratory ID: WG50762-2 Analysis Lot: WG50762

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 09:22
Chromium	UG/ML	2.0U	2.0	26-Sep-01 09:22
Nickel	UG/ML	0.30U	0.30	26-Sep-01 09:22
Lead	UG/ML	0.60U	0.60	26-Sep-01 09:22
Zinc	UG/ML	4.0U	4.0	26-Sep-01 09:22

NTINUING CALIBRATION BLANK

aboratory ID: WG50762-10 Analysis Lot: WG50762

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 14:59
Chromium	UG/ML	2.0U	2.0	26-Sep-01 14:59
Nickel	UG/ML	0.30U	0.30	26-Sep-01 14:59
Lead	UG/ML	0.60U	0.60	26-Sep-01 14:59
Zinc	UG/ML	4.0U	4.0	26-Sep-01 14:59

aboratory ID: WG50762-13 Analysis Lot: WG50762

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 16:13
Chromium	UG/ML	2.0U	2.0	26-Sep-01 16:13
Nickel	UG/ML	0.30U	0.30	26-Sep-01 16:13
Lead	UG/ML	0.60U	0.60	26-Sep-01 16:13
Zinc	UG/ML	4.0U	4.0	26-Sep-01 16:13

aboratory ID: WG50762-6 Analysis Lot: WG50762

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 12:55
Chromium	UG/ML	2.0U	2.0	26-Sep-01 12:55
Nickel	UG/ML	0.30U	0.30	26-Sep-01 12:55
Lead	UG/ML	0.60U	0.60	26-Sep-01 12:55
Zinc	UG/ML	4.0U	4.0	26-Sep-01 12:55

PDC Laboratories Quality Control Summary Report

ROJECT: 01092695

S ANALYSIS (SW6010) AND PREPARATION (SW3051)
ONTINUING CALIBRATION BLANK

Laboratory ID: WG50762-8 Analysis Lot: WG50762

Analyte	Units	Value	RDL	Analysis Date
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 13:58
Chromium	UG/ML	2.0U	2.0	26-Sep-01 13:58
Nickel	UG/ML	0.30U	0.30	26-Sep-01 13:58
Lead	UG/ML	0.60U	0.60	26-Sep-01 13:58
Zinc	UG/ML	4.0U	4.0	26-Sep-01 13:58

TERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50762-3 Analysis Lot: WG50762

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Cadmium	UG/ML	0.0	-0.0051	N/A	N/A	26-Sep-01 09:27
Chromium	UG/ML	0.0	-0.00078	N/A	N/A	26-Sep-01 09:27
Nickel	UG/ML	0.0	-0.0027	N/A	N/A	26-Sep-01 09:27
Lead	UG/ML	0.0	-0.0014	N/A	N/A	26-Sep-01 09:27
Zinc	UG/ML	0.0	-0.013	N/A	N/A	26-Sep-01 09:27

INTERFERENCE CHECK SAMPLE - AB

aboratory ID: WG50762-4 Analysis Lot: WG50762

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	1.0	0.97	97.4	80.0-120	26-Sep-01 09:32
Chromium	UG/ML	0.50	0.48	96.2	80.0-120	26-Sep-01 09:32
Nickel	UG/ML	1.0	0.98	98.5	80.0-120	26-Sep-01 09:32
Lead	UG/ML	0.050	0.047	93.8	80.0-120	26-Sep-01 09:32
Zinc	UG/ML	1.0	0.93	93.0	80.0-120	26-Sep-01 09:32

CONTINUING CALIBRATION VERIFICATION

aboratory ID: WG50762-12 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 16:08
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 16:08
Nickel	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 16:08
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 16:08
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 16:08

aboratory ID: WG50762-5 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Nickel	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50

PDC Laboratories Quality Control Summary Report

PROJECT: 01092695

TAGS ANALYSIS (SW6010) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50762-7 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Nickel	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54

Laboratory ID: WG50762-9 Analysis Lot: WG50762 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 14:55
Nickel	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55
Zinc	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 14:55

SHIPPING & RECEIVING

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

0201

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT	KEYSTONE
PROJECT NUMBER	19718.09
P.O. NUMBER	
MEANS SHIPPED	pick-up
ADDRESS	5010 Stone Mill Rd
PHONE NUMBER	812-336-0972
FAX NUMBER	
DATE SHIPPED	9/19/01
CITY STATE ZIP	Bloomington, IN 47408
SAMPLER (PLEASE PRINT)	JAD / RAA
CONTACT PERSON	Bob Aten
SAMPLER'S SIGNATURE	Robert E. Aten

MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 01092694-8 / 01092695-7
LOGGED BY: PJI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METALS (SEE ATTACHED PARAMETER LIST)							REMARKS
T-TL-1-G-01(m)	9/19/01	15:10	X		GW	1	X							
T-TL-2-G-01 (m)	9/19/01	15:17	X		GW	1	X							
T-TL-3-G-01 (m)	9/19/01	15:25	X		GW	2	X							EXTRA VOLUME FOR MS/MSD
T-TL-3-G-02 (m)	9/19/01	15:25	X		GW	1	X							
T-TL-4 G-01 (m)	9/19/01	15:35	X		GW	1	X							
TW-7-G-01 (m)	9/19/01	14:55	X		GW	1	X							
TFB-G-01 (m)	9/19/01	07:40	X		GW	1	X							
TRB-S-01 (m)	9/19/01	07:40	X		WTR	1	X							
T-01-S-01 (m)	9/19/01	11:00	X		NAS	1	X							
T-02-S-01 (m)	9/19/01	10:50	X		NAS	1	X							
T-03-S-01 (m)	9/19/01	10:30	X		NAS	1	X							
T-04-S-01 (m)	9/19/01	10:20	X		NAS	1	X							

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE): NORMAL ~~RUSH~~

RUSH RESULTS VIA (PLEASE CIRCLE): FAX PHONE

FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

7			
RELINQUISHED BY: (SIGNATURE) Robert E. Aten	DATE 9/19/01 TIME 1730	RECEIVED BY: (SIGNATURE)	DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE)	DATE 9/19/01 TIME 18:20

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

000035

[redacted] ORATORIES INC.
2231 WEST ALTORFER DRIVE
PEORIA [redacted] 61615
PHONE # 309-692-9688
FAX # 309-692-9689

[redacted] AIN [redacted] F C[redacted] TO [redacted] RD [redacted]

91901

BJB 9/19/01

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: PICK-UP
ADDRESS: 5010 STONE MILL Rd	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9/19/01
CITY STATE ZIP: BLOOMINGTON, IN 47408	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER:
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: J.A. Drewchin		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 01092695-7
LOGGED BY: PJI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	TOTAL METALS	(SEE ATTACHED PARAMETER LIST)						REMARKS
T-05-S-01 (m)	9/19/01	9:55	X		NAS	2	X							EXTRA VOLUME FOR MS/MSD
T-05-S-02 (m)	9/19/01	10:00	X		NAS	1	X							
T-06-S-01 (m)	9/19/01	9:45	X		NAS	1	X							

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) NORMAL ~~RUSH~~
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7 RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
Robert E. Aten	9/19/01 / 1730		
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED AT LAB BY: (SIGNATURE) Ann R. Hogan	DATE 9-19-01 / TIME 18:20

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 5 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

000016

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project Earth Tech / Keystone Cooler 4 of 4

Shipping Container # (PDC / Other): _____

Received (date time) 9-19-01 18:20 By: ARH

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO NA

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... YES NO*

If YES, a: Were the custody seals intact upon arrival? ..... YES NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 9-19-01

Was the Chain of Custody (COC) documentation provided with the shipment? ..... YES NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... YES NO*

b: COC #: 201 and 9901 BJB 9/19/01

c: Was the project identifiable from the COC? ..... YES NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... YES NO*

What was the temperature in the Cooler? 5 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES NO*

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... YES NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... YES NO*

Did all sample containers arrive intact and sealed? ..... YES NO*

Did all sample containers have secure and completed labels? ..... YES NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... YES NO*

Did all labels and/or tags agree with COC? ..... YES NO*

Were QC samples included? ..... YES NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO NA

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... YES NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... YES NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

Appendix I
Tail Tracks Area
Surface Water Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01121541

December 17, 2001

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Report Cover Page

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 06-Dec-01
Date Reported: 24-Dec-01
PO #:
PDC Cust. # : 205746

Login No. 01121541

This report includes information regarding the following described samples as received by the laboratory and is only valid for the parameters tested. This report contains 3 results page(s) not including the cover page(s).

Sample No.	Client ID	Site	Locator
01121541-1	TO-4		
01121541-2	TO-2		
01121541-3	TO-1		

Certified by: _____
Kurt C. Stepping, Director of Client Services

PDC Laboratories, Inc. participates in the following laboratory accreditation/certification/validation and proficiency programs: Endorsement by the Federal or State Government or their agencies is not implied.

NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
US Army Corps of Engineers Validation for Chemical Analysis in support of the Hazardous, Toxic and Radioactive Waste Program
State of Illinois Certification for Bacteriological Analysis in Drinking Water -Lab Registry No. 17533
Drinking Water Certifications: Indiana (C-IL-04); Kansas (E-10338); Kentucky (90058); Missouri (00870); Wisconsin (998294430)
Wastewater Certifications: Arkansas; Iowa (240); Kansas (E-10338); Wisconsin (998294430)
Hazardous/Solid Waste Certifications: Arkansas; Kansas (E-10338); Wisconsin (998294430)
UST Certification: Iowa (240)

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(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 06-Dec-01
Date Reported: 24-Dec-01
PO #:
PDC Cust. # : 205746

Login No. 01121541

Sample No: 01121541-1
Client ID: TO-4
Site:
Locator:
Collect Date: 06-DEC-01 15:00

Parameter		Result	Units	Date	By
EPA METHOD 200.7					
Sample Preparation				10-Dec-01 10:00	KJP
EPA METHOD 200.7 rev 4.4					
Cadmium	<	0.0020	mg/l	11-Dec-01 10:00	JMP
Chromium		0.011	mg/l	11-Dec-01 10:00	JMP
Nickel	<	0.0050	mg/l	11-Dec-01 10:00	JMP
Lead	<	0.010	mg/l	11-Dec-01 10:00	JMP
Zinc		0.15	mg/l	11-Dec-01 10:00	JMP

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Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 06-Dec-01
Date Reported: 24-Dec-01
PO #:
PDC Cust. # : 205746

Login No. 01121541

Sample No: 01121541-2
Client ID: TO-2
Site:
Locator:
Collect Date: 06-DEC-01 15:15

Parameter		Result	Units	Date	By
EPA METHOD 200.7					
Sample Preparation				10-Dec-01 10:00	KJP
EPA METHOD 200.7 rev 4.4					
Cadmium	<	0.0020	mg/l	11-Dec-01 10:00	JMP
Chromium		0.0050	mg/l	11-Dec-01 10:00	JMP
Nickel	<	0.0050	mg/l	11-Dec-01 10:00	JMP
Lead		0.050	mg/l	11-Dec-01 10:00	JMP
Zinc		0.027	mg/l	11-Dec-01 10:00	JMP

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(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 06-Dec-01
Date Reported: 24-Dec-01
PO #:
PDC Cust. # : 205746

Login No. 01121541

Sample No: 01121541-3
Client ID: TO-1
Site:
Locator:
Collect Date: 06-DEC-01 15:30

Parameter		Result	Units	Date	By
PA METHOD 200.7					
Sample Preparation				10-Dec-01 10:00	KJP
EPA METHOD 200.7 rev 4.4					
Cadmium	<	0.0020	mg/l	11-Dec-01 10:00	JMP
Chromium	<	0.0040	mg/l	11-Dec-01 10:00	JMP
Nickel		0.027	mg/l	11-Dec-01 10:00	JMP
Lead		0.090	mg/l	11-Dec-01 10:00	JMP
Zinc		0.45	mg/l	11-Dec-01 10:00	JMP

recycled paper

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615

PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	P.O. NUMBER	MEANS SHIPPED
Keystone			
ADDRESS	PHONE NUMBER	FAX NUMBER	DATE SHIPPED
CITY STATE ZIP	SAMPLER (PLEASE PRINT): V Arms R Zinser		MATRIX TYPES: WW-WASTEWATER DW-DRINKING WATER GW-GROUND WATER WWSL-SLUDGE NAS-SOLID OTHER:
CONTACT PERSON	SAMPLER'S SIGNATURE:		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 01121541
LOGGED BY: JAP
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

(2) SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT.	REMARKS
TO-C1	12/6/01	1500			GW	5W	
TO-2		1515					
TO-1		1530					

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE 12/6/01	RECEIVED BY: (SIGNATURE)	DATE
	TIME 1600		TIME
RELINQUISHED BY: (SIGNATURE)	DATE	RECEIVED AT LAB BY: (SIGNATURE)	DATE 12/6/01
	TIME		TIME 16:00

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 6 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

Appendix J
F-Pond
Surface Water Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092801

November 6, 2001

Earth Tech

Project: F-Pond/Waters

SDG #01092801

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092801

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	08
QC Summary	10
Shipping and Receiving	21

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

F Pond - Waters Project No. 19718.09

PDC Laboratories, Inc. received 6 water samples on September 21, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092801 for Total Metals and VOA analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
Trip Blank	01092801-1	09/21/01	09/21/01
FRB-W-01 (M,V)	01092801-2	09/21/01	09/21/01
FRB-D-01 (M,V)	01092801-3	09/21/01	09/21/01
F-07-W-01 (M,V)	01092801-4	09/21/01	09/21/01
F-07-W-02 (M,V)	01092801-5	09/21/01	09/21/01
F-08-W-01 (M,V)	01092801-6	09/21/01	09/21/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by Method 200.8 and 200.7; VOAs by Method 624.

Metals QC Summary (200.8)

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092801-4. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Metals QC Summary (200.7)

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092801-4. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

VOA QC Summary

All holding time criteria were met for all samples.

The instrument performance check using Bromofluorobenzene (BFB) met method acceptance criteria.

All Initial and Continuing Calibration Standards met method acceptance criteria.

All Method Blanks were free of contamination for target analytes.

All Surrogate Spike recoveries were within method QC criteria.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092801-4. All recoveries were within the specified QC limits.

The associated Laboratory Control Samples (LCS) were within method acceptance criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	Nov. 6, 2001	Title:	Project Manager

EAR01092801.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

11/02/01

	Laboratory Sample No.:		01092801-1	01092801-2	01092801-2
	Client Description:		205746	205746	205746
	Site/Locator:		TRIP BLANK	FRB-W-01 (M,V)	FRB-W-01 (M,V)
	Date Collected:		21-SEP-01 07:00:00	21-SEP-01 10:10:00	21-SEP-01 10:10:00
Method	Parameter		D1:1	undiluted	D1:1
EPA 624	1,1-Dichloroethane	ug/l	10 U		10 U
EPA 624	trans-1,2-Dichloroethene	ug/l	10 U		10 U
EPA 624	Trichloroethene	ug/l	1.6 U		1.6 U
EPA 624	Xylenes (Total)	ug/l	10 U		10 U
EPA 200.7	Iron	mg/l		0.77	
EPA 200.8	Aluminum	mg/l		0.0094 J	
EPA 200.8	Barium	mg/l		0.00027 J	
EPA 200.8	Cadmium	mg/l		0.005 U	
EPA 200.8	Chromium	mg/l		0.0011 J	
EPA 200.8	Copper	mg/l		0.0026 J	
EPA 200.8	Lead	mg/l		0.003 U	
EPA 200.8	Manganese	mg/l		0.00053 J	
EPA 200.8	Zinc	mg/l		0.0019 J	
EPA 200.8 R5.4	Mercury	ug/l		0.2 U	

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11/02/01

	Laboratory Sample No.:		01092801-3	01092801-3	01092801-4
	Client Description:		205746	205746	205746
	Site/Locator:		FRB-D-01 (M,V)	FRB-D-01 (M,V)	F-07-W-01 (M,V)
	Date Collected:		21-SEP-01 10:10:00	21-SEP-01 10:10:00	21-SEP-01 12:30:00
Method	Parameter		undiluted	D1:1	undiluted
EPA 624	1,1-Dichloroethane	ug/l		10 U	
EPA 624	trans-1,2-Dichloroethene	ug/l		10 U	
EPA 624	Trichloroethene	ug/l		1.6 U	
EPA 624	Xylenes (Total)	ug/l		10 U	
EPA 200.7	Iron	mg/l	0.018 J		16
EPA 200.8	Aluminum	mg/l	0.014 J		0.1 J
EPA 200.8	Barium	mg/l	0.00083 J		0.034 J
EPA 200.8	Cadmium	mg/l	0.005 U		0.005 U
EPA 200.8	Chromium	mg/l	0.01 U		0.0065 J
EPA 200.8	Copper	mg/l	0.025 U		0.0092 J
EPA 200.8	Lead	mg/l	0.003 U		0.047
EPA 200.8	Manganese	mg/l	0.00046 J		16
EPA 200.8	Zinc	mg/l	0.002 J		0.27
EPA 200.8 R5.4	Mercury	ug/l	0.2 U		0.2 U

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11/02/01

	Laboratory Sample No.:		01092801-4	01092801-5	01092801-5
	Client Description:		205746	205746	205746
	Site/Locator:		F-07-W-01 (M,V)	F-07-W-02 (M,V)	F-07-W-02 (M,V)
	Date Collected:		21-SEP-01 12:30:00	21-SEP-01 12:30:00	21-SEP-01 12:30:00
Method	Parameter		D1:1	undiluted	D1:1
EPA 624	1,1-Dichloroethane	ug/l	10 U		10 U
EPA 624	trans-1,2-Dichloroethene	ug/l	10 U		10 U
EPA 624	Trichloroethene	ug/l	1.6 U		1.6 U
EPA 624	Xylenes (Total)	ug/l	10 U		10 U
EPA 200.7	Iron	mg/l		15	
EPA 200.8	Aluminum	mg/l		0.076 J	
EPA 200.8	Barium	mg/l		0.034 J	
EPA 200.8	Cadmium	mg/l		0.005 U	
EPA 200.8	Chromium	mg/l		0.0055 J	
EPA 200.8	Copper	mg/l		0.0084 J	
EPA 200.8	Lead	mg/l		0.038	
EPA 200.8	Manganese	mg/l		16	
EPA 200.8	Zinc	mg/l		0.22	
EPA 200.8 R5.4	Mercury	ug/l		0.2 U	

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11/02/01

	Laboratory Sample No.:		01092801-6	01092801-6
	Client Description:		205746	205746
	Site/Locator:		F-08-W-01 (M,V)	F-08-W-01 (M,V)
	Date Collected:		21-SEP-01 15:15:00	21-SEP-01 15:15:00
Method	Parameter		undiluted	D1:1
EPA 624	1,1-Dichloroethane	ug/l		10 U
EPA 624	trans-1,2-Dichloroethene	ug/l		10 U
EPA 624	Trichloroethene	ug/l		2
EPA 624	Xylenes (Total)	ug/l		10 U
EPA 200.7	Iron	mg/l	0.19	
EPA 200.8	Aluminum	mg/l	0.087 J	
EPA 200.8	Barium	mg/l	0.038 J	
EPA 200.8	Cadmium	mg/l	0.005 U	
EPA 200.8	Chromium	mg/l	0.0046 J	
EPA 200.8	Copper	mg/l	0.0021 J	
EPA 200.8	Lead	mg/l	0.029	
EPA 200.8	Manganese	mg/l	0.2	
EPA 200.8	Zinc	mg/l	0.026	
EPA 200.8 R5.4	Mercury	ug/l	0.2 U	

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092801-1			Client ID: TRIP BLANK		Collect Date: 09/21/01 07:00			Receive Date: 09/21/01 17:15	
FED M6240						1	09/28/01 16:42	10/05/01 07:00	WG49808
Lab ID: 01092801-2			Client ID: FRB-W-01 (M,V)		Collect Date: 09/21/01 10:10			Receive Date: 09/21/01 17:15	
FED AL, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED BA, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED CD, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED CR, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED CU, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED FE, 200.7		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 10:38	03/20/02 10:10	WG50200
FED HG, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	10/19/01 10:10	WG50241
FED MN, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED PB, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED ZN, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:42	03/20/02 10:10	WG50241
FED M6240						1	09/28/01 17:11	10/05/01 10:10	WG49808
Lab ID: 01092801-3			Client ID: FRB-D-01 (M,V)		Collect Date: 09/21/01 10:10			Receive Date: 09/21/01 17:15	
FED AL, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED BA, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED CD, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED CR, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED CU, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED FE, 200.7		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 10:44	03/20/02 10:10	WG50200
FED HG, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	10/19/01 10:10	WG50241
FED MN, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED PB, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED ZN, 200.8		09/25/01 12:00	03/20/02 10:10	WG50049	PREP FOR	1	09/27/01 13:47	03/20/02 10:10	WG50241
FED M6240						1	10/01/01 12:36	10/05/01 10:10	WG49817
Lab ID: 01092801-4			Client ID: F-07-W-01 (M,V)		Collect Date: 09/21/01 12:30			Receive Date: 09/21/01 17:15	
FED AL, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED BA, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED CD, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED CR, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED CU, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED FE, 200.7		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 10:50	03/20/02 12:30	WG50200
FED HG, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	10/19/01 12:30	WG50241
FED MN, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED PB, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED ZN, 200.8		09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 14:03	03/20/02 12:30	WG50241
FED M6240						1	09/28/01 19:07	10/05/01 12:30	WG49808

Lab ID: 01092801-5 Client ID: F-07-W-02 (M,V) Collect Date: 09/21/01 12:30 Receive Date: 09/21/01 17:15

FED AL, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED BA, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED CD, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED CR, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED CU, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED FE, 200.7	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 11:20	03/20/02 12:30	WG50200
FED HG, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	10/19/01 12:30	WG50241
FED MN, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED PB, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED ZN, 200.8	09/25/01 12:00	03/20/02 12:30	WG50049	PREP FOR	1	09/27/01 13:52	03/20/02 12:30	WG50241
FED M6240					1	09/28/01 18:09	10/05/01 12:30	WG49808

Lab ID: 01092801-6 Client ID: F-08-W-01 (M,V) Collect Date: 09/21/01 15:15 Receive Date: 09/21/01 17:15

FED AL, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED BA, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED CD, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED CR, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED CU, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED FE, 200.7	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 11:26	03/20/02 15:15	WG50200
FED HG, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	10/19/01 15:15	WG50241
FED MN, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
[illegible], 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED ZN, 200.8	09/25/01 12:00	03/20/02 15:15	WG50049	PREP FOR	1	09/27/01 13:58	03/20/02 15:15	WG50241
FED M6240					1	09/28/01 18:38	10/05/01 15:15	WG49808

QC SUMMARY

PDC Laboratories Quality Control Summary Report

PROJECT: 01092801

LS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092801-2	FRB-W-01 (M,V)	WG50049	WG50241	27-Sep-01 13:42	JTM	EPA 200.8	
01092801-3	FRB-D-01 (M,V)	WG50049	WG50241	27-Sep-01 13:47	JTM	EPA 200.8	
01092801-4	F-07-W-01 (M,V)	WG50049	WG50241	27-Sep-01 14:03	JTM	EPA 200.8	
01092801-5	F-07-W-02 (M,V)	WG50049	WG50241	27-Sep-01 13:52	JTM	EPA 200.8	
01092801-6	F-08-W-01 (M,V)	WG50049	WG50241	27-Sep-01 13:58	JTM	EPA 200.8	

ETHOD BLANK

Laboratory ID: WG50049-1 Analysis Lot: WG50241 Sample Tag: WG50049

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.0092J	0.20	27-Sep-01 13:31
Chromium	MG/L	0.010U	0.010	27-Sep-01 13:31
Manganese	MG/L	0.015U	0.015	27-Sep-01 13:31
Copper	MG/L	0.025U	0.025	27-Sep-01 13:31
Zinc	MG/L	0.0016J	0.020	27-Sep-01 13:31
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 13:31
Barium	MG/L	0.20U	0.20	27-Sep-01 13:31
Lead	MG/L	0.0030U	0.0030	27-Sep-01 13:31
Mercury	UG/L	0.20U	0.20	27-Sep-01 13:31

LABORATORY CONTROL SAMPLE

Laboratory ID: WG50049-2 Analysis Lot: WG50241 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Chromium	MG/L	5.55	5.80	104	85.0-115	27-Sep-01 14:22
Manganese	MG/L	5.55	5.50	99.1	85.0-115	27-Sep-01 14:22
Copper	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Zinc	MG/L	5.55	5.80	104	85.0-115	27-Sep-01 14:22
Cadmium	MG/L	5.55	5.40	97.3	85.0-115	27-Sep-01 14:22
Barium	MG/L	5.55	5.30	95.5	85.0-115	27-Sep-01 14:22
Lead	MG/L	5.55	5.50	99.1	85.0-115	27-Sep-01 14:22
Mercury	UG/L	4.40	4.10	93.0	85.0-115	27-Sep-01 14:22

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

boratory IDs: WG50049-3, WG50049-4 Analysis Lot: WG50241 Sample Spiked: 01092801-4 Site: F-07-W-01 (M,V) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Aluminum	MG/L	5.5	5.5	0.10	5.7	5.5	101	99.0	70.0-130	3.60	20.0
Chromium	MG/L	5.5	5.5	0.0065	5.6	5.6	95.6	95.6	70.0-130	0.00	20.0
Manganese	MG/L	5.5	5.5	16	21	22	90.0	108	70.0-130	4.65	20.0
Copper	MG/L	5.5	5.5	0.0092	5.1	5.1	84.4	84.4	70.0-130	0.00	20.0
Zinc	MG/L	5.5	5.5	0.27	5.6	5.7	96.0	98.0	70.0-130	1.80	20.0
Cadmium	MG/L	5.5	5.5	0.0050U	5.2	5.1	93.7	91.9	70.0-130	1.94	20.0
Barium	MG/L	5.5	5.5	0.034	5.1	5.2	92.0	94.0	70.0-130	1.94	20.0
Lead	MG/L	5.5	5.5	0.047	5.3	5.4	95.0	97.0	70.0-130	1.87	20.0
Mercury	UG/L	4.4	4.4	0.20U	4.7	4.8	107	109	70.0-130	2.10	20.0

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

S ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
NITIAL CALIBRATION VERIFICATION

INITIAL CALIBRATION VERIFICATION

Laboratory ID: WG50241-1 Analysis Lot: WG50241 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	90.0-110	27-Sep-01 09:52
Chromium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 09:52
Manganese	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 09:52
Copper	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 09:52
Zinc	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 09:52
Cadmium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 09:52
Barium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 09:52
Lead	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 09:52
Mercury	UG/L	1.5	1.6	107	90.0-110	27-Sep-01 09:52

INITIAL CALIBRATION BLANK

oratory ID: WG50241-2 Analysis Lot: WG50241

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 10:01
Chromium	MG/L	0.010U	0.010	27-Sep-01 10:01
Manganese	MG/L	0.015U	0.015	27-Sep-01 10:01
Copper	MG/L	0.025U	0.025	27-Sep-01 10:01
Zinc	MG/L	0.020U	0.020	27-Sep-01 10:01
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 10:01
Barium	MG/L	0.20U	0.20	27-Sep-01 10:01
Lead	MG/L	0.0030U	0.0030	27-Sep-01 10:01
Mercury	UG/L	0.20U	0.20	27-Sep-01 10:01

NTINUING CALIBRATION BLANK

oratory ID: WG50241-10 Analysis Lot: WG50241

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 14:40
Chromium	MG/L	0.010U	0.010	27-Sep-01 14:40
Manganese	MG/L	0.015U	0.015	27-Sep-01 14:40
Copper	MG/L	0.025U	0.025	27-Sep-01 14:40
Zinc	MG/L	7.1e-05J	0.020	27-Sep-01 14:40
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 14:40
Barium	MG/L	0.20U	0.20	27-Sep-01 14:40
Lead	MG/L	0.0030U	0.0030	27-Sep-01 14:40
Mercury	UG/L	0.20U	0.20	27-Sep-01 14:40

oratory ID: WG50241-5 Analysis Lot: WG50241

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 11:35
Chromium	MG/L	0.010U	0.010	27-Sep-01 11:35
Manganese	MG/L	0.015U	0.015	27-Sep-01 11:35
Copper	MG/L	0.025U	0.025	27-Sep-01 11:35
Zinc	MG/L	0.020U	0.020	27-Sep-01 11:35
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 11:35
Barium	MG/L	0.20U	0.20	27-Sep-01 11:35
Lead	MG/L	0.0030U	0.0030	27-Sep-01 11:35
Mercury	UG/L	0.20U	0.20	27-Sep-01 11:35

PDC Laboratories Quality Control Summary Report

PROJECT: 01092801

ICP-MS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

Laboratory ID: WG50241-7 Analysis Lot: WG50241

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/L	0.20U	0.20	27-Sep-01 13:06
Chromium	MG/L	0.010U	0.010	27-Sep-01 13:06
Manganese	MG/L	0.015U	0.015	27-Sep-01 13:06
Copper	MG/L	0.025U	0.025	27-Sep-01 13:06
Zinc	MG/L	0.020U	0.020	27-Sep-01 13:06
Cadmium	MG/L	0.0050U	0.0050	27-Sep-01 13:06
Barium	MG/L	0.20U	0.20	27-Sep-01 13:06
Lead	MG/L	0.0030U	0.0030	27-Sep-01 13:06
Mercury	UG/L	0.20U	0.20	27-Sep-01 13:06

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50241-3 Analysis Lot: WG50241

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Aluminum	MG/L	50	50.42629175	101	80.0-120	27-Sep-01 10:16
Chromium	MG/L	0.0	0.00065	N/A	N/A	27-Sep-01 10:16
Manganese	MG/L	0.0	0.0017	N/A	N/A	27-Sep-01 10:16
Copper	MG/L	0.0	0.00070	N/A	N/A	27-Sep-01 10:16
Zinc	MG/L	0.0	0.0031	N/A	N/A	27-Sep-01 10:16
Cadmium	MG/L	0.0	-6.4e-05	N/A	N/A	27-Sep-01 10:16
Barium	MG/L	0.0	0.0031	N/A	N/A	27-Sep-01 10:16
Lead	MG/L	0.0	0.00029	N/A	N/A	27-Sep-01 10:16
Mercury	UG/L	0.0	0.0017	N/A	N/A	27-Sep-01 10:16

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50241-4 Analysis Lot: WG50241

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	50	52.00765268	104	80.0-120	27-Sep-01 10:22
Chromium	MG/L	0.050	0.054	108	80.0-120	27-Sep-01 10:22
Manganese	MG/L	0.050	0.055	110	80.0-120	27-Sep-01 10:22
Copper	MG/L	0.050	0.053	106	80.0-120	27-Sep-01 10:22
Zinc	MG/L	0.10	0.10	105	80.0-120	27-Sep-01 10:22
Cadmium	MG/L	0.10	0.11	106	80.0-120	27-Sep-01 10:22
Barium	MG/L	0.050	0.058	117	80.0-120	27-Sep-01 10:22
Lead	MG/L	0.0050	0.0059	118	80.0-120	27-Sep-01 10:22
Mercury	ug/l	0.0	-0.0019	N/A	N/A	27-Sep-01 10:22

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50241-6 Analysis Lot: WG50241 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	90.0-110	27-Sep-01 11:50
Chromium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 11:50
Manganese	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 11:50
Copper	MG/L	0.025	0.028	110	90.0-110	27-Sep-01 11:50
Zinc	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 11:50
Cadmium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 11:50
Barium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 11:50
Lead	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 11:50
Mercury	UG/L	1.5	1.6	107	85.0-115	27-Sep-01 11:50

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

S ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50241-8 Analysis Lot: WG50241 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.025	100	90.0-110	27-Sep-01 13:22
Chromium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 13:22
Manganese	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 13:22
Copper	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 13:22
Zinc	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 13:22
Cadmium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 13:22
Barium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 13:22
Lead	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 13:22
Mercury	UG/L	1.5	1.7	113	85.0-115	27-Sep-01 13:22

Laboratory ID: WG50241-9 Analysis Lot: WG50241 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 14:31
Chromium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 14:31
Manganese	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 14:31
Copper	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 14:31
Zinc	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 14:31
Cadmium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 14:31
Barium	MG/L	0.025	0.026	104	90.0-110	27-Sep-01 14:31
Lead	MG/L	0.025	0.027	108	90.0-110	27-Sep-01 14:31
Mercury	UG/L	1.5	1.7	113	85.0-115	27-Sep-01 14:31

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

S ANALYSIS (EPA 200.7) AND PREPARATION (SW3051)
CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092801-2	FRB-W-01 (M,V)	WG50049	WG50200	27-Sep-01 10:38	dwk	EPA 200.7	
01092801-3	FRB-D-01 (M,V)	WG50049	WG50200	27-Sep-01 10:44	dwk	EPA 200.7	
01092801-4	F-07-W-01 (M,V)	WG50049	WG50200	27-Sep-01 10:50	dwk	EPA 200.7	
01092801-5	F-07-W-02 (M,V)	WG50049	WG50200	27-Sep-01 11:20	dwk	EPA 200.7	
01092801-6	F-08-W-01 (M,V)	WG50049	WG50200	27-Sep-01 11:26	dwk	EPA 200.7	

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Laboratory ID: WG50049-1 Analysis Lot: WG50200 Sample Tag: WG50049

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.10U	0.10	27-Sep-01 10:27

BORATORY CONTROL SAMPLE

Laboratory ID: WG50049-2 Analysis Lot: WG50200 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	5.55	5.50	99.1	85.0-115	27-Sep-01 10:32

SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG50049-3, WG50049-4 Analysis Lot: WG50200 Sample Spiked: 01092801-4 Site: F-07-W-01 (M,V) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Iron	MG/L	5.5	5.5	16	22	21	108	90.0	70.0-130	18.2	20.0

ITIAL CALIBRATION VERIFICATION

oratory ID: WG50200-1 Analysis Lot: WG50200 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.00	4.0	100	90.0-110	27-Sep-01 08:32

ITIAL CALIBRATION BLANK

oratory ID: WG50200-2 Analysis Lot: WG50200

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.10U	0.10	27-Sep-01 08:39

PDC Laboratories Quality Control Summary Report

PROJECT: 01092801

ANALYSIS (EPA 200.7) AND PREPARATION (SW3051)
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CONTINUING CALIBRATION BLANK

Laboratory ID: WG50200-10 Analysis Lot: WG50200

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.0049J	0.10	27-Sep-01 11:38

Laboratory ID: WG50200-6 Analysis Lot: WG50200

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.10U	0.10	27-Sep-01 09:50

Laboratory ID: WG50200-8 Analysis Lot: WG50200

Analyte	Units	Value	RDL	Analysis Date
Iron	MG/L	0.0038J	0.10	27-Sep-01 11:07

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50200-3 Analysis Lot: WG50200

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Iron	MG/L	200	201.92	101	80.0-120	27-Sep-01 08:45

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50200-4 Analysis Lot: WG50200

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	200	216.13	108	80.0-120	27-Sep-01 08:51

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50200-5 Analysis Lot: WG50200 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.0	4.0	100	90.0-110	27-Sep-01 09:45

Laboratory ID: WG50200-7 Analysis Lot: WG50200 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.0	4.0	100	90.0-110	27-Sep-01 11:02

PDC Laboratories Quality Control Summary Report

PROJECT: 01092801

ANALYSIS (EPA 200.7) AND PREPARATION (SW3051)
CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50200-9 Analysis Lot: WG50200 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Iron	MG/L	4.0	4.0	100	90.0-110	27-Sep-01 11:32

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

ILE ORGANICS BY GC/MS (EPA624)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092801-1	TRIP BLANK		WG49808	28-Sep-01 16:42	TJP	EPA 624	D1:1
01092801-2	FRB-W-01 (M,V)		WG49808	28-Sep-01 17:11	TJP	EPA 624	D1:1
01092801-3	FRB-D-01 (M,V)		WG49817	01-Oct-01 12:36	TJP	EPA 624	D1:1
01092801-4	F-07-W-01 (M,V)		WG49808	28-Sep-01 19:07	TJP	EPA 624	D1:1
01092801-5	F-07-W-02 (M,V)		WG49808	28-Sep-01 18:09	TJP	EPA 624	D1:1
01092801-6	F-08-W-01 (M,V)		WG49808	28-Sep-01 18:38	TJP	EPA 624	D1:1

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boratory ID: WG49808-1 Analysis Lot: WG49808 Sample Tag: N/A D1:1

Analyte	Units	Value	RDL	Analysis Date
1,1-Dichloroethane	UG/L	10U	10	28-Sep-01 15:44
trans-1,2-Dichloroethene	UG/L	10U	10	28-Sep-01 15:44
Trichloroethene	UG/L	1.6U	1.6	28-Sep-01 15:44
Xylenes (Total)	UG/L	10U	10	28-Sep-01 15:44

boratory ID: WG49817-2 Analysis Lot: WG49817 Sample Tag: N/A D1:1

Analyte	Units	Value	RDL	Analysis Date
1,1-Dichloroethane	UG/L	10U	10	01-Oct-01 10:32
ans-1,2-Dichloroethene	UG/L	10U	10	01-Oct-01 10:32
Trichloroethene	UG/L	1.6U	1.6	01-Oct-01 10:32
Xylenes (Total)	UG/L	10U	10	01-Oct-01 10:32

ABORATORY CONTROL SAMPLE

Laboratory ID: WG49808-2 Analysis Lot: WG49808 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,1-Dichloroethane	UG/L	20.0	17.0	85.0	67.0-121	28-Sep-01 16:13
trans-1,2-Dichloroethene	UG/L	20.0	15.0	75.0	60.0-107	28-Sep-01 16:13
Trichloroethene	UG/L	20.0	16.0	80.0	65.0-109	28-Sep-01 16:13

oratory ID: WG49817-3 Analysis Lot: WG49817 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,1-Dichloroethane	UG/L	20.0	18.0	90.0	67.0-121	01-Oct-01 11:01
trans-1,2-Dichloroethene	UG/L	20.0	17.0	85.0	60.0-107	01-Oct-01 11:01
Trichloroethene	UG/L	20.0	19.0	95.0	65.0-109	01-Oct-01 11:01

PDC Laboratories Quality Control Summary Report

PROJECT: 01092801

VOLATILE ORGANICS BY GC/MS (EPA624)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG49808-3, WG49808-4 Analysis Lot: WG49808 Sample Spiked: 01092801-4 Client ID: F-07-W-01 (M,V) Sample Tag: D1

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
trans-1,2-Dichloroethene	UG/L	20	20	10U	15	16	75.0	80.0	60.0-107	6.45	40.0
1,1-Dichloroethane	UG/L	20	20	10U	16	17	80.0	85.0	67.0-121	6.06	40.0
Trichloroethene	UG/L	20	20	1.6U	16	17	80.0	85.0	65.0-109	6.06	40.0

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49817-1 Analysis Lot: WG49817 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,1-Dichloroethane	UG/L	20	19	95.0	75.0-130	01-Oct-01 09:52
trans-1,2-Dichloroethene	UG/L	20	20	100	70.0-130	01-Oct-01 09:52
Trichloroethene	UG/L	20	19	95.0	65.0-135	01-Oct-01 09:52
Xylenes (Total)	UG/L	60	57	95.0	70.0-130	01-Oct-01 09:52
1,2-Dichloroethane-d4 (SURR)	UG/L	30	31.199	104	70.0-130	01-Oct-01 09:52
Toluene-d8 (SURR)	UG/L	30	30.5439	102	70.0-130	01-Oct-01 09:52
Bromofluorobenzene (SURR)	UG/L	30	29.986	100	70.0-130	01-Oct-01 09:52

SURROGATE RECOVERIES

Laboratory ID: 01092801-1 Analysis Lot: WG49808 Client ID: TRIP BLANK Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	28.0	93.3	86.0-122	28-Sep-01 16:42
Toluene-d8 (SURR)	UG/L	30.0	24.0	80.0	75.0-124	28-Sep-01 16:42
Bromofluorobenzene (SURR)	UG/L	30.0	26.0	86.7	79.0-134	28-Sep-01 16:42

Laboratory ID: 01092801-2 Analysis Lot: WG49808 Client ID: FRB-W-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	28.0	93.3	86.0-122	28-Sep-01 17:11
Toluene-d8 (SURR)	UG/L	30.0	24.0	80.0	75.0-124	28-Sep-01 17:11
Bromofluorobenzene (SURR)	UG/L	30.0	28.0	93.3	79.0-134	28-Sep-01 17:11

Laboratory ID: 01092801-3 Analysis Lot: WG49817 Client ID: FRB-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	32.0	107	86.0-122	01-Oct-01 12:36
Toluene-d8 (SURR)	UG/L	30.0	28.0	93.3	75.0-124	01-Oct-01 12:36
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	01-Oct-01 12:36

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

ILE ORGANICS BY GC/MS (EPA624)
URROGATE RECOVERIES

Laboratory ID: 01092801-4 Analysis Lot: WG49808 Client ID: F-07-W-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	31.0	103	86.0-122	28-Sep-01 19:07
Toluene-d8 (SURR)	UG/L	30.0	29.0	96.7	75.0-124	28-Sep-01 19:07
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	28-Sep-01 19:07

boratory ID: 01092801-5 Analysis Lot: WG49808 Client ID: F-07-W-02 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	30.0	100	86.0-122	28-Sep-01 18:09
Toluene-d8 (SURR)	UG/L	30.0	28.0	93.3	75.0-124	28-Sep-01 18:09
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	28-Sep-01 18:09

oratory ID: 01092801-6 Analysis Lot: WG49808 Client ID: F-08-W-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	31.0	103	86.0-122	28-Sep-01 18:38
Toluene-d8 (SURR)	UG/L	30.0	28.0	93.3	75.0-124	28-Sep-01 18:38
Bromofluorobenzene (SURR)	UG/L	30.0	28.0	93.3	79.0-134	28-Sep-01 18:38

Laboratory ID: WG49808-1 Analysis Lot: WG49808 Client ID: MB Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	30.0	100	86.0-122	28-Sep-01 15:44
Toluene-d8 (SURR)	UG/L	30.0	28.0	93.3	75.0-124	28-Sep-01 15:44
mofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	28-Sep-01 15:44

oratory ID: WG49808-2 Analysis Lot: WG49808 Client ID: LCS Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	30.0	100	86.0-122	28-Sep-01 16:13
Toluene-d8 (SURR)	UG/L	30.0	29.0	96.7	75.0-124	28-Sep-01 16:13
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	28-Sep-01 16:13

oratory ID: WG49808-3 Analysis Lot: WG49808 Client ID: MS Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	30.0	100	86.0-122	28-Sep-01 19:36
Toluene-d8 (SURR)	UG/L	30.0	29.0	96.7	75.0-124	28-Sep-01 19:36
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	28-Sep-01 19:36

PDC Laboratories Quality Control Summary Report

ROJECT: 01092801

ILE ORGANICS BY GC/MS (EPA624)
URROGATE RECOVERIES

Laboratory ID: WG49808-4 Analysis Lot: WG49808 Client ID: MSD Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	30.0	100	86.0-122	28-Sep-01 20:04
Toluene-d8 (SURR)	UG/L	30.0	29.0	96.7	75.0-124	28-Sep-01 20:04
Bromofluorobenzene (SURR)	UG/L	30.0	28.0	93.3	79.0-134	28-Sep-01 20:04

boratory ID: WG49817-2 Analysis Lot: WG49817 Client ID: MB Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	29.0	96.7	86.0-122	01-Oct-01 10:32
Toluene-d8 (SURR)	UG/L	30.0	28.0	93.3	75.0-124	01-Oct-01 10:32
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	01-Oct-01 10:32

boratory ID: WG49817-3 Analysis Lot: WG49817 Client ID: LCS Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30.0	31.0	103	86.0-122	01-Oct-01 11:01
Toluene-d8 (SURR)	UG/L	30.0	30.0	100	75.0-124	01-Oct-01 11:01
Bromofluorobenzene (SURR)	UG/L	30.0	29.0	96.7	79.0-134	01-Oct-01 11:01

SHIPPING & RECEIVING

PL[redacted]ORATORIES INC.
2231 WEST ALTORFER DRIVE
PEORI[redacted]L 61615
PHONE # 309-692-9688
FAX # 309-692-9689

[redacted]HAIN OF [redacted]STO[redacted]ORD

921011

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: PICK-UP
ADDRESS: 5010 STONE Mill Rd	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9-21-01
CITY STATE ZIP: BLOOMINGTON, IN 47404	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER: SEDIMENT
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: [signature]		

3 ANALYSIS REQUESTED

4 (FOR LAB USE ONLY)
LOGIN # 01092801-6
01092802-7
LOGGED BY: AFI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

1901-2802	2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	VOCs	METALS	SEE ATTACHED PARAMETER LIST					REMARKS
															F-POND
1	TRIP BLANK	9-21-01	07:00	X		WTR	2	X							
2	FRR-W-01 (M, V)	9-21-01	10:10	X		WTR	4	X	X						
3	FRR-D-01 (M, V)	9-21-01	10:10	X		WTR	4	X	X						
4	F-07-W-01 (M, V)	9-21-01	12:30	X		WTR	~~2~~ 11	X	X						Extra Vol for MS/MSD
5	F-07-W-02 (M, V)	9-21-01	12:30	X		WTR	4	X	X						
6	F-08-W-01 (M, V)	9-21-01	15:15	X		WTR	4	X	X						
1	F-01-D-02 (M, V)	9-21-01	12:30	X		SED	4	X	X						
2	F-01-D-04 (M, V)	9-21-01	12:30	X		SED	12	X	X						EXTRA VOL FOR MS/MSD
3	F-02-D-01 (M, V)	9-21-01	14:15	X		SED	4	X	X						
4	F-03-D-01 (M, V)	9-21-01	14:00	X		SED	4	X	X						
5	F-04-D-01 (M, V)	9-21-01	15:00	X		SED	4	X	X						
6	F-05-D-01 (M, V)	9-21-01	14:40	X		SED	4	X	X						

1901-2802

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

7 RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
[signature]	DATE 9-21-01 TIME 16:30		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE) [signature]	DATE 9/21/01 TIME 1715

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N

PAGE 1 OF 2

000021

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off / Commerical Carrier (UPS, FEDEX, etc.) (Laboratory Pick-Up)

Project Earth Tech / Keystone **Cooler** 1 of 2

Shipping Container # (PDC / Other): _____

Received (date time) 9/21/01 1715 **By:** PJ Ingwell

Opened (If different) _____ **By:** _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip?..... YES NO (NA)
If YES, carrier name & air bill #: _____
(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container?..... (YES) NO*
If YES, a: Were the custody seals intact upon arrival?..... (YES) NO*
b: Enter the Seal Date and Name (enter "NA" if not available): 9/21

Was the Chain of Custody (COC) documentation provided with the shipment?..... (YES) NO*
If YES, a: Was the COC fully executed in ink by the shipper?..... (YES) NO*
b: COC #: 921011 and 921011A BJB
c: Was the project identifiable from the COC?..... 9/21/01 (YES) NO*
If No, how was this determined? _____
d: Was the COC properly signed as received by the Laboratory..... (YES) NO*

What was the temperature in the Cooler? 11 ° Deg C.
Were samples received within criteria of 2-6° Deg C?..... YES (NO*)
(Processed Water/Wastewater are excluded from the temperature criteria)
Did the cooler contain Ice?..... (YES) NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices?..... (YES) NO*

Did all sample containers arrive intact and sealed?..... (YES) NO*
Did all sample containers have secure and completed labels?..... (YES) NO*
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals?..... (YES) NO*
Did all labels and/or tags agree with COC?..... (YES) NO*

Were QC samples included?..... (YES) NO

Did pH checks confirm indicated preservations? (if applicable)..... YES NO (NA)
Did volumes, containers, & preservatives seem appropriate to indicate tests?..... (YES) NO*
Were VOA vials (waters) free from bubbles? (if applicable)..... (YES) NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

Appendix K
F-Pond
Soil/Sediment Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092802

November 7, 2001

Earth Tech

Project: F Pond/Soils

SDG #01092802

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092802

Case Narrative	01
Tabulated Results	05
Dates and Dilutions	15
QC Summary	18
Shipping and Receiving	31

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

F Pond - Soils Project No. 19718.09

PDC Laboratories, Inc. received 7 soil samples on September 21, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092802 for total metals and VOA analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
F-01-D-02 (M,V)	01092802-1	09/21/01	09/21/01
F-01-D-01 (M,V)	01092802-2	09/21/01	09/21/01
F-02-D-01 (M,V)	01092802-3	09/21/01	09/21/01
F-03-D-01 (M,V)	01092802-4	09/21/01	09/21/01
F-04-D-01 (M,V)	01092802-5	09/21/01	09/21/01
F-05-D-01 (M,V)	01092802-6	09/21/01	09/21/01
F-06-D-01 (M,V)	01092802-7	09/21/01	09/21/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by SW846 6010; Mercury by SW846 7471; VOAs by SW846 8260.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092802-2. All recoveries were within the specified QC limits except for Aluminum, Iron, Manganese, Lead, and Zinc. A Post Digestion spike (PDS) was performed for these elements, and all recoveries were within QC acceptance criteria except for Iron. A PDS was not strictly necessary in the case of Iron, because the

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concentration detected in the sample, 19000 MG/KG, exceeded the concentration of Iron spiked into the sample by a factor of 38, well above the factor of 4 cited in the EPA Guidance Document.

A Sample Duplicate was performed on sample 01092802-2. All recoveries were within the method specified QC recovery limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

Mercury QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092802-2. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

VOA QC Summary

All holding time criteria were met for all samples.

The instrument performance check using Bromofluorobenzene (BFB) met acceptance criteria.

All Initial and Continuing Calibration Standards met QC acceptance criteria.

All Method Blanks were free of contamination for target analytes.

Surrogate recoveries were within QC acceptance criteria for all samples except for 01092802, 01092802 MS and 01092802 MSD; and 01092802-5. Sample 01092802-5 was re-analyzed, and surrogate recoveries were again outside QC criteria. Matrix interference is suspected in both cases.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092802-2. All recoveries were outside specified QC limits. Matrix interference is suspected, as surrogate recoveries were also outside criteria for this sample, and all LCS recoveries were acceptable.

All associated Laboratory Control Sample (LCS) and Laboratory Duplicate recoveries were within QC acceptance criteria.

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Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 7, 01	Title:	Project Manager

EAR01092802.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:	01092802-1	01092802-1	01092802-2
	Client Description:	205746	205746	205746
	Site/Locator:	F-01-D-02 (M,V)	F-01-D-02 (M,V)	F-01-D-01 (M,V)
	Date Collected:	21-SEP-01 12:30:00	21-SEP-01 12:30:00	21-SEP-01 12:30:00
Method	Parameter	undiluted	D1:1	undiluted
SW8260B/SW5035	1,1-Dichloroethane ug/kg		5 RU	
SW8260B/SW5035	1,1-Dichloroethane ug/kg Dry		25 U	
SW8260B/SW5035	trans-1,2-Dichloroethene ug/kg		5 U	
SW8260B/SW5035	trans-1,2-Dichloroethene ug/kg Dry		25 U	
SW8260B/SW5035	Trichloroethene ug/kg		5 RU	
SW8260B/SW5035	Trichloroethene ug/kg Dry		25 U	
SW8260B/SW5035	m/p-Xylene ug/kg		5 U	
SW8260B/SW5035	m/p-Xylene ug/kg Dry		25 U	
SW8260B/SW5035	Total xylenes ug/kg		10 U	
SW8260B/SW5035	Total xylenes ug/kg Dry		50 U	
SW6010B	Aluminum mg/kg	3,100		3,000
SW6010B	Barium mg/kg	23 J		23 J
SW6010B	Cadmium mg/kg	0.56 J		0.5 J
SW6010B	Chromium mg/kg	26		24
SW6010B	Copper mg/kg	29		29
SW6010B	Iron mg/kg	20,000		19,000
SW6010B	Lead mg/kg	240		220
SW6010B	Manganese mg/kg	1,300		1,300
SW6010B	Zinc mg/kg	1,700		1,500
SW6010B	Aluminum mg/kg Dry	16,000		21,000
SW6010B	Barium mg/kg Dry	120 J		160 J
SW6010B	Cadmium mg/kg Dry	2.8 J		3.6 J
SW6010B	Chromium mg/kg Dry	130		170
SW6010B	Copper mg/kg Dry	140		210
SW6010B	Iron mg/kg Dry	100,000		140,000
SW6010B	Lead mg/kg Dry	1,200		1,600
SW6010B	Manganese mg/kg Dry	6,500		9,300

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ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-2	01092802-3	01092802-3
	Client Description:		205746	205746	205746
	Site/Locator:		F-01-D-01 (M,V)	F-02-D-01 (M,V)	F-02-D-01 (M,V)
	Date Collected:		21-SEP-01 12:30:00	21-SEP-01 14:15:00	21-SEP-01 14:15:00
Method	Parameter		D1:1	undiluted	D1:1
SW8260B/SW5035	1,1-Dichloroethane	ug/kg	5 UFR		5 RU
SW8260B/SW5035	1,1-Dichloroethane	ug/kg Dry	36 UFR		18 U
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg	5 UF		5 U
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg Dry	36 UF		18 U
SW8260B/SW5035	Trichloroethene	ug/kg	5 UFR		5 RU
SW8260B/SW5035	Trichloroethene	ug/kg Dry	36 UFR		18 U
SW8260B/SW5035	m/p-Xylene	ug/kg	5 UF		5 U
SW8260B/SW5035	m/p-Xylene	ug/kg Dry	36 UF		18 U
SW8260B/SW5035	Total xylenes	ug/kg	10 UF		10 U
SW8260B/SW5035	Total xylenes	ug/kg Dry	71 UF		37 U
SW6010B	Aluminum	mg/kg		5,000	
SW6010B	Barium	mg/kg		46	
SW6010B	Cadmium	mg/kg		0.88 J	
SW6010B	Chromium	mg/kg		19	
SW6010B	Copper	mg/kg		17	
SW6010B	Iron	mg/kg		7,600	
SW6010B	Lead	mg/kg		210	
SW6010B	Manganese	mg/kg		440	
SW6010B	Zinc	mg/kg		330	
SW6010B	Aluminum	mg/kg Dry		18,000	
SW6010B	Barium	mg/kg Dry		170	
SW6010B	Cadmium	mg/kg Dry		3.2 J	
SW6010B	Chromium	mg/kg Dry		70	
SW6010B	Copper	mg/kg Dry		63	
SW6010B	Iron	mg/kg Dry		28,000	
SW6010B	Lead	mg/kg Dry		780	
SW6010B	Manganese	mg/kg Dry		1,600	

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Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-4	01092802-4	01092802-5
	Client Description:		205746	205746	205746
	Site/Locator:		F-03-D-01 (M,V)	F-03-D-01 (M,V)	F-04-D-01 (M,V)
	Date Collected:		21-SEP-01 14:00:00	21-SEP-01 14:00:00	21-SEP-01 15:00:00
Method	Parameter		undiluted	D1:1	undiluted
SW8260B/SW5035	1,1-Dichloroethane	ug/kg		5 RU	
SW8260B/SW5035	1,1-Dichloroethane	ug/kg Dry		26 U	
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg		5 U	
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg Dry		26 U	
SW8260B/SW5035	Trichloroethene	ug/kg		5 RU	
SW8260B/SW5035	Trichloroethene	ug/kg Dry		26 U	
SW8260B/SW5035	m/p-Xylene	ug/kg		5 U	
SW8260B/SW5035	m/p-Xylene	ug/kg Dry		26 U	
SW8260B/SW5035	Total xylenes	ug/kg		10 U	
SW8260B/SW5035	Total xylenes	ug/kg Dry		53 U	
SW6010B	Aluminum	mg/kg	5,900		8,400
SW6010B	Barium	mg/kg	39 J		110
SW6010B	Cadmium	mg/kg	0.42 J		0.7 J
SW6010B	Chromium	mg/kg	18		23
SW6010B	Copper	mg/kg	26		21
SW6010B	Iron	mg/kg	12,000		9,400
SW6010B	Lead	mg/kg	100		1,400
SW6010B	Manganese	mg/kg	790		340
SW6010B	Zinc	mg/kg	350		200
SW6010B	Aluminum	mg/kg Dry	31,000		19,000
SW6010B	Barium	mg/kg Dry	200 J		240
SW6010B	Cadmium	mg/kg Dry	2.2 J		1.6 J
SW6010B	Chromium	mg/kg Dry	95		51
SW6010B	Copper	mg/kg Dry	140		47
SW6010B	Iron	mg/kg Dry	63,000		21,000
SW6010B	Lead	mg/kg Dry	530		3,100
SW6010B	Manganese	mg/kg Dry	4,200		760

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ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-5	01092802-5	01092802-6
	Client Description:		205746	205746	205746
	Site/Locator:		F-04-D-01 (M,V)	F-04-D-01 (M,V)	F-05-D-01 (M,V)
	Date Collected:		21-SEP-01 15:00:00	21-SEP-01 15:00:00	21-SEP-01 14:40:00
Method	Parameter		D1:R2	D1:1	undiluted
SW8260B/SW5035	1,1-Dichloroethane	ug/kg	14 R	10	
SW8260B/SW5035	1,1-Dichloroethane	ug/kg Dry	31	22	
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg	5 U	5 U	
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg Dry	11 U	11	
SW8260B/SW5035	Trichloroethene	ug/kg	20 R	26	
SW8260B/SW5035	Trichloroethene	ug/kg Dry	44	57	
SW8260B/SW5035	m/p-Xylene	ug/kg	60	43	
SW8260B/SW5035	m/p-Xylene	ug/kg Dry	130	96	
SW8260B/SW5035	Total xylenes	ug/kg	110	82	
SW8260B/SW5035	Total xylenes	ug/kg Dry	240	180	
SW6010B	Aluminum	mg/kg			9,600
SW6010B	Barium	mg/kg			61
SW6010B	Cadmium	mg/kg			1
SW6010B	Chromium	mg/kg			20
SW6010B	Copper	mg/kg			23
SW6010B	Iron	mg/kg			11,000
SW6010B	Lead	mg/kg			58
SW6010B	Manganese	mg/kg			120
SW6010B	Zinc	mg/kg			170
SW6010B	Aluminum	mg/kg Dry			36,000
SW6010B	Barium	mg/kg Dry			220
SW6010B	Cadmium	mg/kg Dry			3.7
SW6010B	Chromium	mg/kg Dry			74
SW6010B	Copper	mg/kg Dry			85
SW6010B	Iron	mg/kg Dry			41,000
SW6010B	Lead	mg/kg Dry			210
SW6010B	Manganese	mg/kg Dry			440

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ACCREDITED IN ACCORDANCE WITH nelac

Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-6	01092802-7	01092802-7
	Client Description:		205746	205746	205746
	Site/Locator:		F-05-D-01 (M,V)	F-06-D-01 (M,V)	F-06-D-01 (M,V)
	Date Collected:		21-SEP-01 14:40:00	21-SEP-01 15:15:00	21-SEP-01 15:15:00
Method	Parameter		D1:1	undiluted	D1:1
SW8260B/SW5035	1,1-Dichloroethane	ug/kg	5 RU		5 RU
SW8260B/SW5035	1,1-Dichloroethane	ug/kg Dry	18 U		20 U
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg	5 U		5 U
SW8260B/SW5035	trans-1,2-Dichloroethene	ug/kg Dry	18 U		20 U
SW8260B/SW5035	Trichloroethene	ug/kg	5 RU		5 RU
SW8260B/SW5035	Trichloroethene	ug/kg Dry	18 U		20 U
SW8260B/SW5035	m/p-Xylene	ug/kg	5 U		5 U
[illegible]60B/SW5035	m/p-Xylene	ug/kg Dry	18 U		20 U
SW8260B/SW5035	Total xylenes	ug/kg	10 U		10 U
SW8260B/SW5035	Total xylenes	ug/kg Dry	37 U		40 U
SW6010B	Aluminum	mg/kg		6,500	
SW6010B	Barium	mg/kg		37 J	
SW6010B	Cadmium	mg/kg		0.56 J	
SW6010B	Chromium	mg/kg		17	
SW6010B	Copper	mg/kg		16	
SW6010B	Iron	mg/kg		9,000	
SW6010B	Lead	mg/kg		81	
SW6010B	Manganese	mg/kg		140	
SW6010B	Zinc	mg/kg		140	
SW6010B	Aluminum	mg/kg Dry		26,000	
SW6010B	Barium	mg/kg Dry		150 J	
SW6010B	Cadmium	mg/kg Dry		2.2 J	
SW6010B	Chromium	mg/kg Dry		68	
SW6010B	Copper	mg/kg Dry		64	
SW6010B	Iron	mg/kg Dry		36,000	
SW6010B	Lead	mg/kg Dry		320	
SW6010B	Manganese	mg/kg Dry		560	

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Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-1	01092802-1	01092802-2
	Client Description:		205746	205746	205746
	Site/Locator:		F-01-D-02 (M,V)	F-01-D-02 (M,V)	F-01-D-01 (M,V)
	Date Collected:		21-SEP-01 12:30:00	21-SEP-01 12:30:00	21-SEP-01 12:30:00
Method	Parameter		undiluted	D1:1	undiluted
SW6010B	Zinc	mg/kg Dry	8,500		11,000
SW7471	Mercury	mg/kg	0.04 U		0.04 U
SW7471	Mercury	mg/kg Dry	0.2 U		0.28 U
SM (18) 2540B	Moisture	%	80		86

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Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-2	01092802-3	01092802-3
	Client Description:		205746	205746	205746
	Site/Locator:		F-01-D-01 (M,V)	F-02-D-01 (M,V)	F-02-D-01 (M,V)
	Date Collected:		21-SEP-01 12:30:00	21-SEP-01 14:15:00	21-SEP-01 14:15:00
Method	Parameter		D1:1	undiluted	D1:1
SW6010B	Zinc	mg/kg Dry		1,200	
SW7471	Mercury	mg/kg		0.04 U	
SW7471	Mercury	mg/kg Dry		0.15 U	
SM (18) 2540B	Moisture	%		73	

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5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:		01092802-4	01092802-4	01092802-5
	Client Description:		205746	205746	205746
	Site/Locator:		F-03-D-01 (M,V)	F-03-D-01 (M,V)	F-04-D-01 (M,V)
	Date Collected:		21-SEP-01 14:00:00	21-SEP-01 14:00:00	21-SEP-01 15:00:00
Method	Parameter		undiluted	D1:1	undiluted
SW6010B	Zinc	mg/kg Dry	1,800		440
SW7471	Mercury	mg/kg	0.04 U		0.03 J
SW7471	Mercury	mg/kg Dry	0.21 U		0.067 J
SM (18) 2540B	Moisture	%	81		55

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Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:	01092802-5	01092802-5	01092802-6
	Client Description:	205746	205746	205746
	Site/Locator:	F-04-D-01 (M,V)	F-04-D-01 (M,V)	F-05-D-01 (M,V)
	Date Collected:	21-SEP-01 15:00:00	21-SEP-01 15:00:00	21-SEP-01 14:40:00
Method	Parameter	D1:R2	D1:1	undiluted
SW6010B	Zinc mg/kg Dry			630
SW7471	Mercury mg/kg			0.05
SW7471	Mercury mg/kg Dry			0.18
SM (18) 2540B	Moisture %			73

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Earth Tech
5010 Stone Mill Road
Bloomington, IN 47408

Attn: Mr. Bob Aten

Date Received: 09/21/01
Date Reported: 11/08/01
Purchase Order:
Customer No. 205746

	Laboratory Sample No.:	01092802-6	01092802-7	01092802-7
	Client Description:	205746	205746	205746
	Site/Locator:	F-05-D-01 (M,V)	F-06-D-01 (M,V)	F-06-D-01 (M,V)
	Date Collected:	21-SEP-01 14:40:00	21-SEP-01 15:15:00	21-SEP-01 15:15:00
Method	Parameter	D1:1	undiluted	D1:1
SW6010B	Zinc mg/kg Dry		560	
SW7471	Mercury mg/kg		0.046	
SW7471	Mercury mg/kg Dry		0.18	
SM (18) 2540B	Moisture %		75	

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092802-1		Client ID F-01-D-02 (M,V)			Collect Date: 09/21/01 12:30			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 12:30	WG49582
FED AL, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED BA, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED CD, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED CR, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED CU, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED FE, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED HG, 7471						1	10/16/01 15:00	10/19/01 12:30	WG50491
FED MN, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED PB, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED ZN, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:54	03/20/02 12:30	WG50686
FED M8260 ENCORE						1	09/25/01 14:45	10/06/01 16:00	
Lab ID: 01092802-2		Client ID F-01-D-01 (M,V)			Collect Date: 09/21/01 12:30			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 12:30	WG49582
FED AL, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED BA, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED CD, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED CR, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED CU, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED FE, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
[illegible], 7471						1	10/16/01 15:00	10/19/01 12:30	WG50491
FED MN, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED PB, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED ZN, 6010		09/25/01 14:00	03/20/02 12:30	WG50685	PREP FOR	1	09/26/01 09:58	03/20/02 12:30	WG50686
FED M8260 ENCORE						1	09/25/01 14:45	10/06/01 16:00	
Lab ID: 01092802-3		Client ID F-02-D-01 (M,V)			Collect Date: 09/21/01 14:15			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 14:15	WG49582
FED AL, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED BA, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED CD, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED CR, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED CU, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED FE, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED HG, 7471						1	10/16/01 15:00	10/19/01 14:15	WG50491
FED MN, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED PB, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED ZN, 6010		09/25/01 14:00	03/20/02 14:15	WG50685	PREP FOR	1	09/26/01 10:42	03/20/02 14:15	WG50686
FED M8260 ENCORE						1	09/25/01 14:45	10/06/01 16:00	

Lab ID: 01092802-4 Client ID: F-03-D-01 (M,V) Collect Date: 09/21/01 14:00 Receive Date: 09/21/01 17:15

MOIST					1	09/24/01 11:51	09/28/01 14:00	WG49582
FED AL, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED BA, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED CD, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED CR, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED CU, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED FE, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED HG, 7471					1	10/16/01 15:00	10/19/01 14:00	WG50491
FED MN, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED PB, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED ZN, 6010	09/25/01 14:00	03/20/02 14:00	WG50685	PREP FOR	1	09/26/01 10:47	03/20/02 14:00	WG50686
FED M8260 ENCORE					1	09/25/01 14:45	10/06/01 16:00	

Lab ID: 01092802-5 Client ID: F-04-D-01 (M,V) Collect Date: 09/21/01 15:00 Receive Date: 09/21/01 17:15

MOIST					1	09/24/01 11:51	09/28/01 15:00	WG49582
FED AL, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED BA, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED CD, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED CR, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED CU, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED FE, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED HG, 7471					1	10/16/01 15:00	10/19/01 15:00	WG50491
FED MN, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED PB, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED ZN, 6010	09/25/01 14:00	03/20/02 15:00	WG50685	PREP FOR	1	09/26/01 10:51	03/20/02 15:00	WG50686
FED M8260 ENCORE					1	09/25/01 14:45	10/06/01 16:00	

Lab ID: 01092802-6 Client ID: F-05-D-01 (M,V) Collect Date: 09/21/01 14:40 Receive Date: 09/21/01 17:15

MOIST					1	09/24/01 11:51	09/28/01 14:40	WG49582
FED AL, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED BA, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED CD, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED CR, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED CU, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED FE, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED HG, 7471					1	10/16/01 15:00	10/19/01 14:40	WG50491
FED MN, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED PB, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED ZN, 6010	09/25/01 14:00	03/20/02 14:40	WG50685	PREP FOR	1	09/26/01 10:56	03/20/02 14:40	WG50686
FED M8260 ENCORE					1	09/25/01 14:45	10/06/01 16:00	

Lab ID: 01092802-7 Client ID: F-06-D-01-(M,V) Collect Date: 09/21/01 15:15 Receive Date: 09/21/01 17:15

MOIST					1	09/24/01 11:51	09/28/01 15:15	WG49582
FED AL, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED BA, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED CD, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED CR, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED CU, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED FE, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED HG, 7471					1	10/16/01 15:00	10/19/01 15:15	WG50491
FED MN, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED PB, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED ZN, 6010	09/25/01 14:00	03/20/02 15:15	WG50685	PREP FOR	1	09/26/01 11:01	03/20/02 15:15	WG50686
FED M8260 ENCORE					1	09/25/01 14:45	10/06/01 16:00	

QC SUMMARY

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

ALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092802-1	F-01-D-02 (M,V)	WG50685	WG50686	26-Sep-01 09:54	DWK	SW6010B	
01092802-2	F-01-D-01 (M,V)	WG50685	WG50686	26-Sep-01 09:58	DWK	SW6010B	
01092802-3	F-02-D-01 (M,V)	WG50685	WG50686	26-Sep-01 10:42	DWK	SW6010B	
01092802-4	F-03-D-01 (M,V)	WG50685	WG50686	26-Sep-01 10:47	DWK	SW6010B	
01092802-5	F-04-D-01 (M,V)	WG50685	WG50686	26-Sep-01 10:51	DWK	SW6010B	
01092802-6	F-05-D-01 (M,V)	WG50685	WG50686	26-Sep-01 10:56	DWK	SW6010B	
01092802-7	F-06-D-01 (M,V)	WG50685	WG50686	26-Sep-01 11:01	DWK	SW6010B	

METHOD BLANK

Laboratory ID: WG49636-1 Analysis Lot: WG49755 Prep Batch: WG49636 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/KG	2.0U	2.0	26-Sep-01 09:43
Copper	MG/KG	5.0U	5.0	26-Sep-01 09:43
Lead	MG/KG	0.60U	0.60	26-Sep-01 09:43
Zinc	MG/KG	4.0U	4.0	26-Sep-01 09:43

Laboratory ID: WG50685-1 Analysis Lot: WG50686 Prep Batch: WG50685 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Aluminum	MG/KG	40U	40	26-Sep-01 09:43
Barium	MG/KG	40U	40	26-Sep-01 09:43
Cadmium	MG/KG	1.0U	1.0	26-Sep-01 09:43
Chromium	MG/KG	2.0U	2.0	26-Sep-01 09:43
Copper	MG/KG	5.0U	5.0	26-Sep-01 09:43
Iron	MG/KG	20U	20	26-Sep-01 09:43
Manganese	MG/KG	3.0U	3.0	26-Sep-01 09:43
Lead	MG/KG	0.60U	0.60	26-Sep-01 09:43
Zinc	MG/KG	4.0U	4.0	26-Sep-01 09:43

LABORATORY CONTROL SAMPLE

Laboratory ID: WG49636-2 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Copper	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Lead	MG/KG	25.0	24.0	98.0	80.0-120	26-Sep-01 09:48
Zinc	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 09:48

Laboratory ID: WG50685-2 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	MG/KG	25.0	23.0	93.0	80.0-120	26-Sep-01 09:48
Barium	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

METALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
LABORATORY CONTROL SAMPLE

Laboratory ID: WG50685-2 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Cadmium	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Chromium	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Copper	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Iron	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Manganese	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Lead	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 09:48
Zinc	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 09:48

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG49636-6, WG49636-7 Analysis Lot: WG49755 Sample Spiked: 01092803-1 Site: A-01-D-01 (M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Chromium	MG/KG	500	500	32	480	490	89.0	91.0	75.0-125	2.08	20.0
Copper	MG/KG	500	500	3.4	450	470	89.0	93.0	75.0-125	4.34	20.0
Lead	MG/KG	500	500	31	480	500	90.0	93.0	75.0-125	3.49	20.0
Zinc	MG/KG	500	500	54	490	500	88.0	88.0	75.0-125	0.00	20.0

Laboratory IDs: WG50685-3, WG50685-4 Analysis Lot: WG50686 Sample Spiked: 01092802-2 Site: F-01-D-01 (M,V) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits	
Aluminum	MG/KG	500	500	3000	4300	7800	260	960	75.0-125	115	20.0	*
Barium	MG/KG	500	500	23	460	510	87.0	98.0	75.0-125	10.8	20.0	
Cadmium	MG/KG	500	500	0.50	430	450	86.0	90.0	75.0-125	4.54	20.0	
Chromium	MG/KG	500	500	24	460	480	87.2	91.2	75.0-125	4.48	20.0	
Copper	MG/KG	500	500	29	470	480	88.0	90.0	75.0-125	2.25	20.0	
Iron	MG/KG	500	500	19000	18000	17000	0.00	0.00	75.0-125	0.00	20.0	*
Manganese	MG/KG	500	500	1300	1600	1200	60.0	0.00	75.0-125	200	20.0	*
Lead	MG/KG	500	500	220	640	570	84.0	70.0	75.0-125	18.2	20.0	*
Zinc	MG/KG	500	500	1500	2000	1300	100	0.00	75.0-125	200	20.0	*

LABORATORY DUPLICATE

Laboratory ID: WG49636-8 Duplicate Sample: 01092803-1 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Chromium	MG/KG	32	36.0	11.8	20.0	26-Sep-01 12:26
Copper	MG/KG	3.4	3.80	11.1	20.0	26-Sep-01 12:26
Lead	MG/KG	31	33.0	6.25	20.0	26-Sep-01 12:26
Zinc	MG/KG	54	59.0	8.85	20.0	26-Sep-01 12:26

Laboratory ID: WG50685-5 Duplicate Sample: 01092802-2 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Aluminum	MG/KG	3000	3700	20.0	20.0	26-Sep-01 10:03
Barium	MG/KG	23	25.0	8.33	20.0	26-Sep-01 10:03
Cadmium	MG/KG	0.50	0.580	14.8	20.0	26-Sep-01 10:03
Chromium	MG/KG	24	28.0	15.4	20.0	26-Sep-01 10:03
Copper	MG/KG	29	31.0	6.67	20.0	26-Sep-01 10:03
Iron	MG/KG	19000	20000	5.13	20.0	26-Sep-01 10:03
Manganese	MG/KG	1300	1400	7.41	20.0	26-Sep-01 10:03
Lead	MG/KG	220	250	12.8	20.0	26-Sep-01 10:03
Zinc	MG/KG	1500	1700	12.5	20.0	26-Sep-01 10:03

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

ICP-MS ANALYSIS (SW6010) AND PREPARATION (SW3051)
INITIAL CALIBRATION VERIFICATION

INITIAL CALIBRATION VERIFICATION

Laboratory ID: WG49755-1 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14
Copper	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Lead	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Zinc	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14

Laboratory ID: WG50686-1 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	UG/ML	4.00	4.1	102	90.0-110	26-Sep-01 09:14
Barium	UG/ML	4.00	4.1	102	90.0-110	26-Sep-01 09:14
Cadmium	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Chromium	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14
Copper	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Iron	UG/ML	4.00	4.2	105	90.0-110	26-Sep-01 09:14
Manganese	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Lead	UG/ML	4.00	4.0	100	90.0-110	26-Sep-01 09:14
Zinc	UG/ML	4.00	3.9	97.5	90.0-110	26-Sep-01 09:14

INITIAL CALIBRATION BLANK

Laboratory ID: WG49755-2 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	PPB	2.0U	2.0	26-Sep-01 09:22
Copper	PPB	5.0U	5.0	26-Sep-01 09:22
Lead	PPB	0.60U	0.60	26-Sep-01 09:22
Zinc	PPB	4.0U	4.0	26-Sep-01 09:22

Laboratory ID: WG50686-2 Analysis Lot: WG50686

Analyte	Units	Value	RDL	Analysis Date
Aluminum	UG/ML	40U	40	26-Sep-01 09:22
Barium	UG/ML	40U	40	26-Sep-01 09:22
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 09:22
Chromium	UG/ML	2.0U	2.0	26-Sep-01 09:22
Copper	UG/ML	5.0U	5.0	26-Sep-01 09:22
Iron	UG/ML	20U	20	26-Sep-01 09:22
Manganese	UG/ML	3.0U	3.0	26-Sep-01 09:22
Lead	UG/ML	0.60U	0.60	26-Sep-01 09:22
Zinc	UG/ML	4.0U	4.0	26-Sep-01 09:22

CONTINUING CALIBRATION BLANK

Laboratory ID: WG49755-10 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 11:41
Copper	UG/ML	5.0U	5.0	26-Sep-01 11:41

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

S ANALYSIS (SW6010) AND PREPARATION (SW3051)
ONTINUING CALIBRATION BLANK

Laboratory ID: WG49755-10 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Lead	UG/ML	0.60U	0.60	26-Sep-01 11:41
Zinc	UG/ML	4.0U	4.0	26-Sep-01 11:41

aboratory ID: WG49755-13 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 12:55
Copper	UG/ML	5.0U	5.0	26-Sep-01 12:55
Lead	UG/ML	0.60U	0.60	26-Sep-01 12:55
Zinc	UG/ML	4.0U	4.0	26-Sep-01 12:55

aboratory ID: WG49755-16 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 13:58
Copper	UG/ML	5.0U	5.0	26-Sep-01 13:58
Lead	UG/ML	0.60U	0.60	26-Sep-01 13:58
Zinc	UG/ML	4.0U	4.0	26-Sep-01 13:58

Laboratory ID: WG49755-7 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 10:35
Copper	UG/ML	5.0U	5.0	26-Sep-01 10:35
Lead	UG/ML	0.60U	0.60	26-Sep-01 10:35
Zinc	UG/ML	4.0U	4.0	26-Sep-01 10:35

Laboratory ID: WG50686-10 Analysis Lot: WG50686

Analyte	Units	Value	RDL	Analysis Date
Aluminum	UG/ML	40U	40	26-Sep-01 11:41
Barium	UG/ML	40U	40	26-Sep-01 11:41
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 11:41
Chromium	UG/ML	2.0U	2.0	26-Sep-01 11:41
Copper	UG/ML	5.0U	5.0	26-Sep-01 11:41
Iron	UG/ML	20U	20	26-Sep-01 11:41
Manganese	UG/ML	3.0U	3.0	26-Sep-01 11:41
Lead	UG/ML	0.60U	0.60	26-Sep-01 11:41
Zinc	UG/ML	4.0U	4.0	26-Sep-01 11:41

Laboratory ID: WG50686-7 Analysis Lot: WG50686

Analyte	Units	Value	RDL	Analysis Date
Aluminum	UG/ML	40U	40	26-Sep-01 10:35
Barium	UG/ML	40U	40	26-Sep-01 10:35
Cadmium	UG/ML	1.0U	1.0	26-Sep-01 10:35
Chromium	UG/ML	2.0U	2.0	26-Sep-01 10:35
Copper	UG/ML	5.0U	5.0	26-Sep-01 10:35

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

ICP ANALYSIS (SW6010) AND PREPARATION (SW3051)
CONTINUING CALIBRATION BLANK

Laboratory ID: WG50686-7 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Iron	UG/ML	20U	20	26-Sep-01 10:35
Manganese	UG/ML	3.0U	3.0	26-Sep-01 10:35
Lead	UG/ML	0.60U	0.60	26-Sep-01 10:35
Zinc	UG/ML	4.0U	4.0	26-Sep-01 10:35

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50686-3 Analysis Lot: WG50686

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Aluminum	UG/ML	500	484.19	96.8	80.0-120	26-Sep-01 09:27
Iron	UG/ML	200	199.69	99.8	80.0-120	26-Sep-01 09:27

Laboratory ID: WG49755-3 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Chromium	UG/ML	0.0	-0.00078	N/A	N/A	26-Sep-01 09:27
Copper	UG/ML	0.0	-0.0042	N/A	N/A	26-Sep-01 09:27
Lead	UG/ML	0.0	-0.0014	N/A	N/A	26-Sep-01 09:27
Zinc	UG/ML	0.0	-0.013	N/A	N/A	26-Sep-01 09:27

Laboratory ID: WG50686-3 Analysis Lot: WG50686

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Barium	UG/ML	0.0	-0.00058	N/A	N/A	26-Sep-01 09:27
Cadmium	UG/ML	0.0	-0.0051	N/A	N/A	26-Sep-01 09:27
Chromium	UG/ML	0.0	-0.00078	N/A	N/A	26-Sep-01 09:27
Copper	UG/ML	0.0	-0.0042	N/A	N/A	26-Sep-01 09:27
Manganese	UG/ML	0.0	-0.0022	N/A	N/A	26-Sep-01 09:27
Lead	UG/ML	0.0	-0.0014	N/A	N/A	26-Sep-01 09:27
Zinc	UG/ML	0.0	-0.013	N/A	N/A	26-Sep-01 09:27

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG49755-4 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	0.50	0.48	96.2	80.0-120	26-Sep-01 09:32
Copper	UG/ML	0.50	0.55	110	80.0-120	26-Sep-01 09:32
Lead	UG/ML	0.050	0.047	93.8	80.0-120	26-Sep-01 09:32
Zinc	UG/ML	1.0	0.93	93.0	80.0-120	26-Sep-01 09:32

Laboratory ID: WG50686-4 Analysis Lot: WG50686

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	UG/ML	500	521.36	104	80.0-120	26-Sep-01 09:32
Barium	UG/ML	0.50	0.53	106	80.0-120	26-Sep-01 09:32
Cadmium	UG/ML	1.0	0.97	97.4	80.0-120	26-Sep-01 09:32
Chromium	UG/ML	0.50	0.48	96.2	80.0-120	26-Sep-01 09:32
Copper	UG/ML	0.50	0.55	110	80.0-120	26-Sep-01 09:32
Iron	UG/ML	200	216.32	108	80.0-120	26-Sep-01 09:32
Manganese	UG/ML	0.50	0.50	99.1	80.0-120	26-Sep-01 09:32

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

...LS ANALYSIS (SW6010) AND PREPARATION (SW3051)
NTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50686-4 Analysis Lot: WG50686

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Lead	UG/ML	0.050	0.047	93.8	80.0-120	26-Sep-01 09:32
Zinc	UG/ML	1.0	0.93	93.0	80.0-120	26-Sep-01 09:32

ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49755-12 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50

Laboratory ID: WG49755-15 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54

Laboratory ID: WG49755-6 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30

Laboratory ID: WG49755-9 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Lead	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36

boratory ID: WG50686-6 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Barium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Iron	UG/ML	4.0	4.2	105	90.0-110	26-Sep-01 10:30
Manganese	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

ALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG50686-9 Analysis Lot: WG50686 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Aluminum	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Barium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 11:36
Cadmium	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 11:36
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Iron	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 11:36
Manganese	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Lead	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36

POST DIGESTION SPIKE

Laboratory ID: WG49755-14 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	5.00	5.1	103	75.0-125	26-Sep-01 13:17
Copper	UG/ML	5.00	5.0	100	75.0-125	26-Sep-01 13:17
Lead	UG/ML	5.00	5.2	104	75.0-125	26-Sep-01 13:17
Zinc	UG/ML	5.00	5.3	106	75.0-125	26-Sep-01 13:17

Laboratory ID: WG50686-8 Analysis Lot: WG50686

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
Aluminum	UG/ML	5.00	35.	100	75.0-125	26-Sep-01 11:11	
Barium	UG/ML	5.00	5.2	99.0	75.0-125	26-Sep-01 11:11	
Cadmium	UG/ML	5.00	4.9	98.0	75.0-125	26-Sep-01 11:11	
Chromium	UG/ML	5.00	5.2	104	75.0-125	26-Sep-01 11:11	
Copper	UG/ML	5.00	5.3	106	75.0-125	26-Sep-01 11:11	
Iron	UG/ML	5.00	190	0.00	75.0-125	26-Sep-01 11:11	*
Manganese	UG/ML	5.00	17.	89.0	75.0-125	26-Sep-01 11:11	
Lead	UG/ML	5.00	6.9	94.0	75.0-125	26-Sep-01 11:11	
Zinc	UG/ML	5.00	20.	100	75.0-125	26-Sep-01 11:11	

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

LS ANALYSIS (SW7471) AND PREPARATION (SW7471A)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092802-1	F-01-D-02 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-2	F-01-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-3	F-02-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-4	F-03-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-5	F-04-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-6	F-05-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	
01092802-7	F-06-D-01 (M,V)		WG50491	16-Oct-01 15:00	ERS	SW7471A	

METHOD BLANK

boratory ID: WG50491-1 Analysis Lot: WG50789 Sample Tag: WG50491

Analyte	Units	Value	RDL	Analysis Date
Mercury	MG/KG	0.040U	0.040	27-Sep-01 13:23

LABORATORY CONTROL SAMPLE

boratory ID: WG50491-2 Analysis Lot: WG50789 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Mercury	MG/KG	0.333	0.340	102	80.0-120	27-Sep-01 13:25

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

boratory IDs: WG50491-3, WG50491-4 Analysis Lot: WG50789 Sample Spiked: 01092802-2 Site: F-01-D-01 (M,V) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Mercury	MG/KG	0.33	0.33	0.014	0.35	0.36	105	108	75.0-125	2.82	20.0

NITIAL CALIBRATION VERIFICATION

Laboratory ID: WG50789-1 Analysis Lot: WG50789 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Mercury	UG/L	5.00	5.0	100	90.0-110	27-Sep-01 13:12

NITIAL CALIBRATION BLANK

Laboratory ID: WG50789-2 Analysis Lot: WG50789

Analyte	Units	Value	RDL	Analysis Date
Mercury	UG/L	0.040U	0.040	27-Sep-01 13:15

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

S ANALYSIS AND PREPARATION (SW7471A)
ONTINUING CALIBRATION BLANK

CONTINUING CALIBRATION BLANK

Laboratory ID: WG50789-4 Analysis Lot: WG50789

Analyte	Units	Value	RDL	Analysis Date
Mercury	UG/L	0.040U	0.040	27-Sep-01 13:53

Laboratory ID: WG50789-6 Analysis Lot: WG50789

Analyte	Units	Value	RDL	Analysis Date
Mercury	UG/L	0.040U	0.040	27-Sep-01 14:27

boratory ID: WG50789-8 Analysis Lot: WG50789

Analyte	Units	Value	RDL	Analysis Date
Mercury	UG/L	0.040U	0.040	27-Sep-01 14:58

CONTINUING CALIBRATION VERIFICATION

boratory ID: WG50789-3 Analysis Lot: WG50789 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Mercury	UG/L	5.0	5.0	100	80.0-120	27-Sep-01 13:50

oratory ID: WG50789-5 Analysis Lot: WG50789 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Mercury	UG/L	5.0	5.0	100	80.0-120	27-Sep-01 14:24

Laboratory ID: WG50789-7 Analysis Lot: WG50789 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Mercury	UG/L	5.0	5.0	100	80.0-120	27-Sep-01 14:56

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

TILE ORGANICS BY GC/MS (SW8260)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092802-1	F-01-D-02 (M,V)		WG49649	25-Sep-01 19:04	PSB	SW8260B/SW5035	D1:1
01092802-2	F-01-D-01 (M,V)		WG49649	25-Sep-01 14:45	PSB	SW8260B/SW5035	D1:1
01092802-3	F-02-D-01 (M,V)		WG49649	25-Sep-01 19:36	PSB	SW8260B/SW5035	D1:1
01092802-4	F-03-D-01 (M,V)		WG49649	25-Sep-01 16:55	PSB	SW8260B/SW5035	D1:1
01092802-5	F-04-D-01 (M,V)		WG49649	25-Sep-01 17:27	PSB	SW8260B/SW5035	D1:1
01092802-5	F-04-D-01 (M,V)		WG49649	25-Sep-01 20:41	PSB	SW8260B/SW5035	D1:R2
01092802-6	F-05-D-01 (M,V)		WG49649	25-Sep-01 17:59	PSB	SW8260B/SW5035	D1:1
01092802-7	F-06-D-01 (M,V)		WG49649	25-Sep-01 18:32	PSB	SW8260B/SW5035	D1:1

METHOD BLANK

Laboratory ID: WG49649-1 Analysis Lot: WG49649 Prep Lot: N/A Sample Tag: D1:1

Analyte	Units	Value	RDL	Analysis Date
1,1-Dichloroethane	UG/KG	5.0U	5.0	25-Sep-01 12:17
trans-1,2-Dichloroethene	UG/KG	5.0U	5.0	25-Sep-01 12:17
Trichloroethene	UG/KG	5.0U	5.0	25-Sep-01 12:17
m/p-Xylene	UG/KG	5.0U	5.0	25-Sep-01 12:17
o-Xylene	UG/KG	5.0U	5.0	25-Sep-01 12:17
Total xylenes	UG/KG	10U	10	25-Sep-01 12:17

ATORY CONTROL SAMPLE

Laboratory ID: WG49649-2 Analysis Lot: WG49649 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,1-Dichloroethane	UG/KG	20.0	19.0	95.0	70.0-130	25-Sep-01 12:50
Trichloroethene	UG/KG	20.0	18.0	90.0	70.0-130	25-Sep-01 12:50

TRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG49649-3, WG49649-4 Analysis Lot: WG49649 Sample Spiked: 01092802-2 Client ID: F-01-D-01 (M,V) Sample Tag: D1

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits	
Trichloroethene	UG/KG	31.2	31.2	5.0U	38	28	122	89.6	70.0-130	30.6	30.0	*
1,1-Dichloroethane	UG/KG	31.2	31.2	5.0U	44	32	141	102	70.0-130	32.1	30.0	*

CONTINUING CALIBRATION VERIFICATION

oratory ID: WG49649-5 Analysis Lot: WG49649 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,1-Dichloroethane	UG/L	20	19	95.0	70.0-130	25-Sep-01 11:27
trans-1,2-Dichloroethene	UG/L	20	20	100	70.0-130	25-Sep-01 11:27
Trichloroethene	UG/L	20	19	95.0	70.0-130	25-Sep-01 11:27
m/p-Xylene	UG/L	40	36	90.0	70.0-130	25-Sep-01 11:27
o-Xylene	UG/L	20	18	90.0	70.0-130	25-Sep-01 11:27
Total xylenes	UG/L	60	55	92.0	70.0-130	25-Sep-01 11:27

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

ILE ORGANICS BY GC/MS (SW8260)
ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49649-5 Analysis Lot: WG49649 Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/L	30	28	93.0	70.0-121	25-Sep-01 11:27
Toluene-d8 (SURR)	UG/L	30	27	90.0	81.0-117	25-Sep-01 11:27
Bromofluorobenzene (SURR)	UG/L	30	27	90.0	60.0-155	25-Sep-01 11:27

URROGATE RECOVERIES

boratory ID: 01092802-1 Analysis Lot: WG49649 Client ID: F-01-D-02 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	34.0	113	70.0-149	25-Sep-01 19:04
Toluene-d8 (SURR)	UG/KG	30.0	36.0	120	72.0-128	25-Sep-01 19:04
Bromofluorobenzene (SURR)	UG/KG	30.0	38.0	127	60.0-155	25-Sep-01 19:04

Laboratory ID: 01092802-2 Analysis Lot: WG49649 Client ID: F-01-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	46.0	153	70.0-149	25-Sep-01 14:45 *
Toluene-d8 (SURR)	UG/KG	30.0	36.0	120	72.0-128	25-Sep-01 14:45
Bromofluorobenzene (SURR)	UG/KG	30.0	40.0	133	60.0-155	25-Sep-01 14:45

boratory ID: 01092802-3 Analysis Lot: WG49649 Client ID: F-02-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
chloroethane-d4 (SURR)	UG/KG	30.0	35.0	117	70.0-149	25-Sep-01 19:36
Toluene-d8 (SURR)	UG/KG	30.0	37.0	123	72.0-128	25-Sep-01 19:36
Bromofluorobenzene (SURR)	UG/KG	30.0	39.0	130	60.0-155	25-Sep-01 19:36

boratory ID: 01092802-4 Analysis Lot: WG49649 Client ID: F-03-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	25.0	83.0	70.0-149	25-Sep-01 16:55
Toluene-d8 (SURR)	UG/KG	30.0	22.0	73.0	72.0-128	25-Sep-01 16:55
Bromofluorobenzene (SURR)	UG/KG	30.0	26.0	87.0	60.0-155	25-Sep-01 16:55

Laboratory ID: 01092802-5 Analysis Lot: WG49649 Client ID: F-04-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Bromofluorobenzene (SURR)	UG/KG	30.0	26.0	86.7	60.0-155	25-Sep-01 17:27
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	25.0	83.3	70.0-149	25-Sep-01 17:27
Toluene-d8 (SURR)	UG/KG	30.0	20.0	66.6	72.0-128	25-Sep-01 17:27 *

oratory ID: 01092802-5 Analysis Lot: WG49649 Client ID: F-04-D-01 (M,V) Sample Tag: D1:R2

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	39.0	130	70.0-149	25-Sep-01 20:41

PDC Laboratories Quality Control Summary Report

PROJECT: 01092802

ILE ORGANICS BY GC/MS (SW8260)
URROGATE RECOVERIES

Toluene-d8 (SURR)	UG/KG	30.0	40.0	133	72.0-128	25-Sep-01 20:41	*
Bromofluorobenzene (SURR)	UG/KG	30.0	41.0	137	60.0-155	25-Sep-01 20:41	

aboratory ID: 01092802-6 Analysis Lot: WG49649 Client ID: F-05-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	27.0	90.0	70.0-149	25-Sep-01 17:59	
Toluene-d8 (SURR)	UG/KG	30.0	28.0	93.0	72.0-128	25-Sep-01 17:59	
Bromofluorobenzene (SURR)	UG/KG	30.0	35.0	117	60.0-155	25-Sep-01 17:59	

Laboratory ID: 01092802-7 Analysis Lot: WG49649 Client ID: F-06-D-01 (M,V) Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	23.0	77.0	70.0-149	25-Sep-01 18:32	
Toluene-d8 (SURR)	UG/KG	30.0	27.0	90.0	72.0-128	25-Sep-01 18:32	
Bromofluorobenzene (SURR)	UG/KG	30.0	36.0	120	60.0-155	25-Sep-01 18:32	

Laboratory ID: WG49649-1 Analysis Lot: WG49649 Client ID: MB Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	28.0	93.3	70.0-149	25-Sep-01 12:17	
Toluene-d8 (SURR)	UG/KG	30.0	27.0	90.0	72.0-128	25-Sep-01 12:17	
Bromofluorobenzene (SURR)	UG/KG	30.0	31.0	103	60.0-155	25-Sep-01 12:17	

boratory ID: WG49649-2 Analysis Lot: WG49649 Client ID: LCS Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	28.0	93.3	70.0-149	25-Sep-01 12:50	
Toluene-d8 (SURR)	UG/KG	30.0	28.0	93.3	72.0-128	25-Sep-01 12:50	
Bromofluorobenzene (SURR)	UG/KG	30.0	27.0	90.0	60.0-155	25-Sep-01 12:50	

Laboratory ID: WG49649-3 Analysis Lot: WG49649 Client ID: MS Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	58.0	193	70.0-149	25-Sep-01 15:17	*
Toluene-d8 (SURR)	UG/KG	30.0	48.0	160	72.0-128	25-Sep-01 15:17	*
Bromofluorobenzene (SURR)	UG/KG	30.0	56.0	187	60.0-155	25-Sep-01 15:17	*

Laboratory ID: WG49649-4 Analysis Lot: WG49649 Client ID: MSD Sample Tag: D1:1

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date	
1,2-Dichloroethane-d4 (SURR)	UG/KG	30.0	46.0	153	70.0-149	25-Sep-01 15:50	*
Toluene-d8 (SURR)	UG/KG	30.0	42.0	140	72.0-128	25-Sep-01 15:50	*

PDC Laboratories Quality Control Summary Report

ROJECT: 01092802

ILE ORGANICS BY GC/MS (SW8260)
URROGATE RECOVERIES

Bromofluorobenzene (SURR)	UG/KG	30.0	42.0	140	60.0-155	25-Sep-01 15:50

SHIPPING & RECEIVING

PD[redacted]O[redacted]DRIE[redacted]C.
2231 W[redacted]T ALTORFER DRIVE
PEORIA, [redacted] 61615
PHONE # 309-692-9688
FAX # 309-692-9689

[redacted]AIN [redacted]F [redacted]STOD[redacted] [redacted]ECORD

921011

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: PICK-UP
ADDRESS: 5010 STONE Mill Rd	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9-21-01
CITY STATE ZIP: Bloomington, IN 47404	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER: SEDIMENT
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: J.A. Duwelin		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 01092801-6
01092802-7
LOGGED BY: PFI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

1901-2802	(2) SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	VOCS	METALS	SEB ATTACHED	PARAMETER LIST				REMARKS
															F-POND
1	TRIP BLANK	9-21-01	07:00	X		WTR	2	X							
2	FRB-W-01 (M, V)	9-21-01	10:10	X		WTR	4	X	X						
3	FRB-D-01 (M, V)	9-21-01	10:10	X		WTR	4	X	X						
4	F-07-W-01 (M, V)	9-21-01	12:30	X		WTR	~~2~~ 11	X	X						Extra Vol for MS/MSD
5	F-07-W-02 (M, V)	9-21-01	12:30	X		WTR	4	X	X						
6	F-08-W-01 (M, V)	9-21-01	15:15	X		WTR	4	X	X						
1	F-01-D-02 (M, V)	9-21-01	12:30	X		SED	4	X	X						
2	F-01-D-01 (M, V)	9-21-01	12:30	X		SED	12	X	X						EXTRA VOL FOR MS/MSD
3	F-02-D-01 (M, V)	9-21-01	14:15	X		SED	4	X	X						
4	F-03-D-01 (M, V)	9-21-01	14:00	X		SED	4	X	X						
5	F-04-D-01 (M, V)	9-21-01	15:00	X		SED	4	X	X						
6	F-05-D-01 (M, V)	9-21-01	14:40	X		SED	4	X	X						

1901-2802

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

(7) RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
J.A. Duwelin	DATE 9-21-01 TIME 16:30		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE) Pam Tegersall	DATE 9/21/01 TIME 1715

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N

000031

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

921011A BB 9/21/01

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: KEYSTONE	PROJECT NUMBER: 19718.01	P.O. NUMBER:	MEANS SHIPPED:
ADDRESS: 5010 STONEMILL ROAD	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED:
CITY STATE ZIP: BLOOMINGTON, IN 47408	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER: SED
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: J.A. Dunwoodie		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN #:
LOGGED BY:
LAB PROJ. #:
TEMPLATE:
PROJ. MGR.:

(2) SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	VOCS	METALS	SEE ATTACHED PARAMETER LIST					REMARKS
7 F-06-D-01 (MV)	9-21-01	15:15	X		SED	4	X	X						F-POND

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.* _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	RECEIVED BY: (SIGNATURE)	DATE
John A. Dunwoodie	9-21-01		
	TIME 16:30		TIME
RELINQUISHED BY: (SIGNATURE)	DATE	RECEIVED AT LAB BY: (SIGNATURE)	DATE
	TIME		TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT _____ °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

000032

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off / Commerical Carrier (UPS, FEDEX, etc.) (Laboratory Pick-Up)

Project Earth Tech / Keystone Cooler 1 of 2

Shipping Container # (PDC / Other): _____

Received (date time) 9/21/01 1715 By: PHIngwell

Opened (If different) _____ By: _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip? ..... YES NO (NA)

If YES, carrier name & air bill #: _____

(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container? ..... (YES) NO*

If YES, a: Were the custody seals intact upon arrival? ..... (YES) NO*

b: Enter the Seal Date and Name (enter "NA" if not available): 9/21

Was the Chain of Custody (COC) documentation provided with the shipment? ..... (YES) NO*

If YES, a: Was the COC fully executed in ink by the shipper? ..... (YES) NO*

b: COC #: 921011 and 921011A BIB 9/21/01

c: Was the project identifiable from the COC? ..... (YES) NO*

If No, how was this determined? _____

d: Was the COC properly signed as received by the Laboratory ..... (YES) NO*

What was the temperature in the Cooler? 11 ° Deg C.

Were samples received within criteria of 2-6° Deg C? ..... YES (NO*)

(Processed Water/Wastewater are excluded from the temperature criteria)

Did the cooler contain Ice? ..... (YES) NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices? ..... (YES) NO*

Did all sample containers arrive intact and sealed? ..... (YES) NO*

Did all sample containers have secure and completed labels? ..... (YES) NO*

If sample containers possessed tags, circle: Tags only Tags + Labels

Were caps of individual bottles/vials free from tape and/or custody seals? ..... (YES) NO*

Did all labels and/or tags agree with COC? ..... (YES) NO*

Were QC samples included? ..... (YES) NO

Did pH checks confirm indicated preservations? (if applicable) ..... YES NO (NA)

Did volumes, containers, & preservatives seem appropriate to indicate tests? ..... (YES) NO*

Were VOA vials (waters) free from bubbles? (if applicable) ..... (YES) NO* NA

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

_____

_____

Appendix L
East Pond
Soil/Sediment Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092803

November 7, 2001

Earth Tech

Project: East Pond/Soils

SDG #01092803

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092803

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	06
QC Summary	07
Shipping and Receiving	11

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

East Pond - Soils Project No. 19718.09

PDC Laboratories, Inc. received 5 soil samples on September 21, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092803 for Total Metals analysis.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
A-01-D-01 (M)	01092803-1	09/21/01	09/21/01
A-01-D-02 (M)	01092803-2	09/21/01	09/21/01
A-02-D-01 (M)	01092803-3	09/21/01	09/21/01
A-03-D-01 (M)	01092803-4	09/21/01	09/21/01
A-04-D-01 (M)	01092803-5	09/21/01	09/21/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by Method SW846 6010.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits..

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092803-1 for the total metal analyses. All recoveries were within the specified QC limits.

The associated Sample Duplicate was performed on sample 01092803-1 for the total metal analyses. All recoveries were within the specified QC limits.

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(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria.

All Interference Check Samples were within QC criteria.

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	Nov 7, 2001	Title:	Project Manager

EAR01092803.DOC

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

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ACCREDITED IN ACCORDANCE WITH nelac

11/07/01

	Laboratory Sample No.:		01092803-1	01092803-2	01092803-3
	Client Description:		205746	205746	205746
	Site/Locator:		A-01-D-01 (M)	A-01-D-02 (M)	A-02-D-01 (M)
	Date Collected:		21-SEP-01 11:15:00	21-SEP-01 11:20:00	21-SEP-01 12:05:00
Method	Parameter		undiluted	undiluted	undiluted
SW6010B	Chromium	mg/kg	32	34	34
SW6010B	Copper	mg/kg	3.4 J	3.5 J	5.2
SW6010B	Lead	mg/kg	31	35	38
SW6010B	Zinc	mg/kg	54	56	64
SW6010B	Chromium	mg/kg Dry	70	62	83
SW6010B	Copper	mg/kg Dry	7.4 J	6.4 J	13
SW6010B	Lead	mg/kg Dry	67	64	93
SW6010B	Zinc	mg/kg Dry	120	100	160
SM (18) 2540B	Moisture	%	54	45	59

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11/07/01

	Laboratory Sample No.:		01092803-4	01092803-5
	Client Description:		205746	205746
	Site/Locator:		A-03-D-01 (M)	A-04-D-01 (M)
	Date Collected:		21-SEP-01 11:45:00	21-SEP-01 11:30:00
Method	Parameter		undiluted	undiluted
SW6010B	Chromium	mg/kg	26	23
SW6010B	Copper	mg/kg	9.1	6.3
SW6010B	Lead	mg/kg	49	24
SW6010B	Zinc	mg/kg	140	59
SW6010B	Chromium	mg/kg Dry	59	58
SW6010B	Copper	mg/kg Dry	21	16
SW6010B	Lead	mg/kg Dry	110	60
SW6010B	Zinc	mg/kg Dry	320	150
SM (18) 2540B	Moisture	%	56	60

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092803-1		Client ID A-01-D-01 (M)			Collect Date: 09/21/01 11:15			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 11:15	WG49582
FED CR, 6010		09/25/01 14:00	03/20/02 11:15	WG49636	PREP FOR	1	09/26/01 11:26	03/20/02 11:15	WG49755
FED CU, 6010		09/25/01 14:00	03/20/02 11:15	WG49636	PREP FOR	1	09/26/01 11:26	03/20/02 11:15	WG49755
FED PB, 6010		09/25/01 14:00	03/20/02 11:15	WG49636	PREP FOR	1	09/26/01 11:26	03/20/02 11:15	WG49755
FED ZN, 6010		09/25/01 14:00	03/20/02 11:15	WG49636	PREP FOR	1	09/26/01 11:26	03/20/02 11:15	WG49755
Lab ID: 01092803-2		Client ID A-01-D-02 (M)			Collect Date: 09/21/01 11:20			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 11:20	WG49582
FED CR, 6010		09/25/01 14:00	03/20/02 11:20	WG49636	PREP FOR	1	09/26/01 12:45	03/20/02 11:20	WG49755
FED CU, 6010		09/25/01 14:00	03/20/02 11:20	WG49636	PREP FOR	1	09/26/01 12:45	03/20/02 11:20	WG49755
FED PB, 6010		09/25/01 14:00	03/20/02 11:20	WG49636	PREP FOR	1	09/26/01 12:45	03/20/02 11:20	WG49755
FED ZN, 6010		09/25/01 14:00	03/20/02 11:20	WG49636	PREP FOR	1	09/26/01 12:45	03/20/02 11:20	WG49755
Lab ID: 01092803-3		Client ID A-02-D-01 (M)			Collect Date: 09/21/01 12:05			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 12:05	WG49582
FED CR, 6010		09/25/01 14:00	03/20/02 12:05	WG49636	PREP FOR	1	09/26/01 13:02	03/20/02 12:05	WG49755
FED CU, 6010		09/25/01 14:00	03/20/02 12:05	WG49636	PREP FOR	1	09/26/01 13:02	03/20/02 12:05	WG49755
FED PB, 6010		09/25/01 14:00	03/20/02 12:05	WG49636	PREP FOR	1	09/26/01 13:02	03/20/02 12:05	WG49755
FED ZN, 6010		09/25/01 14:00	03/20/02 12:05	WG49636	PREP FOR	1	09/26/01 13:02	03/20/02 12:05	WG49755
Lab ID: 01092803-4		Client ID A-03-D-01 (M)			Collect Date: 09/21/01 11:45			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 11:45	WG49582
FED CR, 6010		09/25/01 14:00	03/20/02 11:45	WG49636	PREP FOR	1	09/26/01 13:07	03/20/02 11:45	WG49755
FED CU, 6010		09/25/01 14:00	03/20/02 11:45	WG49636	PREP FOR	1	09/26/01 13:07	03/20/02 11:45	WG49755
FED PB, 6010		09/25/01 14:00	03/20/02 11:45	WG49636	PREP FOR	1	09/26/01 13:07	03/20/02 11:45	WG49755
FED ZN, 6010		09/25/01 14:00	03/20/02 11:45	WG49636	PREP FOR	1	09/26/01 13:07	03/20/02 11:45	WG49755
Lab ID: 01092803-5		Client ID A-04-D-01 (M)			Collect Date: 09/21/01 11:30			Receive Date: 09/21/01 17:15	
MOIST						1	09/24/01 11:51	09/28/01 11:30	WG49582
FED CR, 6010		09/25/01 14:00	03/20/02 11:30	WG49636	PREP FOR	1	09/26/01 13:12	03/20/02 11:30	WG49755
FED CU, 6010		09/25/01 14:00	03/20/02 11:30	WG49636	PREP FOR	1	09/26/01 13:12	03/20/02 11:30	WG49755
FED PB, 6010		09/25/01 14:00	03/20/02 11:30	WG49636	PREP FOR	1	09/26/01 13:12	03/20/02 11:30	WG49755
FED ZN, 6010		09/25/01 14:00	03/20/02 11:30	WG49636	PREP FOR	1	09/26/01 13:12	03/20/02 11:30	WG49755

QC SUMMARY

PDC Laboratories Quality Control Summary Report

PROJECT: 01092803

TALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
QC CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092803-1	A-01-D-01 (M)	WG49636	WG49755	26-Sep-01 11:26	DWK	SW6010B	
01092803-2	A-01-D-02 (M)	WG49636	WG49755	26-Sep-01 12:45	DWK	SW6010B	
01092803-3	A-02-D-01 (M)	WG49636	WG49755	26-Sep-01 13:02	DWK	SW6010B	
01092803-4	A-03-D-01 (M)	WG49636	WG49755	26-Sep-01 13:07	DWK	SW6010B	
01092803-5	A-04-D-01 (M)	WG49636	WG49755	26-Sep-01 13:12	DWK	SW6010B	

METHOD BLANK

Laboratory ID: WG49636-1 Analysis Lot: WG49755 Prep Batch: WG49636 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/KG	2.0U	2.0	26-Sep-01 09:43
Copper	MG/KG	5.0U	5.0	26-Sep-01 09:43
Lead	MG/KG	0.60U	0.60	26-Sep-01 09:43
Zinc	MG/KG	4.0U	4.0	26-Sep-01 09:43

LABORATORY CONTROL SAMPLE

Laboratory ID: WG49636-2 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Copper	MG/KG	25.0	25.0	100	80.0-120	26-Sep-01 09:48
Lead	MG/KG	25.0	24.0	98.0	80.0-120	26-Sep-01 09:48
Zinc	MG/KG	25.0	24.0	96.0	80.0-120	26-Sep-01 09:48

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Laboratory IDs: WG49636-6, WG49636-7 Analysis Lot: WG49755 Sample Spiked: 01092803-1 Site: A-01-D-01 (M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Chromium	MG/KG	500	500	32	480	490	89.0	91.0	75.0-125	2.08	20.0
Copper	MG/KG	500	500	3.4	450	470	89.0	93.0	75.0-125	4.34	20.0
Lead	MG/KG	500	500	31	480	500	90.0	93.0	75.0-125	3.49	20.0
Zinc	MG/KG	500	500	54	490	500	88.0	88.0	75.0-125	0.00	20.0

LABORATORY DUPLICATE

Laboratory ID: WG49636-8 Duplicate Sample: 01092803-1 Analysis Lot: WG49755

Analyte	Units	Measured	Replicate	RPD	Limits	Analysis Date
Chromium	MG/KG	32	36	11.8	20.0	26-Sep-01 12:26
Copper	MG/KG	3.4	3.8	11.1	20.0	26-Sep-01 12:26
Lead	MG/KG	31	33	6.25	20.0	26-Sep-01 12:26
Zinc	MG/KG	54	59	8.85	20.0	26-Sep-01 12:26

PDC Laboratories Quality Control Summary Report

PROJECT: 01092803

METALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
INITIAL CALIBRATION VERIFICATION

INITIAL CALIBRATION VERIFICATION

Laboratory ID: WG49755-1 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	3.9	97.5	90.0-110	26-Sep-01 09:14
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 09:14
Lead	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 09:14
Zinc	UG/ML	4.0	3.9	97.5	90.0-110	26-Sep-01 09:14

INITIAL CALIBRATION BLANK

Laboratory ID: WG49755-2 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	PPB	2.0U	2.0	26-Sep-01 09:22
Copper	PPB	5.0U	5.0	26-Sep-01 09:22
Lead	PPB	0.60U	0.60	26-Sep-01 09:22
Zinc	PPB	4.0U	4.0	26-Sep-01 09:22

CONTINUING CALIBRATION BLANK

Laboratory ID: WG49755-10 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 11:41
Copper	UG/ML	5.0U	5.0	26-Sep-01 11:41
Lead	UG/ML	0.60U	0.60	26-Sep-01 11:41
Zinc	UG/ML	4.0U	4.0	26-Sep-01 11:41

Laboratory ID: WG49755-13 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 12:55
Copper	UG/ML	5.0U	5.0	26-Sep-01 12:55
Lead	UG/ML	0.60U	0.60	26-Sep-01 12:55
Zinc	UG/ML	4.0U	4.0	26-Sep-01 12:55

Laboratory ID: WG49755-16 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 13:58
Copper	UG/ML	5.0U	5.0	26-Sep-01 13:58
Lead	UG/ML	0.60U	0.60	26-Sep-01 13:58
Zinc	UG/ML	4.0U	4.0	26-Sep-01 13:58

Laboratory ID: WG49755-7 Analysis Lot: WG49755

Analyte	Units	Value	RDL	Analysis Date

PDC Laboratories Quality Control Summary Report

PROJECT: 01092803

ICP/MS ANALYSIS (SW6010) AND PREPARATION (SW3051)

CONTINUING CALIBRATION BLANK

Laboratory ID: WG49755-7 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Value	RDL	Analysis Date
Chromium	UG/ML	2.0U	2.0	26-Sep-01 10:35
Copper	UG/ML	5.0U	5.0	26-Sep-01 10:35
Lead	UG/ML	0.60U	0.60	26-Sep-01 10:35
Zinc	UG/ML	4.0U	4.0	26-Sep-01 10:35

INTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG49755-3 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Chromium	UG/ML	0.0	-0.00078	N/A	N/A	26-Sep-01 09:27
Copper	UG/ML	0.0	-0.0042	N/A	N/A	26-Sep-01 09:27
Lead	UG/ML	0.0	-0.0014	N/A	N/A	26-Sep-01 09:27
Zinc	UG/ML	0.0	-0.013	N/A	N/A	26-Sep-01 09:27

INTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG49755-4 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	0.50	0.48	96.2	80.0-120	26-Sep-01 09:32
Copper	UG/ML	0.50	0.55	110	80.0-120	26-Sep-01 09:32
Lead	UG/ML	0.050	0.047	93.8	80.0-120	26-Sep-01 09:32
Zinc	UG/ML	1.0	0.93	93.0	80.0-120	26-Sep-01 09:32

CONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49755-12 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 12:50
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 12:50

Laboratory ID: WG49755-15 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 13:54
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 13:54

Laboratory ID: WG49755-6 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30
Lead	UG/ML	4.0	4.1	102	90.0-110	26-Sep-01 10:30
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 10:30

PDC Laboratories Quality Control Summary Report

ROJECT: 01092803

IALS ANALYSIS (SW6010) AND PREPARATION (SW3051)
ONTINUING CALIBRATION VERIFICATION

Laboratory ID: WG49755-9 Analysis Lot: WG49755 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Copper	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Lead	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36
Zinc	UG/ML	4.0	4.0	100	90.0-110	26-Sep-01 11:36

POST DIGESTION SPIKE

Laboratory ID: WG49755-14 Analysis Lot: WG49755

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	UG/ML	5.00	5.1	103	75.0-125	26-Sep-01 13:17
Copper	UG/ML	5.00	5.0	100	75.0-125	26-Sep-01 13:17
Lead	UG/ML	5.00	5.2	104	75.0-125	26-Sep-01 13:17
Zinc	UG/ML	5.00	5.3	106	75.0-125	26-Sep-01 13:17

SHIPPING & RECEIVING

PD[redacted]O[redacted]RIE[redacted]C.
2231 W[redacted]T ALTORFER DRIVE
PEORIA, [redacted] 61615
PHONE # 309-692-9688
FAX # 309-692-9689

[redacted]AIN [redacted]F [redacted]STOD[redacted] [redacted]ECORD

92101[redacted]

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: Pick-up
ADDRESS: 5010 Stone Mill Road	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9-21-01
CITY STATE ZIP: Bloomington, IN 47404	SAMPLER (PLEASE PRINT): JAD / RAA		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER: SED
CONTACT PERSON: Bob Aten	SAMPLER'S SIGNATURE: J.A. Duwelius		

(3) ANALYSIS REQUESTED

(4) (FOR LAB USE ONLY)
LOGIN # 01092803-5
LOGGED BY: AFI
LAB PROJ. #
TEMPLATE:
PROJ. MGR.:

(2) SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	METALS (TOTAL)	SEE ATTACHED	PARAMETER LIST					REMARKS
														EAST POND
A-01-D-01 (m)	9-21-01	11:15	X		SED	2								EXTRA VOLUME FOR MS/MSD
A-01-D-02 (m)	9-21-01	11:20	X		SED	1								
A-02-D-01 (m)	9-21-01	12:05	X		SED	1								
A-03-D-01 (m)	9-21-01	11:45	X		SED	1								
A-04-D-01 (m)	9-21-01	11:30	X		SED	1								
A-05-W-01 (m)	9-21-01	11:00	X		WTR	2								EXTRA VOL. FOR MS/MSD
A-5-W-02 (m)	9-21-01	11:15	X		WTR	1								
A-6-W-01 (m)	9-21-01	11:45	X		WTR	1								
ARB-D-01 (m)	9-21-01	10:10	X		WTR	1								
ARB-W-01 (m)	9-21-01	10:10	X		WTR	1								

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE): NORMAL RUSH
RUSH RESULTS VIA (PLEASE CIRCLE): FAX PHONE
FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature.*

(7) RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME
J.A. Duwelius	DATE 9-21-01 TIME 16:30		DATE TIME
RELINQUISHED BY: (SIGNATURE)	DATE TIME	RECEIVED AT LAB BY: (SIGNATURE) Pam Tegesoll	DATE 9/21/01 TIME 1715

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y) OR N
SAMPLE(S) RECEIVED ON ICE (Y) OR N
BOTTLES RECEIVED IN GOOD CONDITION (Y) OR N
BOTTLES FILLED WITH ADEQUATE VOLUME (Y) OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) (Y) OR N

PAGE 1 OF 1

000011

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project _____ **Cooler** 2 of 2

Shipping Container # (PDC / Other): _____

Received (date time) 9/21/01 1715 **By:** PJ Jewell

Opened (If different) _____ **By:** _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip?..... YES NO (NA)
If YES, carrier name & air bill #: _____
(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container?..... (YES) NO*
If YES, a: Were the custody seals intact upon arrival?..... (YES) NO*
b: Enter the Seal Date and Name (enter "NA" if not available): 9/21

Was the Chain of Custody (COC) documentation provided with the shipment?..... (YES) NO*
If YES, a: Was the COC fully executed in ink by the shipper?..... (YES) NO*
b: COC #: 921012
c: Was the project identifiable from the COC?..... (YES) NO*
If No, how was this determined? _____
d: Was the COC properly signed as received by the Laboratory..... (YES) NO*

What was the temperature in the Cooler? 11 ° Deg C.
Were samples received within criteria of 2-6° Deg C?..... YES (NO*)
(Processed Water/Wastewater are excluded from the temperature criteria)
Did the cooler contain Ice?..... (YES) NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices?..... (YES) NO*

Did all sample containers arrive intact and sealed?..... (YES) NO*
Did all sample containers have secure and completed labels?..... (YES) NO*
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals?..... (YES) NO*
Did all labels and/or tags agree with COC?..... (YES) NO*

Were QC samples included?..... (YES) NO

Did pH checks confirm indicated preservations? (if applicable)..... YES NO (NA)
Did volumes, containers, & preservatives seem appropriate to indicate tests?..... (YES) NO*
Were VOA vials (waters) free from bubbles? (if applicable)..... YES NO* (NA)

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____
_____
_____

Appendix M
East Pond
Surface Water Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01092804

November 7, 2001

Earth Tech

Project: East Pond/Waters

SDG #01092804

TABLE OF CONTENTS

TABLE OF CONTENTS
SDG #01092804

Case Narrative	01
Tabulated Results	04
Dates and Dilutions	06
QC Summary	07
Shipping and Receiving	09

CASE NARRATIVE

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

CASE NARRATIVE – Earth Tech/Keystone

East Pond - Waters Project No. 19718.09

PDC Laboratories, Inc. received 5 water samples on September 21, 2001, with custody seals intact and in good condition. The sample set was designated as sample delivery batch 01092804 for total metals.

Sample Id's		Date	
Field	**Lab**	**Collected**	**Received**
A-05-W-01 (M)	01092804-1	09/21/01	09/21/01
A-05-W-02 (M)	01092804-2	09/21/01	09/21/01
A-06-W-01 (M)	01092804-3	09/21/01	09/21/01
ARB-D-01 (M)	01092804-4	09/21/01	09/21/01
ARB-W-01 (M)	01092804-5	09/21/01	09/21/01

Project Summary

These samples were prepared and analyzed in accordance with EPA approved Methodology for Earth Tech/ Keystone by the following methods: Total Metals by EPA Method 200.8.

Metals QC Summary

All holding time criteria were met for all samples.

All Initial Calibration Verification and Continuing Calibration Verification Standards met method acceptance criteria.

All Method Blanks, Initial Calibration Blanks and Continuing Calibration Blanks were free of contamination for target analytes above report limits.

The associated Matrix Spike and Matrix Spike Duplicate was performed on sample 01092804-3 for the total metal analyses. All recoveries were within the specified QC limits.

All associated Laboratory Control Sample (LCS) recoveries were within QC acceptance criteria. All recoveries were within the method specified QC recovery limits.

All Interference Check Samples were within QC criteria.

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Certification

This data package is in compliance with the technical intent of Earth Tech's contract, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Signature:	Barbara Beard	Name:	Barbara Beard
Date:	November 7, 01	Title:	Project Manager

PDC Laboratories, Inc.
DATA QUALIFIERS

A The presence of this analyte was confirmed using a second column but there was a disparity (> 40% RPD) between the two sets of results with no apparent chromatographic anomalies. The higher of the two results were reported.

B _____ present in the method blank at _____.

C The batch control sample failed to meet the required acceptance criteria.

E Concentration exceeds the instrument calibration range.

F Internal standard area failed to meet the required acceptance criteria.

G The Method of Standard Additions (MSA) was used to quantify the concentration.

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

J Estimated value; value between the MDL and the RDL.

K The relative standard deviation (RSD) was _____%, which failed to meet the acceptance criteria of _____% for initial calibration. The mean %RSD for all analytes included in the calibration was _____%, which is within the acceptance criteria.

L The percent difference (%D) was _____%, which failed to meet the acceptance criteria of _____% for continuing calibration verification. The mean %D for all analytes included in the continuing calibration was _____%, which is within the acceptance criteria.

M Analyte failed to meet the required acceptance criteria for duplicate analysis.

P Chemical preservation discrepancy noted at the time of analysis.

Q Analyte failed to meet the required acceptance criteria for spike recovery in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) due to apparent matrix effects.

R Analyte failed to meet the required acceptance criteria for duplicate recovery in the Matrix Spike/Matrix Spike Duplicate (MS/MSD).

S Surrogate compound diluted below a reliable quantitation level.

T Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) and re-analyzed, and the surrogate recovery outside of the required acceptance criteria on this second analysis. Results should be interpreted as estimated concentrations.

V Verification standard recovery failed to meet the required acceptance criteria.

W Surrogate recovery failed to meet the required acceptance criteria in initial analysis. Sample was re-extracted (if applicable) beyond the maximum allowable hold time, and re-analyzed. The surrogate recovery was within the required acceptance criteria on this second analysis.

NA Not analyzed.

NR Not requested.

X Miscellaneous; see comments.

TABULATED RESULTS

ACCREDITED IN ACCORDANCE WITH nelac

10/23/01

	Laboratory Sample No.:		01092804-1	01092804-2	01092804-3
	Client Description:		205746	205746	205746
	Site/Locator:		A-05-W-01 (M)	A-05-W-02 (M)	A-06-W-01 (M)
	Date Collected:		21-SEP-01 11:00:00	21-SEP-01 11:15:00	21-SEP-01 11:45:00
Method	Parameter		undiluted	undiluted	undiluted
EPA 200.8	Chromium	mg/l	0.018	0.018	0.02
EPA 200.8	Copper	mg/l	0.0022 J	0.0017 J	0.0023 J
EPA 200.8	Lead	mg/l	0.017	0.016	0.05
EPA 200.8	Zinc	mg/l	0.0091 J	0.0088 J	0.012 J

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10/23/01

	Laboratory Sample No.:		01092804-4	01092804-5
	Client Description:		205746	205746
	Site/Locator:		ARB-D-01 (M)	ARB-W-01 (M)
	Date Collected:		21-SEP-01 10:10:00	21-SEP-01 10:10:00
Method	Parameter		undiluted	undiluted
EPA 200.8	Chromium	mg/l	0.00038 J	0.00028 J
EPA 200.8	Copper	mg/l	0.025 U	0.00036 J
EPA 200.8	Lead	mg/l	0.003 U	0.003 U
EPA 200.8	Zinc	mg/l	0.0023 J	0.0017 J

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DATES & DILUTIONS REPORT

	Dil. Factor	Measure Dat	Hold Date	Batch ID	Assoc.Code	Dil. Factor	Analysis Dat	Analyis Hold Date	Analysis Batch
Lab ID: 01092804-1 Client ID: A-05-W-01 (M) Collect Date: 09/21/01 11:00 Receive Date: 09/21/01 17:15									
FED CR, 200.8			03/20/02 11:00	WG50199	PREP FOR	1	09/27/01 10:57	03/20/02 11:00	WG50237
FED CU, 200.8			03/20/02 11:00	WG50199	PREP FOR	1	09/27/01 10:57	03/20/02 11:00	WG50237
FED PB, 200.8			03/20/02 11:00	WG50199	PREP FOR	1	09/27/01 10:57	03/20/02 11:00	WG50237
FED ZN, 200.8			03/20/02 11:00	WG50199	PREP FOR	1	09/27/01 10:57	03/20/02 11:00	WG50237
Lab ID: 01092804-2 Client ID: A-05-W-02 (M) Collect Date: 09/21/01 11:15 Receive Date: 09/21/01 17:15									
FED CR, 200.8			03/20/02 11:15	WG50199	PREP FOR	1	09/27/01 10:36	03/20/02 11:15	WG50237
FED CU, 200.8			03/20/02 11:15	WG50199	PREP FOR	1	09/27/01 10:36	03/20/02 11:15	WG50237
FED PB, 200.8			03/20/02 11:15	WG50199	PREP FOR	1	09/27/01 10:36	03/20/02 11:15	WG50237
FED ZN, 200.8			03/20/02 11:15	WG50199	PREP FOR	1	09/27/01 10:36	03/20/02 11:15	WG50237
Lab ID: 01092804-3 Client ID: A-06-W-01 (M) Collect Date: 09/21/01 11:45 Receive Date: 09/21/01 17:15									
FED CR, 200.8			03/20/02 11:45	WG50199	PREP FOR	1	09/27/01 10:41	03/20/02 11:45	WG50237
FED CU, 200.8			03/20/02 11:45	WG50199	PREP FOR	1	09/27/01 10:41	03/20/02 11:45	WG50237
FED PB, 200.8			03/20/02 11:45	WG50199	PREP FOR	1	09/27/01 10:41	03/20/02 11:45	WG50237
FED ZN, 200.8			03/20/02 11:45	WG50199	PREP FOR	1	09/27/01 10:41	03/20/02 11:45	WG50237
Lab ID: 01092804-4 Client ID: ARB-D-01 (M) Collect Date: 09/21/01 10:10 Receive Date: 09/21/01 17:15									
FED CR, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:47	03/20/02 10:10	WG50237
FED CU, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:47	03/20/02 10:10	WG50237
FED PB, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:47	03/20/02 10:10	WG50237
FED ZN, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:47	03/20/02 10:10	WG50237
Lab ID: 01092804-5 Client ID: ARB-W-01 (M) Collect Date: 09/21/01 10:10 Receive Date: 09/21/01 17:15									
FED CR, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:52	03/20/02 10:10	WG50237
FED CU, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:52	03/20/02 10:10	WG50237
FED PB, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:52	03/20/02 10:10	WG50237
FED ZN, 200.8			03/20/02 10:10	WG50199	PREP FOR	1	09/27/01 10:52	03/20/02 10:10	WG50237

QC SUMMARY

PDC Laboratories Quality Control Summary Report

ROJECT: 01092694

TALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
C CROSS REFERENCE REPORT

Lab ID	Client ID	Prep. Lot	Analysis Lot	Analysis Date	Analyst	Method	Sample Tag
01092694-1	T-TL-1-G-01 (M)	WG50195	WG50239	26-Sep-01 13:09	JTM	EPA 200.8	
01092694-2	T-TL-2-G-01 (M)	WG50195	WG50239	26-Sep-01 13:14	JTM	EPA 200.8	
01092694-3	T-TL-3-G-01 (M)	WG50195	WG50239	26-Sep-01 13:41	JTM	EPA 200.8	
01092694-4	T-TL-3-G-02 (M)	WG50195	WG50239	26-Sep-01 13:19	JTM	EPA 200.8	
01092694-5	T-TL-4-G-01 (M)	WG50195	WG50239	26-Sep-01 13:25	JTM	EPA 200.8	
01092694-6	TW-7-G-01 (M)	WG50195	WG50239	26-Sep-01 13:30	JTM	EPA 200.8	
01092694-7	TFB-G-01 (M)	WG50195	WG50239	26-Sep-01 13:35	JTM	EPA 200.8	
01092694-8	TRB-S-01 (M)	WG50195	WG50239	26-Sep-01 14:07	JTM	EPA 200.8	

METHOD BLANK

Laboratory ID: WG50195-1 Analysis Lot: WG50239 Sample Tag: WG50195

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 13:03
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 13:03
Zinc	MG/L	0.0042J	0.020	26-Sep-01 13:03
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 13:03
Lead	MG/L	0.0030U	0.0030	26-Sep-01 13:03

LABORATORY CONTROL SAMPLE

oratory ID: WG50195-2 Analysis Lot: WG50239 Sample Tag:

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12
Nickel	MG/L	5.55	5.40	97.3	85.0-115	26-Sep-01 14:12
Zinc	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12
Cadmium	MG/L	5.55	5.40	97.3	85.0-115	26-Sep-01 14:12
Lead	MG/L	5.55	5.60	101	85.0-115	26-Sep-01 14:12

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

oratory IDs: WG50195-3, WG50195-4 Analysis Lot: WG50239 Sample Spiked: 01092694-3 Site: T-TL-3-G-01 (M) Sample Tag:

Analyte	Units	Amt MS Spiked	Amt MSD Spiked	Sample Value	MS Value	MSD Value	MS % Rec	MSD % Rec	Rec Limits	RPD	RPD Limits
Chromium	MG/L	5.5	5.5	0.0066	5.6	5.6	95.5	95.5	70.0-130	0.00	20.0
Nickel	MG/L	5.5	5.5	0.0064	5.3	5.4	90.3	92.1	70.0-130	1.97	20.0
Zinc	MG/L	5.5	5.5	0.025	5.6	5.7	80.6	82.4	70.0-130	2.21	20.0
Cadmium	MG/L	5.5	5.5	0.0050U	5.4	5.4	97.3	97.3	70.0-130	0.00	20.0
Lead	MG/L	5.5	5.5	0.0088	5.6	5.7	93.8	95.6	70.0-130	1.90	20.0

CONTINUING CALIBRATION BLANK

Laboratory ID: WG50239-10 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 14:24
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 14:24

PDC Laboratories Quality Control Summary Report

ROJECT: 01092694

TALS ANALYSIS (EPA 200.8) AND PREPARATION (SW3051)
ONTINUING CALIBRATION BLANK

Laboratory ID: WG50239-10, WG50195-4 Analysis Lot: WG50239 Sample Tag: 01092694-3 T-TL-3-G-01 (M) Sample Tag:

Analyte	Units	Value	RDL	Analysis Date							RPD
Analyte	Units	Spiked	Spiked	Value	Value	Value	% Rec	% Rec	Limits	RPD	Limits
Zinc	MG/L	0.00017J	0.020	26-Sep-01 14:24							
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 14:24							
Lead	MG/L	0.0030U	0.0030	26-Sep-01 14:24							

Laboratory ID: WG50239-2 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 11:11
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 11:11
Zinc	MG/L	-5.2e-05J	0.020	26-Sep-01 11:11
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 11:11
Lead	MG/L	0.0030U	0.0030	26-Sep-01 11:11

Laboratory ID: WG50239-6 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 12:55
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 12:55
Zinc	MG/L	0.00020J	0.020	26-Sep-01 12:55
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 12:55
Lead	MG/L	0.0030U	0.0030	26-Sep-01 12:55

Laboratory ID: WG50239-8 Analysis Lot: WG50239

Analyte	Units	Value	RDL	Analysis Date
Chromium	MG/L	0.010U	0.010	26-Sep-01 14:03
Nickel	MG/L	0.0050U	0.0050	26-Sep-01 14:03
Zinc	MG/L	0.00020J	0.020	26-Sep-01 14:03
Cadmium	MG/L	0.0050U	0.0050	26-Sep-01 14:03
Lead	MG/L	0.0030U	0.0030	26-Sep-01 14:03

NTERFERENCE CHECK SAMPLE - A

Laboratory ID: WG50239-3 Analysis Lot: WG50239

Analyte	Units	Spiked	Measured	%Recovery	Limits	Date
Chromium	MG/L	0.0	0.00076	N/A	N/A	26-Sep-01 11:41
Nickel	MG/L	0.0	0.0023	N/A	N/A	26-Sep-01 11:41
Zinc	MG/L	0.0	0.0036	N/A	N/A	26-Sep-01 11:41
Cadmium	MG/L	0.0	-6.9e-05	N/A	N/A	26-Sep-01 11:41
Lead	MG/L	0.0	0.00029	N/A	N/A	26-Sep-01 11:41

NTERFERENCE CHECK SAMPLE - AB

Laboratory ID: WG50239-4 Analysis Lot: WG50239

Analyte	Units	Spiked	Measured	%Recovery	Limits	Analysis Date
Chromium	MG/L	0.050	0.052	104	80.0-120	26-Sep-01 11:47
Nickel	MG/L	0.10	0.10	99.6	80.0-120	26-Sep-01 11:47
Zinc	MG/L	0.10	0.10	99.6	80.0-120	26-Sep-01 11:47
Cadmium	MG/L	0.10	0.097	97.5	80.0-120	26-Sep-01 11:47
Lead	MG/L	0.0050	0.0056	112	80.0-120	26-Sep-01 11:47

SHIPPING & RECEIVING

PDC LABORATORIES, INC.
2231 WEST ALTORFER DRIVE
PEORIA, IL 61615
PHONE # 309-692-9688
FAX # 309-692-9689

CHAIN OF CUSTODY RECORD

9210

ALL SHADED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT: KEYSTONE	PROJECT NUMBER: 19718.09	P.O. NUMBER:	MEANS SHIPPED: Pick up
ADDRESS: 5010 STONE MILL ROAD	PHONE NUMBER: 812-336-0972	FAX NUMBER:	DATE SHIPPED: 9-21-01
CITY, STATE, ZIP: Bloomington, IN 47404	SAMPLER (PLEASE PRINT): TWD/PEAR		MATRIX TYPES: WW-WASTEWATER, DW-DRINKING WATER, GW-GROUND WATER, WWSL-SLUDGE, NAS-SOLID, OTHER: SED
CONTACT PERSON: BOB ATEN	SAMPLER'S SIGNATURE: [signature]		

3 ANALYSIS REQUESTED: NITROGEN (TOTAL); TEC ATTACHED; PARAMETER LIST

4 (FOR LAB USE ONLY): 0109 2803-5; LOGIN # 0109 2804-5; LOGGED BY: HEI; LAB PROJ. #; TEMPLATE; PROJ. MGR.:

2 SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	TOTAL # OF CONT	REMARKS: EAST POND
A-01-D-01 (M)	9-21-01	11:15	X		SED	2	EXTRA VOLUME FOR MS/MSD
A-01-D-02 (M)	9-21-01	11:20	X		SED	1	
A-02-D-01 (M)	9-21-01	12:05	X		SED	1	
A-03-D-01 (M)	9-21-01	11:45	X		SED	1	
A-04-D-01 (M)	9-21-01	11:30	X		SED	1	
A-05-W-01 (M)	9-21-01	11:00	X		WTR	2	EXTRA VOL. FOR MS/MSD
A-5-W-02 (M)	9-21-01	11:15	X		WTR	1	
A-6-W-01 (M)	9-21-01	11:45	X		WTR	1	
ARB-D-01 (M)	9-21-01	10:10	X		WTR	1	
ARB-W-01 (M)	9-21-01	10:10	X		WTR	1	

5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE): NORMAL RUSH

RUSH RESULTS VIA (PLEASE CIRCLE): FAX PHONE

FAX # IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

6 The sample temperature will be measured upon receipt at the lab. By initialing this area you request that the lab notify you, before proceeding with analysis, if the sample temperature is outside of the range of 0.1-6.0°C. By not initialing this area you allow the lab to proceed with analytical testing regardless of the sample temperature. _____

7 RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[signature]	9-21-01	6:30			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED AT LAB BY: (SIGNATURE)	DATE	TIME
			[signature]	9/21/01	1715

8 COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 11 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
BOTTLES RECEIVED IN GOOD CONDITION Y OR N
BOTTLES FILLED WITH ADEQUATE VOLUME Y OR N
SAMPLES RECEIVED WITHIN HOLD TIME(S) Y OR N

PAGE 1 OF 1

000009

PDC Laboratories, Inc. – Federal Services
SAMPLE RECEIPT FORM

All *No* responses are to be described in the *Details/Comments* Section.

Delivery Method: Drop Off Commerical Carrier (UPS, FEDEX, etc.) Laboratory Pick-Up

Project _____ **Cooler** 2 **of** 2

Shipping Container # (PDC / Other): _____

Received (date time) 9/21/01 1715 **By:** Pat Jewsell

Opened (If different) _____ **By:** _____

Preliminary Examination Checklist

Did the shipping container arrive with an air bill/shipping slip?..... YES NO (NA)
If YES, carrier name & air bill #: _____
(Place any shipping documentation in file folder)

Were custody seals on the outside of the shipping container?..... (YES) NO*
If YES, a: Were the custody seals intact upon arrival?..... (YES) NO*
b: Enter the Seal Date and Name (enter "NA" if not available): 9/21

Was the Chain of Custody (COC) documentation provided with the shipment?..... (YES) NO*
If YES, a: Was the COC fully executed in ink by the shipper?..... (YES) NO*
b: COC #: 921012
c: Was the project identifiable from the COC?..... (YES) NO*
If No, how was this determined? _____
d: Was the COC properly signed as received by the Laboratory..... (YES) NO*

What was the temperature in the Cooler? 11 ° Deg C.
Were samples received within criteria of 2-6° Deg C?..... YES (NO*)
(Processed Water/Wastewater are excluded from the temperature criteria)
Did the cooler contain Ice?..... (YES) NO*

Sample Examination & Check-In Checklist

Were samples packaged in conformance to generally accepted practices?..... (YES) NO*

Did all sample containers arrive intact and sealed?..... (YES) NO*
Did all sample containers have secure and completed labels?..... (YES) NO*
If sample containers possessed tags, circle: Tags only Tags + Labels
Were caps of individual bottles/vials free from tape and/or custody seals?..... (YES) NO*
Did all labels and/or tags agree with COC?..... (YES) NO*

Were QC samples included?..... (YES) NO

Did pH checks confirm indicated preservations? (if applicable)..... YES NO (NA)
Did volumes, containers, & preservatives seem appropriate to indicate tests?..... (YES) NO*
Were VOA vials (waters) free from bubbles? (if applicable)..... YES NO* (NA)

If any NO*, Proceed with Login (YES / NO) Project Manager: _____ Date: _____

Details/Comments:

_____

Appendix N
Oil Skimmer Basin
Sediment & Influent Water Data Report

PDC Laboratories, Inc.

Report for Sample Delivery Group
#01093292

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

Report Cover Page

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 28-Sep-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01093292

This report includes information regarding the following described samples as received by the laboratory and is only valid for the parameters tested. This report contains 2 results page(s) not including the cover page(s).

Sample No.	Client ID	Date	Location
01093292-1	OIL SKIMMER BASIN GRAB		

Certified by: Kurt C. Stepping, Director of Client Services

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State of Illinois Chemical Analysis in Drinking Water Accredited Lab. No. 100230
State of Illinois Bacteriological Analysis in Drinking Water Certified Lab Registry No. 17533
State of Arkansas Certified Wastewater and Hazardous Waste Lab
State of Indiana Certified Drinking Water Lab No. C-IL-04
State of Iowa Certified Wastewater Lab No. 240
American Industrial Hygiene Association Bulk/Air Asbestos Proficiency Program Lab ID No. 101206
State of North Dakota Wastewater and Hazardous Waste CertifiedLab No. R-094
State of Wisconsin Certified Wastewater and Hazardous Waste Lab ID No. 998294430
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Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 28-Sep-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01093292

Sample No: 01093292-1
Client ID:
Site: OIL SKIMMER BASIN
Locator: GRAB
Collect Date: 28-SEP-01 09:00

Parameter		Result	Units	Date	By
EPA METHOD 5210 B MODIFIED					
Biochemical Oxygen Demand		4600	mg/kg	28-Sep-01 13:05	JAM
Biochemical Oxygen Demand		6700	mg/kg Dry	28-Sep-01 13:05	JAM
EPA METHOD 5220 D					
Chemical Oxygen Demand		160000	mg/kg	05-Oct-01 15:30	TAC
Chemical Oxygen Demand		240000	mg/kg Dry	05-Oct-01 15:30	TAC
EPA METHOD 1664 - MODIFIED					
Hexane Extractable Material (HEM)		46000	mg/kg	05-Oct-01 15:00	ECH
Hexane Extractable Material (HEM)		67000	mg/kg Dry	05-Oct-01 15:00	ECH
METHOD 2540 B					
Solids, Total		69.	%	02-Oct-01 19:53	DLE/JE
SW-846 METHOD 3050A					
Sample Preparation				01-Oct-01 12:00	JEM
SW-846 METHOD 6010B					
Silver	<	0.10	mg/kg	02-Oct-01 09:30	JVH
Silver	<	0.14	mg/kg Dry	02-Oct-01 09:30	JVH
Aluminum		340	mg/kg	02-Oct-01 09:30	JVH
Aluminum		490	mg/kg Dry	02-Oct-01 09:30	JVH
Arsenic	<	0.70	mg/kg	02-Oct-01 09:30	JVH
Arsenic	<	1.0	mg/kg Dry	02-Oct-01 09:30	JVH
Boron		3.6	mg/kg	03-Oct-01 07:30	JVH
Boron		5.2	mg/kg Dry	03-Oct-01 07:30	JVH
Barium		15.	mg/kg	02-Oct-01 09:30	JVH
Barium		22.	mg/kg Dry	02-Oct-01 09:30	JVH
Beryllium		6.7	mg/kg	02-Oct-01 09:30	JVH
Beryllium		9.7	mg/kg Dry	02-Oct-01 09:30	JVH
Cadmium	<	0.10	mg/kg	02-Oct-01 09:30	JVH
Cadmium	<	0.14	mg/kg Dry	02-Oct-01 09:30	JVH
Cobalt		19.	mg/kg	02-Oct-01 09:30	JVH
Cobalt		28.	mg/kg Dry	02-Oct-01 09:30	JVH
Chromium		200	mg/kg	02-Oct-01 09:30	JVH
Chromium		290	mg/kg Dry	02-Oct-01 09:30	JVH
Copper		1000	mg/kg	02-Oct-01 09:30	JVH

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Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 28-Sep-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01093292

Sample No: 01093292-1
Client ID:
Site: OIL SKIMMER BASIN
Locator: GRAB
Collect Date: 28-SEP-01 09:00

Parameter		Result	Units	Date	By
Copper		1400	mg/kg Dry	02-Oct-01 09:30	JVH
Iron		320000	mg/kg	02-Oct-01 09:30	JVH
Iron		460000	mg/kg Dry	02-Oct-01 09:30	JVH
Magnesium	<	410	mg/kg	02-Oct-01 09:30	JVH
Magnesium	<	590	mg/kg Dry	02-Oct-01 09:30	JVH
Manganese		1900	mg/kg	02-Oct-01 09:30	JVH
Manganese		2800	mg/kg Dry	02-Oct-01 09:30	JVH
Molybdenum		51.	mg/kg	02-Oct-01 09:30	JVH
Molybdenum		74.	mg/kg Dry	02-Oct-01 09:30	JVH
Nickel		260	mg/kg	02-Oct-01 09:30	JVH
Nickel		380	mg/kg Dry	02-Oct-01 09:30	JVH
Lead		4.9	mg/kg	02-Oct-01 09:30	JVH
Lead		7.1	mg/kg Dry	02-Oct-01 09:30	JVH
Antimony		24.	mg/kg	02-Oct-01 09:30	JVH
Antimony		35.	mg/kg Dry	02-Oct-01 09:30	JVH
Selenium	<	0.80	mg/kg	02-Oct-01 09:30	JVH
Selenium	<	1.2	mg/kg Dry	02-Oct-01 09:30	JVH
Tin		39.	mg/kg	02-Oct-01 11:30	JVH
Tin		56.	mg/kg Dry	02-Oct-01 11:30	JVH
Titanium		11.	mg/kg	02-Oct-01 09:30	JVH
Titanium		16.	mg/kg Dry	02-Oct-01 09:30	JVH
Thallium		18.	mg/kg	02-Oct-01 09:30	JVH
Thallium		26.	mg/kg Dry	02 Oct-01 09:30	JVH
Zinc		67.	mg/kg	02-Oct-01 09:30	JVH
Zinc		97.	mg/kg Dry	02-Oct-01 09:30	JVH
SW-846 METHOD 7471A					
Mercury	<	0.020	mg/kg	04-Oct-01 12:00	ERS
Mercury	<	0.029	mg/kg Dry	04-Oct-01 12:00	ERS

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Report Cover Page

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 09-Oct-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01101807

This report includes information regarding the following described samples as received by the laboratory and is only valid for the parameters tested. This report contains 3 results page(s) not including the cover page(s).

Sample No	Sample Type	Site	Method	Location
01101807-1	WASTE WATER	CL #2	GRAB	(see Plan View in Appendix D for location)
01101807-2	WASTE WATER	CL #3	GRAB	
01101807-3	WASTE WATER	TP EFF	GRAB	Treatment Plant NPDES discharge

Certified by: _____
Kurt C. Stepping, Director of Client Services

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State of Arkansas Certified Wastewater and Hazardous Waste Lab
State of Indiana Certified Drinking Water Lab No. C-IL-04
State of Iowa Certified Wastewater Lab No. 240
American Industrial Hygiene Association Bulk/Air Asbestos Proficiency Program Lab ID No. 101206
State of North Dakota Wastewater and Hazardous Waste CertifiedLab No. R-094
State of Wisconsin Certified Wastewater and Hazardous Waste Lab ID No. 998294430
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Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 09-Oct-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01101807

Sample No: 01101807-1
Client ID: WASTE WATER
Site: CI. #2
Locator: GRAB
Collect Date: 09-OCT-01 13:43

Parameter		Result	Units	Date	By
SM METHOD 5210 B					
Biochemical Oxygen Demand		3.0	mg/l	10-Oct-01 09:42	JAM
EPA METHOD 1664 TSV: February 1999					
Hexane Ext. Material (HEM) by SPE	<	6.0	mg/l	17-Oct-01 11:00	ECH
SM METHOD 4500-H+ B / SW 846-9040 B					
pH	H	8.18	units	10-Oct-01 11:14	KJB
SM METHOD 2540 C					
Solids, Total Dissolved		670	mg/l	15-Oct-01 15:54	KMC/JE
SM METHOD 2540 D					
Solids, Total Suspended		5.0	mg/l	12-Oct-01 15:50	KB
EPA METHOD 200.2					
Sample Preparation				17-Oct-01 11:00	KJP
EPA METHOD 200.7 REV 4.4					
Silver	<	0.010	mg/l	19-Oct-01 08:27	CVC
Arsenic	<	0.020	mg/l	19-Oct-01 08:27	CVC
Boron		0.33	mg/l	19-Oct-01 08:27	CVC
Barium		0.040	mg/l	19-Oct-01 08:27	CVC
Cadmium	<	0.0020	mg/l	19-Oct-01 08:27	CVC
Chromium	<	0.0040	mg/l	19-Oct-01 08:27	CVC
Copper	<	0.0050	mg/l	19-Oct-01 08:27	CVC
Iron		0.47	mg/l	19-Oct-01 08:27	CVC
Manganese		0.071	mg/l	19-Oct-01 08:27	CVC
Nickel		0.016	mg/l	19-Oct-01 08:27	CVC
Lead	<	0.010	mg/l	19-Oct-01 08:27	CVC
Selenium	<	0.050	mg/l	19-Oct-01 08:27	CVC
Zinc	<	0.0060	mg/l	19-Oct-01 08:27	CVC
EPA METHOD 245.1					
Mercury	<	0.00020	mg/l	12-Oct-01 10:00	ERS

H Method Hold Time Exceeded

PDC Laboratories, Inc.
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Laboratory Results

Earth Tech
5010 Stone Mill Road

Bloomington, IN 47401

Attn: Mr. Bob Aten

Date Received: 09-Oct-01
Date Reported: 19-Oct-01
PO #:
PDC Cust. # : 205746

Login No. 01101807

Sample No: 01101807-2
Client ID: WASTE WATER
Site: CL #3
Locator: GRAB
Collect Date: 09-OCT-01 13:50

Parameter		Result	Units	Date	By
SM METHOD 5210 B					
Biochemical Oxygen Demand		3.0	mg/l	10-Oct-01 09:49	JAM
EPA METHOD 1664 rev. February 1999					
Hexane Ext. Material (HEM) by SPE	<	5.0	mg/l	17-Oct-01 11:00	ECH
SM METHOD 4500 H B / SW 846 9040 B					
pH	H	8.22	units	10-Oct-01 11:23	KJB
SM METHOD 2540 C					
Solids, Total Dissolved		680	mg/l	15-Oct-01 15:54	KMC/JE
METHOD 2540 D					
Solids, Total Suspended		22	mg/l	12-Oct-01 15:50	KB
EPA METHOD 200.7					
Sample Preparation				17-Oct-01 11:00	KJP
EPA METHOD 200.7 rev. 4.4					
Silver	<	0.010	mg/l	19-Oct-01 08:33	CVC
Arsenic	<	0.020	mg/l	19-Oct-01 08:33	CVC
Boron		0.33	mg/l	19-Oct-01 08:33	CVC
Barium		0.038	mg/l	19-Oct-01 08:33	CVC
Cadmium	<	0.0020	mg/l	19-Oct-01 08:33	CVC
Chromium	<	0.0040	mg/l	19-Oct-01 08:33	CVC
Copper		0.025	mg/l	19-Oct-01 08:33	CVC
Iron		1.5	mg/l	19-Oct-01 08:33	CVC
Manganese		0.066	mg/l	19-Oct-01 08:33	CVC
Nickel		0.027	mg/l	19-Oct-01 08:33	CVC
Lead	<	0.010	mg/l	19-Oct-01 08:33	CVC
Selenium	<	0.050	mg/l	19-Oct-01 08:33	CVC
Zinc	<	0.0060	mg/l	19-Oct-01 08:33	CVC
EPA METHOD 245.1					
Mercury	<	0.00020	mg/l	12-Oct-01 10:00	ERS

Method Hold Time Exceeded