INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

May 14, 2012

Ms. Nuria Muniz, SR-6J
U.S. EPA Region V
77 West Jackson Boulevard
Chicago, IL 60604-3507

Dear Ms. Muniz:

Re: Kokomo Garrison & Main Water Treatment Wellfield
Kokomo, Howard County
Site Inspection

SITE SUMMARY

The Indiana Department of Environmental Management (IDEM) under a cooperative agreement with the U.S. EPA conducted a Site Inspection (SI) of the Kokomo Garrison & Main Water Treatment Wellfield ("Kokomo Wellfield") site to determine if the site warrants further investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, a.k.a. Superfund).

The Kokomo Wellfield supplies a portion of the water for the municipality of Kokomo (population of approximately 57,275). The Kokomo Wellfield consists of eleven (11) wells located on the eastern edge of the city, on either side of Wildcat Creek.

The IDEM Office of Water Quality's Drinking Water Branch notified the Site Investigation Program of levels of vinyl chloride and arsenic detected in Kokomo's unfinished water. In September 2007, Kokomo sampled the unfinished water and reported that vinyl chloride was detected in five (5) municipal wells and arsenic was detected in four (4) municipal wells.

The Site Inspection has confirmed levels of vinyl chloride at levels exceeding the U.S. EPA maximum contaminant level (MCL) of 2.0 ppb in four (4) municipal wells (pre-treatment). Vinyl chloride and other volatile organic compounds were also detected in several monitoring wells upgradient form the municipal wells.

Arsenic was detected in four (4) municipal water wells (pre-treatment) at levels exceeding the MCL of 10 ppb, as well as at several monitoring wells at a nearby facility. The nearby facility (currently entered in the IDEM Voluntary Remediation Program) has admitted responsibility for the arsenic contamination and is currently providing treatment for the city to remove the arsenic from the finished water supply. The water treatment system has thus far also been successful at removing the vinyl chloride, in addition to removing arsenic, from the finished drinking water as there have been no detections in the finished water. The source of the vinyl chloride remains unknown.

Should you have any questions regarding the contents of this correspondence, please contact me at 317/234-3505.

Sincerely,

Dan Chesterson
Site Investigation Program
Office of Land Quality

DPC

Attachments: Kokomo Garrison & Main Water Treatment Wellfield Site Inspection Report
HRS Score Pre-Decisional Document (Confidential)

cc: Gloria Wills, U.S. EPA
bcc: Gabriele Hauer, IDEM
IDEM Virtual File Cabinet

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

SITE INSPECTION REPORT

FOR

KOKOMO GARRISON AND MAIN WATER TREATMENT WELLFIELD

KOKOMO, INDIANA

HOWARD COUNTY

U.S. EPA ID: INN000510479

APRIL 30, 2012

Revised June 30, 2013

Signature Page

For

Kokomo Garrison & Main Water Treatment Wellfield

Site Inspection Report

Kokomo, Indiana

Howard County

Prepared By: Dan Chesterson Date: 5/14/12

Dan Chesterson, Project Manager
Site Investigation Section
Indiana Department of Environmental Management

Approved By: Gabriele Hauer Date: 5-15-12

Gabriele Hauer, Section Chief
Site Investigation Section
Indiana Department of Environmental Management

Approved By: _____ Date: 01/30/14

EPA Site Assessment Manager
U.S. EPA Region V

Report (revised) Dated 6/30/13

TABLE OF CONTENTS

APPENDICES

SECTION 1.0 INTRODUCTION

The Site Investigation Section of the Indiana Department of Environmental Management (IDEM), under a Cooperative Agreement (CA) with the United States Environmental Protection Agency (U.S. EPA), Region V, has been funded to perform Site Inspections at certain sites listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). This work is conducted under the authority of the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Superfund), and the Superfund Amendments and Reauthorization Act (SARA) of 1986. Typically, a Preliminary Assessment (PA) is completed, and if the site is not given a "No Further Remedial Action Planned" (NFRAP) status, it will go on to a sampling inspection called a Site Inspection (SI).

The primary objectives of the SI work are:

- To collect data that will be used in the Hazard Ranking System (HRS) to determine whether the site is eligible for placement on the National Priorities List (NPL);

- To identify sites that may require removal actions to address immediate threats to human health and/or the environment.

The Site Investigation Section was given approval by the U.S. EPA to conduct an SI at the Kokomo Garrison and Main Water Treatment Wellfield site, located in the general vicinity of the intersection of U.S. 31 and Carter Street, Kokomo, Howard County, Indiana.

Information contained within this report will be used to evaluate this site to support a site decision regarding the need for further Superfund action, including the possibility for the Kokomo Garrison and Main Water Treatment Wellfield site to be considered for inclusion on the National Priorities List (NPL) of hazardous waste sites.

SECTION 2.0 SITE BACKGROUND

2.1 Introduction

This section presents information obtained about the Kokomo Garrison & Main Water Treatment Wellfield site from the IDEM files, discussions with the city of Kokomo

and/or Indiana-American Water Company-Kokomo (INAWC - Kokomo) officials, site reconnaissance visits, and other sources.

2.2 Site Description and Location

The city of Kokomo is located in central Howard County, Indiana. The city operates twenty (20) ground water production wells and one (1) surface water intake that supply the Kokomo area with potable drinking water. The Kokomo Garrison & Main Water Treatment Wellfield provides a portion of the potable drinking water to the 57,275 residents served by the INAWC-Kokomo. The Garrison & Main Wellfield is comprised of eleven (11) production wells (well #'s B, C, D, E, F, G1, G2, 18, 19, 20 and 21) and is located in the general vicinity of the intersection of U.S. 31 and Carter Street. The latitude and longitude for the site are 40°29'1.79"N and 86°6'27.05"W (generated utilizing ARC GIS Version 9.2 and aerial photography flown 2005 for the Indiana Department of Homeland Security). See Appendix -B for Site Location maps.

Three (3) other wellfields (Phillips Street Wellfield comprising of 5 Wells), Peat Bogs Wellfield comprising of 3 wells) and Indian Heights Wellfield comprising of 1 well)[offline]) are also owned and operated by the INAWC - Kokomo. Additionally, drinking water is obtained from a surface water source (Wildcat Creek). The contaminants have not been detected in the other wellfields; therefore, these wellfields are not a part of this investigation. Arsenic has been detected at elevated levels in Wildcat Creek near the Kokomo Garrison & Main Water Treatment Wellfield and the Wildcat Creek surface water intake, which has been addressed in a separate investigation (Wildcat Creek Sediment Site, CERCLIS # INSFN0507812). The Kokomo Garrison & Main Water Treatment Wellfield is in a mixed residential/commercial/industrial area of Kokomo just southeast of the downtown area. The INAWC – Kokomo Phase II Wellhead Protection Plan identifies several potential sources of contamination in the area (see Appendix J).

2.3 Site History

According to raw water sample results taken from the municipal wells and submitted by the INAWC - Kokomo to IDEM, vinyl chloride was detected at levels exceeding the MCL (2.0 ppb) in four (4) of their wells between 2007 and 2010 and below the MCL in two (2) other wells. Arsenic was detected in raw water at levels exceeding the MCL (10 ppb) in four

(4) of their wells between 2002 and 2006 and below the MCL in two (2) other wells. Further sampling results submitted to IDEM showing arsenic totals in monthly averages indicated continued high levels of contamination impacting the municipal wells from 2007 to 2010 (see Appendix D). OmniSource Corp./Mervis, Inc. (OmniSource) currently owns property near the wellfield that was formerly owned and operated by Pittsburgh Plate Glass (PPG), and has entered that property into the IDEM Voluntary Remediation Program (VRP). The former PPG property has been shown to be contaminated with arsenic and is at least partially responsible for the arsenic contamination in the wellfield. OmniSource is currently supplying the city of Kokomo with treatment equipment to remove the arsenic prior to the water entering the city's finished water supply. According to INAWC – Kokomo representatives, drinking water from the Kokomo Garrison & Main Water Treatment Wellfield can potentially serve approximately 70% of the Kokomo population; however, due to a contractual agreement in regards to the PPG arsenic issue, these wells are operated so that no more than 49% of the supply will utilize this wellfield.

SECTION 3.0 PROCEDURES, FIELD OBSERVATIONS AND ANALYTICAL RESULTS

3.1 Introduction

This section outlines the procedures, observations, and analytical results of the Kokomo Garrison and Main Water Treatment Wellfield Site Inspection. Existing monitoring wells that were previously installed at nearby facilities were used to obtain some of the ground water samples. The remaining samples were collected from municipal, residential and commercial wells.

3.2 Site Representative Interview & Reconnaissance Inspections

IDEM staff contacted the city of Kokomo's municipal water supply operator, the INAWC – Kokomo, and discussed several issues with them on multiple occasions regarding the contamination. Prior to the Site Inspection, IDEM representatives visited Kokomo on numerous occasions to determine sampling locations. On November 22, 2010, IDEM staff met in Kokomo with INAWC Water Quality Supervisor, Mr. Kirk Kuroiwa, and Operations Supervisor – Production, Mr. Ryan Smith. IDEM staff also drove the area in the vicinity of the wellfield to look for potential sources of contamination. Program staff are also familiar

with the area due to other program sites in the immediate vicinity (Wildcat Creek Sediment Site [INSFN0507812], Kokomo Creek Sediment Site [INSFN0507813], and the Omnisource Site [VRP# 6080301]). Additional information regarding this site was collected from IDEM files and databases, aerial photographs and maps. Additionally, a previous limited sampling event (utilizing state funds) was conducted by SI staff in May 2008 to determine if any residential wells in the area of the contaminated municipal wells (primarily to the east of the wellfield) were impacted by vinyl chloride. No residential wells were found to be impacted by vinyl chloride at that time.

3.3 Sampling Procedures and Analytical Results

On October 3, 2011, ground water samples were collected by IDEM staff at locations determined during the reconnaissance survey (Appendix B, Figure 3). The samples were collected and analyzed for volatile organic compounds (VOCs) and metals as provided in the IDEM Quality Assurance Project Plan (QAPP) (April 30, 2008) and the Contract Laboratory Program (CLP) protocol. Metals were analyzed at an EPA Contract Laboratory Program lab using the CLP SOW ISM01.3 (ICP-MS) analysis procedures. VOCs were also analyzed at a CLP lab using the CLP SOW SOM01.2 (Trace Volatiles) analysis procedure. The CLP analytes and the analytical results for ground water are provided in Appendix D.

SI staff collected a total of twenty-five (25) ground water samples, including three (3) duplicate samples and four (4) background samples. Additionally, two (2) ground water trip blanks samples were submitted. Additional volume was collected from two (2) ground water samples for MS/MSD (matrix spike/matrix spike duplicate) purposes. Ten (10) monitoring wells were sampled (plus one [1] duplicate); six (6) municipal wells were sampled (plus two [2] duplicates); and six (6) residential and commercial wells were sampled (including four [4] background samples).

All ground water samples were collected in three (3) 40-milliliter vials preserved with hydrochloric acid (HCL). Nitrile gloves were worn and discarded between the collection of each ground water sample.

The monitoring wells were purged until stable geochemical parameters were observed using a Geotech 1.66 inch portable stainless steel bladder pump with polyethylene bladder and Geotech GeoControl Pro controller. A YSI 556 Multi-Probe System field meter was used to obtain the dissolved oxygen, temperature, specific conductivity and pH of the water from

each well. Other measurements recorded included the water level of the well and the volume of water pumped prior to sample collection.

The municipal, residential and commercial wells were purged for approximately 15 minutes prior to sample collection. All sample containers were immediately placed on ice after collection while awaiting shipment to the laboratory.

Weather conditions for the sampling event were generally sunny and warm with temperatures in the low 70's. The samples being analyzed for metals were shipped by Federal Express Priority Overnight to the assigned CLP laboratory (Chemtech Consulting Group, Mountainside, New Jersey) on the same day that the samples were obtained. The samples being analyzed for volatile organic compounds were shipped by Federal Express Priority Overnight to the assigned CLP laboratory (ALS Laboratory Group, Salt Lake City, Utah) on the same day that the samples were obtained. The laboratory results were reviewed and evaluated for the quality criteria (Level III) contained in the Indiana (QAPP). The results were determined to be acceptable for use.

3.3.1 Ground Water Samples

The purpose of the ground water sampling was to determine the level of contaminants impacting the wells at the Kokomo Garrison & Main Water Treatment Wellfield, and to determine if a potential source (or sources) of contamination in the study area could be identified. Ground water grab samples were collected from municipal wells, residential wells, commercial wells, and existing monitoring wells. A total of twenty-seven (27) ground water samples were collected during the field event (including trip blanks and duplicates) and analyzed for CLP VOC's and metals. The samples are identified as PW-1 through PW-8, RCW- 1, RCW-4 through RCW-8, and MW1 through MW-11.

Ground water samples PW-1 through PW-8 (including two [2] duplicate samples) were obtained from the city's municipal wells (Well #'s B, C, 18, 19, 20, and 21) to determine if there is continued presence of, and level of, contamination in the unfinished water.

Ground water samples RCW-1 and RCW-4 through RCW-8 were obtained from various residential and commercial wells in around Kokomo. Two (2) of the samples were obtained to determine if there was contamination in the private wells in the vicinity of the wellfield, while the other four (4) samples were obtained for use as background samples.

Ground water samples MW1 through MW11 (including one [1] duplicate sample) were obtained from existing monitoring wells that were previously installed by private contractors on or near industrial properties. These wells were sampled due to their proximity to the city wells and/or because of their proximate relation to known releases of contaminants. The monitoring wells are generally to the west and south/southwest of the Kokomo city wells.

The general direction of ground water flow in the study area is from the southwest to the northeast towards the municipal wells and towards Wildcat Creek. The Wildcat Creek is both a gaining and losing stream (depending on the specific locality), but does not act as an aquifer discontinuity. The creek is often in contact with the bedrock surface and does not block groundwater flow within the various aquifers as evidenced by plume movement under and across the creek at Continental Steel and PPG.

Two (2) samples were trip blanks obtained from the IDEM Office of Air Quality lab reverse osmosis water system for use as quality assurance/quality control (QA/QC) samples. See Appendix B, Figure 5 for locations of all samples.

Vinyl chloride (VC) was detected in ground water in Municipal Well #'s 18, 19, 20 and C at levels exceeding the MCL of 2.0 ppb. It was also detected above the MCL in ground water in four (4) monitoring wells located on the former Delphi property, in one (1) monitoring well located in a residential area between the former Delphi property and the wellfield, and in one (1) residential well. **Cis-1,2-dichloroethylene (Cis-1,2-DCE)** was detected above the MCL in one (1) monitoring well located on the former Delphi property, and below the MCL in three (3) monitoring wells located on the former Delphi property, in one (1) monitoring well located in a residential area between the former Delphi property and the wellfield, and in four (4) municipal wells. **Trans-1,2-dichloroethylene (Trans-1,2-DCE)** was detected above the MCL in one (1) monitoring well located on the former Delphi property. **1,1-dischloroethylene (1,1-DCE)** was detected above the MCL in one (1) monitoring well located on the former Delphi property. **Trichloroethylene (TCE)** was detected above the MCL in ground water in two (2) monitoring wells located on the former Delphi property. **Benzene** was detected above the MCL in ground water in two (2) monitoring wells located on the former Delphi property. **Toluene, ethylbenzene and m,p-**

xylene were all detected below the MCL in one (1) monitoring well located on the former Delphi property.

Arsenic was detected above the MCL in ground water in four (4) monitoring wells located on the PPG property, in four (4) municipal wells, and in one monitoring well located on the former Delphi property. **Antimony** and **thallium** were both detected above the MCL in one monitoring well (separate wells) on the PPG property. No other metal was detected above their respective MCL.

The Ground Water Sample Location and Comment Table in (Table 1) in Appendix A lists the sample number, location, and any comments pertaining to each sample including QA/QC information. Also refer to the Sample Location and Contaminant of Concern Map (Appendix B, Figure 5) for the location of each sample. A Key Findings List summarizing contaminant concentrations detected three (3) times above background is included in Appendix A (Table 2). Refer to Appendix D for a complete list of the chemical analyses provided by the CLP laboratory.

SECTION 4.0 DISCUSSION OF MIGRATION PATHWAYS

4.1 Introduction

This section presents a discussion of potential pathways for contaminants in the city of Kokomo. Potential contaminant migration via ground water, surface water (including Drinking Water Threat, Human Food Chain Threat, and Environmental Threat), air, and soil exposure are discussed.

4.2 Ground Water Pathway

The Ground Water Pathway is the focus of this Site Inspection. Based on the laboratory data generated during this investigation, there several CLP analytes impacting the local ground water supply. The levels exceed the MCL in six (6) of the municipal wells, one residential well, and in several monitoring wells. The laboratory results are available in Appendix D.

4.2.1 Site Geology

Regional topography is dominated by glacial drift of the Tipton Till Plain. Tipton Till Plain topography consists of low rolling hills and steeply incised ridges and valleys. Regional unconsolidated deposits are reported to have an average thickness of approximately

150 to 200 feet. In the vicinity of Kokomo, there is approximately 50 feet of glacial drift overlying the bedrock.

Regionally, soils primarily consist of the Crosby series. Crosby series soils are described as being deep, somewhat poorly drained soils that occupy uplands and are nearly level to gently sloping. These soils are formed in thin deposits of loess and in underlying glacial till. Crosby series soils are moderate in organic matter content.

Bedrock in the region typically consists of limestone and dolomite of Silurian age within the Salina Group. The regional elevation of bedrock is approximately 650 to 700 ft-msl. Regional bedrock slopes to the southwest at approximately 30 feet per mile. Bedrock units beneath the Kokomo area fall within the Wabash and Pleasant Mills Formations.

A bedrock fracture assessment was completed in March 2007 by Conestoga-Rovers & Associates (CRA) and was outlined in the Bedrock Characterization Report prepared for Delphi Corporation (see Appendix J). CRA performed an Electrical Resistivity Tomography (ERT) geophysical survey to assess the suspected high angle fractures in the top three layers of bedrock – the Kokomo Limestone, Liston Creek Limestone, and the Mississinewa Shale. The survey was able to show that shallow, unconsolidated aquifer and the Kokomo Limestone, Liston Creek Limestone, and the Mississinewa Shale aquifers are vertically connected through various fractures that cut through all three bedrock layers. Some of these fractures allow horizontal ground water flow to the northeast due to drawdown at the Kokomo Garrison and Main Water Treatment Wellfield. The report concluded that the bedrock fractures are likely preferential ground water migration pathways between the Delphi Plant 1 site and the Kokomo Garrison and Main Water Treatment Wellfield.

To further study the interconnectivity of the bedrock layers, CRA also analyzed hydraulic influences on monitoring wells in the shallow, unconsolidated aquifer and bedrock aquifers at the Delphi Plant 1 site (Bedrock Characterization Report). The Kokomo Garrison and Main Water Treatment Wellfield, which pumps from the Salamonie Dolomite bedrock aquifer, 170 feet below the Mississinewa Shale Interface, creates a distinctive pumping signature due to the time intervals and volumes of ground water pumped. CRA was able to find correlations with the pumping signature from the Kokomo Garrison and Main Water Treatment Wellfield and with hydrographs created from transducer data from the monitoring wells screened in the Liston Creek Interface and Mississinewa Shale Interface bedrock

aquifers. These correlations show that horizontal interconnectivity exists within the Liston Creek Interface and Mississinewa Shale Interface bedrock aquifers and vertical interconnectivity exists between the Liston Creek Interface, Mississinewa Shale Interface, and the Salamonie Dolomite bedrock aquifers in the vicinity of the Kokomo Garrison and Main Water Treatment Wellfield.

4.2.2 Ground Water Sampling

On October 3, 2011, SI staff collected a total of twenty-five (25) ground water samples, including three (3) duplicate samples and four (4) background samples. Additionally, two (2) ground water trip blanks samples were submitted. Ten (10) monitoring wells were sampled (plus one [1] duplicate); six (6) municipal wells were sampled (plus two [2] duplicates); and six (6) residential and commercial wells were sampled (including four [4] background samples).

Ground water samples PW-1 through PW-8 (including two [2] duplicate samples) were obtained from the city's municipal wells (Well #'s B, C, 18, 19, 20, and 21) to determine if there is continued presence of, and level of, contamination in the unfinished water.

Ground water samples RCW-1 and RCW-4 through RCW-8 were obtained from various residential and commercial wells in around Kokomo. Two (2) of the samples were obtained to determine if there was contamination in the private wells in the vicinity of the wellfield, while the other four (4) samples were obtained for use as background samples.

Ground water samples MW1 through MW11 (including one [1] duplicate sample) were obtained from existing monitoring wells that were previously installed by private contractors on or near industrial properties. These wells were sampled due to their proximity to the city wells and/or because of their proximate relation to known releases of contaminants. The monitoring wells are generally to the west and south/southwest of the Kokomo city wells. The general direction of ground water flow in the study area is from the southwest to the northeast towards the municipal wells.

Vinyl chloride (VC) was detected in ground water in Municipal Well #'s 18, 19, 20 and C at levels exceeding the MCL of 2.0 ppb. It was also detected above the MCL in ground water in four (4) monitoring wells located on the former Delphi property, in one (1) monitoring well located in a residential area between the former Delphi property and the wellfield, and in one (1) residential well. **Cis-1,2-dichloroethylene (Cis-1,2-DCE)** was

detected above the MCL in one (1) monitoring well located on the former Delphi property, and below the MCL in three (3) monitoring wells located on the former Delphi property, in one (1) monitoring well located in a residential area between the former Delphi property and the wellfield, and in four (4) municipal wells. **Trans-1,2-dichloroethylene (Trans-1,2-DCE)** was detected above the MCL in one (1) monitoring well located on the former Delphi property. **1,1-dischloroethylene (1,1-DCE)** was detected above the MCL in one (1) monitoring well located on the former Delphi property. **Trichloroethylene (TCE)** was detected above the MCL in ground water in two (2) monitoring wells located on the former Delphi property. **Benzene** was detected above the MCL in ground water in two (2) monitoring wells located on the former Delphi property. **Toluene, ethylbenzene and m,p-xylene** were all detected below the MCL in one (1) monitoring well located on the former Delphi property.

Arsenic was detected above the MCL in ground water in four (4) monitoring wells located on the PPG property, in four (4) municipal wells, and in one monitoring well located on the former Delphi property. **Antimony** and **thallium** were both detected above the MCL in one monitoring well (separate wells) on the PPG property. No other metal was detected above their respective MCL.

The Ground Water Sample Location and Comment Table in (Table 1) in Appendix A lists the sample number, location, and any comments pertaining to each sample including QA/QC information. Also refer to the Sample Location and Contaminant of Concern Map (Appendix B, Figure 5) for the location of each sample. A Key Findings List summarizing contaminant concentrations detected three (3) times above background is included in Appendix A (Table 2). Refer to Appendix D for a complete list of the chemical analyses provided by the CLP laboratory.

4.3 Surface Water Pathway

No surface water samples were collected as part of this Site Inspection. The study area's nearest surface water bodies are Wildcat Creek and Kokomo Creek. Wildcat Creek flows directly through the Kokomo Garrison and Main Water Treatment wellfield (flows roughly east to west). Previous investigations have shown that Wildcat Creek has been impacted by arsenic and polychlorinated biphenyls (PCBs). It is unknown if the creek has been impacted by the volatile organic contamination. Surface water flow is generally toward

the creek which runs through the study area. However, being in an urban area, storm drains direct much of the surface water away from the natural drainage patterns.

The surface water pathway discussion addresses three (3) potential threats; drinking water threat, human food chain threat, and the environmental threat.

4.3.1 Drinking Water Threat

The INAWC-Kokomo serves 57,275 residents with drinking water from four (4) different wellfields. One of these wellfields, the Kokomo Garrison & Main Water Treatment Wellfield, provides 49% of the drinking water to the 57,275 residents and is the focus of this investigation. The Wellfield is comprised of eleven (11) production wells (well #'s B, C, D, E, F, G1, G2, 18, 19, 20 and 21) and is located in the general vicinity of the intersection of U.S. 31 and Carter Street. The other three (3) wellfields utilized by the City of Kokomo are Phillips Street Wellfield, Peat Bogs Wellfield and Indian Heights Wellfield (offline). There is a surface water source (Wildcat Creek); the Wildcat Creek intake is within the 15-mile surface water pathway (see Appendix B, Figure 3). Wildcat Creek is known to be contaminated with arsenic and polychlorinated biphenyls (PCBs) which could impact the city's municipal water supply.

4.3.2 Human Food Chain Threat

The Human Food Chain Threat is a measure of exposure to humans via ingestion of aquatic species affected by contamination from the site and specifically targets fisheries potentially affected by the migration of contaminants from the site. The primary fishery within the 15-mile surface water pathway from the site is Wildcat Creek.

The principle uses of this river are fishing and recreation. Wildcat Creek is considered a fishery since food chain species (fish) are routinely taken for human consumption. The population potentially affected by contamination would include persons who use Wildcat Creek for recreational purposes, such as fishing and swimming. The area surface water and sediments, as well as the human food chain threat, could be at risk from the arsenic and PCBs known to exist in Wildcat Creek. The volatile organics are unlikely to bioaccumulate.

4.3.3 Environmental Threat

The Indiana Department of Natural Resources (IDNR) was contacted to determine if there were any significant natural features or endangered, threatened, and rare species located

in the vicinity of the site. According to the IDNR, there are there are two (2) special interest items identified in the study area: the Butler's Garter Snake, a reptile listed as endangered on the state endangered, threatened and rare species list; and the American Manna-grass, a plant listed as extirpated on the state endangered, threatened and rare species list. The details can be found in Appendix H.

4.4 Air Pathway

No air samples were collected as a part of this Site Inspection. A release of CLP analytes to the air was not documented during this investigation. Field screening instrumentation recorded no elevated contaminant readings while collecting the media samples. No confirmed air release has been documented.

4.5 Soil Exposure

No soil samples were collected as part of this Site Inspection. The site is in a mixed-use area (residential, commercial/industrial), providing potential targets in the event of an off-site release of hazardous materials. Soil samples were previously obtained in the vicinity during the Wildcat Creek Sediment Site investigations (September 2000 and September 2001) and determined to be contaminated with arsenic and PCBs.

4.6 Summary

The Kokomo Garrison & Main Water Treatment Wellfield site inspection, conducted on October 3, 2011, attempted to gather information necessary to evaluate the site as a candidate for the NPL. Ground water samples were collected to determine the presence of hazardous substances at and near the site and at potential source area locations and in the possible migration pathways. In addition, information was collected to confirm target populations and environments potentially at risk from the site.

The city of Kokomo reported to IDEM levels of Volatile Organic Compounds (VOC's) and arsenic in their municipal water wells. IDEM collected numerous ground water samples that were analyzed for CLP VOC's and metals. The lab analysis revealed levels of several VOC's, including vinyl chloride, in several of the city of Kokomo's municipal wells, in several monitoring wells located on and near industrial properties, and in one residential

well. Also, arsenic was detected in several of the municipal wells and in several monitoring wells located on and near industrial properties.

SECTION 5.0 REFERENCES

- Indiana Department of Environmental Management Drinking Water Branch website, http://www.in.gov/apps/idem/sdwis_state/ .

- USGS Topographic Map, Indiana Department of Environmental Management, ARC-GIS v.9.2.

- Indiana Department of Environmental Management, Preliminary Assessment/Site Inspection Report, Kokomo Garrison & Main Water Treatment Wellfield, Dan Chesterson, Site Investigation Section, December 29, 2010.

- Agency for Toxic Substances and Disease Registry (ATSDR), ToxFAQ for tetrachloroethylene, 2007, U.S. Department of Health and Human Services, www.atsdr.cdc.gov/tfacts18.html .

- Indiana Department of Natural Resources, Division of Nature Preserves, Endangered, Threatened, and Rare Species, Indianapolis, Indiana.

- Indiana Department of Natural Resources, Water Well Record Database, http://www.in.gov/dnr/water/ground_water/well_database/index.html .

- Wellhead Protection Plan, City of Martinsville, Indiana, January 2002.

Appendix A

Table 1 – Ground Water Sample Location and Comment Table (Not-for-Public-View**)**

Table 2 – Key Findings List for Ground Water VOCs

Table 3 – Key Findings List for Ground Water Metals

Table 2
Kokomo Garrison and Main Water Treatment Wellfield
VOC Key Findings

	VC	Chloroethane	1,1-DCE	Acetone	Carbon Disulfide	Methylene Chloride	trans-1,2-DCE	MTBE	1,1-DCA	cis-1,2-DCE	1,1,1-TCA	Cyclohexane	Benzene	TCE	Methylcyclohexane
CRQL	0.5	0.5	0.5	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Background Samples															
E2SF0															
E2SF1															
E2SF8															
E2SF8															
E2SE7															
3x Highest Background Concentration															
3X CRQL	**1.5**	**1.5**	**1.5**	**15**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
SCDM Value	***0.057***	**-**	**-**	**-**	**-**	***1100***	**-**	**-**	**-**	**-**	**-**	**-**	***1.5***	***1***	**-**
Maximum Contaminant Level	***2***	**-**	***7***	**-**	***3700***	***5***	***100***	**-**	**-**	***70***	***200***	**-**	***5***	***5***	**-**
E2SC2	***5500***		***620***				***2600***		**1800**	***83000J(E)***				***22000J(E)***	
E2SC2DL[2]	***5200***						***2700***		**1800J(D)**	***77000***				***20000***	
E2SC3	***2.4***	0.13J[1]			0.17 J[1]		0.43J[1]	**2.7**	**5.4**	**20**			***2.3***	***15***	
E2SC4	***2.3***						0.51	0.61	0.52	**3.5**		0.22 J[1]		0.6	0.44 J[1]
E2SD0				1.4 J[1]											
E2SD1				1.5 J[1]	0.3 J[1]								0.66		
E2SD2										0.2 J[1]					
E2SD3														0.15 J[1]	
E2SD6															
E2SE8	***2.2***								0.62 J						
E2SB9	***62***	**110**						**61**	**83**	**66**		**55**	***3100 J(E)***		
E2SB9DL[2]		**180 J/18**							**86 J/8.6**	**85 J/8.5**			***4200***		
ES2C0	***4.9***						0.12 J[1]	**11**	**2.9**	**16**					
E2SC1	***20***		0.66				0.34 J[1]	**11**	**6**	**55 J(E)**	0.32 J[1]	0.49 J[1]	0.49 J[1]	0.37 J[1]	
E2SC1DL[2]	***20***							**11**	**6.4**	**59**			*4.8 J*/0.48		
E2SC9	*0.26 J*[1]									0.99					
E2SD9	***5.2***					0.5 J									
E2SE0	***5.2***														
E2SE1	***3.8***								0.15 J[1]	**1.9**					
E2SE2	***5.7***		0.32 J[1]				0.86		0.49 J[1]	**23 J(E)**					
E2SE2DL[2]	***5.6***								0.54 J	**23**					
E2SE3	***5.8***		0.3 J[1]				0.84		0.53	**23 J(E)**					
E2SE3DL[2]	***5.7***						0.85 J		0.52 J	**22**					
E2SE4	***3.7***								0.4 J[1]	**5.8**					
E2SE5	*0.12 J*[1]														
E2SE6	*0.31 J*[1]							0.37 J[1]							
E2SE9															
Footnotes					**Bold = concentration is in excess of the 3x CRQL**										
(E) =Concentration exceeds linear range of the calibration					*Italic = Concentration exceeds SCDM concentration (or MCL if no SCDM value is established)*										
(D)=Concentration determined from a diluted sample					***Bold Italic = Concentration exceeds both the 3X CRQL and SCDM concentrations***										
(U) Analyte was not detected but was estimated due to other quality issues															
[1]Result was below the CRQL, but greater than the Detection Limit															
[2]CRQL was adjusted by a factor equal to the dilution factor of these samples.															
All results reported in ug/L part-per-billion (ppb).															

Concentrations less than 3x the CRQL were not recalculated because they are not used for scoring .
Results flagged with a J and an (E) were not recalculated because they were run at a diluted concentration as a separate sample. The diluted result should be used for scoring.
Toluene does not have an associated recalculation factor, so a 10x default factor was used to recalculate J-flagged Toluene results.
Recalculated values appear as "/number".
Shaded results indicate results from samples from a diluted sample.
Empty box indicates non-detectable result.

Table 2
Kokomo Garrison and Main Water Treatment Wellfield
VOC Key Findings

	cis-1,3-DCP	4-methyl-2-Pentanone	Toluene	trans-1,3-DCP	1,1,2-TCA	Ethylbenzene	m,p-xylene
CRQL	0.5	5	0.5	0.5	0.5	0.5	0.5
Background Samples							
E2SF0							
E2SF1							
E2SF8							
E2SF8							
E2SE7							
3x Highest Background Concentration							
3X CRQL	**1.5**	**15**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**
SCDM Value	***0.85***	**-**	**-**	***0.85***	***1.5***	**-**	**-**
Maximum Contaminant Level	**-**	**-**	***1000***	**-**	***3***	***700***	***10000***
E2SC2							
E2SC2DL[2]							
E2SC3	0.5 J(U)			0.5 J(U)	0.5 J(U)		
E2SC4	0.5 J(U)	0.5 J(U)	0.12 J	0.5 J(U)	0.5J (U)		
E2SD0							
E2SD1	0.5 J(U)		0.72	0.5 J(U)	0.5 J(U)		
E2SD2							
E2SD3	0.5 J(U)			0.5 J(U)	0.5J(U)		
E2SD6							
E2SE8							
E2SB9			**20 J/2**			**9.2 J**/0.92	**36**
E2SB9DL[2]							
E2SC0	0.5 J(U)			0.5 J(U)	0.5 J(U)		
E2SC1	0.5 J(U)			0.5 J(U)	0.5 J(U)		
ES2C1DL[2]							
E2SC9	0.5 J(U)			0.5 J(U)	0.5 J(U)		
E2SD9							
E2SE0							
E2SE1							
E2SE2							
E2SE2DL[2]							
E2SE3	0.5 J(U)			0.5 J(U)	0.5 J(U)		
E2SE3DL[2]							
E2SE4							
E2SE5							
E2SE6							
E2SE9							
Footnotes		**Bold=concentration is in excess of the 3x CRQL**					
(E) =Concentration exceeds linear range of the calibration		*Italic = Concentration exceeds SCDM concentration (or MCL if no SCDM value is established)*					
(D)=Concentration determined from a diluted sample		***Bold Italic = Concentration exceeds both the 3X CRQL and SCDM concentrations***					
(U) Analyte was not detected but was estimated due to other quality issues							
[1]Result was below the Reporting Limit, but greater than the Detection Limit							
[2]CRQL was adjusted by a factor equal to the dilution factor of these samples.							
All results reported in ug/L part-per-billion (ppb).							

Concentrations less than 3x the CRQL were not recalcultated because the are not used for scoring .
Results flagged with a J and an (E) were not recalculated because they were run at a diluted concentration as a separate sample. The diluted result should be used for scoring.
Toluene does not have an associated recalculation factor, so a 10x default factor was used to recalculate J-flagged Toluene results.
Recalculated values appear as "/number".
Shaded results indicate results from samples from a diluted sample.
Empty box indicates non-detectable result.

Table 3
Kokomo Garrison and Main Water Treatment Wellfield
Metals Key Findings

	Aluminum	Antimony	Arsenic	Barium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Sodium	Thallium	Vanadium	Zinc
CRQL	20	2.0	1.0	10.0	500	2.0	1.0	2.0	200	1.0	500	1.0	1.0	500	5.0	500	1.0	5.0	2.0
Background Samples																			
ME2SF0				379.0	83,000			50.6	1,580		29,700	30.5		1,790		12,200			
ME2SF1				243.0	92,800			15.1	3,670	4.3	3,100	31.8	1.1	2,280		17,900			20.4 J
ME2SF8			2.5 J/4	198.0	113,000			6.8	2,610		36,700	123.0	2.0	2,230		44,300			13.5
ME2SE7				362.0	75,600			23.9	454	5.5	28,100	17.8	3.7	2,350		24,600			77.7
3xHighest Background			**12.0**	**1,137.0**	**339,000**			**151.8**	**11,010**	**16.5**	**110,100**	**369.0**	**11.1**	**7,050**		**132,900**			**233.1**
3x CRQL	**60**	**6.0**				**6.0**	**3.0**								**15.0**		**3.0**	**15.0**	
SCDM	-	*15*	*0.057*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MCL	-	*6*	*10*	*2000*	-	*100*	-	*1300*	-	*15*	-	-	-	-	*50*	-	*0.5*	-	-
ME2B9			*1.2 J-*	226	138,000				6,300		41,800	89.5	4.7	3,210	0.72 J	95,400			
ME2SC0				54.7	163,000				654		87,400	11.2	5.0	2,330	2.2 J	63,700			5.2 J
ME2SC1				55.1	161,000				661		85,700	13.8	4.8	2,370	1.2 J	65,500			20.5 J
ME2SC2			***20.2J/15***	76.4	156,000				**16,500**		45,400	182.0	5.7	4,070	**19.2**	66,300			4.8 J
ME2SC3				98.5	134,000		**23.9**		491		81,600	4.0	8.2	2,610	2.2 J	127,000			4.6 J
ME2SC4				75.2	46,300		1.1		667		23,300	25.6	2.2	3,320		**274,000**			5.5 J
ME2SC9	**196**		***3040 J (D)/2252***	22	6,520	4.0			681	4.9		27.8	7.8	478 J	0.81 J	**473,000**	***31.0***	**24.3**	17.8
ME2SD1			***3790 J (D)/2807***	10.0	4640 J							2.4 J	4.2 J	575 J	0.74 J	**672,000**			61.7 J
ME2SD2	**186**		***2230J (D)/ 1652***	31.1	7,980	2.9			716	5.8		27.2	5.5	629	0.67 J	**330,000**			14.6 J
ME2SD3	**895**		*5.5 J*	164	123,000				2,350		33,100	61.8	4.4	1,910		42,500			86.2 J
ME2SD9			***442 J/327***	180	117,000				2,880		34,800	94.2	2.0	2,370	0.64 J	83,600			2.5 J
ME2SE0			***435 J/321***	242	103,000			2.0	5,220		33,300	48.2	1.6	2,230		57,900			20.2 J
ME2SE1			***393 J/291***	237	10,300			2.4	4,850		32,400	47.8	1.8	2,170		56,300			32.3 J
ME2SE2			***203 J/150***	92.8	155,000				1,420		42,600	96.5	3.0	2,900		11,500			46.1 J
ME2SE3			***195 J/144***	91.9	156,000			3.1	1,410		42,600	96.5	3.4	2,960		11,400			28.2 J
ME2SE8			*0.8 J-*	255	107,000				1,580		39,100	42.7	2.0	2,440		22,600			5.9
ME2SD0		***33.2***	***5,100***		6,320			12.3		1.0			3.0	367 J		35,900			
ME2SE4			*5.4*	234	111,000				2,240		38,300	77.2	1.8	2,560		34,800			2.1 J+
ME2SE5			*1.2 J-*	161	110,000				2,380		32,900	170.0	1.0	2,090		13,600			2.0 J
ME2SE6	**1,140**		***53.2***	170	148,000				6,920	7.2	45,600	**372.0**	9.5	2,470		71,100			22.8
ME2SE9			*0.59 J-*	224	112,000				1,210		41,000	54.8	1.9	3,420		60,900			8.2

Bold - Result is greater than 3x the background or 3x the CRQL
Italic = Concentration exceeds SCDM concentration (or MCL if no SCDM value is established)
Bold Italic - Result is greater than both the 3x background/CRQL concentrations and the SCDM value.
(D) - J-flagged results were calculated from a diluted sample.
J-flagged results less than 3x the background or 3x the CRQL were not recalculated.
Empty box indicates non-detectable result.
Recalculated values appear as "/number".
All results reported as ug/L (part-per-billion (ppb)).

Appendix B

Figure 1 – Site Location Map (Aerial)
(Not-for-Public-View **)**

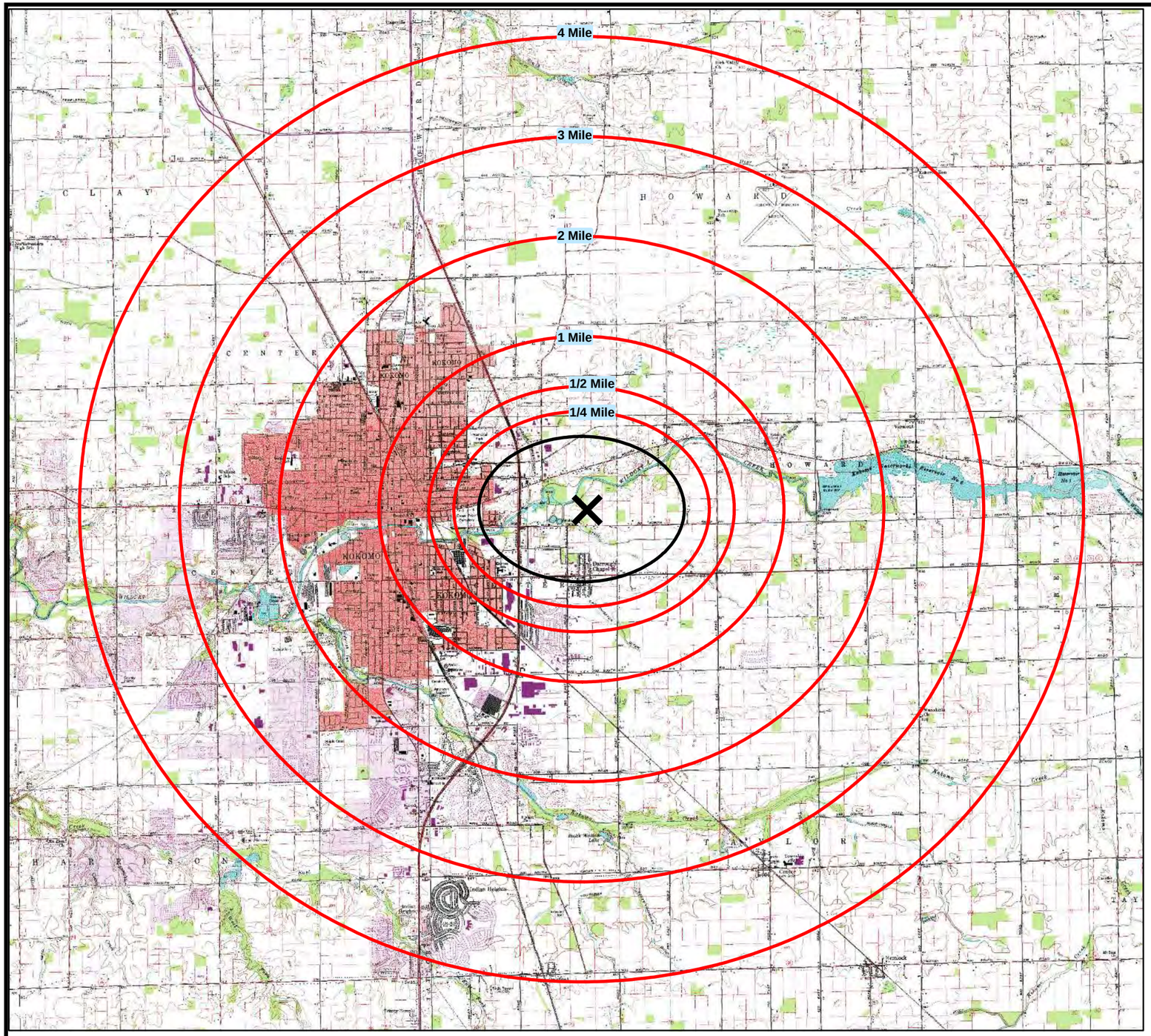
Figure 2 – Site Location Map (Topographical)
(Not-for-Public-View **)**

Figure 3 – 15- Mile Surface Water Pathway Map (Aerial)
(Not-for-Public-View **)**

Figure 4 – 4-Mile Radius Map (Topographical)

Figure 5 – Wellhead Protection Area
(Not-for-Public-View **)**

Figure 6 – Sample Location and Contaminant of Concern Map
(Not-for-Public-View**)**



Four Mile Radius Map, Kokomo Garrison Main Water Treatment Wellfield

Kokomo, Howard Co., IN

86°6'27.05"W 40°29'11.79"N

(Approximate Center of Site)

Buffer Distance	Adjusted Population
0 - 1/4 Mile	2530
1/4 - 1/2 Mile	1804
1/2 - 1 Mile	5335
1 - 2 Mile	15873
2 - 3 Mile	11288
3 - 4 Mile	10702
Total Adjusted Population	47532*

* Indiana American Water Co. - Kokomo Report to IDEM - serviced population:	57,275

Mapped by: Lorraine Wright, IDEM, Office of Land Quality, Science Services Branch, Engineering & GIS Services **Date:** December 2, 2010

Sources:
IDEM 4 Mile Mapper Application
Indiana Geographic Information Officer (GIO) Data Library
USGS Digital Raster Graphics 1:24,000 topographic map
Census block group 2006 total population

Disclaimer: This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.
There are known sources of error in the population estimates presented on this map including:
- -The Census 2006 block group population data is out of date, and is itself an imperfect estimate of population.
- -The adjusted population estimate derived from the Census 2006 block group data assumes that the population is evenly distributed in each block group polygon.
- -The Census 2006 block group population has been clipped to include Indiana data only.

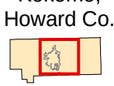
Method of Estimating Population: The adjusted population estimate is the sum of Census 2006 block group populations. The adjusted population estimate (TOTPOP field) is adjusted to include only the areas of the block groups contained inside the buffers. The adjusted population estimate assumes that the population is evenly distributed in each block group polygon. The specific procedure used in this analysis is as follows:

1. The point for the center of the site is selected interactively by the user through the 4 Mile Mapper model or a polygon is digitized through the 4 Mile Mapper Polygon model.
2. The user initiates the 4 Mile Mapper model to perform the rest of the multi-step analysis which is described in the following steps.
3. The study area point or polygon is buffered at 1/4, 1/2, 1, 2, 3 and 4 miles.
4. The original area of the census block polygons is calculated and stored.
5. The buffers are used to clip the census block group polygons. This is a new area referred to as the shape area. The shape area has the attribute records associated with the original census block group polygon with the area of the new polygon area.
6. The shape area of the census block polygons is divided by original area of the census block polygons to calculate the percent change.
7. The percent change result is then multiplied by the population of the original census block to yield a calculated population for the new polygon. For example: Block Group A with an area of 10 square miles and a population of 200 people is split into 2 polygons by the 4 mile buffer ring. The area of the block group inside the 4 mile buffer is 2 square miles, or 20% of the area of the original 10 square mile block group. Assuming the population is uniformly distributed in Block Group A, the population from Block Group A that is within the 4 mile buffer ring should also be 20% of the total population for the block group. Twenty percent of 200 is 40 people. (2 ÷ 10 × 200 = 40)
8. The newly calculated population statistics are associated in a database table that is converted into a layer file that is displayed in the Four Mile Radius Map. The new population figures from the layers (attribute tables) are then copied into a spreadsheet that subtracts the population figure from the previous buffer. This is done by taking the population for each buffer distance and subtracting the population of the next smaller buffer distance to provide a population figure for the donut area bounded by each pair of consecutive buffer distances (e.g. 0 to 1/4, 1/4 to 1/2, 1/2 to 1, 1 to 2…). An adjusted population table is labeled and pasted into the Four Mile Radius Map.

The main code that repeats over and over for the 4Mi_Mapper model is: Buffer>Clip>Add Fields>Calculate Field>Dissolve

All models were developed by E.J. McNaughton, IDEM GIS Coordinator

Kokomo, Howard Co.



X Kokomo Wellfield (Approximate Center)

Kokomo Wellfield (Approximate Area)

Buffer Radius

0 1 Miles

0 1 Kilometers

Appendix C

IDEM Sample Photographs (Not-for-Public-View**)**

Appendix D

Analytical Data

ESAT Controlled Number: ESAT5.317.00258-pj 1 Dec 2011

DATE: December 1, 2011

Indiana Dept of Environmental Management
ATTN: Mark Jaworski/Dan Chesterson
100 N. Senate Avenue – Room N1255
Indianapolis, IN 46804-2222

Site Name: Kokomo Garrison/Main Water Treatment (IN) – **level 3 data validation**

Case #	**Lab**	**Samples**	**SDG**	**Matrix**
41851	ChemTech	19	ME2SB9	water

Analysis: metals

Upon receipt of data, please check each package for completeness and note any missing deliverables below.

Send this form back to Sylvia Griffin, Data Management Coordinator after filling in the blanks below.

Data Received by:_____ Date:_____

PROBLEMS:

Please indicate if data is complete, and note if there are any deliverables missing from the cases noted above.

_____

_____

Received by Data Management Coordinator, CRL for file.

Signature:_____ Date:_____

FROM: **U.S. EPA - Region 5**
Sylvia Griffin
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

Sent By: Pat Joyner
Data Coordinator
ESAT Region 5 **TechLaw**

Controlled Document

ESAT5.315.00061
acH
11-30-11

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 11/17/11

SUBJECT: **Review of Data**
Received for review on 10/26/11

FROM: **Timothy Prendiville, Supervisor, Chief (SR-6J)**
Superfund Contract Management Section

TO: **Data User:** IDEM
Email address: mjworsk@idem.IN.gov

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Kokomo Garrison & Main Water Treatment (IN)

CASE NUMBER: 41851 **SDG NUMBER:** ME2SB9

Number and Type of Samples: 19 waters

Sample Numbers: ME2SB9, C0-C4, C9, D1-D3, D9, E0-E3, E8, F0, F1, F8

Laboratory: Chemtech **Hrs. for Review:** 18.0 + 4 92 hrs/4

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nineteen (19) water samples, numbered ME2SB9, C0-C4, C9, D1-D3, D9, E0-E3, E8, F0, F1, F8, were collected on October 4, 2011. The lab received the samples on October 5, 2011 in good condition. All samples were analyzed for metals. All samples were analyzed using the CLP SOW ISM01.3 analysis procedures.

The inorganic analyses were performed using an Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS) procedure.

1. HOLDING TIME:

No defects were found.

2. CALIBRATIONS:

The following inorganic samples are associated with a calibration curve whose y-intercept is greater than the CRQL.

Hits are qualified "J" and non-detects are qualified "UJ".

Arsenic

ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC3, ME2SC4, ME2SC9, ME2SD1, ME2SD2, ME2SD3, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF1, ME2SF8

3. BLANKS:

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J+".

Aluminum

ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC3, ME2SD1, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF1, ME2SF8

Antimony

ME2SB9, ME2SC4, ME2SC9, ME2SD1, ME2SD2, ME2SD3, ME2SE2, ME2SF8

Barium

ME2SD1

Beryllium

ME2SB9, ME2SC4, ME2SC9, ME2SD2, ME2SD3, ME2SE1, ME2SF8

Cadmium

ME2SB9, ME2SC2, ME2SC4, ME2SC9, ME2SD2, ME2SD3, ME2SE1, ME2SF8

Chromium

ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC4, ME2SE2, ME2SE3, ME2SF1

Cobalt

ME2SB9, ME2SC0, ME2SC1, ME2SC9, ME2SD1, ME2SD2, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF1, ME2SF8

Copper
ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC3, ME2SC4, ME2SC9, ME2SD1, ME2SD2, ME2SD9, ME2SE8

Iron
ME2SD1

Lead
ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC3, ME2SC4, ME2SD1, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF8

Magnesium
ME2SC9, ME2SD1, ME2SD2

Nickel
ME2SF0

Silver
ME2SB9, ME2SC9, ME2SF8

Thallium
ME2SB9, ME2SC9, ME2SF8

Vanadium
ME2SB9, ME2SC0, ME2SC1, ME2SC3, ME2SC4, ME2SD1, ME2SD3, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF1, ME2SF8

Zinc
ME2SF0

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL) and with a negative ICB/CCB or preparation blank whose absolute value is greater than the MDL. The sample result is greater than the MDL.
Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J".

Chromium
ME2SC3, ME2SD1, ME2SD9, ME2SE0, ME2SE1, ME2SE8, ME2SF8

The following inorganic samples are associated with a negative ICB/CCB or preparation blank concentration whose absolute value is greater than the method detection limit (MDL). The sample result is also greater than the MDL.
Hits less than 5 times the blank are qualified "J-".

Arsenic
ME2SB9, ME2SE8

No samples were identified as field blanks.

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

No defects were found for matrix spike or laboratory control samples.

5. LABORATORY AND FIELD DUPLICATE:

The following inorganic samples are associated with duplicate results which did not meet absolute difference (AD) primary criteria.

Hits are qualified "J" and non-detects are qualified "UJ".

Zinc

ME2SB9, ME2SC0, ME2SC1, ME2SC2, ME2SC3, ME2SC4, ME2SC9, ME2SD1, ME2SD2, ME2SD3, ME2SD9, ME2SE0, ME2SE1, ME2SE2, ME2SE3, ME2SE8, ME2SF0, ME2SF1, ME2SF8

No defects were found for the laboratory duplicate samples.

6. ICP ANALYSIS:

The following inorganic samples have one or more internal standard percent relative intensities outside the acceptance window. The sample was re-analyzed at a 2 fold dilution and the internal standard percent relative intensity was acceptable. No qualification is needed.

The following sample results are reported from the dilution.

ME2SD1

Aluminum, Beryllium, Calcium, Chromium, Cobalt, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Selenium, Vanadium, Zinc

No defects were found for the tune, internal standards, ICS samples or serial dilution sample.

7. SAMPLE RESULTS:

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).

Results are qualified "J".

Arsenic

ME2SB9, ME2SE8

Potassium

ME2SC9

Selenium

ME2SB9, ME2SC0, ME2SC1, ME2SC3, ME2SC9, ME2SD1, ME2SD2, ME2SD9

All data, except those qualified above, are acceptable.

EXES ISM01.3 Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Stephen Connet
Date: November 17, 2011

Sample Summary Report

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SB9	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0026	pH:	2	Sample Date:	10042011	Sample Time:	11:01:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	1.2	ug/L	1		J-	Yes	S2BVE
Barium	226	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	138000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	6300	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	41800	ug/L	1			Yes	S2BVE
Manganese	89.5	ug/L	1			Yes	S2BVE
Nickel	4.7	ug/L	1			Yes	S2BVE
Potassium	3210	ug/L	1			Yes	S2BVE
Selenium	0.72	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	J	U	Yes	S2BVE
Sodium	95400	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	J	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	5.8	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SC0	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0024	pH:	2	Sample Date:	10042011	Sample Time:	12:01:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	54.7	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	163000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	654	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	87400	ug/L	1			Yes	S2BVE
Manganese	11.2	ug/L	1			Yes	S2BVE
Nickel	5.0	ug/L	1			Yes	S2BVE
Potassium	2330	ug/L	1			Yes	S2BVE
Selenium	2.2	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	63700	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	5.2	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SC1	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0022	pH:	2	Sample Date:	10042011	Sample Time:	12:06:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	55.1	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	161000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	661	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	85700	ug/L	1			Yes	S2BVE
Manganese	13.8	ug/L	1			Yes	S2BVE
Nickel	4.8	ug/L	1			Yes	S2BVE
Potassium	2370	ug/L	1			Yes	S2BVE
Selenium	1.2	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	65500	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	20.5	ug/L	1	*	J	Yes	S2BVE

Case No: 41851	Contract: EPW09038	SDG No: ME2SB9	Lab Code: CHEM
Sample Number: ME2SC2	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: W-0052	pH: 2	Sample Date: 10042011	Sample Time: 15:05:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	20.2	ug/L	1		J	Yes	S2BVE
Barium	76.4	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	156000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.1	ug/L	1			Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	16500	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	45400	ug/L	1			Yes	S2BVE
Manganese	182	ug/L	1			Yes	S2BVE
Nickel	5.7	ug/L	1			Yes	S2BVE
Potassium	4070	ug/L	1			Yes	S2BVE
Selenium	19.2	ug/L	1			Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	66300	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	U	U	Yes	S2BVE
Zinc	4.8	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SC3	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0054	pH:	2	Sample Date:	10042011	Sample Time:	16:36:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	98.5	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	134000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	23.9	ug/L	1			Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	491	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	81600	ug/L	1			Yes	S2BVE
Manganese	4.0	ug/L	1			Yes	S2BVE
Nickel	8.2	ug/L	1			Yes	S2BVE
Potassium	2610	ug/L	1			Yes	S2BVE
Selenium	2.2	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	127000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	4.6	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SC4	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0058	pH:	2	Sample Date:	10042011	Sample Time:	18:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	107	ug/L	1			Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	75.2	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	46300	ug/L	1			Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.1	ug/L	1			Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	667	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	23300	ug/L	1			Yes	S2BVE
Manganese	25.6	ug/L	1			Yes	S2BVE
Nickel	2.2	ug/L	1			Yes	S2BVE
Potassium	3320	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	274000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	5.5	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SC9	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0020	pH:	2	Sample Date:	10042011	Sample Time:	11:40:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	196	ug/L	1			Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	3040	ug/L	25	D	J	Yes	S2BVE
Barium	22.1	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	6520	ug/L	1			Yes	S2BVE
Chromium	4.0	ug/L	1			Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	681	ug/L	1			Yes	S2BVE
Lead	4.9	ug/L	1			Yes	S2BVE
Magnesium	500	ug/L	1	J	U	Yes	S2BVE
Manganese	27.8	ug/L	1			Yes	S2BVE
Nickel	7.8	ug/L	1			Yes	S2BVE
Potassium	478	ug/L	1	J	J	Yes	S2BVE
Selenium	0.81	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	J	U	Yes	S2BVE
Sodium	473000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	J	U	Yes	S2BVE
Vanadium	24.3	ug/L	1			Yes	S2BVE
Zinc	17.8	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SD1	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0046	pH:	2	Sample Date:	10042011	Sample Time:	15:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	UJ	Yes	S2BVE
Antimony	2.0	ug/L	1	J	UJ	Yes	S2BVE
Arsenic	3790	ug/L	25	D	J	Yes	S2BVE
Barium	10.0	ug/L	1	J	U	Yes	S2BVE
Beryllium	1.0	ug/L	1	U	UJ	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	4640	ug/L	1		J	Yes	S2BVE
Chromium	2.0	ug/L	1	J	UJ	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	UJ	Yes	S2BVE
Copper	2.0	ug/L	1	J	UJ	Yes	S2BVE
Iron	200	ug/L	1	J	UJ	Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	500	ug/L	1	J	UJ	Yes	S2BVE
Manganese	2.4	ug/L	1		J	Yes	S2BVE
Nickel	4.2	ug/L	1		J	Yes	S2BVE
Potassium	575	ug/L	1		J	Yes	S2BVE
Selenium	0.74	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	672000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	UJ	Yes	S2BVE
Zinc	61.7	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SD2	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0048	pH:	2	Sample Date:	10042011	Sample Time:	17:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	186	ug/L	1			Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	2230	ug/L	25	D	J	Yes	S2BVE
Barium	31.1	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	7980	ug/L	1			Yes	S2BVE
Chromium	2.9	ug/L	1			Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	716	ug/L	1			Yes	S2BVE
Lead	5.8	ug/L	1			Yes	S2BVE
Magnesium	500	ug/L	1	J	U	Yes	S2BVE
Manganese	27.2	ug/L	1			Yes	S2BVE
Nickel	5.5	ug/L	1			Yes	S2BVE
Potassium	629	ug/L	1			Yes	S2BVE
Selenium	0.67	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	330000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	28.0	ug/L	1			Yes	S2BVE
Zinc	14.6	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SD3	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0056	pH:	2	Sample Date:	10042011	Sample Time:	19:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	895	ug/L	1			Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	5.5	ug/L	1		J	Yes	S2BVE
Barium	164	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	123000	ug/L	25	D		Yes	S2BVE
Chromium	2.9	ug/L	1			Yes	S2BVE
Cobalt	1.3	ug/L	1			Yes	S2BVE
Copper	4.2	ug/L	1			Yes	S2BVE
Iron	2350	ug/L	1			Yes	S2BVE
Lead	4.3	ug/L	1			Yes	S2BVE
Magnesium	33100	ug/L	1			Yes	S2BVE
Manganese	61.8	ug/L	1			Yes	S2BVE
Nickel	4.4	ug/L	1			Yes	S2BVE
Potassium	1910	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	42500	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	86.2	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SD9	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0002	pH:	2	Sample Date:	10042011	Sample Time:	09:32:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	442	ug/L	1		J	Yes	S2BVE
Barium	180	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	117000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	2880	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	34800	ug/L	1			Yes	S2BVE
Manganese	94.2	ug/L	1			Yes	S2BVE
Nickel	2.0	ug/L	1			Yes	S2BVE
Potassium	2370	ug/L	1			Yes	S2BVE
Selenium	0.64	ug/L	1	J	J	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	83600	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	2.5	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SE0	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0004	pH:	2	Sample Date:	10042011	Sample Time:	09:39:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	433	ug/L	1		J	Yes	S2BVE
Barium	242	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	103000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1			Yes	S2BVE
Iron	5220	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	33300	ug/L	1			Yes	S2BVE
Manganese	48.2	ug/L	1			Yes	S2BVE
Nickel	1.6	ug/L	1			Yes	S2BVE
Potassium	2230	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	57900	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	20.2	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SE1	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0006	pH:	2	Sample Date:	10042011	Sample Time:	10:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	393	ug/L	1		J	Yes	S2BVE
Barium	237	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	103000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.4	ug/L	1			Yes	S2BVE
Iron	4850	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	32400	ug/L	1			Yes	S2BVE
Manganese	47.8	ug/L	1			Yes	S2BVE
Nickel	1.8	ug/L	1			Yes	S2BVE
Potassium	2170	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	56300	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	32.3	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SE2	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0008	pH:	2	Sample Date:	10042011	Sample Time:	00:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	203	ug/L	1		J	Yes	S2BVE
Barium	92.8	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	155000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.9	ug/L	1			Yes	S2BVE
Iron	1420	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	42600	ug/L	1			Yes	S2BVE
Manganese	96.5	ug/L	1			Yes	S2BVE
Nickel	3.0	ug/L	1			Yes	S2BVE
Potassium	2900	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	115000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	46.1	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SE3	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0010	pH:	2	Sample Date:	10042011	Sample Time:	10:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	195	ug/L	1		J	Yes	S2BVE
Barium	91.9	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	156000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	3.1	ug/L	1			Yes	S2BVE
Iron	1410	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	42600	ug/L	1			Yes	S2BVE
Manganese	96.5	ug/L	1			Yes	S2BVE
Nickel	3.4	ug/L	1			Yes	S2BVE
Potassium	2960	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	114000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	28.7	ug/L	1	*	J	Yes	S2BVE

Case No: 41851	Contract: EPW09038	SDG No: ME2SB9	Lab Code: CHEM
Sample Number: ME2SE8	Method: ICP_MS	Matrix: Water	MA Number: DEFAULT
Sample Location: W-0041	pH: 2	Sample Date: 10042011	Sample Time: 15:50:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	0.80	ug/L	1	J	J-	Yes	S2BVE
Barium	255	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	107000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	1580	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	39100	ug/L	1			Yes	S2BVE
Manganese	42.7	ug/L	1			Yes	S2BVE
Nickel	2.0	ug/L	1			Yes	S2BVE
Potassium	2440	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	22600	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	5.9	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SF0	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0031	pH:	2	Sample Date:	10042011	Sample Time:	14:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	379	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	83000	ug/L	1			Yes	S2BVE
Chromium	2.0	ug/L	1	U	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	50.6	ug/L	1			Yes	S2BVE
Iron	1580	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	29700	ug/L	1			Yes	S2BVE
Manganese	30.5	ug/L	1			Yes	S2BVE
Nickel	1.0	ug/L	1	J	U	Yes	S2BVE
Potassium	1790	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	12200	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	2.0	ug/L	1	J*	UJ	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SF1	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0050	pH:	2	Sample Date:	10042011	Sample Time:	17:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	UJ	Yes	S2BVE
Barium	243	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	92800	ug/L	1			Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	15.1	ug/L	1			Yes	S2BVE
Iron	3670	ug/L	1			Yes	S2BVE
Lead	4.3	ug/L	1			Yes	S2BVE
Magnesium	31000	ug/L	1			Yes	S2BVE
Manganese	31.8	ug/L	1			Yes	S2BVE
Nickel	1.1	ug/L	1			Yes	S2BVE
Potassium	2280	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	17900	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	20.4	ug/L	1	*	J	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SB9	Lab Code:	CHEM
Sample Number:	ME2SF8	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0044	pH:	2	Sample Date:	10042011	Sample Time:	16:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	J	U	Yes	S2BVE
Arsenic	2.5	ug/L	1		J	Yes	S2BVE
Barium	198	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	113000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	6.8	ug/L	1			Yes	S2BVE
Iron	2610	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	36700	ug/L	1			Yes	S2BVE
Manganese	123	ug/L	1			Yes	S2BVE
Nickel	2.0	ug/L	1			Yes	S2BVE
Potassium	2230	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	J	U	Yes	S2BVE
Sodium	44300	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	J	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	13.5	ug/L	1	*	J	Yes	S2BVE

SDG # ME2SB9

USEPA CLP Organics COC (LAB COPY)

DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225957

CHAIN OF CUSTODY RECORD

Case #: 41851
Cooler #: 3

No: 5-100411-194146-0005
Lab: ChemTech Consulting Group
Lab Contact: Divya Mehta
Lab Phone: 908-789-8900

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
ME2SC2	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-178937 (HNO3) (1)	W-0052	10/04/2011 15:05		
ME2SC3	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-178939 (HNO3) (1)	W-0054	10/04/2011 16:36		
ME2SC4	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-186336 (HNO3) (1)	W-0058	10/04/2011 18:20		
ME2SD1	Ground Water/ Wright, Hope	Grab	ICP/MS(21)	5-021928 (HNO3) (1)	W-0046	10/04/2011 15:50		
ME2SD2	Ground Water/ McIntire, Steve	Grab	ICP/MS(21)	5-178933 (HNO3) (1)	W-0048	10/04/2011 17:00		
ME2SD3	Ground Water/ McIntire, Steve	Grab	ICP/MS(21)	5-178941 (HNO3) (1)	W-0056	10/04/2011 19:05		
ME2SE8	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-244523 (HNO3) (1)	W-0041	10/04/2011 15:50		
ME2SF1	Ground Water/ Chesterson, Dan	Grab	ICP/MS(21)	5-178935 (HNO3) (1)	W-0050	10/04/2011 17:30		
ME2SF8	Ground Water/ Wyatt, DeDe	Grab	ICP/MS(21)	5-245049 (HNO3) (1)	W-0044	10/04/2011 16:15		

Temp: 4°C

Special Instructions: Please use IDEM account number #1260 5334-7 to return cooler (s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22, IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? N Y DC

Samples Transferred From Chain of Custody #
23728, 23729

Analysis Key: ICP/MS=CLP TAL Total Metals ICP-MS

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Clark	10/4/11	Ken Kwut	10/05/11	9:05						

SDG # ME2SB9

USEPA CLP Organics COC (LAB COPY)
DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225924

CHAIN OF CUSTODY RECORD

Case #: 41851
Cooler #: 1

No: 5-100411-144333-0001
Lab: ChemTech Consulting Group
Lab Contact: Divya Mehta
Lab Phone: 908-789-8900

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
ME2SB9	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-245153 (HNO3) (1)	W-0026	10/04/2011 11:01		
ME2SC0	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-245151 (HNO3) (1)	W-0024	10/04/2011 12:01		
ME2SC1	Ground Water/ Jaworski, Mark	Grab	ICP/MS(21)	5-245149 (HNO3) (1)	W-0022	10/04/2011 12:06		
ME2SC9	Ground Water/ McIntire, Steve	Grab	ICP/MS(21)	5-245147 (HNO3) (1)	W-0020	10/04/2011 11:40		
ME2SD9	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245129 (HNO3) (1)	W-0002	10/04/2011 09:32		
ME2SE0	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245131 (HNO3) (1)	W-0004	10/04/2011 09:39		
ME2SE1	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245133 (HNO3) (1)	W-0006	10/04/2011 10:10		
ME2SE2	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245135 (HNO3) (1)	W-0008	10/04/2011		
ME2SE3	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245137 (HNO3) (1)	W-0010	10/04/2011 10:55		

Special Instructions: Please use IDEM account Number #1260 5334-7 to return cooler(s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22 IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #
23720, 23721

Analysis Key: ICP/MS=CLP TAL Total Metals ICP-MS

Temp: 4°C

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Clanton	10/4/11	Ken Rivera	10/05/11	9:05						

SDG# ME2SD7

USEPA CLP Organics COC (LAB COPY)

DateShipped: 10/4/2011

CarrierName: FedEx

AirbillNo: 854390225913

CHAIN OF CUSTODY RECORD

Case #: 41851

Cooler #: 2

No: 5-100411-170344-0003

Lab: ChemTech Consulting Group

Lab Contact: Divya Mehta

Lab Phone: 908-789-8900

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
ME2SD0	Ground Water/ Wright, Hope	Grab	ICP/MS(21)	5-245162 (HNO3) (1)	W-0034	10/04/2011 13:10		
ME2SE4	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245139 (HNO3) (1)	W-0012	10/04/2011 11:30		
ME2SE5	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245141 (HNO3) (1)	W-0014	10/04/2011 11:55		
ME2SE6	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245143 (HNO3) (1)	W-0016	10/04/2011 12:20		
ME2SE7	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245166 (HNO3) (1)	W-0038	10/04/2011 15:05		
ME2SE7	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245167 (HNO3) (1)	W-0039	10/04/2011 15:05		
ME2SE9	Ground Water/ Chesterson, Dan	Grab	ICP/MS(21)	5-245145 (HNO3) (1)	W-0018	10/04/2011 12:05		
ME2SF0	Ground Water/ Wyatt, DeDe	Grab	ICP/MS(21)	5-245158 (HNO3) (1)	W-0031	10/04/2011 14:00		
ME2SF0	Ground Water/ Wyatt, DeDe	Grab	ICP/MS(21)	5-245159 (HNO3) (1)	W-0032	10/04/2011 14:00		

Temp 1.4°C

Sample(s) to be used for Lab QC: ME2SE7, ME2SF0 - Special Instructions: Please use IDEM account Number #1260 5334-7 to return cooler(s) to:

Indiana Department of Environmental Management

Office of Land Quality/Site Investigation Program

100 North Senate Avenue

MC 66-22 IGCN N1101

Indianapolis, IN 46204-2251

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

23724, 23725

Analysis Key: ICP/MS=CLP TAL Total Metals ICP-MS

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	Ken Kwee	10/05/11	9:05						

(except: ME2SF0 all samples are in SDG# ME2SD0)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ~ REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Sample Delivery Group: ME2SB9 CERCLIS No: IN N000510479

Case No: 41851 Site Name/Location: KOKOMO GARRISON (IN)

Contractor or EPA Lab: CHEMTECH Data User: IDEM

No. of Samples: 19 Date Sampled or Date Received: 20 OCT 2011

Have Chain-of-Custody records been received? Yes ✓ No _____
Have traffic reports or packing lists been received? Yes ✓ No _____
If no, are traffic reports or packing list numbers written on the Chain-of-Custody Record?
Yes _____ No _____
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____
_____ _____ _____ _____

Are basic data forms in? Yes ✓ No _____
No of samples claimed: 19 No. of samples received: _____

Received by: P M Hjeljner Date: 20 Oct 2011

Received by LSSS: P M Hjeljner Date: 28 Oct 2011

Review started: 11-15-11 Reviewer Signature: _____

Total time spent on review: 18.0 + 4 per 11/2nd/11 Date review completed: 11-17-11

Copied by: A. C. Harvey Date: Nov 30, 2011

Mailed to user by: P M Hjeljner Date: 1 DEC 2011

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffin, Data Mgmt. Coordinator, Region V, ML-10C

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Organic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Dioxin data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
SAS Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Date: _____

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	2237																											
ZZZZZZ	1.0	2245																											
ZZZZZZ	1.0	2253																											
ZZZZZZ	5.0	2301																											
ZZZZZZ	1.0	2309																											
ZZZZZZ	2.0	2317																											
ZZZZZZ	1.0	2325																											
ZZZZZZ	25	2333																											
CCV17	1.0	2341	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB17	1.0	2349	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ME2SE8	1.0	1741	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF1	1.0	1749	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC4	25	1757																				X						
ME2SD1	25	1805			X																	X						
ZZZZZZ	2.0	1813																										
ME2SD3	25	1821							X																			
ME2SE8	25	1829							X																			
CCV13	1.0	1837	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB13	1.0	1845	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF8	1.0	1853	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF0	1.0	1901	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF0D	1.0	1909	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF0S	1.0	1917		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
ME2SF0L	5.0	1925	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SF8	25	1933							X																			
ZZZZZZ	25	1941																										
CCV14	1.0	1949	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB14	1.0	1957	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC9	1.0	2005	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SD2	1.0	2013	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ZZZZZZ	2.0	2021																										
ME2SC9	25	2029			X																	X						
ME2SD2	25	2037			X																	X						
CCV15	1.0	2045	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB15	1.0	2053	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	2101																										
ZZZZZZ	1.0	2109																										
ZZZZZZ	1.0	2117																										
ZZZZZZ	1.0	2125																										
ZZZZZZ	1.0	2133																										
ZZZZZZ	1.0	2141																										
ZZZZZZ	25	2149																										
ZZZZZZ	25	2157																										
ZZZZZZ	25	2205																										
ZZZZZZ	25	2213																										
CCV16	1.0	2221	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB16	1.0	2229	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	1238																										
ZZZZZZ	1.0	1246																										
ZZZZZZ	1.0	1254																										
ZZZZZZ	1.0	1302																										
ZZZZZZ	25	1310																										
ZZZZZZ	25	1318																										
ZZZZZZ	25	1326																										
ZZZZZZ	25	1333																										
ZZZZZZ	25	1341																										
CCV10	1.0	1349	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB10	1.0	1357	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SB9	1.0	1405	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC0	1.0	1413	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC1	1.0	1421	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SD9	1.0	1429	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SE0	1.0	1437	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SB9	25	1445							X																			
ME2SC0	25	1453							X																			
ME2SC1	25	1501							X																			
ME2SD9	25	1509							X																			
ME2SE0	25	1517							X																			
CCV11	1.0	1525	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB11	1.0	1533	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SE1	1.0	1541	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SE2	1.0	1549	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SE3	1.0	1557	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SC2	1.0	1605	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC3	1.0	1613	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SE1	25	1621							X																			
ME2SE2	25	1629							X													X						
ME2SE3	25	1637							X													X						
ME2SC2	25	1645							X																			
ME2SC3	25	1653							X													X						
CCV12	1.0	1701	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB12	1.0	1709	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SC4	1.0	1717	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SD1	1.0	1725	X	X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			
ME2SD3	1.0	1733	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																								
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	0744																									
ZZZZZZ	25	0752																									
ZZZZZZ	1.0	0800																									
ZZZZZZ	1.0	0808																									
ZZZZZZ	1.0	0816																									
ZZZZZZ	1.0	0824																									
ZZZZZZ	25	0832																									
ZZZZZZ	25	0840																									
ZZZZZZ	25	0848																									
ZZZZZZ	25	0855																									
CCV07	1.0	0903	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB07	1.0	0911	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	0919																									
ZZZZZZ	1.0	0927																									
ZZZZZZ	5.0	0935																									
ZZZZZZ	1.0	0943																									
ZZZZZZ	1.0	0951																									
ZZZZZZ	25	0959																									
ZZZZZZ	25	1007																									
ZZZZZZ	125	1015																									
ZZZZZZ	25	1023																									
ZZZZZZ	25	1031																									
CCV08	1.0	1039	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB08	1.0	1047	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	1055																									
ZZZZZZ	1.0	1102																									
ZZZZZZ	1.0	1110																									
ZZZZZZ	1.0	1118																									
ZZZZZZ	1.0	1126																									
ZZZZZZ	25	1134																									
ZZZZZZ	25	1142																									
ZZZZZZ	25	1150																									
ZZZZZZ	25	1158																									
ZZZZZZ	25	1206																									
CCV09	1.0	1214	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB09	1.0	1222	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	1230																									

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																								
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
CCV03	1.0	0243	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB03	1.0	0251	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0259																										
ZZZZZZ	1.0	0307																										
ZZZZZZ	1.0	0315																										
ZZZZZZ	1.0	0323																										
ZZZZZZ	1.0	0330																										
ZZZZZZ	25	0338																										
ZZZZZZ	25	0346																										
ZZZZZZ	25	0354																										
ZZZZZZ	25	0402																										
ZZZZZZ	25	0410																										
CCV04	1.0	0418	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB04	1.0	0426	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0434																										
ZZZZZZ	1.0	0442																										
ZZZZZZ	1.0	0450																										
ZZZZZZ	1.0	0458																										
ZZZZZZ	1.0	0505																										
ZZZZZZ	25	0513																										
ZZZZZZ	25	0521																										
ZZZZZZ	25	0529																										
ZZZZZZ	25	0537																										
ZZZZZZ	25	0545																										
CCV05	1.0	0553	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB05	1.0	0601	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0609																										
ZZZZZZ	1.0	0617																										
ZZZZZZ	1.0	0625																										
ZZZZZZ	1.0	0633																										
ZZZZZZ	1.0	0641																										
ZZZZZZ	25	0649																										
ZZZZZZ	25	0656																										
ZZZZZZ	25	0704																										
ZZZZZZ	25	0712																										
ZZZZZZ	25	0720																										
CCV06	1.0	0728	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB06	1.0	0736	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																								
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
TUNE	1.0	2007					X				X			X	X													
S0	1.0	2151	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
S	1.0	2159	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
S	1.0	2207	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
S	1.0	2215	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
S	1.0	2223	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
S	1.0	2231	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICV01	1.0	2246	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICB01	1.0	2254	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICSA01	1.0	2302		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
ICSAB01	1.0	2310		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
ICSA02	10	2318	X						X				X		X				X			X						
ICSAB02	10	2326	X						X				X		X				X			X						
CCV01	1.0	2333	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB01	1.0	2341	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	2349																										
ZZZZZZ	1.0	2357																										
LCS01	1.0	0005	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0013																										
ZZZZZZ	1.0	0021																										
PBW01	1.0	0029	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0037																										
ZZZZZZ	1.0	0045																										
ZZZZZZ	25	0052																										
ZZZZZZ	25	0100																										
CCV02	1.0	0108	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB02	1.0	0116	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0124																										
ZZZZZZ	1.0	0132																										
ZZZZZZ	5.0	0140																										
ZZZZZZ	1.0	0148																										
ZZZZZZ	1.0	0156																										
ZZZZZZ	25	0204																										
ZZZZZZ	25	0211																										
ZZZZZZ	125	0219																										
ZZZZZZ	24	0227																										
ZZZZZZ	25	0235																										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 165Ho	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	2149										
ZZZZZZ	2157										
ZZZZZZ	2205										
ZZZZZZ	2213										
CCV	2221	87									
CCB	2229	88									
ZZZZZZ	2237										
ZZZZZZ	2245										
ZZZZZZ	2253										
ZZZZZZ	2301										
ZZZZZZ	2309										
ZZZZZZ	2317										
ZZZZZZ	2325										
ZZZZZZ	2333										
CCV	2341	85									
CCB	2349	85									

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For: Element 165Ho	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ME2SE2	1549	96									
ME2SE3	1557	95									
ME2SC2	1605	92									
ME2SC3	1613	97									
ME2SE1	1621	97									
ME2SE2	1629	98									
ME2SE3	1637	95									
ME2SC2	1645	95									
ME2SC3	1653	97									
CCV	1701	86									
CCB	1709	91									
ME2SC4	1717	90									
ME2SD1	1725	90									
ME2SD3	1733	98									
ME2SE8	1741	96									
ME2SF1	1749	98									
ME2SC4	1757	94									
ME2SD1	1805	92									
ZZZZZZ	1813										
ME2SD3	1821	96									
ME2SE8	1829	97									
CCV	1837	88									
CCB	1845	90									
ME2SF8	1853	95									
ME2SF0	1901	94									
ME2SF0D	1909	97									
ME2SF0S	1917	93									
ME2SF0L	1925	94									
ME2SF8	1933	97									
ZZZZZZ	1941										
CCV	1949	87									
CCB	1957	90									
ME2SC9	2005	92									
ME2SD2	2013	98									
ZZZZZZ	2021										
ME2SC9	2029	97									
ME2SD2	2037	97									
CCV	2045	89									
CCB	2053	89									
ZZZZZZ	2101										
ZZZZZZ	2109										
ZZZZZZ	2117										
ZZZZZZ	2125										
ZZZZZZ	2133										
ZZZZZZ	2141										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 165Ho	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	0951										
ZZZZZZ	0959										
ZZZZZZ	1007										
ZZZZZZ	1015										
ZZZZZZ	1023										
ZZZZZZ	1031										
CCV	1039	90									
CCB	1047	90									
ZZZZZZ	1055										
ZZZZZZ	1102										
ZZZZZZ	1110										
ZZZZZZ	1118										
ZZZZZZ	1126										
ZZZZZZ	1134										
ZZZZZZ	1142										
ZZZZZZ	1150										
ZZZZZZ	1158										
ZZZZZZ	1206										
ZZZZZZ	1214										
CCB	1222	92									
ZZZZZZ	1230										
ZZZZZZ	1238										
ZZZZZZ	1246										
ZZZZZZ	1254										
ZZZZZZ	1302										
ZZZZZZ	1310										
ZZZZZZ	1318										
ZZZZZZ	1326										
ZZZZZZ	1333										
ZZZZZZ	1341										
CCV	1349	87									
CCB	1357	92									
ME2SB9	1405	90									
ME2SC0	1413	95									
ME2SC1	1421	98									
ME2SD9	1429	94									
ME2SE0	1437	96									
ME2SB9	1445	94									
ME2SC0	1453	96									
ME2SC1	1501	96									
ME2SD9	1509	96									
ME2SE0	1517	96									
CCV	1525	88									
CCB	1533	91									
ME2SE1	1541	90									

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For: Element 165Ho	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	0354										
ZZZZZZ	0402										
ZZZZZZ	0410										
CCV	0418	91									
CCB	0426	93									
ZZZZZZ	0434										
ZZZZZZ	0442										
ZZZZZZ	0450										
ZZZZZZ	0458										
ZZZZZZ	0505										
ZZZZZZ	0513										
ZZZZZZ	0521										
ZZZZZZ	0529										
ZZZZZZ	0537										
ZZZZZZ	0545										
CCV	0553	90									
CCB	0601	94									
ZZZZZZ	0609										
ZZZZZZ	0617										
ZZZZZZ	0625										
ZZZZZZ	0633										
ZZZZZZ	0641										
ZZZZZZ	0649										
ZZZZZZ	0656										
ZZZZZZ	0704										
ZZZZZZ	0712										
ZZZZZZ	0720										
CCV	0728	88									
CCB	0736	89									
ZZZZZZ	0744										
ZZZZZZ	0752										
ZZZZZZ	0800										
ZZZZZZ	0808										
ZZZZZZ	0816										
ZZZZZZ	0824										
ZZZZZZ	0832										
ZZZZZZ	0840										
ZZZZZZ	0848										
ZZZZZZ	0855										
CCV	0903	83									
CCB	0911	87									
ZZZZZZ	0919										
ZZZZZZ	0927										
ZZZZZZ	0935										
ZZZZZZ	0943										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 165Ho	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
S0	2151	100									
S	2159	97									
S	2207	95									
S	2215	97									
S	2223	92									
S	2231	91									
ICV	2246	93									
ICB	2254	95									
ICSA	2302	94									
ICSAB	2310	91									
ICSA	2318	93									
ICSAB	2326	96									
CCV	2333	92									
CCB	2341	94									
ZZZZZZ	2349										
ZZZZZZ	2357										
LCS01	0005	95									
ZZZZZZ	0013										
ZZZZZZ	0021										
PBW01	0029	95									
ZZZZZZ	0037										
ZZZZZZ	0045										
ZZZZZZ	0052										
ZZZZZZ	0100										
CCV	0108	89									
CCB	0116	94									
ZZZZZZ	0124										
ZZZZZZ	0132										
ZZZZZZ	0140										
ZZZZZZ	0148										
ZZZZZZ	0156										
ZZZZZZ	0204										
ZZZZZZ	0211										
ZZZZZZ	0219										
ZZZZZZ	0227										
ZZZZZZ	0235										
CCV	0243	91									
CCB	0251	91									
ZZZZZZ	0259										
ZZZZZZ	0307										
ZZZZZZ	0315										
ZZZZZZ	0323										
ZZZZZZ	0330										
ZZZZZZ	0338										
ZZZZZZ	0346										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For: Element 209Bi	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	2149										
ZZZZZZ	2157										
ZZZZZZ	2205										
ZZZZZZ	2213										
CCV	2221	86		86		84		83		83	
CCB	2229	90		88		88		88		88	
ZZZZZZ	2237										
ZZZZZZ	2245										
ZZZZZZ	2253										
ZZZZZZ	2301										
ZZZZZZ	2309										
ZZZZZZ	2317										
ZZZZZZ	2325										
ZZZZZZ	2333										
CCV	2341	84		85		83		82		81	
CCB	2349	88		86		85		86		86	

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 209Bi	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ME2SE2	1549	94		96		99		95		93	
ME2SE3	1557	94		96		99		96		94	
ME2SC2	1605	90		92		95		96		90	
ME2SC3	1613	95		98		103		99		97	
ME2SE1	1621	98		98		104		104		102	
ME2SE2	1629	98		99		104		101		102	
ME2SE3	1637	96		96		102		101		100	
ME2SC2	1645	96		96		101		101		100	
ME2SC3	1653	97		98		104		102		102	
CCV	1701	85		87		89		87		85	
CCB	1709	94		92		94		94		94	
ME2SC4	1717	88		91		94		92		88	
ME2SD1	1725	87		90		182	R	90		82	
ME2SD3	1733	95		98		97		100		95	
ME2SE8	1741	95		97		99		100		95	
ME2SF1	1749	97		98		100		99		97	
ME2SC4	1757	95		94		96		98		96	
ME2SD1	1805	93		92		94		91		90	
ZZZZZZ	1813										
ME2SD3	1821	98		96		91		91		94	
ME2SE8	1829	99		98		92		91		95	
CCV	1837	87		89		86		85		85	
CCB	1845	92		90		89		91		90	
ME2SF8	1853	95		95		94		92		92	
ME2SF0	1901	95		94		94		95		93	
ME2SF0D	1909	98		98		97		95		95	
ME2SF0S	1917	93		93		93		92		90	
ME2SF0L	1925	96		95		95		96		95	
ME2SF8	1933	99		97		98		97		98	
ZZZZZZ	1941										
CCV	1949	86		87		86		85		84	
CCB	1957	92		90		90		90		90	
ME2SC9	2005	90		92		105		86		84	
ME2SD2	2013	96		99		98		90		91	
ZZZZZZ	2021										
ME2SC9	2029	99		97		92		91		94	
ME2SD2	2037	99		97		91		90		94	
CCV	2045	89		90		87		86		86	
CCB	2053	92		89		88		90		90	
ZZZZZZ	2101										
ZZZZZZ	2109										
ZZZZZZ	2117										
ZZZZZZ	2125										
ZZZZZZ	2133										
ZZZZZZ	2141										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 209Bi	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	0951										
ZZZZZZ	0959										
ZZZZZZ	1007										
ZZZZZZ	1015										
ZZZZZZ	1023										
ZZZZZZ	1031										
CCV	1039	88		90		94		88		89	
CCB	1047	89		91		98		95		95	
ZZZZZZ	1055										
ZZZZZZ	1102										
ZZZZZZ	1110										
ZZZZZZ	1118										
ZZZZZZ	1126										
ZZZZZZ	1134										
ZZZZZZ	1142										
ZZZZZZ	1150										
ZZZZZZ	1158										
ZZZZZZ	1206										
ZZZZZZ	1214										
CCB	1222	93		93		99		96		97	
ZZZZZZ	1230										
ZZZZZZ	1238										
ZZZZZZ	1246										
ZZZZZZ	1254										
ZZZZZZ	1302										
ZZZZZZ	1310										
ZZZZZZ	1318										
ZZZZZZ	1326										
ZZZZZZ	1333										
ZZZZZZ	1341										
CCV	1349	85		87		91		90		87	
CCB	1357	93		93		97		96		96	
ME2SB9	1405	88		91		98		95		91	
ME2SC0	1413	92		96		100		98		94	
ME2SC1	1421	95		99		103		99		97	
ME2SD9	1429	92		94		99		95		93	
ME2SE0	1437	94		96		99		93		95	
ME2SB9	1445	95		95		101		99		99	
ME2SC0	1453	98		97		102		100		101	
ME2SC1	1501	97		97		104		103		101	
ME2SD9	1509	96		96		102		101		100	
ME2SE0	1517	97		97		102		101		101	
CCV	1525	87		88		90		89		87	
CCB	1533	93		92		95		93		94	
ME2SE1	1541	89		91		96		92		90	

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For:									
		Element 209Bi	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
ZZZZZZ	0354										
ZZZZZZ	0402										
ZZZZZZ	0410										
CCV	0418	88		92		96		93		90	
CCB	0426	92		94		99		99		97	
ZZZZZZ	0434										
ZZZZZZ	0442										
ZZZZZZ	0450										
ZZZZZZ	0458										
ZZZZZZ	0505										
ZZZZZZ	0513										
ZZZZZZ	0521										
ZZZZZZ	0529										
ZZZZZZ	0537										
ZZZZZZ	0545										
CCV	0553	85		90		95		94		89	
CCB	0601	92		95		100		100		97	
ZZZZZZ	0609										
ZZZZZZ	0617										
ZZZZZZ	0625										
ZZZZZZ	0633										
ZZZZZZ	0641										
ZZZZZZ	0649										
ZZZZZZ	0656										
ZZZZZZ	0704										
ZZZZZZ	0712										
ZZZZZZ	0720										
CCV	0728	84		89		94		92		88	
CCB	0736	87		90		97		97		94	
ZZZZZZ	0744										
ZZZZZZ	0752										
ZZZZZZ	0800										
ZZZZZZ	0808										
ZZZZZZ	0816										
ZZZZZZ	0824										
ZZZZZZ	0832										
ZZZZZZ	0840										
ZZZZZZ	0848										
ZZZZZZ	0855										
CCV	0903	79		84		90		89		84	
CCB	0911	85		88		96		96		92	
ZZZZZZ	0919										
ZZZZZZ	0927										
ZZZZZZ	0935										
ZZZZZZ	0943										

Metals

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG NO.: ME2SB9

ICP-MS Instrument ID: P6 Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample No.	Time	Internal Standards %RI For: Element 209Bi	Q	Element 159Tb	Q	Element 45Sc	Q	Element 6Li	Q	Element 103Rh	Q
SO	2151	100		100		100		100		100	
S	2159	96		98		99		101		98	
S	2207	93		96		97		99		94	
S	2215	94		97		96		96		95	
S	2223	88		93		95		95		90	
S	2231	86		91		93		94		87	
ICV	2246	91		93		96		99		94	
ICB	2254	94		96		98		100		97	
ICSA	2302	89		94		92		93		87	
ICSAB	2310	85		91		91		93		86	
ICSA	2318	90		93		94		96		92	
ICSAB	2326	94		96		95		95		93	
CCV	2333	88		92		94		94		90	
CCB	2341	92		94		97		99		96	
ZZZZZZ	2349										
ZZZZZZ	2357										
LCS01	0005	94		96		99		101		97	
ZZZZZZ	0013										
ZZZZZZ	0021										
PBW01	0029	95		96		99		99		97	
ZZZZZZ	0037										
ZZZZZZ	0045										
ZZZZZZ	0052										
ZZZZZZ	0100										
CCV	0108	84		90		92		91		87	
CCB	0116	93		95		97		98		96	
ZZZZZZ	0124										
ZZZZZZ	0132										
ZZZZZZ	0140										
ZZZZZZ	0148										
ZZZZZZ	0156										
ZZZZZZ	0204										
ZZZZZZ	0211										
ZZZZZZ	0219										
ZZZZZZ	0227										
ZZZZZZ	0235										
CCV	0243	87		91		94		93		89	
CCB	0251	89		92		97		98		94	
ZZZZZZ	0259										
ZZZZZZ	0307										
ZZZZZZ	0315										
ZZZZZZ	0323										
ZZZZZZ	0330										
ZZZZZZ	0338										
ZZZZZZ	0346										

Metals

11-IN
INTERNAL STANDARD ASSOCIATION

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

ICP-MS Instrument ID: P6 Date: 10/20/2011

Analyte	Assoc. Internal Standard 1	Assoc. Internal Standard 2
Aluminum	6Li	45Sc
Antimony	103Rh	159Tb
Arsenic	45Sc	103Rh
Barium	103Rh	159Tb
Beryllium	6Li	45Sc
Cadmium	103Rh	159Tb
Calcium	6Li	45Sc
Chromium	45Sc	103Rh
Cobalt	45Sc	103Rh
Copper	45Sc	103Rh
Iron	45Sc	103Rh
Lead	165Ho	209Bi
Magnesium	6Li	45Sc
Manganese	45Sc	103Rh
Nickel	45Sc	103Rh
Potassium	6Li	45Sc
Selenium	45Sc	103Rh
Silver	103Rh	159Tb
Sodium	6Li	45Sc
Thallium	165Ho	209Bi
Vanadium	45Sc	103Rh
Zinc	45Sc	103Rh

Metals

9-IN
METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Instrument Type: MS Instrument ID: P6 Date: 01/11/2011

Preparation Method: 200.8

Concentration Units (ug/L, mg/kg, or ug): UG/L

Analyte	Wavelength/Mass	MDL
Aluminum	27.00	1.2
Antimony	121.00	0.17
Arsenic	75.00	0.14
Barium	137.00	0.29
Beryllium	9.00	0.061
Cadmium	111.00	0.11
Calcium	44.00	6.3
Chromium	52.00	0.078
Cobalt	59.00	0.054
Copper	63.00	0.097
Iron	57.00	6.6
Lead	208.00	0.051
Magnesium	24.00	5.5
Manganese	55.00	0.15
Nickel	60.00	0.15
Potassium	39.00	8.0
Selenium	82.00	0.63
Silver	107.00	0.070
Sodium	23.00	5.7
Thallium	205.00	0.074
Vanadium	51.00	0.11
Zinc	66.00	0.24

Comments:

Metals

6-IN

DUPLICATES

EPA SAMPLE NO.

ME2SF0D

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Matrix: WATER

% Solids for Sample: _____

Concentration Units: (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		1.2530	J	20.0000	U	0		MS
Antimony		2.0000	U	2.0000	U			MS
Arsenic		1.0000	U	1.0000	U			MS
Barium		378.5000		377.0000		0		MS
Beryllium		1.0000	U	1.0000	U			MS
Cadmium		1.0000	U	1.0000	U			MS
Calcium		83010.0000		82900.0000		0		MS
Chromium		2.0000	U	2.0000	U			MS
Cobalt		0.1270	J	0.1090	J	15		MS
Copper		50.6300		50.0400		1		MS
Iron		1578.0000		1556.0000		1		MS
Lead		0.1310	J	0.1190	J	10		MS
Magnesium		29680.0000		29860.0000		1		MS
Manganese		30.4700		30.0800		1		MS
Nickel		0.8020	J	0.7470	J	7		MS
Potassium	500.0000	1794.0000		1801.0000		0		MS
Selenium		5.0000	U	5.0000	U			MS
Silver		1.0000	U	1.0000	U			MS
Sodium		12230.0000		12410.0000		1		MS
Thallium		1.0000	U	1.0000	U			MS
Vanadium		0.3870	J	0.2630	J	38		MS
Zinc	2.0000	1.0680	J	5.6400		136		MS

Metals

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ME2SF0S

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER

% Solids for Sample:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	102.0000		2.0000	U	100.00	102		MS
Arsenic	75 - 125	41.8400		1.0000	U	40.00	105		MS
Barium	75 - 125	2378.0000		378.5000		2000.00	100		MS
Beryllium	75 - 125	51.6500		1.0000	U	50.00	103		MS
Cadmium	75 - 125	51.0300		1.0000	U	50.00	102		MS
Chromium	75 - 125	193.9000		2.0000	U	200.00	97		MS
Cobalt	75 - 125	488.0000		0.1270	J	500.00	98		MS
Copper	75 - 125	301.1000		50.6300		250.00	100		MS
Lead	75 - 125	20.3500		0.1310	J	20.00	101		MS
Manganese	75 - 125	518.9000		30.4700		500.00	98		MS
Nickel	75 - 125	494.0000		0.8020	J	500.00	99		MS
Selenium	75 - 125	104.1000		5.0000	U	100.00	104		MS
Silver	75 - 125	48.4900		1.0000	U	50.00	97		MS
Thallium	75 - 125	50.3200		1.0000	U	50.00	101		MS
Vanadium	75 - 125	484.6000		0.3870	J	500.00	97		MS
Zinc	75 - 125	507.2000		1.0680	J	500.00	101		MS

Comments:

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.073	J	20.000	U					MS
Antimony			0.619	J	0.602	J					MS
Arsenic			-0.449	J	-0.549	J					MS
Barium			10.000	U	10.000	U					MS
Beryllium			1.000	U	1.000	U					MS
Cadmium			0.137	J	1.000	U					MS
Calcium			-67.910	J	-74.680	J					MS
Chromium			-0.114	J	-0.091	J					MS
Cobalt			1.000	U	1.000	U					MS
Copper			0.177	J	2.000	U					MS
Iron			17.180	J	19.350	J					MS
Lead			0.061	J	1.000	U					MS
Magnesium			8.094	J	500.000	U					MS
Manganese			1.000	U	1.000	U					MS
Nickel			1.000	U	1.000	U					MS
Potassium			500.000	U	500.000	U					MS
Selenium			5.000	U	5.000	U					MS
Silver			1.000	U	1.000	U					MS
Sodium			11.440	J	7.618	J					MS
Thallium			1.000	U	1.000	U					MS
Vanadium			0.376	J	0.338	J					MS
Zinc			2.000	U	2.000	U					MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.685	J	1.596	J	2.912	J			MS
Antimony			0.652	J	0.649	J	0.775	J			MS
Arsenic			-0.387	J	-0.458	J	-0.565	J			MS
Barium			0.505	J	10.000	U	0.534	J			MS
Beryllium			0.074	J	1.000	U	0.079	J			MS
Cadmium			0.132	J	1.000	U	0.134	J			MS
Calcium			-57.700	J	-68.720	J	-62.560	J			MS
Chromium			2.000	U	-0.097	J	2.000	U			MS
Cobalt			0.097	J	1.000	U	0.098	J			MS
Copper			0.203	J	0.133	J	0.219	J			MS
Iron			15.170	J	15.660	J	16.940	J			MS
Lead			0.106	J	1.000	U	0.116	J			MS
Magnesium			12.430	J	6.225	J	11.610	J			MS
Manganese			0.238	J	1.000	U	0.197	J			MS
Nickel			1.000	U	1.000	U	1.000	U			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.122	J	1.000	U	0.083	J			MS
Sodium			23.150	J	11.550	J	19.180	J			MS
Thallium			0.121	J	1.000	U	0.127	J			MS
Vanadium			0.181	J	0.354	J	0.442	J			MS
Zinc			2.000	U	2.000	U	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.367	J	2.568	J	1.348	J			MS
Antimony			0.585	J	0.595	J	0.565	J			MS
Arsenic			-0.793	J	-0.820	J	-0.519	J			MS
Barium			0.502	J	0.507	J	10.000	U			MS
Beryllium			0.121	J	0.106	J	1.000	U			MS
Cadmium			0.119	J	0.132	J	1.000	U			MS
Calcium			-55.280	J	-57.550	J	-67.090	J			MS
Chromium			2.000	U	2.000	U	2.000	U			MS
Cobalt			0.100	J	0.098	J	1.000	U			MS
Copper			0.281	J	0.251	J	2.000	U			MS
Iron			15.710	J	14.930	J	11.750	J			MS
Lead			0.128	J	0.106	J	1.000	U			MS
Magnesium			12.730	J	11.820	J	500.000	U			MS
Manganese			0.190	J	0.189	J	1.000	U			MS
Nickel			1.000	U	1.000	U	1.000	U			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.130	J	0.107	J	1.000	U			MS
Sodium			500.000	U	500.000	U	500.000	U			MS
Thallium			0.133	J	0.094	J	1.000	U			MS
Vanadium			0.441	J	0.311	J	0.362	J			MS
Zinc			0.378	J	2.000	U	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			3.329	J	3.249	J	2.525	J			MS
Antimony			0.625	J	0.658	J	0.608	J			MS
Arsenic			-0.757	J	-0.760	J	-0.783	J			MS
Barium			0.824	J	0.789	J	0.611	J			MS
Beryllium			0.175	J	0.132	J	0.099	J			MS
Cadmium			0.157	J	0.179	J	1.000	U			MS
Calcium			-39.570	J	-42.110	J	-48.820	J			MS
Chromium			2.000	U	2.000	U	2.000	U			MS
Cobalt			0.143	J	0.162	J	0.105	J			MS
Copper			0.348	J	0.363	J	0.255	J			MS
Iron			19.830	J	15.240	J	13.270	J			MS
Lead			0.156	J	0.152	J	0.119	J			MS
Magnesium			17.290	J	17.420	J	13.460	J			MS
Manganese			0.323	J	0.298	J	0.197	J			MS
Nickel			0.174	J	0.184	J	0.171	J			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.183	J	0.179	J	0.139	J			MS
Sodium			29.740	J	21.220	J	7.570	J			MS
Thallium			0.169	J	0.178	J	0.128	J			MS
Vanadium			0.428	J	0.555	J	0.295	J			MS
Zinc			0.275	J	0.273	J	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.683	J	20.000	U	3.452	J			MS
Antimony			0.602	J	0.533	J	0.643	J			MS
Arsenic			-0.710	J	-0.827	J	-0.752	J			MS
Barium			0.643	J	10.000	U	0.696	J			MS
Beryllium			0.107	J	1.000	U	0.169	J			MS
Cadmium			0.124	J	1.000	U	0.204	J			MS
Calcium			-40.760	J	-51.140	J	-37.130	J			MS
Chromium			2.000	U	-0.097	J	2.000	U			MS
Cobalt			0.125	J	1.000	U	0.186	J			MS
Copper			0.291	J	2.000	U	0.348	J			MS
Iron			9.137	J	200.000	U	16.720	J			MS
Lead			0.134	J	1.000	U	0.154	J			MS
Magnesium			14.630	J	500.000	U	20.240	J			MS
Manganese			0.230	J	1.000	U	0.369	J			MS
Nickel			1.000	U	1.000	U	0.165	J			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.160	J	1.000	U	0.178	J			MS
Sodium			18.870	J	500.000	U	56.620	J			MS
Thallium			0.151	J	1.000	U	0.184	J			MS
Vanadium			0.342	J	0.412	J	0.519	J			MS
Zinc			0.278	J	2.000	U	0.363	J			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Preparation Blank Matrix (soil/water/wipe/filter): WATER

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): UG/L

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	3.348	J	9.093	J	3.590	J	4.316	J	20.000	U	MS
Antimony	0.873	J	0.613	J	0.540	J	0.639	J	2.000	U	MS
Arsenic	-0.231	J	-0.495	J	-0.655	J	-0.589	J	-0.270	J	MS
Barium	0.646	J	0.808	J	0.446	J	0.946	J	10.000	U	MS
Beryllium	0.202	J	0.187	J	0.108	J	0.230	J	1.000	U	MS
Cadmium	0.212	J	0.175	J	1.000	U	0.267	J	1.000	U	MS
Calcium	500.000	U	500.000	U	-25.630	J	-21.310	J	-33.320	J	MS
Chromium	0.119	J	2.000	U	2.000	U	0.101	J	-0.087	J	MS
Cobalt	0.192	J	0.162	J	0.075	J	0.201	J	1.000	U	MS
Copper	0.335	J	0.348	J	0.177	J	0.373	J	2.000	U	MS
Iron	11.970	J	16.720	J	200.000	U	19.100	J	200.000	U	MS
Lead	0.290	J	0.168	J	0.092	J	0.204	J	1.000	U	MS
Magnesium	16.370	J	25.550	J	9.875	J	24.460	J	500.000	U	MS
Manganese	0.437	J	0.391	J	1.000	U	0.446	J	1.000	U	MS
Nickel	0.179	J	0.169	J	1.000	U	0.241	J	1.000	U	MS
Potassium	500.000	U	14.250	J	500.000	U	8.962	J	500.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	0.172	J	0.163	J	0.107	J	0.236	J	1.000	U	MS
Sodium	23.690	J	36.640	J	500.000	U	61.570	J	15.760	J	MS
Thallium	0.296	J	0.189	J	0.094	J	0.229	J	1.000	U	MS
Vanadium	0.192	J	0.394	J	0.346	J	0.364	J	0.211	J	MS
Zinc	0.415	J	0.356	J	2.000	U	0.383	J	2.000	U	MS

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SF8

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-18

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3.7	J		MS
7440-36-0	Antimony	0.19	J		MS
7440-38-2	Arsenic	2.5			MS
7440-39-3	Barium	198			MS
7440-41-7	Beryllium	0.14	J		MS
7440-43-9	Cadmium	0.17	J		MS
7440-70-2	Calcium	113000		D	MS
7440-47-3	Chromium	0.22	J		MS
7440-48-4	Cobalt	0.29	J		MS
7440-50-8	Copper	6.8			MS
7439-89-6	Iron	2610			MS
7439-92-1	Lead	0.36	J		MS
7439-95-4	Magnesium	36700			MS
7439-96-5	Manganese	123			MS
7440-02-0	Nickel	2.0			MS
7440-09-7	Potassium	2230			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.10	J		MS
7440-23-5	Sodium	44300			MS
7440-28-0	Thallium	0.14	J		MS
7440-62-2	Vanadium	0.49	J		MS
7440-66-6	Zinc	13.5			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SF1

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-17

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2.4	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	243			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	92800			MS
7440-47-3	Chromium	0.47	J		MS
7440-48-4	Cobalt	0.15	J		MS
7440-50-8	Copper	15.1			MS
7439-89-6	Iron	3670			MS
7439-92-1	Lead	4.3			MS
7439-95-4	Magnesium	31000			MS
7439-96-5	Manganese	31.8			MS
7440-02-0	Nickel	1.1			MS
7440-09-7	Potassium	2280			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	17900			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.65	J		MS
7440-66-6	Zinc	20.4			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SF0

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-19

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1.3	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	379			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	83000			MS
7440-47-3	Chromium	2.0	U		MS
7440-48-4	Cobalt	0.13	J		MS
7440-50-8	Copper	50.6			MS
7439-89-6	Iron	1580			MS
7439-92-1	Lead	0.13	J		MS
7439-95-4	Magnesium	29700			MS
7439-96-5	Manganese	30.5			MS
7440-02-0	Nickel	0.80	J		MS
7440-09-7	Potassium	1790			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	12200			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.39	J		MS
7440-66-6	Zinc	1.1	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE8

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-16

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2.0	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	0.80	J		MS
7440-39-3	Barium	255			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	107000		D	MS
7440-47-3	Chromium	0.16	J		MS
7440-48-4	Cobalt	0.19	J		MS
7440-50-8	Copper	2.0	J		MS
7439-89-6	Iron	1580			MS
7439-92-1	Lead	0.35	J		MS
7439-95-4	Magnesium	39100			MS
7439-96-5	Manganese	42.7			MS
7440-02-0	Nickel	2.0			MS
7440-09-7	Potassium	2440			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	22600			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.17	J		MS
7440-66-6	Zinc	5.9			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE3

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-09

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.5	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	195			MS
7440-39-3	Barium	91.9			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	156000		D	MS
7440-47-3	Chromium	0.54	J		MS
7440-48-4	Cobalt	0.21	J		MS
7440-50-8	Copper	3.1			MS
7439-89-6	Iron	1410			MS
7439-92-1	Lead	0.46	J		MS
7439-95-4	Magnesium	42600			MS
7439-96-5	Manganese	96.5			MS
7440-02-0	Nickel	3.4			MS
7440-09-7	Potassium	2960			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	114000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	1.0	J		MS
7440-66-6	Zinc	28.7			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE2

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-08

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4.9	J		MS
7440-36-0	Antimony	0.18	J		MS
7440-38-2	Arsenic	203			MS
7440-39-3	Barium	92.8			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	155000		D	MS
7440-47-3	Chromium	0.82	J		MS
7440-48-4	Cobalt	0.21	J		MS
7440-50-8	Copper	2.9			MS
7439-89-6	Iron	1420			MS
7439-92-1	Lead	0.39	J		MS
7439-95-4	Magnesium	42600			MS
7439-96-5	Manganese	96.5			MS
7440-02-0	Nickel	3.0			MS
7440-09-7	Potassium	2900			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	115000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	1.2	J		MS
7440-66-6	Zinc	46.1			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE1

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-07

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.9	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	393			MS
7440-39-3	Barium	237			MS
7440-41-7	Beryllium	0.085	J		MS
7440-43-9	Cadmium	0.14	J		MS
7440-70-2	Calcium	103000		D	MS
7440-47-3	Chromium	0.15	J		MS
7440-48-4	Cobalt	0.19	J		MS
7440-50-8	Copper	2.4			MS
7439-89-6	Iron	4850			MS
7439-92-1	Lead	0.50	J		MS
7439-95-4	Magnesium	32400			MS
7439-96-5	Manganese	47.8			MS
7440-02-0	Nickel	1.8			MS
7440-09-7	Potassium	2170			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	56300			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.85	J		MS
7440-66-6	Zinc	32.3			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE0

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-06

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.4	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	433			MS
7440-39-3	Barium	242			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	103000		D	MS
7440-47-3	Chromium	0.18	J		MS
7440-48-4	Cobalt	0.13	J		MS
7440-50-8	Copper	2.0			MS
7439-89-6	Iron	5220			MS
7439-92-1	Lead	0.93	J		MS
7439-95-4	Magnesium	33300			MS
7439-96-5	Manganese	48.2			MS
7440-02-0	Nickel	1.6			MS
7440-09-7	Potassium	2230			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	57900			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.93	J		MS
7440-66-6	Zinc	20.2			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SD9

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-05

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3.9	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	442			MS
7440-39-3	Barium	180			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	117000		D	MS
7440-47-3	Chromium	0.19	J		MS
7440-48-4	Cobalt	0.20	J		MS
7440-50-8	Copper	1.2	J		MS
7439-89-6	Iron	2880			MS
7439-92-1	Lead	0.42	J		MS
7439-95-4	Magnesium	34800			MS
7439-96-5	Manganese	94.2			MS
7440-02-0	Nickel	2.0			MS
7440-09-7	Potassium	2370			MS
7782-49-2	Selenium	0.64	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	83600			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	1.4	J		MS
7440-66-6	Zinc	2.5			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SD3

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-15

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	895			MS
7440-36-0	Antimony	0.35	J		MS
7440-38-2	Arsenic	5.5			MS
7440-39-3	Barium	164			MS
7440-41-7	Beryllium	0.16	J		MS
7440-43-9	Cadmium	0.30	J		MS
7440-70-2	Calcium	123000		D	MS
7440-47-3	Chromium	2.9			MS
7440-48-4	Cobalt	1.3			MS
7440-50-8	Copper	4.2			MS
7439-89-6	Iron	2350			MS
7439-92-1	Lead	4.3			MS
7439-95-4	Magnesium	33100			MS
7439-96-5	Manganese	61.8			MS
7440-02-0	Nickel	4.4			MS
7440-09-7	Potassium	1910			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	42500			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.48	J		MS
7440-66-6	Zinc	86.2			MS

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SD2

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-14

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	186			MS
7440-36-0	Antimony	0.49	J		MS
7440-38-2	Arsenic	2230		D	MS
7440-39-3	Barium	31.1			MS
7440-41-7	Beryllium	0.083	J		MS
7440-43-9	Cadmium	0.31	J		MS
7440-70-2	Calcium	7980			MS
7440-47-3	Chromium	2.9			MS
7440-48-4	Cobalt	0.34	J		MS
7440-50-8	Copper	1.6	J		MS
7439-89-6	Iron	716			MS
7439-92-1	Lead	5.8			MS
7439-95-4	Magnesium	375	J		MS
7439-96-5	Manganese	27.2			MS
7440-02-0	Nickel	5.5			MS
7440-09-7	Potassium	629			MS
7782-49-2	Selenium	0.67	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	330000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	28.0			MS
7440-66-6	Zinc	14.6			MS

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SD1

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-13

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9.7	J		MS
7440-36-0	Antimony	0.57	J		MS
7440-38-2	Arsenic	3790		D	MS
7440-39-3	Barium	1.4	J		MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	4640			MS
7440-47-3	Chromium	0.11	J		MS
7440-48-4	Cobalt	0.18	J		MS
7440-50-8	Copper	1.5	J		MS
7439-89-6	Iron	73.2	J		MS
7439-92-1	Lead	0.93	J		MS
7439-95-4	Magnesium	136	J		MS
7439-96-5	Manganese	2.4			MS
7440-02-0	Nickel	4.2			MS
7440-09-7	Potassium	575			MS
7782-49-2	Selenium	0.74	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	672000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.13	J		MS
7440-66-6	Zinc	61.7			MS

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC9

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-04

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	196			MS
7440-36-0	Antimony	0.59	J		MS
7440-38-2	Arsenic	3040		D	MS
7440-39-3	Barium	22.1			MS
7440-41-7	Beryllium	0.17	J		MS
7440-43-9	Cadmium	0.36	J		MS
7440-70-2	Calcium	6520			MS
7440-47-3	Chromium	4.0			MS
7440-48-4	Cobalt	0.43	J		MS
7440-50-8	Copper	1.8	J		MS
7439-89-6	Iron	681			MS
7439-92-1	Lead	4.9			MS
7439-95-4	Magnesium	203	J		MS
7439-96-5	Manganese	27.8			MS
7440-02-0	Nickel	7.8			MS
7440-09-7	Potassium	478	J		MS
7782-49-2	Selenium	0.81	J		MS
7440-22-4	Silver	0.15	J		MS
7440-23-5	Sodium	473000		D	MS
7440-28-0	Thallium	0.13	J		MS
7440-62-2	Vanadium	24.3			MS
7440-66-6	Zinc	17.8			MS

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC4

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-12

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	107			MS
7440-36-0	Antimony	0.18	J		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	75.2			MS
7440-41-7	Beryllium	0.088	J		MS
7440-43-9	Cadmium	0.20	J		MS
7440-70-2	Calcium	46300			MS
7440-47-3	Chromium	0.73	J		MS
7440-48-4	Cobalt	1.1			MS
7440-50-8	Copper	0.99	J		MS
7439-89-6	Iron	667			MS
7439-92-1	Lead	0.39	J		MS
7439-95-4	Magnesium	23300			MS
7439-96-5	Manganese	25.6			MS
7440-02-0	Nickel	2.2			MS
7440-09-7	Potassium	3320			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	274000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	1.1	J		MS
7440-66-6	Zinc	5.5			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC3

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-11

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.9	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	98.5			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	134000		D	MS
7440-47-3	Chromium	0.35	J		MS
7440-48-4	Cobalt	23.9			MS
7440-50-8	Copper	0.72	J		MS
7439-89-6	Iron	491			MS
7439-92-1	Lead	0.11	J		MS
7439-95-4	Magnesium	81600			MS
7439-96-5	Manganese	4.0			MS
7440-02-0	Nickel	8.2			MS
7440-09-7	Potassium	2610			MS
7782-49-2	Selenium	2.2	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	127000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.13	J		MS
7440-66-6	Zinc	4.6			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC2

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-10

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12.2	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	20.2			MS
7440-39-3	Barium	76.4			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.16	J		MS
7440-70-2	Calcium	156000		D	MS
7440-47-3	Chromium	0.65	J		MS
7440-48-4	Cobalt	1.1			MS
7440-50-8	Copper	1.5	J		MS
7439-89-6	Iron	16500			MS
7439-92-1	Lead	0.27	J		MS
7439-95-4	Magnesium	45400			MS
7439-96-5	Manganese	182			MS
7440-02-0	Nickel	5.7			MS
7440-09-7	Potassium	4070			MS
7782-49-2	Selenium	19.2			MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	66300			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	5.0	U		MS
7440-66-6	Zinc	4.8			MS

Color Before: BROWN Clarity Before: CLOUDY Texture:

Color After: YELLOW Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC1

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-03

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4.0	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	55.1			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	161000		D	MS
7440-47-3	Chromium	1.0	J		MS
7440-48-4	Cobalt	0.47	J		MS
7440-50-8	Copper	0.84	J		MS
7439-89-6	Iron	661			MS
7439-92-1	Lead	0.17	J		MS
7439-95-4	Magnesium	85700			MS
7439-96-5	Manganese	13.8			MS
7440-02-0	Nickel	4.8			MS
7440-09-7	Potassium	2370			MS
7782-49-2	Selenium	1.2	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	65500			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.41	J		MS
7440-66-6	Zinc	20.5			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SC0

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-02

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3.5	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	54.7			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	163000		D	MS
7440-47-3	Chromium	0.81	J		MS
7440-48-4	Cobalt	0.47	J		MS
7440-50-8	Copper	0.57	J		MS
7439-89-6	Iron	654			MS
7439-92-1	Lead	0.14	J		MS
7439-95-4	Magnesium	87400			MS
7439-96-5	Manganese	11.2			MS
7440-02-0	Nickel	5.0			MS
7440-09-7	Potassium	2330			MS
7782-49-2	Selenium	2.2	J		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	63700			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.31	J		MS
7440-66-6	Zinc	5.2			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SB9

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SB9

Matrix: WATER Lab Sample ID: C4014-01

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5.7	J		MS
7440-36-0	Antimony	0.18	J		MS
7440-38-2	Arsenic	1.2			MS
7440-39-3	Barium	226			MS
7440-41-7	Beryllium	0.12	J		MS
7440-43-9	Cadmium	0.12	J		MS
7440-70-2	Calcium	138000		D	MS
7440-47-3	Chromium	0.49	J		MS
7440-48-4	Cobalt	0.95	J		MS
7440-50-8	Copper	1.4	J		MS
7439-89-6	Iron	6300			MS
7439-92-1	Lead	0.26	J		MS
7439-95-4	Magnesium	41800			MS
7439-96-5	Manganese	89.5			MS
7440-02-0	Nickel	4.7			MS
7440-09-7	Potassium	3210			MS
7782-49-2	Selenium	0.72	J		MS
7440-22-4	Silver	0.097	J		MS
7440-23-5	Sodium	95400			MS
7440-28-0	Thallium	0.090	J		MS
7440-62-2	Vanadium	0.53	J		MS
7440-66-6	Zinc	5.8			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

COVER PAGE

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No: 41851 Mod. Ref. No.: SDG No: ME2SB9

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
ME2SF0D	C4014-20
ME2SF0S	C4014-21
ME2SF1	C4014-17
ME2SF8	C4014-18

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	NO	YES
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	NO	YES
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Mildred Reyes Name: MILDRED REYES

Date: 10/24/11 Title: DOCUMENT CONTROL OFFICER

Metals

COVER PAGE

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No: 41851 Mod. Ref. No.: SDG No: ME2SB9

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
ME2SB9	C4014-01
ME2SC0	C4014-02
ME2SC1	C4014-03
ME2SC2	C4014-10
ME2SC3	C4014-11
ME2SC4	C4014-12
ME2SC9	C4014-04
ME2SD1	C4014-13
ME2SD2	C4014-14
ME2SD3	C4014-15
ME2SD9	C4014-05
ME2SE0	C4014-06
ME2SE1	C4014-07
ME2SE2	C4014-08
ME2SE3	C4014-09
ME2SE8	C4014-16
ME2SF0	C4014-19

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	NO	YES
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	NO	YES
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Mildred U Reyes Name: MILDRED REYES

Date: 10/24/11 Title: DOCUMENT CONTROL OFFICER

Resolution 2: In accordance with previous direction from Region 5, the laboratory will use the information documented on the TR/COC, note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ISM01.3

G. Calculation:

Calculation example for ICP-MS Water Sample:

Results reported in Ug/L = Results in ppb X Dilution Factor (if any) X Fraction of Sample Amount Taken in ICP Water- Prep

Fraction of Sample Amount Taken in ICP-MS Water- Prep = 100/100 or 50/50 =1

(If 100 ml Initial Volume taken and Final Volume was made to 100 ml or 50 ml Initial Volume and Final Volume made to 50 ml in ICP-MS Water Digestion procedure)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements. Duplicate sample did meet requirements . Serial Dilution did meet requirements.
Internal standard is failing for only ME2SD1 sample. However it is failing in the 2X dilution, so associated parameters is reported from the original run.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature M. Reyes Name: Mildred V. Reyes

Date 10/24/11 Title: Document Control Officer

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # ME2SB9
CASE # 41851
CONTRACT # EPW09038
LAB NAME: CHEMTECH CONSULTING GROUP
LAB CODE: CHEM
CHEMTECH PROJECT #C4014

A. Number of Samples and Date of Receipt

19 Water Samples were delivered to the laboratory intact on 10/05/11.

B. Parameters

Test requested for Metals CLP MS = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc.

C. Cooler Temp

Indicator Bottle: **Presence**/Absence
Cooler: 4°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: On TR/COC no 5-100411-170344-0003 shipped on 10/4 sample IDs ME2SF0 and ME2SE7 are on the TR/COC twice for 2 different station locations (W-0031 and W-0032), and (W-0038 and W-0039) respectively.

Issue 2: The container labels contain only the sample ID with no collection information. The laboratory used the matching information on the TR/COC with the corresponding sample ID between the TR/COC and sample container (and also compared with the sample tags attached to the container) for each sample.

E. Corrective Action taken for above:

Resolution 1: Per Region 5, these are the same sample to be used as laboratory QC. The station location for each sample is W-0031 for ME2SF0 and W-0038 for ME2SE7. The lab shall note the issue in the SDG Narrative and proceed with analysis.

ESAT Controlled Number: ESAT5.317.00272-pj 14 DEC 2011

DATE: December 14, 2011

Indiana Dept of Environmental Management
ATTN: Mark Jaworski/Dan Chesterson
100 N. Senate Avenue – Room N1255
Indianapolis, IN 46804-2222

Site Name: Kokomo Garrison/Main Water Treatment (IN) – **level 3 data validation**

Case #	Lab	Samples	SDG	Matrix
41851	ChemTech	6	ME2SD0	water

Analysis: metals

Upon receipt of data, please check each package for completeness and note any missing deliverables below.

Send this form back to Sylvia Griffin, Data Management Coordinator after filling in the blanks below.

Data Received by:_____ Date:_____

PROBLEMS:

Please indicate if data is complete, and note if there are any deliverables missing from the cases noted above.

_____

_____

Received by Data Management Coordinator, CRL for file.

Signature:_____ Date:_____

FROM: **U.S. EPA - Region 5**
Sylvia Griffin
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

Sent By: Pat Joyner
Data Coordinator
ESAT Region 5 **TechLaw**

Controlled Document

ESAT5.315.00064
ack
12-12-11

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 11/18/2011

SUBJECT: Review of Data
Received for review on 10/26/2011

FROM: Timothy Prendiville, Supervisor, Chief (SR-6J)
Superfund Contract Management Section

TO: Data User: IDEM
Email address: mjworsk@idem.IN.gov

LEVEL 3 DATA VALIDATION

We have reviewed the data for the following case:

SITE NAME: Kokomo Garrison/Main Water Treatment (IN)

CASE NUMBER: 41851 **SDG NUMBER:** ME2SD0

Number and Type of Samples: 6 waters

Sample Numbers: ME2SD0, ME2SE4-E7, ME2SE9

Laboratory: ChemTech **Hrs. for Review:** 16.0
+1.0

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Six (6) water samples, numbered ME2SD0, ME2SE4-E7, and ME2SE9 were collected on October 4, 2011. The lab received the samples on October 5, 2011 in good condition. All samples were analyzed for metals. All samples were analyzed using the CLP SOW ISM01.3 analysis procedures.

Inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) procedure.

1. HOLDING TIME:

No defects were found.

2. CALIBRATIONS:

No defects were found for the calibrations.

3. BLANKS:

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL). The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J+".

Aluminum
ME2SD0, ME2SE5, ME2SE7, ME2SE9

Barium
ME2SD0

Beryllium
ME2SE6, ME2SE7

Cadmium
ME2SE6, ME2SE7

Chromium
ME2SD0, ME2SE4

Cobalt
ME2SD0, ME2SE4, ME2SE5, ME2SE7, ME2SE9

Copper
ME2SE4, ME2SE5, ME2SE9

Iron
ME2SD0

Lead
ME2SD0, ME2SE4, ME2SE5, ME2SE9

Magnesium
ME2SD0

Manganese
ME2SD0

Vanadium
ME2SE4, ME2SE5, ME2SE6, ME2SE7, ME2SE9

Zinc
ME2SD0, ME2SE4, ME2SE5

The following inorganic samples are associated with an ICB/CCB or preparation blank concentration which is greater than the method detection limit (MDL) and with a negative ICB/CCB or preparation blank whose absolute value is greater than the MDL. The sample result is greater than the MDL.

Hits less than the CRQL are qualified "U". The sample result is raised to the CRQL.
Hits greater than the CRQL but less than 5 times the blank are qualified "J".

Chromium
ME2SE5, ME2SE7, ME2SE9

The following inorganic samples are associated with a negative ICB/CCB or preparation blank concentration whose absolute value is greater than the method detection limit (MDL). The sample result is also greater than the MDL.

Hits less than 5 times the blank are qualified "J-".

Arsenic
ME2SE5, ME2SE9

No samples were identified as field blanks.

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

No defects were found for matrix spike or laboratory control samples.

5. LABORATORY AND FIELD DUPLICATE:

No defects were found for the laboratory duplicate samples. No samples were identified as field duplicates.

6. ICP ANALYSIS:

The following inorganic samples have one or more internal standard percent relative intensities outside the acceptance window. The sample was re-analyzed at a 2 fold dilution and the internal standard percent relative intensity was acceptable. No qualification is needed.

The following sample results are reported from the dilution.

ME2SD0

Chromium, Cobalt, Copper, Iron, Manganese, Nickel, Selenium, Vanadium, Zinc

No defects were found for the tune, serial dilution sample, or ICS samples.

7. SAMPLE RESULTS:

The following inorganic samples have analyte concentrations reported above the method detection limit (MDL) but below the quantitation limit (CRQL).

Results are qualified "J".

Arsenic

ME2SE9

Potassium

ME2SD0

All data, except those qualified above, are acceptable.

EXES ISM01.3 Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SD0	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0034	pH:	2	Sample Date:	10042011	Sample Time:	13:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	33.2	ug/L	1			Yes	S2BVE
Arsenic	5100	ug/L	25	D		Yes	S2BVE
Barium	10.0	ug/L	1	J	U	Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	6320	ug/L	1			Yes	S2BVE
Chromium	4.0	ug/L	2	JD	U	Yes	S2BVE
Cobalt	2.0	ug/L	2	JD	U	Yes	S2BVE
Copper	12.3	ug/L	2	D		Yes	S2BVE
Iron	400	ug/L	2	JD	U	Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	500	ug/L	1	J	U	Yes	S2BVE
Manganese	2.0	ug/L	2	JD	U	Yes	S2BVE
Nickel	3.0	ug/L	2	D		Yes	S2BVE
Potassium	367	ug/L	1	J	J	Yes	S2BVE
Selenium	10.0	ug/L	2	UD	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	359000	ug/L	25	D		Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	10.8	ug/L	2	D		Yes	S2BVE
Zinc	4.0	ug/L	2	JD	U	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SE4	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0012	pH:	2	Sample Date:	10042011	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	U	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	5.4	ug/L	1			Yes	S2BVE
Barium	236	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	111000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	2240	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	38300	ug/L	1			Yes	S2BVE
Manganese	77.2	ug/L	1			Yes	S2BVE
Nickel	1.8	ug/L	1	*		Yes	S2BVE
Potassium	2560	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	34800	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	2.1	ug/L	1		J+	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SE5	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0014	pH:	2	Sample Date:	10042011	Sample Time:	11:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.2	ug/L	1		J-	Yes	S2BVE
Barium	161	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	110000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	2380	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	32900	ug/L	1			Yes	S2BVE
Manganese	170	ug/L	1			Yes	S2BVE
Nickel	1.0	ug/L	1			Yes	S2BVE
Potassium	2090	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	13600	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	2.0	ug/L	1	J	U	Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SE6	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0016	pH:	2	Sample Date:	10042011	Sample Time:	12:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	1140	ug/L	1			Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	53.2	ug/L	1			Yes	S2BVE
Barium	170	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	148000	ug/L	25	D		Yes	S2BVE
Chromium	3.9	ug/L	1			Yes	S2BVE
Cobalt	2.4	ug/L	1			Yes	S2BVE
Copper	14.8	ug/L	1			Yes	S2BVE
Iron	6920	ug/L	1			Yes	S2BVE
Lead	7.2	ug/L	1			Yes	S2BVE
Magnesium	45600	ug/L	1			Yes	S2BVE
Manganese	372	ug/L	1			Yes	S2BVE
Nickel	9.5	ug/L	1			Yes	S2BVE
Potassium	2470	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	71100	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	22.8	ug/L	1			Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SE7	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0038	pH:	2	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	1.0	ug/L	1	U	U	Yes	S2BVE
Barium	362	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	J	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	J	U	Yes	S2BVE
Calcium	75600	ug/L	1			Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	23.9	ug/L	1			Yes	S2BVE
Iron	454	ug/L	1			Yes	S2BVE
Lead	5.5	ug/L	1			Yes	S2BVE
Magnesium	28100	ug/L	1			Yes	S2BVE
Manganese	17.8	ug/L	1			Yes	S2BVE
Nickel	3.7	ug/L	1			Yes	S2BVE
Potassium	2350	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	24600	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	77.7	ug/L	1			Yes	S2BVE

Case No:	41851	Contract:	EPW09038	SDG No:	ME2SD0	Lab Code:	CHEM
Sample Number:	ME2SE9	Method:	ICP_MS	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0018	pH:	2	Sample Date:	10042011	Sample Time:	12:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Aluminum	20.0	ug/L	1	J	U	Yes	S2BVE
Antimony	2.0	ug/L	1	U	U	Yes	S2BVE
Arsenic	0.59	ug/L	1	J	J-	Yes	S2BVE
Barium	224	ug/L	1			Yes	S2BVE
Beryllium	1.0	ug/L	1	U	U	Yes	S2BVE
Cadmium	1.0	ug/L	1	U	U	Yes	S2BVE
Calcium	112000	ug/L	25	D		Yes	S2BVE
Chromium	2.0	ug/L	1	J	U	Yes	S2BVE
Cobalt	1.0	ug/L	1	J	U	Yes	S2BVE
Copper	2.0	ug/L	1	J	U	Yes	S2BVE
Iron	1210	ug/L	1			Yes	S2BVE
Lead	1.0	ug/L	1	J	U	Yes	S2BVE
Magnesium	41000	ug/L	1			Yes	S2BVE
Manganese	54.8	ug/L	1			Yes	S2BVE
Nickel	1.9	ug/L	1			Yes	S2BVE
Potassium	3420	ug/L	1			Yes	S2BVE
Selenium	5.0	ug/L	1	U	U	Yes	S2BVE
Silver	1.0	ug/L	1	U	U	Yes	S2BVE
Sodium	60900	ug/L	1			Yes	S2BVE
Thallium	1.0	ug/L	1	U	U	Yes	S2BVE
Vanadium	5.0	ug/L	1	J	U	Yes	S2BVE
Zinc	8.2	ug/L	1			Yes	S2BVE

SDG # ME2SD0

USEPA CLP Organics COC (LAB COPY)

DateShipped: 10/4/2011

CarrierName: FedEx

AirbillNo: 854390225913

CHAIN OF CUSTODY RECORD

Case #: 41851

Cooler #: 2

No: 5-100411-170344-0003

Lab: ChemTech Consulting Group

Lab Contact: Divya Mehta

Lab Phone: 908-789-8900

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
ME2SD0	Ground Water/ Wright, Hope	Grab	ICP/MS(21)	5-245162 (HNO3) (1)	W-0034	10/04/2011 13:10		
ME2SE4	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245139 (HNO3) (1)	W-0012	10/04/2011 11:30		
ME2SE5	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245141 (HNO3) (1)	W-0014	10/04/2011 11:55		
ME2SE6	Ground Water/ Milton, Rick	Grab	ICP/MS(21)	5-245143 (HNO3) (1)	W-0016	10/04/2011 12:20		
ME2SE7	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245166 (HNO3) (1)	W-0038	10/04/2011 15:05		
ME2SE7	Ground Water/ Johnson, Tim	Grab	ICP/MS(21)	5-245167 (HNO3) (1)	W-0039	10/04/2011 15:05		
ME2SE9	Ground Water/ Chesterson, Dan	Grab	ICP/MS(21)	5-245145 (HNO3) (1)	W-0018	10/04/2011 12:05		
ME2SF0	Ground Water/ Wyatt, DeDe	Grab	ICP/MS(21)	5-245158 (HNO3) (1)	W-0031	10/04/2011 14:00		
ME2SF0	Ground Water/ Wyatt, DeDe	Grab	ICP/MS(21)	5-245159 (HNO3) (1)	W-0032	10/04/2011 14:00		

Copy

Original Documents are locked in CSF

ME2SB9

Sample(s) to be used for Lab QC: ME2SE7, ME2SF0 - Special Instructions: Please use IDEM account Number #1260-5334-7 to return cooler(s) to:

Indiana Department of Environmental Management

Office of Land Quality/Site Investigation Program

100 North Senate Avenue

MC 66-22 IGCN N1101

Indianapolis, IN 46204-2251

Signature

10/19/11

Date

Temp 1.4°C

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

23724, 23725

Analysis Key: ICP/MS=CLP TAL Total Metals ICP-MS

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	Ken Lucas	10/05/11	9:05						

(Except: ME2SF0 all samples are in SDG # ME2SB9)

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # ME2SD0
CASE # 41851
CONTRACT # EPW09038
LAB NAME: CHEMTECH CONSULTING GROUP
LAB CODE: CHEM
CHEMTECH PROJECT #C4015

A. Number of Samples and Date of Receipt

8 Water Samples were delivered to the laboratory intact on 10/05/11.

B. Parameters

Test requested for Metals CLP MS = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc.

C. Cooler Temp

Indicator Bottle: **Presence**/Absence
Cooler: 4°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: On TR/COC no 5-100411-170344-0003 shipped on 10/4 sample IDs ME2SF0 and ME2SE7 are on the TR/COC twice for 2 different station locations (W-0031 and W-0032), and (W-0038 and W-0039) respectively.

Issue 2: The container labels contain only the sample ID with no collection information. The laboratory used the matching information on the TR/COC with the corresponding sample ID between the TR/COC and sample container (and also compared with the sample tags attached to the container) for each sample.

E. Corrective Action taken for above:

Resolution 1: Per Region 5, these are the same sample to be used as laboratory QC. The station location for each sample is W-0031 for ME2SF0 and W-0038 for ME2SE7. The lab shall note the issue in the SDG Narrative and proceed with analysis.

Resolution 2: In accordance with previous direction from Region 5, the laboratory will use the information documented on the TR/COC, note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ISM01.3

G. Calculation:

***Calculation example for ICP-MS Water Sample*:**

Results reported in Ug/L = Results in ppb X Dilution Factor (if any) X Fraction of Sample Amount Taken in ICP Water- Prep

Fraction of Sample Amount Taken in ICP-MS Water- Prep = 100/100 or 50/50 =1

(If 100 ml Initial Volume taken and Final Volume was made to 100 ml or 50 ml Initial Volume and Final Volume made to 50 ml in ICP-MS Water Digestion procedure)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements. Duplicate sample did meet requirements. Serial Dilution did meet requirements. Internal standard is failing for only ME2SD0 sample. So associated parameter is reported from the 2X dilution run.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature M. Valeed V Reyes Name: Mildred V. Reyes

Date 10/25/11 Title: Document Control Officer

COVER PAGE

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No: 41851 Mod. Ref. No.: SDG No: ME2SD0

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
ME2SD0	C4015-01
ME2SE4	C4015-02
ME2SE5	C4015-03
ME2SE6	C4015-04
ME2SE7	C4015-05
ME2SE7D	C4015-06
ME2SE7S	C4015-07
ME2SE9	C4015-08

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	NO	YES
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	NO	YES
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Mildred Reyes Name: MILDRED REYES

Date: 10/25/11 Title: DOCUMENT CONTROL OFFICER

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SD0

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-01

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7.5	J		MS
7440-36-0	Antimony	33.2			MS
7440-38-2	Arsenic	5100		D	MS
7440-39-3	Barium	2.4	J		MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	6320			MS
7440-47-3	Chromium	3.6	J	D	MS
7440-48-4	Cobalt	0.75	J	D	MS
7440-50-8	Copper	12.3		D	MS
7439-89-6	Iron	14.3	J	D	MS
7439-92-1	Lead	0.33	J		MS
7439-95-4	Magnesium	10.9	J		MS
7439-96-5	Manganese	0.89	J	D	MS
7440-02-0	Nickel	3.0		D	MS
7440-09-7	Potassium	367	J		MS
7782-49-2	Selenium	10.0	U	D	MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	359000		D	MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	10.8		D	MS
7440-66-6	Zinc	3.1	J	D	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE4

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-02

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.0	U		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	5.4			MS
7440-39-3	Barium	236			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	111000		D	MS
7440-47-3	Chromium	1.3	J		MS
7440-48-4	Cobalt	0.21	J		MS
7440-50-8	Copper	0.54	J		MS
7439-89-6	Iron	2240			MS
7439-92-1	Lead	0.19	J		MS
7439-95-4	Magnesium	38300			MS
7439-96-5	Manganese	77.2			MS
7440-02-0	Nickel	1.8			MS
7440-09-7	Potassium	2560			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	34800			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.37	J		MS
7440-66-6	Zinc	2.1			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE5

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-03

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2.0	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.2			MS
7440-39-3	Barium	161			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	110000		D	MS
7440-47-3	Chromium	0.28	J		MS
7440-48-4	Cobalt	0.094	J		MS
7440-50-8	Copper	1.5	J		MS
7439-89-6	Iron	2380			MS
7439-92-1	Lead	0.27	J		MS
7439-95-4	Magnesium	32900			MS
7439-96-5	Manganese	170			MS
7440-02-0	Nickel	1.0			MS
7440-09-7	Potassium	2090			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	13600			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.34	J		MS
7440-66-6	Zinc	2.0	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE6

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-04

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1140			MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	53.2			MS
7440-39-3	Barium	170			MS
7440-41-7	Beryllium	0.14	J		MS
7440-43-9	Cadmium	0.22	J		MS
7440-70-2	Calcium	148000		D	MS
7440-47-3	Chromium	3.9			MS
7440-48-4	Cobalt	2.4			MS
7440-50-8	Copper	14.8			MS
7439-89-6	Iron	6920			MS
7439-92-1	Lead	7.2			MS
7439-95-4	Magnesium	45600			MS
7439-96-5	Manganese	372			MS
7440-02-0	Nickel	9.5			MS
7440-09-7	Potassium	2470			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	71100			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	2.1	J		MS
7440-66-6	Zinc	22.8			MS

Color Before: COLORLESS Clarity Before: CLOUDY Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE7

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-05

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1.9	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	362			MS
7440-41-7	Beryllium	0.080	J		MS
7440-43-9	Cadmium	0.14	J		MS
7440-70-2	Calcium	75600			MS
7440-47-3	Chromium	0.42	J		MS
7440-48-4	Cobalt	0.25	J		MS
7440-50-8	Copper	23.9			MS
7439-89-6	Iron	454			MS
7439-92-1	Lead	5.5			MS
7439-95-4	Magnesium	28100			MS
7439-96-5	Manganese	17.8			MS
7440-02-0	Nickel	3.7			MS
7440-09-7	Potassium	2350			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	24600			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.61	J		MS
7440-66-6	Zinc	77.7			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

ME2SE9

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER Lab Sample ID: C4015-08

% Solids: Date Received: 10/05/2011

Concentration Units (ug/L, ug, or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2.3	J		MS
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	0.59	J		MS
7440-39-3	Barium	224			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium	112000		D	MS
7440-47-3	Chromium	0.48	J		MS
7440-48-4	Cobalt	0.22	J		MS
7440-50-8	Copper	0.71	J		MS
7439-89-6	Iron	1210			MS
7439-92-1	Lead	0.078	J		MS
7439-95-4	Magnesium	41000			MS
7439-96-5	Manganese	54.8			MS
7440-02-0	Nickel	1.9			MS
7440-09-7	Potassium	3420			MS
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U		MS
7440-23-5	Sodium	60900			MS
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.43	J		MS
7440-66-6	Zinc	8.2			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter): WATER

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): UG/L

	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
Analyte		C	1	C	2	C	3	C		C	M
Aluminum	3.348	J	9.093	J	3.590	J	4.316	J	1.378	J	MS
Antimony	0.873	J	0.613	J	0.540	J	0.639	J	0.202	J	MS
Arsenic	-0.231	J	-0.495	J	-0.655	J	-0.589	J	-0.328	J	MS
Barium	0.646	J	0.808	J	0.446	J	0.946	J	0.301	J	MS
Beryllium	0.202	J	0.187	J	0.108	J	0.230	J	1.000	U	MS
Cadmium	0.212	J	0.175	J	1.000	U	0.267	J	1.000	U	MS
Calcium	500.000	U	500.000	U	-25.630	J	-21.310	J	-68.070	J	MS
Chromium	0.119	J	2.000	U	2.000	U	0.101	J	-0.111	J	MS
Cobalt	0.192	J	0.162	J	0.075	J	0.201	J	0.068	J	MS
Copper	0.335	J	0.348	J	0.177	J	0.373	J	0.176	J	MS
Iron	11.970	J	16.720	J	200.000	U	19.100	J	13.630	J	MS
Lead	0.290	J	0.168	J	0.092	J	0.204	J	0.062	J	MS
Magnesium	16.370	J	25.550	J	9.875	J	24.460	J	6.956	J	MS
Manganese	0.437	J	0.391	J	1.000	U	0.446	J	1.000	U	MS
Nickel	0.179	J	0.169	J	1.000	U	0.241	J	1.000	U	MS
Potassium	500.000	U	14.250	J	500.000	U	8.962	J	500.000	U	MS
Selenium	5.000	U	5.000	U	5.000	U	5.000	U	5.000	U	MS
Silver	0.172	J	0.163	J	0.107	J	0.236	J	1.000	U	MS
Sodium	23.690	J	36.640	J	500.000	U	61.570	J	14.940	J	MS
Thallium	0.296	J	0.189	J	0.094	J	0.229	J	1.000	U	MS
Vanadium	0.192	J	0.394	J	0.346	J	0.364	J	0.365	J	MS
Zinc	0.415	J	0.356	J	2.000	U	0.383	J	2.000	U	MS

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.683	J	20.000	U	3.452	J			MS
Antimony			0.602	J	0.533	J	0.643	J			MS
Arsenic			-0.710	J	-0.827	J	-0.752	J			MS
Barium			0.643	J	10.000	U	0.696	J			MS
Beryllium			0.107	J	1.000	U	0.169	J			MS
Cadmium			0.124	J	1.000	U	0.204	J			MS
Calcium			-40.760	J	-51.140	J	-37.130	J			MS
Chromium			2.000	U	-0.097	J	2.000	U			MS
Cobalt			0.125	J	1.000	U	0.186	J			MS
Copper			0.291	J	2.000	U	0.348	J			MS
Iron			9.137	J	200.000	U	16.720	J			MS
Lead			0.134	J	1.000	U	0.154	J			MS
Magnesium			14.630	J	500.000	U	20.240	J			MS
Manganese			0.230	J	1.000	U	0.369	J			MS
Nickel			1.000	U	1.000	U	0.165	J			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.160	J	1.000	U	0.178	J			MS
Sodium			18.870	J	500.000	U	56.620	J			MS
Thallium			0.151	J	1.000	U	0.184	J			MS
Vanadium			0.342	J	0.412	J	0.519	J			MS
Zinc			0.278	J	2.000	U	0.363	J			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			3.329	J	3.249	J	2.525	J			MS
Antimony			0.625	J	0.658	J	0.608	J			MS
Arsenic			-0.757	J	-0.760	J	-0.783	J			MS
Barium			0.824	J	0.789	J	0.611	J			MS
Beryllium			0.175	J	0.132	J	0.099	J			MS
Cadmium			0.157	J	0.179	J	1.000	U			MS
Calcium			-39.570	J	-42.110	J	-48.820	J			MS
Chromium			2.000	U	2.000	U	2.000	U			MS
Cobalt			0.143	J	0.162	J	0.105	J			MS
Copper			0.348	J	0.363	J	0.255	J			MS
Iron			19.830	J	15.240	J	13.270	J			MS
Lead			0.156	J	0.152	J	0.119	J			MS
Magnesium			17.290	J	17.420	J	13.460	J			MS
Manganese			0.323	J	0.298	J	0.197	J			MS
Nickel			0.174	J	0.184	J	0.171	J			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.183	J	0.179	J	0.139	J			MS
Sodium			29.740	J	21.220	J	7.570	J			MS
Thallium			0.169	J	0.178	J	0.128	J			MS
Vanadium			0.428	J	0.555	J	0.295	J			MS
Zinc			0.275	J	0.273	J	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.367	J	2.568	J	1.348	J			MS
Antimony			0.585	J	0.595	J	0.565	J			MS
Arsenic			-0.793	J	-0.820	J	-0.519	J			MS
Barium			0.502	J	0.507	J	10.000	U			MS
Beryllium			0.121	J	0.106	J	1.000	U			MS
Cadmium			0.119	J	0.132	J	1.000	U			MS
Calcium			-55.280	J	-57.550	J	-67.090	J			MS
Chromium			2.000	U	2.000	U	2.000	U			MS
Cobalt			0.100	J	0.098	J	1.000	U			MS
Copper			0.281	J	0.251	J	2.000	U			MS
Iron			15.710	J	14.930	J	11.750	J			MS
Lead			0.128	J	0.106	J	1.000	U			MS
Magnesium			12.730	J	11.820	J	500.000	U			MS
Manganese			0.190	J	0.189	J	1.000	U			MS
Nickel			1.000	U	1.000	U	1.000	U			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.130	J	0.107	J	1.000	U			MS
Sodium			500.000	U	500.000	U	500.000	U			MS
Thallium			0.133	J	0.094	J	1.000	U			MS
Vanadium			0.441	J	0.311	J	0.362	J			MS
Zinc			0.378	J	2.000	U	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.685	J	1.596	J	2.912	J			MS
Antimony			0.652	J	0.649	J	0.775	J			MS
Arsenic			-0.387	J	-0.458	J	-0.565	J			MS
Barium			0.505	J	10.000	U	0.534	J			MS
Beryllium			0.074	J	1.000	U	0.079	J			MS
Cadmium			0.132	J	1.000	U	0.134	J			MS
Calcium			-57.700	J	-68.720	J	-62.560	J			MS
Chromium			2.000	U	-0.097	J	2.000	U			MS
Cobalt			0.097	J	1.000	U	0.098	J			MS
Copper			0.203	J	0.133	J	0.219	J			MS
Iron			15.170	J	15.660	J	16.940	J			MS
Lead			0.106	J	1.000	U	0.116	J			MS
Magnesium			12.430	J	6.225	J	11.610	J			MS
Manganese			0.238	J	1.000	U	0.197	J			MS
Nickel			1.000	U	1.000	U	1.000	U			MS
Potassium			500.000	U	500.000	U	500.000	U			MS
Selenium			5.000	U	5.000	U	5.000	U			MS
Silver			0.122	J	1.000	U	0.083	J			MS
Sodium			23.150	J	11.550	J	19.180	J			MS
Thallium			0.121	J	1.000	U	0.127	J			MS
Vanadium			0.181	J	0.354	J	0.442	J			MS
Zinc			2.000	U	2.000	U	2.000	U			MS

Metals

3-IN
BLANKS

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			2.073	J	20.000	U					MS
Antimony			0.619	J	0.602	J					MS
Arsenic			-0.449	J	-0.549	J					MS
Barium			10.000	U	10.000	U					MS
Beryllium			1.000	U	1.000	U					MS
Cadmium			0.137	J	1.000	U					MS
Calcium			-67.910	J	-74.680	J					MS
Chromium			-0.114	J	-0.091	J					MS
Cobalt			1.000	U	1.000	U					MS
Copper			0.177	J	2.000	U					MS
Iron			17.180	J	19.350	J					MS
Lead			0.061	J	1.000	U					MS
Magnesium			8.094	J	500.000	U					MS
Manganese			1.000	U	1.000	U					MS
Nickel			1.000	U	1.000	U					MS
Potassium			500.000	U	500.000	U					MS
Selenium			5.000	U	5.000	U					MS
Silver			1.000	U	1.000	U					MS
Sodium			11.440	J	7.618	J					MS
Thallium			1.000	U	1.000	U					MS
Vanadium			0.376	J	0.338	J					MS
Zinc			2.000	U	2.000	U					MS

Metals

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ME2SE7S

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER

% Solids for Sample:

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	102.8000		2.0000	U	100.00	103		MS
Arsenic	75 - 125	42.6300		1.0000	U	40.00	107		MS
Barium	75 - 125	2378.0000		362.3000		2000.00	101		MS
Beryllium	75 - 125	52.9500		0.0800		50.00	106		MS
Cadmium	75 - 125	51.5600		0.1370		50.00	103		MS
Chromium	75 - 125	196.1000		0.4200		200.00	98		MS
Cobalt	75 - 125	497.5000		0.2540		500.00	99		MS
Copper	75 - 125	277.4000		23.9100		250.00	101		MS
Lead	75 - 125	26.0000		5.5320		20.00	102		MS
Manganese	75 - 125	510.6000		17.8200		500.00	99		MS
Nickel	75 - 125	505.7000		3.7030		500.00	100		MS
Selenium	75 - 125	110.5000		5.0000	U	100.00	110		MS
Silver	75 - 125	47.7900		1.0000	U	50.00	96		MS
Thallium	75 - 125	50.8100		1.0000	U	50.00	102		MS
Vanadium	75 - 125	491.3000		0.6080		500.00	98		MS
Zinc	75 - 125	586.3000		77.6600		500.00	102		MS

Comments:

5B-IN

POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

Lab Name: _____ Contract: _____

Lab Code: _____ Case No.: _____ Mod. Ref. No.: _____ SDG No.: _____

Matrix: _____

Concentration Units: (ug/L or mg/Kg dry weight):

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M

Comments:

_____

_____

_____

Metals

6-IN

DUPLICATES

EPA SAMPLE NO.

ME2SE7D

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Matrix: WATER

% Solids for Sample:

Concentration Units: (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		1.8930		1.8150	J	4		MS
Antimony		2.0000	U	2.0000	U			MS
Arsenic		1.0000	U	1.0000	U			MS
Barium		362.3000		360.8000		0		MS
Beryllium		0.0800		1.0000	U	0		MS
Cadmium		0.1370		1.0000	U	0		MS
Calcium		75580.0000		74750.0000		1		MS
Chromium		0.4200		0.2970	J	34		MS
Cobalt		0.2540		0.1990	J	24		MS
Copper		23.9100		23.3100		3		MS
Iron	200.0000	454.1000		433.7000		5		MS
Lead		5.5320		5.5160		0		MS
Magnesium		28090.0000		27910.0000		1		MS
Manganese		17.8200		17.5700		1		MS
Nickel	1.0000	3.7030		3.6210		2		MS
Potassium	500.0000	2347.0000		2329.0000		1		MS
Selenium		5.0000	U	5.0000	U			MS
Silver		1.0000	U	1.0000	U			MS
Sodium		24620.0000		24530.0000		0		MS
Thallium		1.0000	U	1.0000	U			MS
Vanadium		0.6080		0.4640	J	27		MS
Zinc		77.6600		76.5900		1		MS

Metals

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: _____ SDG No.: ME2SD0

Instrument Type: MS Instrument ID: P6 Date: 01/11/2011

Preparation Method: 200.8

Concentration Units (ug/L, mg/kg, or ug): UG/L

Analyte	Wavelength/Mass	MDL
Aluminum	27.00	1.2
Antimony	121.00	0.17
Arsenic	75.00	0.14
Barium	137.00	0.29
Beryllium	9.00	0.061
Cadmium	111.00	0.11
Calcium	44.00	6.3
Chromium	52.00	0.078
Cobalt	59.00	0.054
Copper	63.00	0.097
Iron	57.00	6.6
Lead	208.00	0.051
Magnesium	24.00	5.5
Manganese	55.00	0.15
Nickel	60.00	0.15
Potassium	39.00	8.0
Selenium	82.00	0.63
Silver	107.00	0.070
Sodium	23.00	5.7
Thallium	205.00	0.074
Vanadium	51.00	0.11
Zinc	66.00	0.24

Comments: _____

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
TUNE	1.0	2007					X				X			X	X														
S0	1.0	2151	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	2159	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	2207	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	2215	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	2223	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	2231	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICV01	1.0	2246	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB01	1.0	2254	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA01	1.0	2302		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
ICSAB01	1.0	2310		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
ICSA02	10	2318	X						X				X		X				X			X							
ICSAB02	10	2326	X						X				X		X				X			X							
CCV01	1.0	2333	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB01	1.0	2341	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	2349																											
ZZZZZZ	1.0	2357																											
ZZZZZZ	1.0	0005																											
ZZZZZZ	1.0	0013																											
ZZZZZZ	1.0	0021																											
ZZZZZZ	1.0	0029																											
ZZZZZZ	1.0	0037																											
ZZZZZZ	1.0	0045																											
ZZZZZZ	25	0052																											
ZZZZZZ	25	0100																											
CCV02	1.0	0108	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB02	1.0	0116	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	0124																											
ZZZZZZ	1.0	0132																											
ZZZZZZ	5.0	0140																											
ZZZZZZ	1.0	0148																											
ZZZZZZ	1.0	0156																											
ZZZZZZ	25	0204																											
ZZZZZZ	25	0211																											
ZZZZZZ	125	0219																											
ZZZZZZ	24	0227																											
ZZZZZZ	25	0235																											

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
CCV03	1.0	0243	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB03	1.0	0251	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0259																										
ZZZZZZ	1.0	0307																										
ZZZZZZ	1.0	0315																										
ZZZZZZ	1.0	0323																										
ZZZZZZ	1.0	0330																										
ZZZZZZ	25	0338																										
ZZZZZZ	25	0346																										
ZZZZZZ	25	0354																										
ZZZZZZ	25	0402																										
ZZZZZZ	25	0410																										
CCV04	1.0	0418	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB04	1.0	0426	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0434																										
ZZZZZZ	1.0	0442																										
ZZZZZZ	1.0	0450																										
ZZZZZZ	1.0	0458																										
ZZZZZZ	1.0	0505																										
ZZZZZZ	25	0513																										
ZZZZZZ	25	0521																										
ZZZZZZ	25	0529																										
ZZZZZZ	25	0537																										
ZZZZZZ	25	0545																										
CCV05	1.0	0553	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB05	1.0	0601	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	0609																										
ZZZZZZ	1.0	0617																										
ZZZZZZ	1.0	0625																										
ZZZZZZ	1.0	0633																										
ZZZZZZ	1.0	0641																										
ZZZZZZ	25	0649																										
ZZZZZZ	25	0656																										
ZZZZZZ	25	0704																										
ZZZZZZ	25	0712																										
ZZZZZZ	25	0720																										
CCV06	1.0	0728	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB06	1.0	0736	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																								
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	0744																									
ZZZZZZ	25	0752																									
ZZZZZZ	1.0	0800																									
ZZZZZZ	1.0	0808																									
ZZZZZZ	1.0	0816																									
ZZZZZZ	1.0	0824																									
ZZZZZZ	25	0832																									
ZZZZZZ	25	0840																									
ZZZZZZ	25	0848																									
ZZZZZZ	25	0855																									
CCV07	1.0	0903	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB07	1.0	0911	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	0919																									
ZZZZZZ	1.0	0927																									
ZZZZZZ	5.0	0935																									
ZZZZZZ	1.0	0943																									
ZZZZZZ	1.0	0951																									
ZZZZZZ	25	0959																									
ZZZZZZ	25	1007																									
ZZZZZZ	125	1015																									
ZZZZZZ	25	1023																									
ZZZZZZ	25	1031																									
CCV08	1.0	1039	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB08	1.0	1047	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	1055																									
ZZZZZZ	1.0	1102																									
ZZZZZZ	1.0	1110																									
ZZZZZZ	1.0	1118																									
ZZZZZZ	1.0	1126																									
ZZZZZZ	25	1134																									
ZZZZZZ	25	1142																									
ZZZZZZ	25	1150																									
ZZZZZZ	25	1158																									
ZZZZZZ	25	1206																									
CCV09	1.0	1214	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
CCB09	1.0	1222	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		
ZZZZZZ	1.0	1230																									

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	1238																										
ZZZZZZ	1.0	1246																										
ZZZZZZ	1.0	1254																										
ZZZZZZ	1.0	1302																										
ZZZZZZ	25	1310																										
ZZZZZZ	25	1318																										
ZZZZZZ	25	1326																										
ZZZZZZ	25	1333																										
ZZZZZZ	25	1341																										
CCV10	1.0	1349	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB10	1.0	1357	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	1405																										
ZZZZZZ	1.0	1413																										
ZZZZZZ	1.0	1421																										
ZZZZZZ	1.0	1429																										
ZZZZZZ	1.0	1437																										
ZZZZZZ	25	1445																										
ZZZZZZ	25	1453																										
ZZZZZZ	25	1501																										
ZZZZZZ	25	1509																										
ZZZZZZ	25	1517																										
CCV11	1.0	1525	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB11	1.0	1533	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	1541																										
ZZZZZZ	1.0	1549																										
ZZZZZZ	1.0	1557																										
ZZZZZZ	1.0	1605																										
ZZZZZZ	1.0	1613																										
ZZZZZZ	25	1621																										
ZZZZZZ	25	1629																										
ZZZZZZ	25	1637																										
ZZZZZZ	25	1645																										
ZZZZZZ	25	1653																										
CCV12	1.0	1701	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB12	1.0	1709	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	1717																										
ZZZZZZ	1.0	1725																										
ZZZZZZ	1.0	1733																										

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	1741																										
ZZZZZZ	1.0	1749																										
ZZZZZZ	25	1757																										
ZZZZZZ	25	1805																										
ZZZZZZ	2.0	1813																										
ZZZZZZ	25	1821																										
ZZZZZZ	25	1829																										
CCV13	1.0	1837	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB13	1.0	1845	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	1853																										
ZZZZZZ	1.0	1901																										
ZZZZZZ	1.0	1909																										
ZZZZZZ	1.0	1917																										
ZZZZZZ	5.0	1925																										
ZZZZZZ	25	1933																										
ZZZZZZ	25	1941																										
CCV14	1.0	1949	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB14	1.0	1957	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	2005																										
ZZZZZZ	1.0	2013																										
ZZZZZZ	2.0	2021																										
ZZZZZZ	25	2029																										
ZZZZZZ	25	2037																										
CCV15	1.0	2045	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB15	1.0	2053	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
PBW01	1.0	2101	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
LCS01	1.0	2109	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SD0	1.0	2117	X	X		X	X	X	X					X	X				X		X		X					
ME2SE4	1.0	2125	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SE5	1.0	2133	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SE6	1.0	2141	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ME2SD0	25	2149			X																	X						
ME2SE4	25	2157							X																			
ME2SE5	25	2205							X																			
ME2SE6	25	2213							X																			
CCV16	1.0	2221	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB16	1.0	2229	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

Metals

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Consulting Group Contract: EPW09038

Lab Code: CHEM Case No.: 41851 Mod. Ref. No.: SDG No.: ME2SD0

Instrument ID: P6 Analysis Method: MS

Start Date: 10/19/2011 End Date: 10/20/2011

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ME2SE7	1.0	2237	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ME2SE7D	1.0	2245	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	2253																											
ME2SE7L	5.0	2301	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ME2SE7S	1.0	2309		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
ME2SD0	2.0	2317								X	X	X	X			X		X		X				X	X				
ME2SE9	1.0	2325	X	X	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ME2SE9	25	2333							X																				
CCV17	1.0	2341	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB17	1.0	2349	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ~ REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Sample Delivery Group: ME2500 CERCLIS No: INN0G10479

Case No: 41851 Site Name/Location: Kokomo Garrison (IN)

Contractor or EPA Lab: Chem Data User: FOEM

No. of Samples: 8 Date Sampled or Date Received: 26 Oct 2011

Have Chain-of-Custody records been received? Yes ✓ No _____
Have traffic reports or packing lists been received? Yes ✓ No _____
If no, are traffic reports or packing list numbers written on the Chain-of-Custody Record?
Yes _____ No _____
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____
_____ _____ _____ _____

Are basic data forms in? ~~Yes~~ ✓ No _____
No of samples claimed: 8 No. of samples received: _____

Received by: R A Jaeger Date: 26 Oct 2011

Received by LSSS: R A Jaeger Date: 28 Oct 2011

Review started: 11/16/2011 Reviewer Signature: James Edinberg

Total time spent on review: 16.0 +1.0 on 12-9-11 Date review completed: 11/18/2011

Copied by: A. C. Harvey Date: Dec 12, 2011

Mailed to user by: R A Jaeger Date: 14 Dec 2011

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffin, Data Mgmt. Coordinator, Region V, ML-10C

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Organic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Dioxin data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
SAS Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Date: _____

ESAT Controlled Number: ESAT5.317.00264-PJ, 7 Dec 2011

DATE: December 7, 2011

Indiana Dept of Environmental Management
ATTN: Mark Jaworski/Dan Chesterson
100 N. Senate Avenue – Room N1255
Indianapolis, IN 46804-2222

Site Name: Kokomo Garrison/Main Water Treatment (IN) – **level 3 data validation**

Case #	Lab	Samples	SDG	Matrix
41851	ALS	15	E2SB9	water

Analysis: trace volatile

Upon receipt of data, please check each package for completeness and note any missing deliverables below.

Send this form back to Sylvia Griffin, Data Management Coordinator after filling in the blanks below.

Data Received by:_____ Date:_____

PROBLEMS:

Please indicate if data is complete, and note if there are any deliverables missing from the cases noted above.

_____

_____

Received by Data Management Coordinator, CRL for file.

Signature:_____ Date:_____

FROM: **U.S. EPA - Region 5**
Sylvia Griffin
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

Sent By: Pat Joyner
Data Coordinator
ESAT Region 5 **TechLaw**

Controlled Document

ESAT5.316.00117

acH
12-6-11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 26 October 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: IDEM
mjworsk@idem.IN.gov

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: Kokomo Garrison/Main Water Treatment (IN)

Case Number: 41851 SDG Number: E2SB9

Number and Type of Samples: 15 Waters (Trace VOA)

Sample Numbers: E2SB9, E2SC0-C1, E2SC9, E2SD5, E2SD9, E2SE0-E7, E2SE9

Laboratory: ALS Laboratory Group- DATAC Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41851 SDG Number: E2SB9
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Fifteen (15) preserved water samples labeled E2SB9, E2SC0-C1, E2SC9, E2SD5, E2SD9, E2SE0-E7 and E2SE9, were shipped to ALS Laboratory Group located in Salt Lake City, UT. All samples were collected 10/4/11 and received 10/5/11 intact. All samples arrived in coolers with a temperature of 9°C.

All samples were analyzed for the trace volatile list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Sample E2SE7 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No samples were identified as field blanks or field duplicates.

Case Number: 41851 SDG Number: E2SB9
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

No Problems Found.

4. BLANKS

The following trace volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified "J" as they may be a result of carryover.

E2SE3, E2SC1
cis-1,2-Dichloroethene

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
VHBLKT1

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified.

E2SE7MS, E2SE7MSD
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E2SC0, E2SC1, E2SC9, E2SE3
cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

Case Number: 41851 SDG Number: E2SB9
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E2SE7 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No Problems Found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to trace volatile analysis.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks or field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E2SB9
Toluene, Ethylbenzene

E2SB9DL
Chloroethane, 1,1-Dichloroethane, cis-1,2-Dichloroethene

E2SC0
trans-1,2-Dichloroethene

E2SC1
trans-1,2-Dichloroethene, 1,1,1-Trichloroethane, Benzene, Trichloroethene

E2SC1DL
Benzene

E2SC9
Vinyl chloride, Carbon disulfide, trans-1,2-Dichloroethene

E2SD5, VBLKT2
Methylene chloride

E2SE1, E2SE4
1,1-Dichloroethane

E2SE2
1,1-Dichloroethene, 1,1-Dichloroethane

E2SE2DL, E2SE3DL
trans-1,2-Dichloroethene, 1,1-Dichloroethane

E2SE3
1,1-Dichloroethene

E2SE5
Vinyl chloride, cis-1,2-Dichloroethene

E2SE6
Vinyl chloride, Methyl tert-butyl ether

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "J".

Unknown Carbonyl sulfide @ 1.68
E2SC0, E2SC1, E2SC9, E2SE1, E2SE2, E2SE2DL, E2SE3, E2SE3DL, E2SE6, E2SE7

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "NJ".

CAS No. 60-29-7 Ethyl ether
E2SC0, E2SC1

CAS No. 74-93-1 Methanethiol
E2SC9

CAS No. 110-83-8 Cyclohexene
CAS No. 142-29-0 Cyclopentene
E2SB9

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E2SB9
Benzene

E2SC1, E2SE2, E2SE3
cis-1,2-Dichloroethene

The Trace Volatile Sample Summary Reports did not include the TICs with CAS Numbers. Please refer to the TIC Report – NFG #9 for a complete list of the TICs associated with the following samples.

E2SC0, E2SC1, E2SC9, E2SE1, E2SE2, E2SE2DL, E2SE3, E2SE3DL, E2SE6, E2SE7

Case Number: 41851 SDG Number: E2SB9

Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Deborah Connet / Techlaw-ESAT

Date: 12/6/2011

Sample Summary Report

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SB9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0025	pH:	1.0	Sample Date:	10042011	Sample Time:	11:01:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	20	ug/L	40.0	U	U	Yes	
Chloromethane	20	ug/L	40.0	U	U	Yes	
Vinyl chloride	62	ug/L	40.0			Yes	
Bromomethane	20	ug/L	40.0	U	U	Yes	
Chloroethane	110	ug/L	40.0			Yes	
Trichlorofluorom ethane	20	ug/L	40.0	U	U	Yes	
1,1-Dichloroethene	20	ug/L	40.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	20	ug/L	40.0	U	U	Yes	
Acetone	200	ug/L	40.0	U	U	Yes	
Carbon disulfide	20	ug/L	40.0	U	U	Yes	
Methyl acetate	20	ug/L	40.0	U	U	Yes	
Methylene chloride	20	ug/L	40.0	U	U	Yes	
trans-1,2-Dichloroethene	20	ug/L	40.0	U	U	Yes	
Methyl tert-butyl ether	61	ug/L	40.0			Yes	
1,1-Dichloroethane	83	ug/L	40.0			Yes	
cis-1,2-Dichloroethene	66	ug/L	40.0			Yes	
2-Butanone	200	ug/L	40.0	U	U	Yes	
Bromochloromet hane	20	ug/L	40.0	U	U	Yes	
Chloroform	20	ug/L	40.0	U	U	Yes	
1,1,1-Trichloroethane	20	ug/L	40.0	U	U	Yes	
Cyclohexane	55	ug/L	40.0			Yes	
Carbon tetrachloride	20	ug/L	40.0	U	U	Yes	
Benzene	3100	ug/L	40.0	E	J	Yes	
1,2-Dichloroethane	20	ug/L	40.0	U	U	Yes	
Trichloroethene	20	ug/L	40.0	U	U	Yes	
Methylcyclohexa ne	20	ug/L	40.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,2-Dichloropropane	20	ug/L	40.0	U	U	Yes	
Bromodichloromethane	20	ug/L	40.0	U	U	Yes	
cis-1,3-Dichloropropene	20	ug/L	40.0	U	U	Yes	
4-Methyl-2-Pentanone	200	ug/L	40.0	U	U	Yes	
Toluene	20	ug/L	40.0	J	J	Yes	
trans-1,3-Dichloropropene	20	ug/L	40.0	U	U	Yes	
1,1,2-Trichloroethane	20	ug/L	40.0	U	U	Yes	
Tetrachloroethene	20	ug/L	40.0	U	U	Yes	
2-Hexanone	200	ug/L	40.0	U	U	Yes	
Dibromochloromethane	20	ug/L	40.0	U	U	Yes	
1,2-Dibromoethane	20	ug/L	40.0	U	U	Yes	
Chlorobenzene	20	ug/L	40.0	U	U	Yes	
Ethylbenzene	9.2	ug/L	40.0	J	J	Yes	
o-Xylene	20	ug/L	40.0	U	U	Yes	
m,p-Xylene	36	ug/L	40.0			Yes	
Styrene	20	ug/L	40.0	U	U	Yes	
Bromoform	20	ug/L	40.0	U	U	Yes	
Isopropylbenzene	20	ug/L	40.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	20	ug/L	40.0	U	U	Yes	
1,3-Dichlorobenzene	20	ug/L	40.0	U	U	Yes	
1,4-Dichlorobenzene	20	ug/L	40.0	U	U	Yes	
1,2-Dichlorobenzene	20	ug/L	40.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	20	ug/L	40.0	U	U	Yes	
1,2,4-Trichlorobenzene	20	ug/L	40.0	U	U	Yes	
1,2,3-Trichlorobenzene	20	ug/L	40.0	U	U	Yes	
Cyclohexene			40.0	JN		Yes	
Cyclopentene			40.0	JN		Yes	
Total Alkanes			40.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SB9DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0025	pH:	1.0	Sample Date:	10042011	Sample Time:	11:01:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	400	ug/L	800.0	U	U	Yes	
Chloromethane	400	ug/L	800.0	U	U	Yes	
Vinyl chloride	400	ug/L	800.0	U	U	Yes	
Bromomethane	400	ug/L	800.0	U	U	Yes	
Chloroethane	180	ug/L	800.0	JD	J	Yes	
Trichlorofluorom ethane	400	ug/L	800.0	U	U	Yes	
1,1-Dichloroethene	400	ug/L	800.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	400	ug/L	800.0	U	U	Yes	
Acetone	4000	ug/L	800.0	U	U	Yes	
Carbon disulfide	400	ug/L	800.0	U	U	Yes	
Methyl acetate	400	ug/L	800.0	U	U	Yes	
Methylene chloride	400	ug/L	800.0	U	U	Yes	
trans-1,2-Dichloroethene	400	ug/L	800.0	U	U	Yes	
Methyl tert-butyl ether	400	ug/L	800.0	U	U	Yes	
1,1-Dichloroethane	86	ug/L	800.0	JD	J	Yes	
cis-1,2-Dichloroethene	85	ug/L	800.0	JD	J	Yes	
2-Butanone	4000	ug/L	800.0	U	U	Yes	
Bromochloromet hane	400	ug/L	800.0	U	U	Yes	
Chloroform	400	ug/L	800.0	U	U	Yes	
1,1,1-Trichloroethane	400	ug/L	800.0	U	U	Yes	
Cyclohexane	400	ug/L	800.0	U	U	Yes	
Carbon tetrachloride	400	ug/L	800.0	U	U	Yes	
Benzene	4200	ug/L	800.0	D		Yes	
1,2-Dichloroethane	400	ug/L	800.0	U	U	Yes	
Trichloroethene	400	ug/L	800.0	U	U	Yes	
Methylcyclohexa ne	400	ug/L	800.0	U	U	Yes	
1,2-Dichloropropane	400	ug/L	800.0	U	U	Yes	
Bromodichlorom ethane	400	ug/L	800.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	400	ug/L	800.0	U	U	Yes	
4-Methyl-2-Pentanone	4000	ug/L	800.0	U	U	Yes	
Toluene	400	ug/L	800.0	U	U	Yes	
trans-1,3-Dichloropropene	400	ug/L	800.0	U	U	Yes	
1,1,2-Trichloroethane	400	ug/L	800.0	U	U	Yes	
Tetrachloroethene	400	ug/L	800.0	U	U	Yes	
2-Hexanone	4000	ug/L	800.0	U	U	Yes	
Dibromochloromethane	400	ug/L	800.0	U	U	Yes	
1,2-Dibromoethane	400	ug/L	800.0	U	U	Yes	
Chlorobenzene	400	ug/L	800.0	U	U	Yes	
Ethylbenzene	400	ug/L	800.0	U	U	Yes	
o-Xylene	400	ug/L	800.0	U	U	Yes	
m,p-Xylene	400	ug/L	800.0	U	U	Yes	
Styrene	400	ug/L	800.0	U	U	Yes	
Bromoform	400	ug/L	800.0	U	U	Yes	
Isopropylbenzene	400	ug/L	800.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	400	ug/L	800.0	U	U	Yes	
1,3-Dichlorobenzene	400	ug/L	800.0	U	U	Yes	
1,4-Dichlorobenzene	400	ug/L	800.0	U	U	Yes	
1,2-Dichlorobenzene	400	ug/L	800.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	400	ug/L	800.0	U	U	Yes	
1,2,4-Trichlorobenzene	400	ug/L	800.0	U	U	Yes	
1,2,3-Trichlorobenzene	400	ug/L	800.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SB9	Lab Code: DATAC
Sample Number: E2SC0	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location: W-0023	pH: 1.0	Sample Date: 10042011	Sample Time: 12:01:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	4.9	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.12	ug/L	1.0	J	J	Yes	
Methyl tert-butyl ether	11	ug/L	1.0			Yes	
1,1-Dichloroethane	2.9	ug/L	1.0			Yes	
cis-1,2-Dichloroethene	16	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethyl ether			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SC1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0021	pH:	1.0	Sample Date:	10042011	Sample Time:	12:06:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	20	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.66	ug/L	1.0			Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.34	ug/L	1.0	J	J	Yes	
Methyl tert-butyl ether	11	ug/L	1.0			Yes	
1,1-Dichloroethane	6.0	ug/L	1.0			Yes	
cis-1,2-Dichloroethene	55	ug/L	1.0	E	J	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.32	ug/L	1.0	J	J	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.49	ug/L	1.0	J	J	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.37	ug/L	1.0	J	J	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethyl ether			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SC1DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0021	pH:	1.0	Sample Date:	10042011	Sample Time:	12:06:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	5.0	ug/L	10.0	U	U	Yes	
Chloromethane	5.0	ug/L	10.0	U	U	Yes	
Vinyl chloride	20	ug/L	10.0	D		Yes	
Bromomethane	5.0	ug/L	10.0	U	U	Yes	
Chloroethane	5.0	ug/L	10.0	U	U	Yes	
Trichlorofluorom ethane	5.0	ug/L	10.0	U	U	Yes	
1,1-Dichloroethene	5.0	ug/L	10.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	ug/L	10.0	U	U	Yes	
Acetone	50	ug/L	10.0	U	U	Yes	
Carbon disulfide	5.0	ug/L	10.0	U	U	Yes	
Methyl acetate	5.0	ug/L	10.0	U	U	Yes	
Methylene chloride	5.0	ug/L	10.0	U	U	Yes	
trans-1,2-Dichloroethene	5.0	ug/L	10.0	U	U	Yes	
Methyl tert-butyl ether	11	ug/L	10.0	D		Yes	
1,1-Dichloroethane	6.4	ug/L	10.0	D		Yes	
cis-1,2-Dichloroethene	59	ug/L	10.0	D		Yes	
2-Butanone	50	ug/L	10.0	U	U	Yes	
Bromochloromet hane	5.0	ug/L	10.0	U	U	Yes	
Chloroform	5.0	ug/L	10.0	U	U	Yes	
1,1,1-Trichloroethane	5.0	ug/L	10.0	U	U	Yes	
Cyclohexane	5.0	ug/L	10.0	U	U	Yes	
Carbon tetrachloride	5.0	ug/L	10.0	U	U	Yes	
Benzene	4.8	ug/L	10.0	JD	J	Yes	
1,2-Dichloroethane	5.0	ug/L	10.0	U	U	Yes	
Trichloroethene	5.0	ug/L	10.0	U	U	Yes	
Methylcyclohexa ne	5.0	ug/L	10.0	U	U	Yes	
1,2-Dichloropropane	5.0	ug/L	10.0	U	U	Yes	
Bromodichlorom ethane	5.0	ug/L	10.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	5.0	ug/L	10.0	U	U	Yes	
4-Methyl-2-Pentanone	50	ug/L	10.0	U	U	Yes	
Toluene	5.0	ug/L	10.0	U	U	Yes	
trans-1,3-Dichloropropene	5.0	ug/L	10.0	U	U	Yes	
1,1,2-Trichloroethane	5.0	ug/L	10.0	U	U	Yes	
Tetrachloroethene	5.0	ug/L	10.0	U	U	Yes	
2-Hexanone	50	ug/L	10.0	U	U	Yes	
Dibromochloromethane	5.0	ug/L	10.0	U	U	Yes	
1,2-Dibromoethane	5.0	ug/L	10.0	U	U	Yes	
Chlorobenzene	5.0	ug/L	10.0	U	U	Yes	
Ethylbenzene	5.0	ug/L	10.0	U	U	Yes	
o-Xylene	5.0	ug/L	10.0	U	U	Yes	
m,p-Xylene	5.0	ug/L	10.0	U	U	Yes	
Styrene	5.0	ug/L	10.0	U	U	Yes	
Bromoform	5.0	ug/L	10.0	U	U	Yes	
Isopropylbenzene	5.0	ug/L	10.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	5.0	ug/L	10.0	U	U	Yes	
1,3-Dichlorobenzene	5.0	ug/L	10.0	U	U	Yes	
1,4-Dichlorobenzene	5.0	ug/L	10.0	U	U	Yes	
1,2-Dichlorobenzene	5.0	ug/L	10.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	5.0	ug/L	10.0	U	U	Yes	
1,2,4-Trichlorobenzene	5.0	ug/L	10.0	U	U	Yes	
1,2,3-Trichlorobenzene	5.0	ug/L	10.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SC9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0019	pH:	1.0	Sample Date:	10042011	Sample Time:	11:40:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.26	ug/L	1.0	J	J	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.19	ug/L	1.0	J	J	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.30	ug/L	1.0	J	J	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.99	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Methanethiol			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SD5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0027	pH:	1.0	Sample Date:	10042011	Sample Time:	08:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SB9	Lab Code: DATAC
Sample Number: E2SD9	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location: W-0001	pH: 1.0	Sample Date: 10042011	Sample Time: 09:32:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	5.2	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0003	pH:	1.0	Sample Date:	10042011	Sample Time:	09:39:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	5.2	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0005	pH:	1.0	Sample Date:	10042011	Sample Time:	10:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	3.8	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.15	ug/L	1.0	J	J	Yes	
cis-1,2-Dichloroethene	1.9	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE2	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0007	pH:	1.0	Sample Date:	10042011	Sample Time:	10:53:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	5.7	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.32	ug/L	1.0	J	J	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.86	ug/L	1.0			Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.49	ug/L	1.0	J	J	Yes	
cis-1,2-Dichloroethene	23	ug/L	1.0	E	J	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE2DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0007	pH:	1.0	Sample Date:	10042011	Sample Time:	10:53:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	2.0	ug/L	4.0	U	U	Yes	
Chloromethane	2.0	ug/L	4.0	U	U	Yes	
Vinyl chloride	5.6	ug/L	4.0	D		Yes	
Bromomethane	2.0	ug/L	4.0	U	U	Yes	
Chloroethane	2.0	ug/L	4.0	U	U	Yes	
Trichlorofluorom ethane	2.0	ug/L	4.0	U	U	Yes	
1,1-Dichloroethene	2.0	ug/L	4.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	ug/L	4.0	U	U	Yes	
Acetone	20	ug/L	4.0	U	U	Yes	
Carbon disulfide	2.0	ug/L	4.0	U	U	Yes	
Methyl acetate	2.0	ug/L	4.0	U	U	Yes	
Methylene chloride	2.0	ug/L	4.0	U	U	Yes	
trans-1,2-Dichloroethene	0.93	ug/L	4.0	JD	J	Yes	
Methyl tert-butyl ether	2.0	ug/L	4.0	U	U	Yes	
1,1-Dichloroethane	0.54	ug/L	4.0	JD	J	Yes	
cis-1,2-Dichloroethene	23	ug/L	4.0	D		Yes	
2-Butanone	20	ug/L	4.0	U	U	Yes	
Bromochloromet hane	2.0	ug/L	4.0	U	U	Yes	
Chloroform	2.0	ug/L	4.0	U	U	Yes	
1,1,1-Trichloroethane	2.0	ug/L	4.0	U	U	Yes	
Cyclohexane	2.0	ug/L	4.0	U	U	Yes	
Carbon tetrachloride	2.0	ug/L	4.0	U	U	Yes	
Benzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichloroethane	2.0	ug/L	4.0	U	U	Yes	
Trichloroethene	2.0	ug/L	4.0	U	U	Yes	
Methylcyclohexa ne	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichloropropane	2.0	ug/L	4.0	U	U	Yes	
Bromodichlorom ethane	2.0	ug/L	4.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	2.0	ug/L	4.0	U	U	Yes	
4-Methyl-2-Pentanone	20	ug/L	4.0	U	U	Yes	
Toluene	2.0	ug/L	4.0	U	U	Yes	
trans-1,3-Dichloropropene	2.0	ug/L	4.0	U	U	Yes	
1,1,2-Trichloroethane	2.0	ug/L	4.0	U	U	Yes	
Tetrachloroethene	2.0	ug/L	4.0	U	U	Yes	
2-Hexanone	20	ug/L	4.0	U	U	Yes	
Dibromochloromethane	2.0	ug/L	4.0	U	U	Yes	
1,2-Dibromoethane	2.0	ug/L	4.0	U	U	Yes	
Chlorobenzene	2.0	ug/L	4.0	U	U	Yes	
Ethylbenzene	2.0	ug/L	4.0	U	U	Yes	
o-Xylene	2.0	ug/L	4.0	U	U	Yes	
m,p-Xylene	2.0	ug/L	4.0	U	U	Yes	
Styrene	2.0	ug/L	4.0	U	U	Yes	
Bromoform	2.0	ug/L	4.0	U	U	Yes	
Isopropylbenzene	2.0	ug/L	4.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	2.0	ug/L	4.0	U	U	Yes	
1,3-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,4-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	2.0	ug/L	4.0	U	U	Yes	
1,2,4-Trichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2,3-Trichlorobenzene	2.0	ug/L	4.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0009	pH:	1.0	Sample Date:	10042011	Sample Time:	10:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	5.8	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.30	ug/L	1.0	J	J	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.84	ug/L	1.0			Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.53	ug/L	1.0			Yes	
cis-1,2-Dichloroethene	23	ug/L	1.0	E	J	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE3DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0009	pH:	1.0	Sample Date:	10042011	Sample Time:	10:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	2.0	ug/L	4.0	U	U	Yes	
Chloromethane	2.0	ug/L	4.0	U	U	Yes	
Vinyl chloride	5.7	ug/L	4.0	D		Yes	
Bromomethane	2.0	ug/L	4.0	U	U	Yes	
Chloroethane	2.0	ug/L	4.0	U	U	Yes	
Trichlorofluorom ethane	2.0	ug/L	4.0	U	U	Yes	
1,1-Dichloroethene	2.0	ug/L	4.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	ug/L	4.0	U	U	Yes	
Acetone	20	ug/L	4.0	U	U	Yes	
Carbon disulfide	2.0	ug/L	4.0	U	U	Yes	
Methyl acetate	2.0	ug/L	4.0	U	U	Yes	
Methylene chloride	2.0	ug/L	4.0	U	U	Yes	
trans-1,2-Dichloroethene	0.85	ug/L	4.0	JD	J	Yes	
Methyl tert-butyl ether	2.0	ug/L	4.0	U	U	Yes	
1,1-Dichloroethane	0.52	ug/L	4.0	JD	J	Yes	
cis-1,2-Dichloroethene	22	ug/L	4.0	D		Yes	
2-Butanone	20	ug/L	4.0	U	U	Yes	
Bromochloromet hane	2.0	ug/L	4.0	U	U	Yes	
Chloroform	2.0	ug/L	4.0	U	U	Yes	
1,1,1-Trichloroethane	2.0	ug/L	4.0	U	U	Yes	
Cyclohexane	2.0	ug/L	4.0	U	U	Yes	
Carbon tetrachloride	2.0	ug/L	4.0	U	U	Yes	
Benzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichloroethane	2.0	ug/L	4.0	U	U	Yes	
Trichloroethene	2.0	ug/L	4.0	U	U	Yes	
Methylcyclohexa ne	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichloropropane	2.0	ug/L	4.0	U	U	Yes	
Bromodichlorom ethane	2.0	ug/L	4.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	2.0	ug/L	4.0	U	U	Yes	
4-Methyl-2-Pentanone	20	ug/L	4.0	U	U	Yes	
Toluene	2.0	ug/L	4.0	U	U	Yes	
trans-1,3-Dichloropropene	2.0	ug/L	4.0	U	U	Yes	
1,1,2-Trichloroethane	2.0	ug/L	4.0	U	U	Yes	
Tetrachloroethene	2.0	ug/L	4.0	U	U	Yes	
2-Hexanone	20	ug/L	4.0	U	U	Yes	
Dibromochloromethane	2.0	ug/L	4.0	U	U	Yes	
1,2-Dibromoethane	2.0	ug/L	4.0	U	U	Yes	
Chlorobenzene	2.0	ug/L	4.0	U	U	Yes	
Ethylbenzene	2.0	ug/L	4.0	U	U	Yes	
o-Xylene	2.0	ug/L	4.0	U	U	Yes	
m,p-Xylene	2.0	ug/L	4.0	U	U	Yes	
Styrene	2.0	ug/L	4.0	U	U	Yes	
Bromoform	2.0	ug/L	4.0	U	U	Yes	
Isopropylbenzene	2.0	ug/L	4.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	2.0	ug/L	4.0	U	U	Yes	
1,3-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,4-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	2.0	ug/L	4.0	U	U	Yes	
1,2,4-Trichlorobenzene	2.0	ug/L	4.0	U	U	Yes	
1,2,3-Trichlorobenzene	2.0	ug/L	4.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0011	pH:	1.0	Sample Date:	10042011	Sample Time:	11:30:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	3.7	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.40	ug/L	1.0	J	J	Yes	
cis-1,2-Dichloroethene	5.8	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE5	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0013	pH:	1.0	Sample Date:	10042011	Sample Time:	11:55:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.12	ug/L	1.0	J	J	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.17	ug/L	1.0	J	J	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0015	pH:	1.0	Sample Date:	10042011	Sample Time:	12:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.31	ug/L	1.0	J	J	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.37	ug/L	1.0	J	J	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE7	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0035	pH:	1.0	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE7MS	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0035	pH:	1.0	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,1-Dichloroethene	5.8	ug/L	1.0		J	Yes	
Dichlorodifluoromethane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Benzene	5.3	ug/L	1.0			Yes	
Trichloroethene	5.1	ug/L	1.0			Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Toluene	5.1	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	5.0	ug/L	1.0			Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluoromethane	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromethane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethen e	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochlorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzen e	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethan e	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzen e	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzen e	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE7MSD	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0035	pH:	1.0	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	6.0	ug/L	1.0		J	Yes	
Benzene	5.4	ug/L	1.0			Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	5.1	ug/L	1.0			Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Toluene	5.1	ug/L	1.0			Yes	
Chlorobenzene	5.0	ug/L	1.0			Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	E2SE9	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:	W-0017	pH:	1.0	Sample Date:	10042011	Sample Time:	12:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SB9	Lab Code: DATAC
Sample Number: VBLKT1	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SB9	Lab Code: DATAC
Sample Number: VBLKT2	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.22	ug/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SB9	Lab Code:	DATAC
Sample Number:	VHBLKT1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:		Sample Time:	
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	1.0	ug/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SB9 Location=W-0025 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
E966796	Total Alkanes	0.00	406.244	ug/L	JN
142-29-0	Cyclopentene	3.3524	39.16	ug/L	JN
110-83-8	Cyclohexene	6.5225	23.512	ug/L	JN

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SC0 Location=W-0023 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6757	19.1712	ug/L	J
60-29-7	Ethyl ether	2.8096	0.5897	ug/L	JN

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SC1 Location=W-0021 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6696	18.9639	ug/L	J
60-29-7	Ethyl ether	2.8035	0.545	ug/L	JN

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SC9 Location=W-0019 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6758	29.9519	ug/L	J
74-93-1	Methanethiol	2.1635	0.9543	ug/L	JN

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE1 Location=W-0005 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6757	6.2409	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE2 Location=W-0007 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6698	8.4641	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE2DL Location=W-0007 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6697	8.2616	ug/L	JD

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE3 Location=W-0009 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6696	7.5493	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE3DL Location=W-0009 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6698	9.7088	ug/L	JD

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE6 Location=W-0015 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6758	10.636	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SB9 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135390 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SE7 Location=W-0035 Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6758	10.0948	ug/L	J

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Data
Received for Review on 26 Oct 2011

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: TDEM

We have reviewed the data for the following case:

SITE NAME: Kokomo Garrison/Main Water Treatment (FN)

CASE NUMBER: 41851 SDG NUMBER: E25B9

Number and Type of Samples: 15 Water Samples

Sample Numbers: E25B9; C0-C1; C9; D5; D9; E0-E7; E9

Laboratory: ALS Lab Group Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: E2SB9

☐ ARO ☐ PEST ☐ BNA ☐ BNASIM ☒ VT ☐ VOASIM ☐ VLM

Laboratory Name: ALS Laboratory Group (SLC) Laboratory Code: DATAC

Contract No.: EPW11037 Case No.: 41851

Analysis Price: N/A SDG Turnaround: 21

Modified Analysis Requested: NO Program: SOM01.2

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) E2SB9	7) E2SE0	13) E2SE6	19)
2) E2SC0	8) E2SE1	14) E2SE7	20)
3) E2SC1	9) E2SE2	15) E2SE9	21)
4) E2SC9	10) E2SE3	16)	22)
5) E2SD5	11) E2SE4	17)	23)
6) E2SD9	12) E2SE5	18)	24)

10/24/11

10/24/11

E2SB9	E2SE9
First Sample in SDG	Last Sample in SDG
10/05/11	10/05/11
First Sample Receipt Date	Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: Johanne Olsen Date: 10/24/2011

W 1127833

USEPA CLP Organics COC (LAB COPY)

DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225946

CHAIN OF CUSTODY RECORD

Case #: 41851
Cooler #: 1

E2SB9

No: 5-100411-145818-0002
Lab: ALS Laboratory Group
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
E2SB9	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-245152 (HCl) (3)	W-0025	10/04/2011 11:01		
E2SC0	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-245150 (HCl) (3)	W-0023	10/04/2011 12:01		
E2SC1	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-245148 (HCl) (3)	W-0021	10/04/2011 12:06		
E2SC9	Ground Water/ McIntire, Steve	Grab	CLP TVOA(21)	5-245146 (HCl) (3)	W-0019	10/04/2011 11:40		
E2SD5	Ground Water/ Chesterson, Dan	Grab	CLP TVOA(21)	5-245154 (HCl) (3)	W-0027	10/04/2011 08:00		10/5/11
E2SD9	Ground Water/ Milton, Rick	Grab	CLP TVOA(21)	5-245128 (HCl) (3)	W-0001	10/04/2011 09:32		
E2SE0	Ground Water/ Milton, Rick	Grab	CLP TVOA(21)	5-245130 (HCl) (3)	W-0003	10/04/2011 09:39		
E2SE1	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245132 (HCl) (3)	W-0005	10/04/2011 10:10		
E2SE2	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245134 (HCl) (3)	W-0007	10/04/2011 10:53		
E2SE3	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245136 (HCl) (3)	W-0009	10/04/2011 10:55		
E2SE4	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245138 (HCl) (3)	W-0011	10/04/2011 11:30		

Special Instructions: Please use IDEM account Number #1260 5334-7 to return cooler(s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22 IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? N

Samples Transferred From Chain of Custody # 23722, 23723

Analysis Key: CLP TVOA=CLP TCL Trace Volatiles

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	[signature]	10/5/11	959						

00006

USEPA CLP Organics COC (LAB COPY)

DateShipped: 10/4/2011

CarrierName: FedEx

AirbillNo: 854390225935

CHAIN OF CUSTODY RECORD

Case #: 41851

Cooler #: 2

E2SC2

No: 5-100411-193152-0004

Lab: ALS Laboratory Group

Lab Contact: Roxy Olson

Lab Phone: 801-266-7700

Copy original in SDG E2SC2

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
E2SC2	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-178936 (HCl) (3)	W-0051	10/04/2011 15:05		
E2SC3	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-178938 (HCl) (3)	W-0053	10/04/2011 16:36		
E2SC4	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-186334 (HCl) (1)	W-0057	10/04/2011 18:20		
E2SD0	Ground Water/ Wright, Hope	Grab	CLP TVOA(21)	5-245160 (HCl) (3)	W-0033	10/04/2011 13:10		
E2SD1	Ground Water/ Wright, Hope	Grab	CLP TVOA(21)	5-021675 (HCl) (3)	W-0045	10/04/2011 15:50		
E2SD2	Ground Water/ McIntire, Steve	Grab	CLP TVOA(21)	5-178932 (HCl) (3)	W-0047	10/04/2011 17:00		
E2SD3	Ground Water/ McIntire, Steve	Grab	CLP TVOA(21)	5-178940 (HCl) (3)	W-0055	10/04/2011 19:05		
E2SD6	Ground Water/ Chesterson, Dan	Grab	CLP TVOA(21)	5-245050 (HCl) (3)	W-0042	10/04/2011 08:00		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245163 (HCl) (3)	W-0035	10/04/2011 15:05		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245164 (HCl) (3)	W-0036	10/04/2011 15:05		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245165 (HCl) (3)	W-0037	10/04/2011 15:05		

Sample(s) to be used for Lab QC: E2SE7, E2SE7 - Special Instructions: Please use IDEM account number #1260 5334-7 to return cooler (s) to:

Indiana Department of Environmental Management

Office of Land Quality/Site Investigation Program

100 North Senate Avenue

MC 66-22, IGCN N1101

Indianapolis, IN 46204-2251

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

23126, 23727

Analysis Key: CLP TVOA=CLP TCL Trace Volatiles

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	Merrell Edwards	10/5/11	959						

E2SC2

USEPA CLP Organics COC (LAB COPY)
DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225946

CHAIN OF CUSTODY RECORD

Case #: 41851
Cooler #: 1

E2SB9

No: 5-100411-145818-0002
Lab: ALS Laboratory Group
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
E2SE5	Ground Water/ Milton, Rick	Grab	CLP TVOA(21)	5-245140 (HCl) (3)	W-0013	10/04/2011 11:55		
E2SE6	Ground Water/ Milton, Rick	Grab	CLP TVOA(21)	5-245142 (HCl) (3)	W-0015	10/04/2011 12:20		
E2SE9	Ground Water/ Chesterson, Dan	Grab	CLP TVOA(21)	5-245144 (HCl) (3)	W-0017	10/04/2011 12:05		

Special Instructions: Please use IDEM account Number #1260 5334-7 to return cooler(s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22 IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #
23722, 23723

Analysis Key: CLP TVOA=CLP TCL Trace Volatiles

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
			Abbott Edward	10/7/11	900						

SDG Narrative
Trace Volatiles

Contract: EPW11037
Case: 41851
SDG: E2SB9
Laboratory Name: ALS Environmental

Sample Number	DCL Sample ID	pH	Dilution
E2SB9	1127833001	1	1:40
E2SB9DL	1127833001DL	1	1:800
E2SC0	1127833002	1	
E2SC1	1127833003	1	
E2SC1DL	1127833003DL	1	1:10
E2SC9	1127833004	1	
E2SD5	1127833005	1	
E2SD9	1127833006	1	
E2SE0	1127833007	1	
E2SE1	1127833008	1	
E2SE2	1127833009	1	
E2SE2DL	1127833009DL	1	1:4
E2SE3	1127833010	1	
E2SE3DL	1127833010DL	1	1:4
E2SE4	1127833011	1	
E2SE5	1127833012	1	
E2SE6	1127833013	1	
E2SE7	1127833014	1	
E2SE7MS	1127833015	1	
E2SE7MSD	1127833016	1	
E2SE9	1127833017	1	

General SDG Information: Samples were analyzed according to USEPA CLP Statement of Work SOM01.2. There were no deviations from the SOW except as listed below.

Instrumentation: Agilent 5975-F GC/MSD with electron impact ionization and quadrupole detector scanning at a mass range of 35 to 300 amu.
Column: RTX-VMS - 30 meters, 0.25 mm id., 1.4 µm film
Temperature Program: 45°C (5.0 min) 15°/min ramp to 200° ;30°/min ramp to 220°C
Carrier Gas: Helium Purge Gas: Helium
Purge & Trap Device: OI Analytical-Eclipse 4660 & Varian Archon
Purge Flow: 40 mL/min Trap: OI #10 Trap Temp: 35°C Heated Purge: 40°C

Sample Preparation: This method has no extraction procedure for the water matrix. Twenty-five milliliters of water sample was spiked with Internal Standard/DMC Solution and purged.

Instrument Calibration: The GC/MS was hardware tuned to meet the criteria for a 50 ng purging of 4-Bromofluorobenzene as specified in the SOW. This tune check is valid for 12 hours.

Initial and Continuing Calibration Verification: The five point initial calibration curve, which is used for the quantitation of each target compound, met the specified criteria in the SOW. Due to an interfering ion from 1,4-Difluorobenzene, a secondary ion of 130 was used for the quantitation of Trichloroethene for all calibrations, blanks, and samples. A continuing calibration standard (CCAL) was analyzed prior to sample analysis. A final calibration standard (FCAL) was analyzed after sample analysis. Manual edits were made in the calibration standards and in some samples for various mis-called peaks. Every manual integration is noted by an "m" footnote on the quantitation report, and an additional graphics page is included for each manual integration to show how the peak was integrated. Analytes that required manual integrations are listed.

Sample	Initial Scan	Final Scan	Analyte

Blank Analysis: Method blanks were prepared using 25 mL of spiked reagent water. The blanks were analyzed prior to sample analysis and were free of volatile organic contaminants within the specifications of the SOW.

Sample Analysis: All deuterated monitoring compounds and internal standard area responses were within the required acceptance criteria. In order to protect the integrity of the instrument from high levels of benzene the following sample was diluted and used as original analyses:

E2SB9 (1:40)

No undiluted analysis was performed for this sample. An additional dilution was performed on this sample to bring benzene within the range of the curve. This dilution was based off screening data which will be included.

MS/MSD Analysis: Matrix spike (MS) and matrix spike duplicate (MSD) analyses for the samples were performed using sample E2SE7. The matrix spike compounds are 1,1-Dichloroethene, Benzene, Trichloroethene, Toluene, and Chlorobenzene; each is spiked in at a concentration of 5 µg/L. All percent recoveries and RPD's were within QC limits.

Miscellaneous Comments: As instructed in the SOW, alkanes are not reported separately on the Form 1J but rather are summarized as "total alkanes."

With regard to the naming of tentatively-identified compounds (TICs), spectral matches above 85 percent are reported as a specific isomer unless the analyst has a specific reason to assign a different name. The exact isomer configuration, as reported, may not be absolutely accurate. Reasons for assigning a TIC name other than the match with the highest fit value above 85% include: instances in which the analyst has previous experience with respect to a specific compound; when the first computer-generated match is a target compound and retention time information clearly indicates the TIC is in fact not the target compound; and when a specific compound name has already been assigned to a peak. Even though specific names will usually be

given to TICs with spectral fits above 85%, it must be understood by the data user that TIC names are very tentative, and it cannot be assumed that the specific isomers reported are correct.

Sample Calculations:

Relative Response Factor: $RRF = \left[\frac{A_x}{A_{is}}\right]\left[\frac{C_{is}}{C_x}\right]$

Where A_x is the area of the characteristic ion for the compound to be measured, A_{is} is the area of the characteristic ion for the internal standard , C_{is} is the concentration of the internal standard, and C_x is the concentration of the compound to be measured.

Concentration in ug/L: $C = \left[\frac{(A_x)\,(I_s)\,(Df)}{(A_{is})\,(RRF)\,(V_o)}\right]$

Where I_s is the amount of internal standard spiked in ng (125 ng), Df is a dilution factor (1 if no dilutions are made), RRF is the mean relative response factor (assumed to be 1 for non target analytes) and V_o is the total volume purged in mL.

I certify that this Sample Data Package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Sample Data Package and in the electronic data deliverable has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

October 24, 2011

Joseph Gress
Chemist
Volatile Organic Analysis Section

2A - FORM II VOA-1

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC1 (VCL) #	VDMC2 (CLA) #	VDMC3 (DCE) #	VDMC4 (BUT) #	VDMC5 (CLF) #	VDMC6 (DCA) #	VDMC7 (BEN) #
01	E2SB9	108	110	81	72	102	104	108
02	E2SB9DL	115	108	77	71	100	101	112
03	E2SC0	111	110	84	71	104	103	105
04	E2SC1	114	111	86	72	104	103	106
05	E2SC1DL	117	112	78	75	104	105	107
06	E2SC9	122	116	89	68	110	104	109
07	E2SD5	114	112	82	73	105	105	105
08	E2SD9	115	114	83	70	105	103	106
09	E2SE0	115	117	82	70	105	105	105
10	E2SE1	120	118	83	70	105	103	108
11	E2SE2	116	119	86	72	106	104	107
12	E2SE2DL	120	119	88	69	107	105	108
13	E2SE3	116	120	90	73	109	107	110
14	E2SE3DL	115	112	82	71	103	103	108
15	E2SE4	113	116	83	74	107	107	108
16	E2SE5	115	114	85	73	107	106	103
17	E2SE6	122	123	93	71	110	106	108
18	E2SE7	119	124	89	70	107	104	108
19	E2SE9	109	114	85	74	105	107	104
20	E2SE7MS	106	111	111 *	70	103	104	106
21	E2SE7MSD	130	123	123 *	70	106	105	108
22	VBLKT1	114	108	76	113	102	103	105
23	VBLKT2	130	121	87	72	103	103	106
24	VHBLKT1	110	114	85	72	103	105	104
25	VIBLKT1	120	119	88	71	106	105	106
26								
27								
28								
29								
30								

	QC LIMITS
VDMC1 (VCL) = Vinyl chloride-d3	(65-131)
VDMC2 (CLA) = Chloroethane-d5	(71-131)
VDMC3 (DCE) = 1,1-Dichloroethene-d2	(55-104)
VDMC4 (BUT) = 2-Butanone-d5	(49-155)
VDMC5 (CLF) = Chloroform-d	(78-121)
VDMC6 (DCA) = 1,2-Dichloroethane-d4	(78-129)
VDMC7 (BEN) = Benzene-d6	(77-124)

Column to be used to flag recovery values
* Values outside of contract required QC limits

2B - FORM II VOA-2

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC8 (DPA) #	VDMC9 (TOL) #	VDMC10 (TDP) #	VDMC11 (HEX) #	VDMC12 (TCA) #	VDMC13 (DCZ) #	VDMC14 #	TOT OUT
01	E2SB9	109	105	84	77	94	101		0
02	E2SB9DL	112	103	94	78	95	104		0
03	E2SC0	107	101	53 *	76	95	100		1
04	E2SC1	105	100	33 *	74	93	98		1
05	E2SC1DL	107	102	93	77	93	100		0
06	E2SC9	108	99	70 *	71	94	103		1
07	E2SD5	104	102	88	74	92	103		0
08	E2SD9	107	102	87	75	93	101		0
09	E2SE0	104	101	84	72	85	101		0
10	E2SE1	107	104	83	74	93	104		0
11	E2SE2	106	102	77	76	95	102		0
12	E2SE2DL	109	103	82	73	94	101		0
13	E2SE3	108	104	69 *	73	94	104		1
14	E2SE3DL	109	103	84	76	96	105		0
15	E2SE4	109	105	88	77	96	102		0
16	E2SE5	104	99	85	75	91	101		0
17	E2SE6	107	101	78	76	96	104		0
18	E2SE7	106	102	78	75	94	102		0
19	E2SE9	105	99	87	76	93	103		0
20	E2SE7MS	107	101	81	74	94	100		1
21	E2SE7MSD	107	103	83	76	94	102		1
22	VBLKT1	107	105	96	109	86	103		0
23	VBLKT2	107	101	87	79	94	102		0
24	VHBLKT1	105	103	81	73	91	100		0
25	VIBLKT1	107	103	85	77	91	103		0
26									
27									
28									
29									
30									

		QC LIMITS
VDMC8 (DPA)	= 1,2-Dichloropropane-d6	(79-124)
VDMC9 (TOL)	= Toluene-d8	(77-121)
VDMC10 (TDP)	= trans-1,3-Dichloropropene-d4	(73-121)
VDMC11 (HEX)	= 2-Hexanone-d5	(28-135)
VDMC12 (TCA)	= 1,1,2,2-Tetrachloroethane-d2	(73-125)
VDMC13 (DCZ)	= 1,2-Dichlorobenzene-d4	(80-131)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A - FORM III VOA-1

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix Spike - EPA Sample No.: E2SE7 Level: (TRACE or LOW) TRACE

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS %REC #	QC LIMITS REC.
1,1-Dichloroethene	5.0	0.0	5.8	115	61-145
Trichloroethene	5.0	0.0	5.1	101	71-120
Benzene	5.0	0.0	5.3	106	76-127
Toluene	5.0	0.0	5.1	101	76-125
Chlorobenzene	5.0	0.0	5.0	101	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD %REC #	%RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	5.0	6.0	120	4	0-14	61-145
Trichloroethene	5.0	5.1	103	2	0-14	71-120
Benzene	5.0	5.4	108	2	0-11	76-127
Toluene	5.0	5.1	102	1	0-13	76-125
Chlorobenzene	5.0	5.0	100	1	0-13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

4A - FORM IV VOA

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Lab File ID: FN74BLK Lab Sample ID: 241405

Instrument ID: 5975-F

Matrix: (SOIL/SED/WATER) WATER Date Analyzed: 10/08/2011

Level: (TRACE or LOW/MED) TRACE Time Analyzed: 12:19

GC Column: RTX-VMS ID: 0.25 (mm) Heated Purge: (Y/N) Y

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	E2SB9DL	1127833001DL	FN75ESB9	12:53
02	E2SC1DL	1127833003DL	FN77ESC1	13:55
03	E2SC9	1127833004	FN78ESC9	14:26
04	E2SD5	1127833005	FN79ESD5	14:57
05	E2SD9	1127833006	FN80ESD9	15:27
06	E2SE0	1127833007	FN81ESE0	15:58
07	E2SE1	1127833008	FN82ESE1	16:29
08	E2SE2DL	1127833009DL	FN83ESE2	16:59
09	E2SE3DL	1127833010DL	FN84ESE3	17:30
10	E2SE4	1127833011	FN85ESE4	18:01
11	E2SE5	1127833012	FN86ESE5	18:32
12	E2SE6	1127833013	FN87ESE6	19:02
13	E2SE7	1127833014	FN88ESE7	19:33
14	E2SE7MS	1127833015	FN89ESM7	20:04
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS: _____

4A - FORM IV VOA
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKT2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Lab File ID: FN94BLK Lab Sample ID: 241406

Instrument ID: 5975-F

Matrix: (SOIL/SED/WATER) WATER Date Analyzed: 10/08/2011

Level: (TRACE or LOW/MED) TRACE Time Analyzed: 22:38

GC Column: RTX-VMS ID: 0.25 (mm) Heated Purge: (Y/N) Y

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	E2SE7MSD	1127833016	FN95ESS7	23:09
02	E2SE9	1127833017	FN96ESE9	23:40
03	E2SB9	1127833001	FN97ESB9	00:10
04	VIBLKT1	241407	FN98IBLK	00:41
05	E2SC0	1127833002	FN99ESC0	01:11
06	E2SE2	1127833009	FO00ESE2	01:42
07	E2SE3	1127833010	FO01ESE3	02:13
08	E2SC1	1127833003	FO02ESC1	02:43
09	VHBLKT1	241408	FO03HBLK	03:14
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

8A - FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

GC Column: RTX-VMS ID: 0.25 (mm) Init. Calib. Date(s): 09/26/2011 09/26/2011

EPA Sample No.(VSTD#####): VSTD005T1 Date Analyzed: 10/08/2011

Lab File ID (Standard): FN72S05 Time Analyzed: 11:11

Instrument ID: 5975-F Heated Purge: (Y/N) Y

		IS1 (CBZ) AREA	#	RT	#	IS2 (DFB) AREA	#	RT	#	IS3 (DCB) AREA	#	RT	#
	12 HOUR STD	1141932		10.73		1489590		7.55		498721		13.13	
	UPPER LIMIT	1598705		11.06		2085426		7.88		698209		13.46	
	LOWER LIMIT	685159		10.40		893754		7.22		299233		12.80	
	EPA SAMPLE NO.												
01	VBLKT1	1121531		10.74		1381754		7.55		444188		13.13	
02	E2SB9DL	1060217		10.74		1402551		7.55		443859		13.13	
03	E2SC1DL	1072099		10.74		1328799		7.55		448864		13.13	
04	E2SC9	984651		10.74		1214726		7.55		401309		13.13	
05	E2SD5	1132876		10.74		1356500		7.55		470963		13.13	
06	E2SD9	1080558		10.74		1329168		7.55		451061		13.13	
07	E2SE0	1101451		10.73		1327062		7.55		449594		13.13	
08	E2SE1	1042070		10.73		1284729		7.55		427578		13.13	
09	E2SE2DL	1003236		10.74		1240444		7.55		418056		13.13	
10	E2SE3DL	1034476		10.74		1290389		7.55		430147		13.13	
11	E2SE4	1049783		10.74		1293827		7.55		445152		13.13	
12	E2SE5	1111707		10.73		1291956		7.55		460496		13.13	
13	E2SE6	1136726		10.74		1372034		7.55		472682		13.13	
14	E2SE7	1029203		10.74		1234707		7.55		427699		13.13	
15	E2SE7MS	1083951		10.73		1329453		7.55		454029		13.13	
16													
17													
18													
19													
20													
21													
22													

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = 200% (Low-Medium Volatiles) and 140% (Trace Volatiles) of internal standard area
AREA LOWER LIMIT = 50% (Low-Medium Volatiles) and 60% (Trace Volatiles) of internal standard area
RT UPPER LIMIT = + 0.50 (Low-Medium Volatiles) and + 0.33 (Trace Volatiles) minutes of internal standard RT
RT LOWER LIMIT = - 0.50 (Low-Medium Volatiles) and - 0.33 (Trace Volatiles) minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

8A - FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

GC Column: RTX-VMS ID: 0.25 (mm) Init. Calib. Date(s): 09/26/2011 09/26/2011

EPA Sample No.(VSTD#####): VSTD005IA Date Analyzed: 10/08/2011

Lab File ID (Standard): FN91S05 Time Analyzed: 21:05

Instrument ID: 5975-F Heated Purge: (Y/N) Y

		IS1 (CBZ) AREA	#	RT	#	IS2 (DFB) AREA	#	RT	#	IS3 (DCB) AREA	#	RT	#
	12 HOUR STD	1019088		10.74		1282301		7.55		448802		13.13	
	UPPER LIMIT	1426723		11.07		1795221		7.88		628323		13.46	
	LOWER LIMIT	611453		10.41		769381		7.22		269281		12.80	
	EPA SAMPLE NO.												
01	VBLKT2	1096870		10.74		1338339		7.55		464197		13.13	
02	E2SE7MSD	1033492		10.74		1276859		7.55		434786		13.13	
03	E2SE9	1093110		10.74		1292385		7.55		453670		13.13	
04	E2SB9	1079243		10.74		1335705		7.55		454741		13.13	
05	VIBLKT1	1040369		10.74		1243436		7.55		428512		13.13	
06	E2SC0	1090065		10.73		1325007		7.55		448866		13.13	
07	E2SE2	1042940		10.74		1264603		7.55		432993		13.13	
08	E2SE3	1008136		10.73		1231838		7.55		412295		13.13	
09	E2SC1	1090835		10.73		1307956		7.55		453710		13.13	
10	VHBLKT1	1053946		10.74		1241109		7.55		429410		13.13	
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = 200% (Low-Medium Volatiles) and 140% (Trace Volatiles) of internal standard area
AREA LOWER LIMIT = 50% (Low-Medium Volatiles) and 60% (Trace Volatiles) of internal standard area
RT UPPER LIMIT = + 0.50 (Low-Medium Volatiles) and + 0.33 (Trace Volatiles) minutes of internal standard RT
RT LOWER LIMIT = - 0.50 (Low-Medium Volatiles) and - 0.33 (Trace Volatiles) minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SB9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN97ESB9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 40.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	20.	U
74-87-3	Chloromethane	20.	U
75-01-4	Vinyl chloride	62.	
74-83-9	Bromomethane	20.	U
75-00-3	Chloroethane	110	
75-69-4	Trichlorofluoromethane	20.	U
75-35-4	1,1-Dichloroethene	20.	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	20.	U
67-64-1	Acetone	200	U
75-15-0	Carbon disulfide	20.	U
79-20-9	Methyl acetate	20.	U
75-09-2	Methylene chloride	20.	U
156-60-5	trans-1,2-Dichloroethene	20.	U
1634-04-4	Methyl tert-butyl ether	61.	
75-34-3	1,1-Dichloroethane	83.	
156-59-2	cis-1,2-Dichloroethene	66.	
78-93-3	2-Butanone	200	U
74-97-5	Bromochloromethane	20.	U
67-66-3	Chloroform	20.	U
71-55-6	1,1,1-Trichloroethane	20.	U
110-82-7	Cyclohexane	55.	
56-23-5	Carbon tetrachloride	20.	U
71-43-2	Benzene	3100	E
107-06-2	1,2-Dichloroethane	20.	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SB9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN97ESB9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 40.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	20.	U
108-87-2	Methylcyclohexane	20.	U
78-87-5	1,2-Dichloropropane	20.	U
75-27-4	Bromodichloromethane	20.	U
10061-01-5	cis-1,3-Dichloropropene	20.	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	20.	J
10061-02-6	trans-1,3-Dichloropropene	20.	U
79-00-5	1,1,2-Trichloroethane	20.	U
127-18-4	Tetrachloroethene	20.	U
591-78-6	2-Hexanone	200	U
124-48-1	Dibromochloromethane	20.	U
106-93-4	1,2-Dibromoethane	20.	U
108-90-7	Chlorobenzene	20.	U
100-41-4	Ethylbenzene	9.2	J
95-47-6	o-Xylene	20.	U
179601-23-1	m,p-Xylene	36.	
100-42-5	Styrene	20.	U
75-25-2	Bromoform	20.	U
98-82-8	Isopropylbenzene	20.	U
79-34-5	1,1,2,2-Tetrachloroethane	20.	U
541-73-1	1,3-Dichlorobenzene	20.	U
106-46-7	1,4-Dichlorobenzene	20.	U
95-50-1	1,2-Dichlorobenzene	20.	U
96-12-8	1,2-Dibromo-3-chloropropane	20.	U
120-82-1	1,2,4-Trichlorobenzene	20.	U
87-61-6	1,2,3-Trichlorobenzene	20.	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SB9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN97ESB9

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 40.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	142-29-0	Cyclopentene	3.35	39.	JN
02	110-83-8	Cyclohexene	6.52	24.	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	410	J

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SB9DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN75ESB9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 800.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	400	U
75-01-4	Vinyl chloride	400	U
74-83-9	Bromomethane	400	U
75-00-3	Chloroethane	180	JD
75-69-4	Trichlorofluoromethane	400	U
75-35-4	1,1-Dichloroethene	400	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	400	U
67-64-1	Acetone	4000	U
75-15-0	Carbon disulfide	400	U
79-20-9	Methyl acetate	400	U
75-09-2	Methylene chloride	400	U
156-60-5	trans-1,2-Dichloroethene	400	U
1634-04-4	Methyl tert-butyl ether	400	U
75-34-3	1,1-Dichloroethane	86.	JD
156-59-2	cis-1,2-Dichloroethene	85.	JD
78-93-3	2-Butanone	4000	U
74-97-5	Bromochloromethane	400	U
67-66-3	Chloroform	400	U
71-55-6	1,1,1-Trichloroethane	400	U
110-82-7	Cyclohexane	400	U
56-23-5	Carbon tetrachloride	400	U
71-43-2	Benzene	4200	D
107-06-2	1,2-Dichloroethane	400	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SB9DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN75ESB9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 800.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	400	U
108-87-2	Methylcyclohexane	400	U
78-87-5	1,2-Dichloropropane	400	U
75-27-4	Bromodichloromethane	400	U
10061-01-5	cis-1,3-Dichloropropene	400	U
108-10-1	4-Methyl-2-Pentanone	4000	U
108-88-3	Toluene	400	U
10061-02-6	trans-1,3-Dichloropropene	400	U
79-00-5	1,1,2-Trichloroethane	400	U
127-18-4	Tetrachloroethene	400	U
591-78-6	2-Hexanone	4000	U
124-48-1	Dibromochloromethane	400	U
106-93-4	1,2-Dibromoethane	400	U
108-90-7	Chlorobenzene	400	U
100-41-4	Ethylbenzene	400	U
95-47-6	o-Xylene	400	U
179601-23-1	m,p-Xylene	400	U
100-42-5	Styrene	400	U
75-25-2	Bromoform	400	U
98-82-8	Isopropylbenzene	400	U
79-34-5	1,1,2,2-Tetrachloroethane	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
96-12-8	1,2-Dibromo-3-chloropropane	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
87-61-6	1,2,3-Trichlorobenzene	400	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SB9DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN75ESB9

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 800.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC0

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833002

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN99ESC0

Level: (TRACE/LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/09/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	4.9	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.12	J
1634-04-4	Methyl tert-butyl ether	11.	
75-34-3	1,1-Dichloroethane	2.9	
156-59-2	cis-1,2-Dichloroethene	16.	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833002

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN99ESC0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833002

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN99ESC0

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1		Unknown Carbonyl sulfide	1.68	19.	J
2	60-29-7	Ethyl ether	2.81	0.59	JN
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833003

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO02ESC1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	20.	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.66	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.34	J
1634-04-4	Methyl tert-butyl ether	11.	
75-34-3	1,1-Dichloroethane	6.0	
156-59-2	cis-1,2-Dichloroethene	55.	E
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.32	J
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.49	J
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833003

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO02ESC1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.37	J
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ~ REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Sample Delivery Group: E2SB9 CERCLIS No: FNN0051479

Case No: 4181 Site Name/Location: Kokomo Garrison (FN)

Contractor or EPA Lab: ALS Lab Group Data User: IDEM

No. of Samples: 15 Date Sampled or Date Received: 24 Oct 2011

Have Chain-of-Custody records been received? Yes ✓ No _____
Have traffic reports or packing lists been received? Yes ✓ No _____
If no, are traffic reports or packing list numbers written on the Chain-of-Custody Record?
Yes _____ No _____
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____
_____ _____ _____ _____

Are basic data forms in? Yes ✓ No _____
No of samples claimed: 15 No. of samples received: _____

Received by: P A Joepner Date: 24 Oct 2011

Received by LSSS: P A Joepner Date: 28 Oct 2011

Review started: 11-29-11 Reviewer Signature: Delmah Conner

Total time spent on review: 10 Date review completed: 11-30-11

Copied by: A. C. Harvey Date: Dec 6, 2011

Mailed to user by: P A Joepner Date: 7 Dec 2011

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffin, Data Mgmt. Coordinator, Region V, ML-10C

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Organic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Dioxin data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
SAS Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Date: _____

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241408

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO03HBLK

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241408

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO03HBLK

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241408

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO03HBLK

Level: (TRACE/LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	1.0 ~~0.13~~	~~JB~~ U DRC 11-29-11
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKT2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241406

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN94BLK

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241406

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN94BLK

Level: (TRACE/LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241406

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN94BLK

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.22	J
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241405

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN74BLK

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241405

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN74BLK

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241405

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN74BLK

Level: (TRACE/LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833017

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN96ESE9

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833017

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN96ESE9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833017

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN96ESE9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7MSD

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833016

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN95ESS7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.1	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	5.1	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	5.0	
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7MSD

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833016

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN95ESS7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	6.0	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	5.4	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7MS

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833015

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN89ESM7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.1	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	5.1	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	5.0	
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7MS

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833015

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN89ESM7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	5.8	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	5.3	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE7

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN88ESE7

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	10.	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN88ESE7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE7

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN88ESE7

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE6

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833013

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN87ESE6

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	11.	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE6

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833013

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN87ESE6

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE6

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833013

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN87ESE6

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.31	J
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.37	J
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE5

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833012

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN86ESE5

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/08/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE5

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833012

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN86ESE5

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE5

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833012

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN86ESE5

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.12	J
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.17	J
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE4

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833011

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN85ESE4

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE4

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833011

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN85ESE4

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE4

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833011

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN85ESE4

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	3.7	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.40	J
156-59-2	cis-1,2-Dichloroethene	5.8	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE3DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN84ESE3

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	9.7	JD
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE3DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN84ESE3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	2.0	U
108-87-2	Methylcyclohexane	2.0	U
78-87-5	1,2-Dichloropropane	2.0	U
75-27-4	Bromodichloromethane	2.0	U
10061-01-5	cis-1,3-Dichloropropene	2.0	U
108-10-1	4-Methyl-2-Pentanone	20.	U
108-88-3	Toluene	2.0	U
10061-02-6	trans-1,3-Dichloropropene	2.0	U
79-00-5	1,1,2-Trichloroethane	2.0	U
127-18-4	Tetrachloroethene	2.0	U
591-78-6	2-Hexanone	20.	U
124-48-1	Dibromochloromethane	2.0	U
106-93-4	1,2-Dibromoethane	2.0	U
108-90-7	Chlorobenzene	2.0	U
100-41-4	Ethylbenzene	2.0	U
95-47-6	o-Xylene	2.0	U
179601-23-1	m,p-Xylene	2.0	U
100-42-5	Styrene	2.0	U
75-25-2	Bromoform	2.0	U
98-82-8	Isopropylbenzene	2.0	U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U
541-73-1	1,3-Dichlorobenzene	2.0	U
106-46-7	1,4-Dichlorobenzene	2.0	U
95-50-1	1,2-Dichlorobenzene	2.0	U
96-12-8	1,2-Dibromo-3-chloropropane	2.0	U
120-82-1	1,2,4-Trichlorobenzene	2.0	U
87-61-6	1,2,3-Trichlorobenzene	2.0	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE3DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN84ESE3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	2.0	U
74-87-3	Chloromethane	2.0	U
75-01-4	Vinyl chloride	5.7	D
74-83-9	Bromomethane	2.0	U
75-00-3	Chloroethane	2.0	U
75-69-4	Trichlorofluoromethane	2.0	U
75-35-4	1,1-Dichloroethene	2.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	U
67-64-1	Acetone	20.	U
75-15-0	Carbon disulfide	2.0	U
79-20-9	Methyl acetate	2.0	U
75-09-2	Methylene chloride	2.0	U
156-60-5	trans-1,2-Dichloroethene	0.85	JD
1634-04-4	Methyl tert-butyl ether	2.0	U
75-34-3	1,1-Dichloroethane	0.52	JD
156-59-2	cis-1,2-Dichloroethene	22.	D
78-93-3	2-Butanone	20.	U
74-97-5	Bromochloromethane	2.0	U
67-66-3	Chloroform	2.0	U
71-55-6	1,1,1-Trichloroethane	2.0	U
110-82-7	Cyclohexane	2.0	U
56-23-5	Carbon tetrachloride	2.0	U
71-43-2	Benzene	2.0	U
107-06-2	1,2-Dichloroethane	2.0	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO01ESE3

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	7.5	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO01ESE3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO01ESE3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	5.8	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.30	J
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.84	
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.53	
156-59-2	cis-1,2-Dichloroethene	23.	E
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE2DL

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833009DL

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN83ESE2

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/08/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 4.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	8.3	JD
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE2DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833009DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN83ESE2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	2.0	U
108-87-2	Methylcyclohexane	2.0	U
78-87-5	1,2-Dichloropropane	2.0	U
75-27-4	Bromodichloromethane	2.0	U
10061-01-5	cis-1,3-Dichloropropene	2.0	U
108-10-1	4-Methyl-2-Pentanone	20.	U
108-88-3	Toluene	2.0	U
10061-02-6	trans-1,3-Dichloropropene	2.0	U
79-00-5	1,1,2-Trichloroethane	2.0	U
127-18-4	Tetrachloroethene	2.0	U
591-78-6	2-Hexanone	20.	U
124-48-1	Dibromochloromethane	2.0	U
106-93-4	1,2-Dibromoethane	2.0	U
108-90-7	Chlorobenzene	2.0	U
100-41-4	Ethylbenzene	2.0	U
95-47-6	o-Xylene	2.0	U
179601-23-1	m,p-Xylene	2.0	U
100-42-5	Styrene	2.0	U
75-25-2	Bromoform	2.0	U
98-82-8	Isopropylbenzene	2.0	U
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U
541-73-1	1,3-Dichlorobenzene	2.0	U
106-46-7	1,4-Dichlorobenzene	2.0	U
95-50-1	1,2-Dichlorobenzene	2.0	U
96-12-8	1,2-Dibromo-3-chloropropane	2.0	U
120-82-1	1,2,4-Trichlorobenzene	2.0	U
87-61-6	1,2,3-Trichlorobenzene	2.0	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE2DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833009DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN83ESE2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	2.0	U
74-87-3	Chloromethane	2.0	U
75-01-4	Vinyl chloride	5.6	D
74-83-9	Bromomethane	2.0	U
75-00-3	Chloroethane	2.0	U
75-69-4	Trichlorofluoromethane	2.0	U
75-35-4	1,1-Dichloroethene	2.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.0	U
67-64-1	Acetone	20.	U
75-15-0	Carbon disulfide	2.0	U
79-20-9	Methyl acetate	2.0	U
75-09-2	Methylene chloride	2.0	U
156-60-5	trans-1,2-Dichloroethene	0.93	JD
1634-04-4	Methyl tert-butyl ether	2.0	U
75-34-3	1,1-Dichloroethane	0.54	JD
156-59-2	cis-1,2-Dichloroethene	23.	D
78-93-3	2-Butanone	20.	U
74-97-5	Bromochloromethane	2.0	U
67-66-3	Chloroform	2.0	U
71-55-6	1,1,1-Trichloroethane	2.0	U
110-82-7	Cyclohexane	2.0	U
56-23-5	Carbon tetrachloride	2.0	U
71-43-2	Benzene	2.0	U
107-06-2	1,2-Dichloroethane	2.0	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833009

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO00ESE2

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	8.5	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833009

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO00ESE2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833009

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO00ESE2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/09/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	5.7	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.32	J
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.86	
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.49	J
156-59-2	cis-1,2-Dichloroethene	23.	E
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833008

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN82ESE1

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	6.2	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833008

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN82ESE1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833008

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN82ESE1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	3.8	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.15	J
156-59-2	cis-1,2-Dichloroethene	1.9	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE0

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833007

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN81ESE0

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833007

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN81ESE0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833007

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN81ESE0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	5.2	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833006

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN80ESD9

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833006

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN80ESD9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833006

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN80ESD9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	5.2	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD5

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833005

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN79ESD5

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/08/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD5

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833005

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN79ESD5

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD5

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833005

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN79ESD5

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.12	J
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC9

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127833004

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FN78ESC9

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	30.	J
02	74-93-1	Methanethiol	2.16	0.95	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833004

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN78ESC9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC9

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833004

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN78ESC9

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.26	J
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.19	J
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.30	J
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.99	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC1DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833003DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN77ESC1

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC1DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833003DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN77ESC1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-Pentanone	50.	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	50.	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC1DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SB9

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127833003DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FN77ESC1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/08/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	20.	D
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	50.	U
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	11.	D
75-34-3	1,1-Dichloroethane	6.4	D
156-59-2	cis-1,2-Dichloroethene	59.	D
78-93-3	2-Butanone	50.	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	4.8	JD
107-06-2	1,2-Dichloroethane	5.0	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: E2SC1

Lab Name: ALS Environmental
Contract: EPW11037
Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SB9
Matrix: (SOIL/SED/WATER) WATER
Lab Sample ID: 1127833003
Sample wt/vol: 25.0 (g/mL) mL
Lab File ID: FO02ESC1
Level: (TRACE or LOW/MED) TRACE
Date Received: 10/05/2011
% Moisture: not dec. _____
Date Analyzed: 10/09/2011
GC Column: RTX-VMS ID: 0.25 (mm)
Dilution Factor: 1.0
Soil Extract Volume: _____ (uL)
Soil Aliquot Volume: _____ (uL)
CONCENTRATION UNITS: (ug/L or ug/kg) ug/L
Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	19.	J
02	60-29-7	Ethyl ether	2.80	0.55	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

ESAT Controlled Number: ESAT5.317.00269-pp 9Dec2011

Kokomo 2011
VOCs

DATE: December 9, 2011

Indiana Dept of Environmental Management
ATTN: Mark Jaworski/Dan Chesterson
100 N. Senate Avenue – Room N1255
Indianapolis, IN 46804-2222

Site Name: Kokomo Garrison/Main Water Treatment (IN) – **level 3 data validation**

Case #	Lab	Samples	SDG	Matrix
41851	ALS	12	E2SC2	water

Analysis: trace volatiles

Upon receipt of data, please check each package for completeness and note any missing deliverables below.

Send this form back to Sylvia Griffin, Data Management Coordinator after filling in the blanks below.

Data Received by:_____ Date:_____

PROBLEMS:

Please indicate if data is complete, and note if there are any deliverables missing from the cases noted above.

_____

_____

Received by Data Management Coordinator, CRL for file.

Signature:_____ Date:_____

FROM: **U.S. EPA - Region 5**
Sylvia Griffin
Central Regional Laboratory
536 S. Clark, 10th Floor
Chicago, IL 60605

Sent By: Pat Joyner
Data Coordinator
ESAT Region 5 **TechLaw**

ESAT5.316.00119

ACA
12-8-11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 24 October 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: IDEM
Email Address: mjaworsk@idem.in.gov; dchester@idem.in.gov

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: Kokomo Garrison / Main Water Treatment (IN)

Case Number: 41851 SDG Number: E2SC2

Number and Type of Samples: 12 Water Samples (Trace VOA)

Sample Numbers: E2SC2 – E2SC4, E2SD0 – E2SD3, E2SD6, E2SE8, E2SF0, E2SF1, E2SF8

Laboratory: ALS Laboratory Group - DATAC Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41851 SDG Number: E2SC2
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twelve (12) preserved water samples labeled E2SC2 – E2SC4, E2SD0 – E2SD3, E2SD6, E2SE8, E2SF0, E2SF1, and E2SF8, were shipped to ALS Laboratory Group located in Salt Lake City, UT. All samples were collected on 10/04/11 and received on 10/05/11 intact. The samples were received by the laboratory at temperatures above the 4 ±2°C temperature QC Limit. Sample results are not qualified for this discrepancy.

All samples were analyzed for the Trace VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Sample E2SF0 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

No samples were identified as field blanks or field duplicates.

Case Number: 41851 SDG Number: E2SC2
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

No Problems Found.

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U".

E2SC2, E2SC2DL, E2SD6
Methylene chloride

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified.

E2SE8
Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, Methyl acetate, Methylene chloride, Methyl-tert-butyl ether, 1,1-Dichloroethane, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, Carbon tetrachloride, 1,2-Dichloroethane, Dibromochloromethane, 1,2-Dibromoethane, Bromoform

E2SF0MS, E2SF0MSD
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E2SC3, E2SC4, E2SD1, E2SD2, E2SD3
cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

Case Number: 41851 SDG Number: E2SC2
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E2SF0 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

No Problems Found.

6B. LABORATORY CONTROL SAMPLE

No Problems Found.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks or field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Trace VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E2SC2DL
1,1-Dichloroethane

E2SC3
Chloroethane, Carbon disulfide, trans-1,2-Dichloroethene

E2SC4
Cyclohexane, Methylcyclohexane, Toluene

E2SD0
Acetone

E2SD1
Acetone, Carbon disulfide

E2SD2
cis-1,2-Dichloroethene

E2SD3
Trichloroethene

VBLKT1
Methylene chloride

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "NJ".

Cas No. 75-18-3 Dimethyl sulfide
E2SD1

Cas No. 90-12-0 Naphthalene, 1-methyl-
E2SD2

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "J".

Unknown Carbonyl sulfide @ 1.68
E2SC3, E2SC4, E2SD1, E2SD2, E2SD3, E2SF1

Unknown Sulfur dioxide @ 1.83
E2SD1, E2SD2

Unknown Methanethiol @ 2.16
E2SD2

Unknown 1-Pentene @ 2.49; Unknown Benzene, 1,2,4,5-tetramethyl- @ 14.69
E2SD1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Sample E2SF0 is listed on the COC as having three different Station Locations (W-0028, W-0029, and W-0030). All sample containers have the same date and collection times. Therefore, sample E2SF0 is believed to be from one location only, and incorrectly listed on the COC.

Case Number: 41851 SDG Number: E2SC2
Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

The following trace volatile samples have reported concentrations that exceeded the instrument's linear calibration range. These results were flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E2SC2
cis-1,2-Dichloroethene, Trichloroethene

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 12/07/2011

Case Number: 41851 SDG Number: E2SC2

Site Name: Kokomo Garrison/Main Water Treatment (IN) Laboratory: ALS Laboratory Group

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT

Date: 12/07/2011

Sample Summary Report

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SC2	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	200	ug/L	400.0	U	U	Yes	
Chloromethane	200	ug/L	400.0	U	U	Yes	
Vinyl chloride	5500	ug/L	400.0			Yes	
Bromomethane	200	ug/L	400.0	U	U	Yes	
Chloroethane	200	ug/L	400.0	U	U	Yes	
Trichlorofluorom ethane	200	ug/L	400.0	U	U	Yes	
1,1-Dichloroethene	620	ug/L	400.0			Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	200	ug/L	400.0	U	U	Yes	
Acetone	2000	ug/L	400.0	U	U	Yes	
Carbon disulfide	200	ug/L	400.0	U	U	Yes	
Methyl acetate	200	ug/L	400.0	U	U	Yes	
Methylene chloride	400	ug/L	400.0	JB	U	Yes	
trans-1,2-Dichloroethene	2600	ug/L	400.0			Yes	
Methyl tert-butyl ether	200	ug/L	400.0	U	U	Yes	
1,1-Dichloroethane	1800	ug/L	400.0			Yes	
cis-1,2-Dichloroethene	83000	ug/L	400.0	E	J	Yes	
2-Butanone	2000	ug/L	400.0	U	U	Yes	
Bromochloromet hane	200	ug/L	400.0	U	U	Yes	
Chloroform	200	ug/L	400.0	U	U	Yes	
1,1,1-Trichloroethane	200	ug/L	400.0	U	U	Yes	
Cyclohexane	200	ug/L	400.0	U	U	Yes	
Carbon tetrachloride	200	ug/L	400.0	U	U	Yes	
Benzene	200	ug/L	400.0	U	U	Yes	
1,2-Dichloroethane	200	ug/L	400.0	U	U	Yes	
Trichloroethene	22000	ug/L	400.0	E	J	Yes	
Methylcyclohexa ne	200	ug/L	400.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,2-Dichloropropane	200	ug/L	400.0	U	U	Yes	
Bromodichloromethane	200	ug/L	400.0	U	U	Yes	
cis-1,3-Dichloropropene	200	ug/L	400.0	U	U	Yes	
4-Methyl-2-Pentanone	2000	ug/L	400.0	U	U	Yes	
Toluene	200	ug/L	400.0	U	U	Yes	
trans-1,3-Dichloropropene	200	ug/L	400.0	U	U	Yes	
1,1,2-Trichloroethane	200	ug/L	400.0	U	U	Yes	
Tetrachloroethene	200	ug/L	400.0	U	U	Yes	
2-Hexanone	2000	ug/L	400.0	U	U	Yes	
Dibromochloromethane	200	ug/L	400.0	U	U	Yes	
1,2-Dibromoethane	200	ug/L	400.0	U	U	Yes	
Chlorobenzene	200	ug/L	400.0	U	U	Yes	
Ethylbenzene	200	ug/L	400.0	U	U	Yes	
o-Xylene	200	ug/L	400.0	U	U	Yes	
m,p-Xylene	200	ug/L	400.0	U	U	Yes	
Styrene	200	ug/L	400.0	U	U	Yes	
Bromoform	200	ug/L	400.0	U	U	Yes	
Isopropylbenzene	200	ug/L	400.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	200	ug/L	400.0	U	U	Yes	
1,3-Dichlorobenzene	200	ug/L	400.0	U	U	Yes	
1,4-Dichlorobenzene	200	ug/L	400.0	U	U	Yes	
1,2-Dichlorobenzene	200	ug/L	400.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	200	ug/L	400.0	U	U	Yes	
1,2,4-Trichlorobenzene	200	ug/L	400.0	U	U	Yes	
1,2,3-Trichlorobenzene	200	ug/L	400.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SC2DL	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	15:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	2000	ug/L	4000.0	U	U	Yes	
Chloromethane	2000	ug/L	4000.0	U	U	Yes	
Vinyl chloride	5200	ug/L	4000.0	D		Yes	
Bromomethane	2000	ug/L	4000.0	U	U	Yes	
Chloroethane	2000	ug/L	4000.0	U	U	Yes	
Trichlorofluorom ethane	2000	ug/L	4000.0	U	U	Yes	
1,1-Dichloroethene	2000	ug/L	4000.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	2000	ug/L	4000.0	U	U	Yes	
Acetone	20000	ug/L	4000.0	U	U	Yes	
Carbon disulfide	2000	ug/L	4000.0	U	U	Yes	
Methyl acetate	2000	ug/L	4000.0	U	U	Yes	
Methylene chloride	4000	ug/L	4000.0	JDB	U	Yes	
trans-1,2-Dichloroethene	2700	ug/L	4000.0	D		Yes	
Methyl tert-butyl ether	2000	ug/L	4000.0	U	U	Yes	
1,1-Dichloroethane	1800	ug/L	4000.0	JD	J	Yes	
cis-1,2-Dichloroethene	77000	ug/L	4000.0	D		Yes	
2-Butanone	20000	ug/L	4000.0	U	U	Yes	
Bromochloromet hane	2000	ug/L	4000.0	U	U	Yes	
Chloroform	2000	ug/L	4000.0	U	U	Yes	
1,1,1-Trichloroethane	2000	ug/L	4000.0	U	U	Yes	
Cyclohexane	2000	ug/L	4000.0	U	U	Yes	
Carbon tetrachloride	2000	ug/L	4000.0	U	U	Yes	
Benzene	2000	ug/L	4000.0	U	U	Yes	
1,2-Dichloroethane	2000	ug/L	4000.0	U	U	Yes	
Trichloroethene	20000	ug/L	4000.0	D		Yes	
Methylcyclohexa ne	2000	ug/L	4000.0	U	U	Yes	
1,2-Dichloropropane	2000	ug/L	4000.0	U	U	Yes	
Bromodichlorom ethane	2000	ug/L	4000.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	2000	ug/L	4000.0	U	U	Yes	
4-Methyl-2-Pentanone	20000	ug/L	4000.0	U	U	Yes	
Toluene	2000	ug/L	4000.0	U	U	Yes	
trans-1,3-Dichloropropene	2000	ug/L	4000.0	U	U	Yes	
1,1,2-Trichloroethane	2000	ug/L	4000.0	U	U	Yes	
Tetrachloroethene	2000	ug/L	4000.0	U	U	Yes	
2-Hexanone	20000	ug/L	4000.0	U	U	Yes	
Dibromochloromethane	2000	ug/L	4000.0	U	U	Yes	
1,2-Dibromoethane	2000	ug/L	4000.0	U	U	Yes	
Chlorobenzene	2000	ug/L	4000.0	U	U	Yes	
Ethylbenzene	2000	ug/L	4000.0	U	U	Yes	
o-Xylene	2000	ug/L	4000.0	U	U	Yes	
m,p-Xylene	2000	ug/L	4000.0	U	U	Yes	
Styrene	2000	ug/L	4000.0	U	U	Yes	
Bromoform	2000	ug/L	4000.0	U	U	Yes	
Isopropylbenzene	2000	ug/L	4000.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	2000	ug/L	4000.0	U	U	Yes	
1,3-Dichlorobenzene	2000	ug/L	4000.0	U	U	Yes	
1,4-Dichlorobenzene	2000	ug/L	4000.0	U	U	Yes	
1,2-Dichlorobenzene	2000	ug/L	4000.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	2000	ug/L	4000.0	U	U	Yes	
1,2,4-Trichlorobenzene	2000	ug/L	4000.0	U	U	Yes	
1,2,3-Trichlorobenzene	2000	ug/L	4000.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SC3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	16:36:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	2.4	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.13	ug/L	1.0	J	J	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.17	ug/L	1.0	J	J	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.43	ug/L	1.0	J	J	Yes	
Methyl tert-butyl ether	2.7	ug/L	1.0			Yes	
1,1-Dichloroethane	5.4	ug/L	1.0			Yes	
cis-1,2-Dichloroethene	20	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	2.3	ug/L	1.0			Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	15	ug/L	1.0			Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SC4	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	18:20:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	2.3	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.51	ug/L	1.0			Yes	
Methyl tert-butyl ether	0.61	ug/L	1.0			Yes	
1,1-Dichloroethane	0.52	ug/L	1.0			Yes	
cis-1,2-Dichloroethene	3.5	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.22	ug/L	1.0	J	J	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.60	ug/L	1.0			Yes	
Methylcyclohexa ne	0.44	ug/L	1.0	J	J	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.12	ug/L	1.0	J	J	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SD0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	13:10:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	1.4	ug/L	1.0	J	J	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SD1	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	15:50:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	1.5	ug/L	1.0	J	J	Yes	
Carbon disulfide	0.30	ug/L	1.0	J	J	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.66	ug/L	1.0			Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.72	ug/L	1.0			Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Dimethyl sulfide			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SD2	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	17:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.20	ug/L	1.0	J	J	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Naphthalene, 1-methyl-			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SD3	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	19:05:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.15	ug/L	1.0	J	J	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	UJ	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	UJ	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroetbane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Total Alkanes			1.0	JN		Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SD6	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	08:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	1.0	ug/L	1.0	JB	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SC2	Lab Code: DATAC
Sample Number: E2SE8	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH: 1.0	Sample Date: 10042011	Sample Time: 15:50:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	2.2	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.62	ug/L	1.0		J	Yes	
cis-1,2-Dichloroethene	6.3	ug/L	1.0			Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SF0	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	14:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SF0MS	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	14:00:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	5.3	ug/L	1.0		J	Yes	
Benzene	5.5	ug/L	1.0			Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	5.1	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Toluene	5.2	ug/L	1.0			Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	5.1	ug/L	1.0			Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichloromethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SC2	Lab Code: DATAC
Sample Number: E2SF0MSD	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH: 1.0	Sample Date: 10042011	Sample Time: 14:00:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
1,1-Dichloroethene	5.4	ug/L	1.0		J	Yes	
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Benzene	5.5	ug/L	1.0			Yes	
Trichloroethene	5.1	ug/L	1.0			Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Toluene	5.3	ug/L	1.0			Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	5.2	ug/L	1.0			Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethen e	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochlorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzen e	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethan e	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzen e	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzen e	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SC2	Lab Code: DATAC
Sample Number: E2SF1	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH: 1.0	Sample Date: 10042011	Sample Time: 17:30:00
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No:	41851	Contract:	EPW11037	SDG No:	E2SC2	Lab Code:	DATAC
Sample Number:	E2SF8	Method:	VOA_Trace	Matrix:	Water	MA Number:	DEFAULT
Sample Location:		pH:	1.0	Sample Date:	10042011	Sample Time:	16:15:00
% Moisture :				% Solids :			

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SC2	Lab Code: DATAC
Sample Number: VBLKT1	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.23	ug/L	1.0	J	J	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ng/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

Case No: 41851	Contract: EPW11037	SDG No: E2SC2	Lab Code: DATAC
Sample Number: VHBLKT1	Method: VOA_Trace	Matrix: Water	MA Number: DEFAULT
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture :		% Solids :	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
Dichlorodifluoro methane	0.50	ug/L	1.0	U	U	Yes	
Chloromethane	0.50	ug/L	1.0	U	U	Yes	
Vinyl chloride	0.50	ug/L	1.0	U	U	Yes	
Bromomethane	0.50	ug/L	1.0	U	U	Yes	
Chloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichlorofluorom ethane	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	ug/L	1.0	U	U	Yes	
Acetone	5.0	ug/L	1.0	U	U	Yes	
Carbon disulfide	0.50	ug/L	1.0	U	U	Yes	
Methyl acetate	0.50	ug/L	1.0	U	U	Yes	
Methylene chloride	0.50	ug/L	1.0	U	U	Yes	
trans-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methyl tert-butyl ether	0.50	ug/L	1.0	U	U	Yes	
1,1-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
cis-1,2-Dichloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Butanone	5.0	ug/L	1.0	U	U	Yes	
Bromochloromet hane	0.50	ug/L	1.0	U	U	Yes	
Chloroform	0.50	ug/L	1.0	U	U	Yes	
1,1,1-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Cyclohexane	0.50	ug/L	1.0	U	U	Yes	
Carbon tetrachloride	0.50	ug/L	1.0	U	U	Yes	
Benzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloroethane	0.50	ug/L	1.0	U	U	Yes	
Trichloroethene	0.50	ug/L	1.0	U	U	Yes	
Methylcyclohexa ne	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichloropropane	0.50	ug/L	1.0	U	U	Yes	
Bromodichlorom ethane	0.50	ug/L	1.0	U	U	Yes	

Analyte Name	Result	Units	Dilution Factor	Lab Flag	Validation	Reportable	Validation Level
cis-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
4-Methyl-2-Pentanone	5.0	ug/L	1.0	U	U	Yes	
Toluene	0.50	ug/L	1.0	U	U	Yes	
trans-1,3-Dichloropropene	0.50	ug/L	1.0	U	U	Yes	
1,1,2-Trichloroethane	0.50	ug/L	1.0	U	U	Yes	
Tetrachloroethene	0.50	ug/L	1.0	U	U	Yes	
2-Hexanone	5.0	ug/L	1.0	U	U	Yes	
Dibromochloromethane	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromoethane	0.50	ug/L	1.0	U	U	Yes	
Chlorobenzene	0.50	ug/L	1.0	U	U	Yes	
Ethylbenzene	0.50	ug/L	1.0	U	U	Yes	
o-Xylene	0.50	ug/L	1.0	U	U	Yes	
m,p-Xylene	0.50	ug/L	1.0	U	U	Yes	
Styrene	0.50	ug/L	1.0	U	U	Yes	
Bromoform	0.50	ug/L	1.0	U	U	Yes	
Isopropylbenzene	0.50	ug/L	1.0	U	U	Yes	
1,1,2,2-Tetrachloroethane	0.50	ug/L	1.0	U	U	Yes	
1,3-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,4-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2-Dibromo-3-chloropropane	0.50	ug/L	1.0	U	U	Yes	
1,2,4-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	
1,2,3-Trichlorobenzene	0.50	ug/L	1.0	U	U	Yes	

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SC3 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6759	6.8252	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SC4 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6757	16.8222	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SD1 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6698	18.8754	ug/L	J
	Unknown Sulfur dioxide	1.8283	0.9419	ug/L	J
	Unknown 1-Pentene	2.4867	0.5089	ug/L	J
75-18-3	Dimethyl sulfide	3.2488	1.1265	ug/L	JN
	Unknown Benzene, 1,2,4,5-tetramethyl-	14.6855	0.5139	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SD2 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6698	46.9278	ug/L	J
	Unknown Sulfur dioxide	1.8222	5.0279	ug/L	J
	Unknown Methanethiol	2.1575	0.708	ug/L	J
90-12-0	Naphthalene, 1-methyl-	16.4901	0.6003	ug/L	JN

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SD3 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
E966796	Total Alkanes	0.00	0.5061	ug/L	JN
	Unknown Carbonyl sulfide	1.6697	10.7075	ug/L	J

National Functional Guidelines Report #09

Lab DATAC(ALS Environmental) **SDG** E2SC2 **Case** 41851 **Contract** EPW11037 **Region** 5 **DDTID** 135247 **SOW** SOM01.2

Tentatively Identified Compounds

VOA_Trace Sample=E2SF1 Location= Matrix=Water Level=Trace

CAS No.	Compound Name	RT (mins)	Concentration		Lab Qualifier
	Unknown Carbonyl sulfide	1.6757	2.4887	ug/L	J

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Data
Received for Review on 24 Oct 2011

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: IDEM

We have reviewed the data for the following case:

SITE NAME: Kokomo Garrison/Main Water Treatment (IN)

CASE NUMBER: 41861 SDG NUMBER: E2SC2

Number and Type of Samples: 12 water samples

Sample Numbers: E2SC2-C4; D0-D3; D6; E8; F0-F1; F8

Laboratory: ALS Lab Group Hrs for Review: 9

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: E2SC2

☐ ARO ☐ PEST ☐ BNA ☐ BNASIM ☒ VT ☐ VOASIM ☐ VLM

Laboratory Name: ALS Laboratory Group (SLC) Laboratory Code: DATAC

Contract No.: EPW11037 Case No.: 41851

Analysis Price: N/A SDG Turnaround: 21

Modified Analysis Requested: NO Program: SOM01.2

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) E2SC2	7) E2SD3	13)	19)
2) E2SC3	8) E2SD6	14)	20)
3) E2SC4	9) E2SE8	15)	21)
4) E2SD0	10) E2SF0	16)	22)
5) E2SD1	11) E2SF1	17)	23)
6) E2SD2	12) E2SF8	18)	24)

DO 10/24/11

DO 10/24/11

E2SC2	E2SF8
First Sample in SDG	Last Sample in SDG
10/05/11	10/05/11
First Sample Receipt Date	Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: Roxanne Olsen Date: 10/24/2011

W 1127835

USEPA CLP Organics COC (LAB COPY)
DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225935

CHAIN OF CUSTODY RECORD

Case #: 41851
Cooler #: 2

E2SC2

No: 5-100411-193152-0004
Lab: ALS Laboratory Group
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
E2SC2	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-178936 (HCl) (3)	W-0051	10/04/2011 15:05		
E2SC3	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-178938 (HCl) (3)	W-0053	10/04/2011 16:36		
E2SC4	Ground Water/ Jaworski, Mark	Grab	CLP TVOA(21)	5-186334 (HCl) (1)	W-0057	10/04/2011 18:20		
E2SD0	Ground Water/ Wright, Hope	Grab	CLP TVOA(21)	5-245160 (HCl) (3)	W-0033	10/04/2011 13:10		
E2SD1	Ground Water/ Wright, Hope	Grab	CLP TVOA(21)	5-021675 (HCl) (3)	W-0045	10/04/2011 15:50		
E2SD2	Ground Water/ McIntire, Steve	Grab	CLP TVOA(21)	5-178932 (HCl) (3)	W-0047	10/04/2011 17:00		
E2SD3	Ground Water/ McIntire, Steve	Grab	CLP TVOA(21)	5-178940 (HCl) (3)	W-0055	10/04/2011 19:05		
E2SD6	Ground Water/ Chesterson, Dan	Grab	CLP TVOA(21)	5-245050 (HCl) (3)	W-0042	10/04/2011 08:00		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245163 (HCl) (3)	W-0035	10/04/2011 15:05		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245164 (HCl) (3)	W-0036	10/04/2011 15:05		
E2SE7	Ground Water/ Johnson, Tim	Grab	CLP TVOA(21)	5-245165 (HCl) (3)	W-0037	10/04/2011 15:05		

Sample(s) to be used for Lab QC: E2SE7, E2SE7 - Special Instructions: Please use IDEM account number #1260 5334-7 to return cooler (s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22, IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #
23126, 23727

Analysis Key: CLP TVOA=CLP TCL Trace Volatiles

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	Michael Edwards	10/5/11	959						

USEPA CLP Organics COC (LAB COPY)
DateShipped: 10/4/2011
CarrierName: FedEx
AirbillNo: 854390225935

CHAIN OF CUSTODY RECORD E2SC2

Case #: 41851
Cooler #: 2

No: 5-100411-193152-0004
Lab: ALS Laboratory Group
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Organic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Inorganic Sample #	For Lab Use Only
E2SE8	Ground Water/ Milton, Rick	Grab	CLP TVOA(21)	5-244362 (HCl) (3)	W-0040	10/04/2011 15:50		
E2SF0	Ground Water/ Wyatt, DeDe	Grab	CLP TVOA(21)	5-245155 (HCl) (3)	W-0028	10/04/2011 14:00		
E2SF0	Ground Water/ Wyatt, DeDe	Grab	CLP TVOA(21)	5-245156 (HCl) (3)	W-0029	10/04/2011 14:00		10/5/11
E2SF0	Ground Water/ Wyatt, DeDe	Grab	CLP TVOA(21)	5-245157 (HCl) (3)	W-0030	10/04/2011 14:00		
E2SF1	Ground Water/ Chesterson, Dan	Grab	CLP TVOA(21)	5-178934 (HCl) (3)	W-0049	10/04/2011 17:30		
E2SF8	Ground Water/ Wyatt, DeDe	Grab	CLP TVOA(21)	5-245051 (HCl) (3)	W-0043	10/04/2011 16:15		

Sample(s) to be used for Lab QC: E2SF0, E2SF0 - Special Instructions: Please use IDEM account number #1260 5334-7 to return cooler (s) to:
Indiana Department of Environmental Management
Office of Land Quality/Site Investigation Program
100 North Senate Avenue
MC 66-22, IGCN N1101
Indianapolis, IN 46204-2251

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #
23726, 23727

Analysis Key: CLP TVOA=CLP TCL Trace Volatiles

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dan Chesterson	10/4/11	[signature]	10/5/11	951						

SDG Narrative
Trace Volatiles

Contract: EPW11037
Case: 41851
SDG: E2SC2
Laboratory Name: ALS Environmental

Sample Number	DCL Sample ID	pH	Dilution
E2SC2	1127835001	1	1:400
E2SC2DL	1127835001DL	1	1:4000
E2SC3	1127835002	1	
E2SC4	1127835003	1	
E2SD0	1127835004	1	
E2SD1	1127835005	1	
E2SD2	1127835006	1	
E2SD3	1127835007	1	
E2SD6	1127835008	1	
E2SE8	1127835009	1	
E2SF0	1127835010	1	
E2SF0MS	1127835011	1	
E2SF0MSD	1127835012	1	
E2SF1	1127835013	1	
E2SF8	1127835014	1	

General SDG Information: Samples were analyzed according to USEPA CLP Statement of Work SOM01.2. There were no deviations from the SOW except as listed below.

Instrumentation: Agilent 5975-F GC/MSD with electron impact ionization and quadrupole detector scanning at a mass range of 35 to 300 amu.
Column: RTX-VMS - 30 meters, 0.25 mm id., 1.4 µm film
Temperature Program: 45°C (5.0 min) 15°/min ramp to 200° ;30°/min ramp to 220°C
Carrier Gas: Helium Purge Gas: Helium
Purge & Trap Device: OI Analytical-Eclipse 4660 & Varian Archon
Purge Flow: 40 mL/min Trap: OI #10 Trap Temp: 35°C Heated Purge: 40°C

Sample Preparation: This method has no extraction procedure for the water matrix. Twenty-five milliliters of water sample was spiked with Internal Standard/DMC Solution and purged.

Instrument Calibration: The GC/MS was hardware tuned to meet the criteria for a 50 ng purging of 4-Bromofluorobenzene as specified in the SOW. This tune check is valid for 12 hours.

Initial and Continuing Calibration Verification: The five point initial calibration curve, which is used for the quantitation of each target compound, met the specified criteria in the SOW. Due to an interfering ion from 1,4-Difluorobenzene, a secondary ion of 130 was used for the quantitation of Trichloroethene for all calibrations, blanks, and samples. A continuing calibration standard (CCAL) was analyzed prior to sample analysis. A final calibration standard (FCAL) was analyzed after sample analysis. Manual edits were made in the calibration standards and in some samples for various mis-called peaks. Every manual integration is noted by an "m" footnote on the quantitation report, and an additional graphics page is included for each manual integration to show how the peak was integrated. Analytes that required manual integrations are listed.

Sample	Initial Scan	Final Scan	Analyte

Blank Analysis: Method blanks were prepared using 25 mL of spiked reagent water. The blanks were analyzed prior to sample analysis and were free of volatile organic contaminants within the specifications of the SOW.

Sample Analysis: All deuterated monitoring compounds and internal standard area responses were within the required acceptance criteria. In order to protect the integrity of the instrument from high levels of cis-1,2-dichloroethene the following sample was diluted and used as original analyses:

E2SC2 (1:400)

No undiluted analyses was performed for this sample. An additional dilution was performed on this sample to bring cis-1,2-dichloroethene within the range of the curve. This dilution was based off screening data which will be included.

MS/MSD Analysis: Matrix spike (MS) and matrix spike duplicate (MSD) analyses for the samples were performed using sample E2SF0. The matrix spike compounds are 1,1-Dichloroethene, Benzene, Trichloroethene, Toluene, and Chlorobenzene; each is spiked in at a concentration of 5 µg/L. All percent recoveries and RPD's were within QC limits.

Miscellaneous Comments: As instructed in the SOW, alkanes are not reported separately on the Form 1J but rather are summarized as "total alkanes."

With regard to the naming of tentatively-identified compounds (TICs), spectral matches above 85 percent are reported as a specific isomer unless the analyst has a specific reason to assign a different name. The exact isomer configuration, as reported, may not be absolutely accurate. Reasons for assigning a TIC name other than the match with the highest fit value above 85% include: instances in which the analyst has previous experience with respect to a specific compound; when the first computer-generated match is a target compound and retention time information clearly indicates the TIC is in fact not the target compound; and when a specific compound name has already been assigned to a peak. Even though specific names will usually be given to TICs with spectral fits above 85%, it must be understood by the data user that TIC names are very tentative, and it cannot be assumed that the specific isomers reported are correct.

Sample Calculations:

Relative Response Factor: $RRF = \left[\frac{A_x}{A_{is}}\right]\left[\frac{C_{is}}{C_x}\right]$

Where A_x is the area of the characteristic ion for the compound to be measured, A_{is} is the area of the characteristic ion for the internal standard , C_{is} is the concentration of the internal standard, and C_x is the concentration of the compound to be measured.

Concentration in ug/L: $C = \left[\frac{(A_x)\,(I_s)\,(Df)}{(A_{is})\,(RRF)\,(V_o)}\right]$

Where I_s is the amount of internal standard spiked in ng (125 ng), Df is a dilution factor (1 if no dilutions are made), RRF is the mean relative response factor (assumed to be 1 for non target analytes) and V_o is the total volume purged in mL.

I certify that this Sample Data Package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Sample Data Package and in the electronic data deliverable has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

October 22, 2011

Matthew Goetz
Chemist
Volatile Organic Analysis Section

2A - FORM II VOA-1

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC1 (VCL) #	VDMC2 (CLA) #	VDMC3 (DCE) #	VDMC4 (BUT) #	VDMC5 (CLF) #	VDMC6 (DCA) #	VDMC7 (BEN) #
01	E2SC2	122	115	90	68	100	98	110
02	E2SC2DL	115	112	85	71	104	100	108
03	E2SC3	107	107	80	64	98	94	108
04	E2SC4	120	120	89	61	106	99	114
05	E2SD0	130	124	93	69	111	108	109
06	E2SD1	114	107	80	63	103	100	109
07	E2SD2	117	113	82	65	105	100	110
08	E2SD3	115	118	84	64	104	99	108
09	E2SD6	120	119	90	84	116	120	108
10	E2SE8	117	118	86	106	121 *	136 *	105
11	E2SF0	105	107	78	78	107	112	106
12	E2SF1	121	116	83	74	107	109	107
13	E2SF8	122	121	85	72	105	105	106
14	E2SF0MS	118	112	106 *	71	103	106	109
15	E2SF0MSD	118	112	106 *	72	102	105	109
16	VBLKT1	111	109	82	84	106	102	108
17	VHBLKT1	125	119	86	79	108	110	109
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	QC LIMITS
VDMC1 (VCL) = Vinyl chloride-d3	(65-131)
VDMC2 (CLA) = Chloroethane-d5	(71-131)
VDMC3 (DCE) = 1,1-Dichloroethene-d2	(55-104)
VDMC4 (BUT) = 2-Butanone-d5	(49-155)
VDMC5 (CLF) = Chloroform-d	(78-121)
VDMC6 (DCA) = 1,2-Dichloroethane-d4	(78-129)
VDMC7 (BEN) = Benzene-d6	(77-124)

Column to be used to flag recovery values
* Values outside of contract required QC limits

2B - FORM II VOA-2

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC8 (DPA) #	VDMC9 (TOL) #	VDMC10 (TDP) #	VDMC11 (HEX) #	VDMC12 (TCA) #	VDMC13 (DCZ) #	VDMC14 #	TOT OUT
01	E2SC2	109	105	83	73	94	103		0
02	E2SC2DL	106	103	90	74	91	102		0
03	E2SC3	110	107	68 *	71	88	102		1
04	E2SC4	109	106	35 *	64	88	100		1
05	E2SD0	110	103	79	72	94	106		0
06	E2SD1	108	105	44 *	70	91	100		1
07	E2SD2	108	106	51 *	70	89	102		1
08	E2SD3	106	105	63 *	67	86	100		1
09	E2SD6	113	100	80	82	106	111		0
10	E2SE8	115	96	90	96	121	110		2
11	E2SF0	110	100	85	80	97	104		0
12	E2SF1	109	104	82	78	92	103		0
13	E2SF8	109	102	80	72	90	100		0
14	E2SF0MS	111	102	85	78	93	104		1
15	E2SF0MSD	109	105	85	78	95	104		1
16	VBLKT1	108	104	91	81	89	102		0
17	VHBLKT1	110	101	86	79	94	105		0
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

	QC LIMITS
VDMC8 (DPA) = 1,2-Dichloropropane-d6	(79-124)
VDMC9 (TOL) = Toluene-d8	(77-121)
VDMC10 (TDP) = trans-1,3-Dichloropropene-d4	(73-121)
VDMC11 (HEX) = 2-Hexanone-d5	(28-135)
VDMC12 (TCA) = 1,1,2,2-Tetrachloroethane-d2	(73-125)
VDMC13 (DCZ) = 1,2-Dichlorobenzene-d4	(80-131)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A - FORM III VOA-1

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix Spike - EPA Sample No.: E2SF0 Level: (TRACE or LOW) TRACE

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS %REC #	QC LIMITS REC.
1,1-Dichloroethene	5.0	0.0	5.3	106	61-145
Trichloroethene	5.0	0.0	5.1	103	71-120
Benzene	5.0	0.0	5.5	111	76-127
Toluene	5.0	0.0	5.2	105	76-125
Chlorobenzene	5.0	0.0	5.1	102	75-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD %REC #	%RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	5.0	5.4	108	2	0-14	61-145
Trichloroethene	5.0	5.1	102	1	0-14	71-120
Benzene	5.0	5.5	111	0	0-11	76-127
Toluene	5.0	5.3	106	1	0-13	76-125
Chlorobenzene	5.0	5.2	104	2	0-13	75-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

4A - FORM IV VOA

VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Lab File ID: FO39BLK Lab Sample ID: 241725

Instrument ID: 5975-F

Matrix: (SOIL/SED/WATER) WATER Date Analyzed: 10/10/2011

Level: (TRACE or LOW/MED) TRACE Time Analyzed: 11:32

GC Column: RTX-VMS ID: 0.25 (mm) Heated Purge: (Y/N) Y

	EPA SAMPLE NO:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	E2SC2DL	1127835001DL	FO40ESC2	12:07
02	E2SC3	1127835002	FO41ESC3	12:37
03	E2SC4	1127835003	FO42ESC4	13:08
04	E2SD1	1127835005	FO44ESD1	14:09
05	E2SD2	1127835006	FO45ESD2	14:40
06	E2SD3	1127835007	FO46ESD3	15:11
07	E2SD6	1127835008	FO47ESD6	15:41
08	E2SE8	1127835009	FO48ESE8	16:12
09	E2SF0	1127835010	FO49ESF0	16:42
10	E2SF0MS	1127835011	FO50MSF0	17:13
11	E2SF0MSD	1127835012	FO51SSF0	17:44
12	E2SF1	1127835013	FO52ESF1	18:14
13	E2SF8	1127835014	FO53ESF8	18:45
14	E2SD0	1127835004	FO54ESD0	19:15
15	E2SC2	1127835001	FO55ESC2	19:46
16	VHBLKT1	241726	FO56HBLK	20:17
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS: _____

8A - FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

GC Column: RTX-VMS | ID: 0.25 (mm) | Init. Calib. Date(s): 09/26/2011 09/26/2011

EPA Sample No.(VSTD#####): VSTD005T1 | Date Analyzed: 10/10/2011

Lab File ID (Standard): FO37S05 | Time Analyzed: 10:24

Instrument ID: 5975-F | Heated Purge: (Y/N) Y

		IS1 (CBZ) AREA	#	RT	#	IS2 (DFB) AREA	#	RT	#	IS3 (DCB) AREA	#	RT	#
	12 HOUR STD	1043433		10.73		1315708		7.55		443800		13.13	
	UPPER LIMIT	1460806		11.06		1841991		7.88		621320		13.46	
	LOWER LIMIT	626060		10.40		789425		7.22		266280		12.80	
	EPA SAMPLE NO.												
01	VBLKT1	977652		10.74		1208202		7.55		386940		13.13	
02	E2SC2DL	976508		10.73		1207510		7.55		392207		13.13	
03	E2SC3	987552		10.74		1290587		7.55		392426		13.13	
04	E2SC4	894159		10.73		1157425		7.55		361007		13.13	
05	E2SD1	975496		10.74		1212656		7.55		397969		13.13	
06	E2SD2	936545		10.74		1153846		7.55		366520		13.13	
07	E2SD3	966112		10.74		1183667		7.55		373151		13.13	
08	E2SD6	952779		10.74		1102895		7.55		392427		13.13	
09	E2SE8	978703		10.73		1098691		7.55		422659		13.13	
10	E2SF0	1034706		10.74		1222474		7.55		424028		13.13	
11	E2SF0MS	981010		10.73		1234505		7.55		397750		13.13	
12	E2SF0MSD	953280		10.74		1198438		7.55		386589		13.13	
13	E2SF1	982432		10.73		1183868		7.55		393273		13.13	
14	E2SF8	976427		10.74		1157167		7.55		393342		13.13	
15	E2SD0	915741		10.74		1106865		7.55		365914		13.13	
16	E2SC2	924627		10.74		1213032		7.55		369502		13.13	
17	VHBLKT1	955878		10.74		1138791		7.55		376230		13.13	
18													
19													
20													
21													
22													

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = 200% (Low-Medium Volatiles) and 140% (Trace Volatiles) of internal standard area

AREA LOWER LIMIT = 50% (Low-Medium Volatiles) and 60% (Trace Volatiles) of internal standard area

RT UPPER LIMIT = + 0.50 (Low-Medium Volatiles) and + 0.33 (Trace Volatiles) minutes of internal standard RT

RT LOWER LIMIT = - 0.50 (Low-Medium Volatiles) and - 0.33 (Trace Volatiles) minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835001

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO55ESC2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 400.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	200	U
74-87-3	Chloromethane	200	U
75-01-4	Vinyl chloride	5500	
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	200	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	620	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	200	U
67-64-1	Acetone	2000	U
75-15-0	Carbon disulfide	200	U
79-20-9	Methyl acetate	200	U
75-09-2	Methylene chloride	400 ~~98.~~ ~~JB~~	U
156-60-5	trans-1,2-Dichloroethene	2600	
1634-04-4	Methyl tert-butyl ether	200	U
75-34-3	1,1-Dichloroethane	1800	
156-59-2	cis-1,2-Dichloroethene	83000	E
78-93-3	2-Butanone	2000	U
74-97-5	Bromochloromethane	200	U
67-66-3	Chloroform	200	U
71-55-6	1,1,1-Trichloroethane	200	U
110-82-7	Cyclohexane	200	U
56-23-5	Carbon tetrachloride	200	U
71-43-2	Benzene	200	U
107-06-2	1,2-Dichloroethane	200	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

12/7/11
MT

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835001

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO55ESC2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 400.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	22000	E
108-87-2	Methylcyclohexane	200	U
78-87-5	1,2-Dichloropropane	200	U
75-27-4	Bromodichloromethane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
108-10-1	4-Methyl-2-Pentanone	2000	U
108-88-3	Toluene	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	200	U
591-78-6	2-Hexanone	2000	U
124-48-1	Dibromochloromethane	200	U
106-93-4	1,2-Dibromoethane	200	U
108-90-7	Chlorobenzene	200	U
100-41-4	Ethylbenzene	200	U
95-47-6	o-Xylene	200	U
179601-23-1	m,p-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
98-82-8	Isopropylbenzene	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	200	U
106-46-7	1,4-Dichlorobenzene	200	U
95-50-1	1,2-Dichlorobenzene	200	U
96-12-8	1,2-Dibromo-3-chloropropane	200	U
120-82-1	1,2,4-Trichlorobenzene	200	U
87-61-6	1,2,3-Trichlorobenzene	200	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC2

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835001

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO55ESC2

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 400.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC2DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO40ESC2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4000.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	2000	U
74-87-3	Chloromethane	2000	U
75-01-4	Vinyl chloride	5200	D
74-83-9	Bromomethane	2000	U
75-00-3	Chloroethane	2000	U
75-69-4	Trichlorofluoromethane	2000	U
75-35-4	1,1-Dichloroethene	2000	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2000	U
67-64-1	Acetone	20000	U
75-15-0	Carbon disulfide	2000	U
79-20-9	Methyl acetate	2000	U
75-09-2	Methylene chloride	4000 ~~920~~	~~JDB~~ U
156-60-5	trans-1,2-Dichloroethene	2700	D
1634-04-4	Methyl tert-butyl ether	2000	U
75-34-3	1,1-Dichloroethane	1800	JD
156-59-2	cis-1,2-Dichloroethene	77000	D
78-93-3	2-Butanone	20000	U
74-97-5	Bromochloromethane	2000	U
67-66-3	Chloroform	2000	U
71-55-6	1,1,1-Trichloroethane	2000	U
110-82-7	Cyclohexane	2000	U
56-23-5	Carbon tetrachloride	2000	U
71-43-2	Benzene	2000	U
107-06-2	1,2-Dichloroethane	2000	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

12/5/11 MJ

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC2DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO40ESC2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4000.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	20000	D
108-87-2	Methylcyclohexane	2000	U
78-87-5	1,2-Dichloropropane	2000	U
75-27-4	Bromodichloromethane	2000	U
10061-01-5	cis-1,3-Dichloropropene	2000	U
108-10-1	4-Methyl-2-Pentanone	20000	U
108-88-3	Toluene	2000	U
10061-02-6	trans-1,3-Dichloropropene	2000	U
79-00-5	1,1,2-Trichloroethane	2000	U
127-18-4	Tetrachloroethene	2000	U
591-78-6	2-Hexanone	20000	U
124-48-1	Dibromochloromethane	2000	U
106-93-4	1,2-Dibromoethane	2000	U
108-90-7	Chlorobenzene	2000	U
100-41-4	Ethylbenzene	2000	U
95-47-6	o-Xylene	2000	U
179601-23-1	m,p-Xylene	2000	U
100-42-5	Styrene	2000	U
75-25-2	Bromoform	2000	U
98-82-8	Isopropylbenzene	2000	U
79-34-5	1,1,2,2-Tetrachloroethane	2000	U
541-73-1	1,3-Dichlorobenzene	2000	U
106-46-7	1,4-Dichlorobenzene	2000	U
95-50-1	1,2-Dichlorobenzene	2000	U
96-12-8	1,2-Dibromo-3-chloropropane	2000	U
120-82-1	1,2,4-Trichlorobenzene	2000	U
87-61-6	1,2,3-Trichlorobenzene	2000	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC2DL

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835001DL

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO40ESC2

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 4000.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835002

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO41ESC3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	2.4	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.13	J
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.17	J
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.43	J
1634-04-4	Methyl tert-butyl ether	2.7	
75-34-3	1,1-Dichloroethane	5.4	
156-59-2	cis-1,2-Dichloroethene	20.	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	2.3	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835002

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO41ESC3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	15.	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC3

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835002

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO41ESC3

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	6.8	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC4

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835003

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO42ESC4

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	2.3	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.51	
1634-04-4	Methyl tert-butyl ether	0.61	
75-34-3	1,1-Dichloroethane	0.52	
156-59-2	cis-1,2-Dichloroethene	3.5	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.22	J
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SC4

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835003

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO42ESC4

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.60	
108-87-2	Methylcyclohexane	0.44	J
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.12	J
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SC4

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835003

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO42ESC4

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	17.	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835004

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO54ESD0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	1.4	J
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835004

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO54ESD0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD0

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835004

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO54ESD0

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835005

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO44ESD1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	1.5	J
75-15-0	Carbon disulfide	0.30	J
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.66	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835005

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO44ESD1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.72	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835005

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO44ESD1

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	19.	J
02		Unknown Sulfur dioxide	1.83	0.94	J
03		Unknown 1-Pentene	2.49	0.51	J
04	75-18-3	Dimethyl sulfide	3.25	1.1	JN
05		Unknown Benzene, 1,2,4,5-tetramethyl-	14.69	0.51	J
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835006

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO45ESD2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.20	J
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD2

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835006

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO45ESD2

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD2

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835006

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO45ESD2

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	47.	J
02		Unknown Sulfur dioxide	1.82	5.0	J
03		Unknown Methanethiol	2.16	0.71	J
04	90-12-0	Naphthalene, 1-methyl-	16.49	0.60	JN
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835007

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO46ESD3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD3

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835007

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO46ESD3

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.15	J
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD3

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835007

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO46ESD3

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.67	11.	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	0.51	J

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD6

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835008

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO47ESD6

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	1.0 ~~0.16~~	~~JB~~ U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

12/9/11 MS

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SD6

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835008

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO47ESD6

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SD6

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835008

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO47ESD6

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS | ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE8

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835009

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO48ESE8

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	2.2	
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.62	
156-59-2	cis-1,2-Dichloroethene	6.3	
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SE8

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835009

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO48ESE8

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SE8

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835009

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO48ESE8

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO49ESF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO49ESF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SF0

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835010

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO49ESF0

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0MS

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835011

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: F050MSF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	5.3	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	5.5	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0MS

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835011

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: F050MSF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.1	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	5.2	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	5.1	
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0MSD

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835012

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: F051SSF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	5.4	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	5.5	
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF0MSD

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835012

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: F051SSF0

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.1	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	5.3	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	5.2	
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835013

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO52ESF1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835013

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO52ESF1

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SF1

Lab Name: ALS Environmental | Contract: EPW11037

Lab Code: DATAC | Case No.: 41851 | Mod. Ref No.: | SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER | Lab Sample ID: 1127835013

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: FO52ESF1

Level: (TRACE or LOW/MED) TRACE | Date Received: 10/05/2011

% Moisture: not dec. | Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) | Dilution Factor: 1.0

Soil Extract Volume: (uL) | Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown Carbonyl sulfide	1.68	2.5	J
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF8

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO53ESF8

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E2SF8

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO53ESF8

Level: (TRACE/LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

E2SF8

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 1127835014

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO53ESF8

Level: (TRACE or LOW/MED) TRACE Date Received: 10/05/2011

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241725

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO39BLK

Level: (TRACE/LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.23	J
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241725

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO39BLK

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241725

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO39BLK

Level: (TRACE or LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: _____ SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241726

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO56HBLK

Level: (TRACE/LOW/MED) TRACE Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241726

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO56HBLK

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1J - FORM I VOA-TIC

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VHBLKT1

Lab Name: ALS Environmental Contract: EPW11037

Lab Code: DATAC Case No.: 41851 Mod. Ref No.: SDG No.: E2SC2

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 241726

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: FO56HBLK

Level: (TRACE or LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/10/2011

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ~ REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Sample Delivery Group: E2SC2 CERCLIS No: IN N000510479

Case No: 41851 Site Name/Location: Kokomo Garrison (IN)

Contractor or EPA Lab: ALS Data User: IDEM

No. of Samples: 12 Date Sampled or Date Received: 24 Oct 2011

Have Chain-of-Custody records been received? Yes ✓ No _____
Have traffic reports or packing lists been received? Yes ✓ No _____
If no, are traffic reports or packing list numbers written on the Chain-of-Custody Record?
Yes _____ No _____
If no, which traffic report or packing list numbers are missing?

_____ _____ _____ _____
_____ _____ _____ _____

Are basic data forms in? Yes ✓ No _____
No of samples claimed: 12 No. of samples received: _____

Received by: [signature] Date: 24 Oct 2011

Received by LSSS: [signature] Date: 28 Oct 2011

Review started: 11/28/11 Reviewer Signature: 12/7/11

Total time spent on review: 9 Date review completed: 12/7/11

Copied by: A. C. Harvey Date: Dec 8, 2011

Mailed to user by: [signature] Date: 9 Dec 2011

DATA USER:
Please fill in the blanks below and return this form to:
Sylvia Griffin, Data Mgmt. Coordinator, Region V, ML-10C

Data received by: _____ Date: _____

Data review received by: _____ Date: _____

Inorganic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Organic Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
Dioxin data Complete	[ ] Suitable for Intended Purpose [ ] T if OK
SAS Data Complete	[ ] Suitable for Intended Purpose [ ] T if OK

PROBLEMS: Please indicate reasons why data are not suitable for your uses.

_____

_____

Received by Data Mgmt. Coordinator for Files. Date: _____

Appendix E

Indiana Department of Natural Resources - Record of Indiana-American Water (Kokomo) Water Wells and Other Nearby Wells (Not-for-Public-View**)**

Appendix F

ATSDR ToxFAQ – Vinyl Chloride
ATSDR ToxFAQ – Arsenic

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

VINYL CHLORIDE
CAS # 75-01-4

Division of Toxicology and Environmental Medicine ToxFAQs™ **July 2006**

This fact sheet answers the most frequently asked health questions (FAQs) about vinyl chloride. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to vinyl chloride occurs mainly in the workplace. Breathing high levels of vinyl chloride for short periods of time can cause dizziness, sleepiness, unconsciousness, and at extremely high levels can cause death. Breathing vinyl chloride for long periods of time can result in permanent liver damage, immune reactions, nerve damage, and liver cancer. This substance has been found in at least 616 of the 1,662 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is vinyl chloride?

Vinyl chloride is a colorless gas. It burns easily and it is not stable at high temperatures. It has a mild, sweet odor. It is a manufactured substance that does not occur naturally. It can be formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC). PVC is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Vinyl chloride is also known as chloroethene, chloroethylene, and ethylene monochloride.

What happens to vinyl chloride when it enters the environment?

- Liquid vinyl chloride evaporates easily. Vinyl chloride in water or soil evaporates rapidly if it is near the surface.
- Vinyl chloride in the air breaks down in a few days to other substances, some of which can be harmful.
- Small amounts of vinyl chloride can dissolve in water.
- Vinyl chloride is unlikely to build up in plants or animals that you might eat.

How might I be exposed to vinyl chloride?

- Breathing vinyl chloride that has been released from plastics industries, hazardous waste sites, and landfills.
- Breathing vinyl chloride in air or during contact with your skin or eyes in the workplace.
- Drinking water from contaminated wells.

How can vinyl chloride affect my health?

Breathing high levels of vinyl chloride can cause you to feel dizzy or sleepy. Breathing very high levels can cause you to pass out, and breathing extremely high levels can cause death.

Some people who have breathed vinyl chloride for several years have changes in the structure of their livers. People are more likely to develop these changes if they breathe high levels of vinyl chloride. Some people who work with vinyl chloride have nerve damage and develop immune reactions. The lowest levels that produce liver changes, nerve damage, and immune reaction in people are not known. Some workers exposed to very high levels of vinyl chloride have problems with the blood flow in their hands. Their fingers turn white and hurt when they go into the cold.

The effects of drinking high levels of vinyl chloride are unknown. If you spill vinyl chloride on your skin, it will cause numbness, redness, and blisters.

Animal studies have shown that long-term exposure to vinyl chloride can damage the sperm and testes.

How likely is vinyl chloride to cause cancer?

The U.S. Department of Health and Human Services has determined that vinyl chloride is a known carcinogen. Studies in workers who have breathed vinyl chloride over many years showed an increased risk of liver, brain, lung cancer, and some cancers of the blood have also been observed in workers.

How can vinyl chloride affect children?

It has not been proven that vinyl chloride causes birth defects in humans, but studies in animals suggest that vinyl chloride might affect growth and development. Animal studies also suggest that infants and young children might be more susceptible than adults to vinyl chloride-induced cancer.

How can families reduce the risk of exposure to vinyl chloride?

Tobacco smoke contains low levels of vinyl chloride, so limiting your family's exposure to cigarette or cigar smoke may help reduce their exposure to vinyl chloride.

Is there a medical test to show whether I've been exposed to vinyl chloride?

The results of several tests can sometimes show if you have been exposed to vinyl chloride. Vinyl chloride can be measured in your breath, but the test must be done shortly after exposure. This is not helpful for measuring very low levels of vinyl chloride.

The amount of the major breakdown product of vinyl chloride, thiodiglycolic acid, in the urine may give some information about exposure. However, this test must be done shortly after exposure and does not reliably indicate the level of exposure.

Has the federal government made recommendations to protect human health?

Vinyl chloride is regulated in drinking water, food, and air. The EPA requires that the amount of vinyl chloride in drinking water not exceed 0.002 milligrams per liter (mg/L) of water.

The Occupational Safety and Health Administration (OSHA) has set a limit of 1 part vinyl chloride per 1 million parts of air (1 ppm) in the workplace.

The Food and Drug Administration (FDA) regulates the vinyl chloride content of various plastics. These include plastics that carry liquids and plastics that contact food. The limits for vinyl chloride content vary depending on the nature of the plastic and its use.

Reference

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for Vinyl Chloride (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

ARSENIC
CAS # 7440-38-2

Division of Toxicology and Environmental Medicine ToxFAQs™ **August 2007**

This fact sheet answers the most frequently asked health questions (FAQs) about arsenic. For more information, call the ATSDR Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous snbstance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to higher than average levels of arsenic occur mostly in the workplace, near hazardous waste sites, or in areas with high natural levels. At high levels, inorganic arsenic can cause death. Exposure to lower levels for a long time can cause a discoloration of the skin and the appearance of small corns or warts. Arsenic has been found in at least 1,149 of the 1,664 National Priority List sites identified by the Environmental Protection Agency (EPA).

What is arsenic?

Arsenic is a naturally occurring element widely distributed in the earth's crust. In the environment, arsenic is combined with oxygen, chlorine, and sulfur to form inorganic arsenic compounds. Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds.

Inorganic arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make "pressure-treated" lumber. CCA is no longer used in the U.S. for residential uses; it is still used in industrial applications. Organic arsenic compounds are used as pesticides, primarily on cotton fields and orchards.

What happens to arsenic when it enters the environment?

- Arsenic occurs naturally in soil and minerals and may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching.
- Arsenic cannot be destroyed in the environment. It can only change its form.
- Rain and snow remove arsenic dust particles from the air.
- Many common arsenic compounds can dissolve in water. Most of the arsenic in water will ultimately end up in soil or sediment.
- Fish and shellfish can accumulate arsenic; most of this arsenic is in an organic form called arsenobetaine that is much less harmful.

How might I be exposed to arsenic?

- Ingesting small amounts present in your food and water or breathing air containing arsenic.
- Breathing sawdust or burning smoke from wood treated with arsenic.
- Living in areas with unusually high natural levels of arsenic in rock.
- Working in a job that involves arsenic production or use, such as copper or lead smelting, wood treating, or pesticide application.

How can arsenic affect my health?

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs.

Ingesting very high levels of arsenic can result in death. Exposure to lower levels can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet.

Ingesting or breathing low levels of inorganic arsenic for a long time can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso.

Skin contact with inorganic arsenic may cause redness and swelling.

Almost nothing is known regarding health effects of organic arsenic compounds in humans. Studies in animals show that some simple organic arsenic compounds are less toxic than inorganic forms. Ingestion of methyl and dimethyl compounds can cause diarrhea and damage to the kidneys

How likely is arsenic to cause cancer?

Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services (DHHS) and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer (IARC) has determined that inorganic arsenic is carcinogenic to humans.

How can arsenic affect children?

There is some evidence that long-term exposure to arsenic in children may result in lower IQ scores. There is also some evidence that exposure to arsenic in the womb and early childhood may increase mortality in young adults.

There is some evidence that inhaled or ingested arsenic can injure pregnant women or their unborn babies, although the studies are not definitive. Studies in animals show that large doses of arsenic that cause illness in pregnant females, can also cause low birth weight, fetal malformations, and even fetal death. Arsenic can cross the placenta and has been found in fetal tissues. Arsenic is found at low levels in breast milk.

How can families reduce the risks of exposnre to arsenic?

❑ If you use arsenic-treated wood in home projects, you should wear dust masks, gloves, and protective clothing to decrease exposure to sawdust.

❑ If you live in an area with high levels of arsenic in water or soil, you should use cleaner sources of water and limit contact with soil.

❑ If you work in a job that may expose you to arsenic, be aware that you may carry arsenic home on your clothing, skin, hair, or tools. Be sure to shower and change clothes before going home.

Is there a medical test to determine whether I've been exposed to arsenic?

There are tests available to measure arsenic in your blood, urine, hair, and fingernails. The urine test is the most reliable test for arsenic exposure within the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if you have been exposed to above-average levels of arsenic. They cannot predict whether the arsenic levels in your body will affect your health.

Has the federal government made recommendations to protect human health?

The EPA has set limits on the amount of arsenic that industrial sources can release to the environment and has restricted or cancelled many of the uses of arsenic in pesticides. EPA has set a limit of 0.01 parts per million (ppm) for arsenic in drinking water.

The Occupational Safety and Health Administration (OSHA) has set a permissible exposure limit (PEL) of 10 micrograms of arsenic per cubic meter of workplace air (10 $\mu g/m^3$) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological Profile for Arsenic (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Environmental Medicine, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-800-232-4636, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Appendix G

Indiana Department of Natural Resources – Sensitive Environments
(Not-for-Public-View**)**

Appendix H

2010 Indiana Fish Consumption Advisory

2010 Indiana Fish Consumption Advisory

Table of Contents

2010 Indiana Fish Advisory

Background

We have prepared this booklet to support fishermen and those who like to eat fish by providing helpful information to make healthy choices. Fishing and eating fish from Indiana waterways can be safe and fun if you follow the suggestions on the following pages. In addition to describing healthy eating of sport-caught fish, interest has increased over the years about consuming commercial and farm-raised fish. We have, therefore, included information in the Advisory.

The Indiana State Department of Health (ISDH), Indiana Department of Natural Resources (DNR), and the Indiana Department of Environmental Management (IDEM), with support from Purdue University, collaborate to produce this annual *Indiana Fish Consumption Advisory*.

The Advisory is based on the statewide collection and analysis of fish samples for long-lasting contaminants found in fish tissue, such as polychlorinated biphenyls (PCBs), pesticides, and/or heavy metals (e.g., mercury). Samples were taken from fish that feed at all depths of the water, predatory and bottom-feeding.

Well over 200 Indiana water bodies have been tested for fish contaminants through the years. Because testing is expensive, the focus of samples generally is to:

- Check water with known or suspected pollution sources
- Check lakes susceptible to mercury contamination
- Check waters where long-term contaminant trends are tracked

Criteria for the *2009 Indiana Fish Consumption Advisory* were developed from the Great Lakes Sport Fish Advisory Task Force.

We have strived to improve this booklet by including only the most important points about sport fishing and fish consumption, while also commercial fish information. **We also removed most Group 2 fish from the tables, since the guidance of the Advisory states "that a person should assume any fish you catch is a Group 2..." if it is not specifically listed.**

Using the Advisory

It may not be legal to catch and keep all sizes of fish that we have included in this Advisory.

Please refer to the DNR's Indiana Fishing Guide for information about the legal size limits and number of fish that can be caught based upon the species of fish. To obtain a copy of the Indiana Fishing Guide, log on to DNR's Web site at http://www.in.gov/dnr/fishwild/2347.htm or by calling 317.232.4080

Carefully read the instructions below, since meal advice depends upon the species and size of fish.

1. Measure the fish from the tip of the nose to the end of the tail fin.
2. Find the table that includes your fishing site. Look for the symbol showing the type of contaminant and the size of the fish that you caught. If there is no listing for the size of fish, keep in mind that larger fish are likely to be as contaminated, or more, than any that were tested. If you do not find the species of fish in the Advisory, then assume that the fish is in a Group 2 advisory (one meal per week).
3. While fish may have been tested for more than one contaminant, the symbol listed for each fish indicates the contaminant of greatest concern.

Guidelines to Reduce Your Risks

Follow this guidance:

☞**Use the groupings** in the Advisory to determine the number of fish meals you can eat in a week or month.

☞ **Assume that any fish you catch is a Group 2** if it is not listed or the site where you are fishing is not listed in the Advisory.

☞ **Eat smaller, less fatty fish** like pan fish (bluegill, perch, and crappie).

☞ **Remove fat near the skin of the fish prior to cooking** and **broil, bake, or grill fish** so the fat drips away.

☞**Eat at least 2 servings (3-4 ounces/serving) of fish per week.**

Risk Comparisons Risk of Death		
Estimated Advisory Group	Level of Risk (chances out of 1,000)	Activity
	35-125	Smoking 1-2 packs of cigarettes per day
	7-30	Having 200 chest x-rays per year
Level 5	5-30	Eating one 10-oz. meal per week of Group 5 fish
	17	Driving a motor vehicle
Level 4	11-12	Eating one 8-oz meal per week of mixed Great Lakes salmonids at 1984 contaminant levels
Level 3	3-6	Eating one 8-oz meal per week of mixed Great Lakes salmonids at 1987 contaminant levels
	0.1-6	Breathing air in the U.S. urban areas at early 1980's contaminant levels
	3.5	Recreational boating
	1-2	Drinking one 12-oz. beer per day
	1.5	Recreational hunting
Level 2	0.014	Complications from an insect bite or sting

Health Risks & Benefits from Eating Sport & Commercial Fish
General Health Risk

Your risk of getting cancer from eating contaminated fish cannot be predicted with certainty. Currently, cancer affects about 1 out of every 4 people by the age of 70, primarily due to smoking, diet, and hereditary risk factors. Exposure to contaminants in fish you eat may not increase your cancer risk at all. If you follow this Advisory over your lifetime, you should be able to lower your exposure, thus reducing your cancer risk from contaminants in fish.

The American Heart Association (AHA) recommends two 6 ounce fish meals per fish to provide a diet high in protein and low in saturated fats when properly prepared. Many doctors suggest that eating fish each week is helpful in preventing heart disease. Almost all fish may provide health benefits, since fish often replaces a high-fat food in the diet.

Since fish species differ in diet, habitat, growth rate, and physiology, they build up contaminants in their bodies at different rates. Long-term effects of human exposure to PCBs and pesticides have not been fully determined by health experts. People who regularly eat sport fish, including women of childbearing age and children, are particularly susceptible to contaminants that build up in the body over time. Because contaminants may produce harmful effects when consumed over a period of time, the Indiana State Department of Health (ISDH) advises that intake of these fish be limited.

Contaminants in Fish

Polychlorinated biphenyls (PCBs), pesticides, and mercury collect in the soil, water, sediment, and in microscopic animals. They build up in greater amounts in larger, older fish and in predatory fish (fish that eat other fish). Contaminants are not usually found in smaller panfish such as bluegill and crappie.

Once in a lake, mercury is changed into methylmercury by bacteria and other processes. Fish absorb methylmercury from their food and it is tightly bound to the fish's muscles. There is no method of cooking or cleaning fish that will reduce the mercury.

PCBs and pesticides tend to be stored in the fat of fish, especially fatty fish such as carp and catfish. Unlike mercury, cleaning and cooking a fish to remove fat will lower the amount of PCBs in a fish meal. Most of the fat is located near the skin of the fish.

Eating a boneless, skinless fillet, with the fat layer along the belly flap and the midpoint of the back removed, will limit the amount of fat consumed.

PCBs and methylmercury build up in your body over time. It may take months or years of regularly eating contaminated fish to accumulate levels that are a health concern. If you follow this Advisory, the amount of methylmercury you take into your body is safely eliminated over time. Larger amounts of methylmercury may harm your nervous system. An unborn child is especially at risk of mercury poisoning.

Men typically face fewer health risks following exposure to contaminants. However, animal studies have also shown that mercury can damage sperm, which could result in fertility problems.

The Advisory advice for PCBs is intended to protect children from developmental problems. PCBs also cause changes in human blood and in the liver and immune function of adults. The meal advice for PCB-contaminated fish is based on the developmental delays that have been measured in infants. It is difficult to say what other effects PCBs may have on anglers and their families, but PCBs cause cancer in laboratory animals and may cause cancer in humans.

Purchased Fish

People often ask about the levels of contaminants in fish bought in stores or restaurants. The U.S. Food and Drug Administration (FDA) sets tolerance levels for contaminants to regulate the interstate sale of fish. Recently, the FDA and the U.S. Environmental Protection Agency (EPA) issued fish consumption advice for women (of childbearing age) and children about commonly eaten commercial fish species. The FDA/EPA advice recommends that up to 12 ounces of cooked G160fish that are low in mercury be eaten per week to gain the health benefits from fish and shellfish.

http://www.epa.gov/fish advisiories/advice/

A fact sheet which gives detailed advice about consuming fish that is targeted at women and children can be seen at:

http://fn.cfs.purdue.edu/fish4health/

Because fish bought in a store or restaurant do not come with labels that tell you the contaminant levels or even where the fish came from, it is up to the consumer to ask about the source of the fish. In addition to checking the FDA/EPA advice, it is important to eat a variety of fish species to make certain that you benefit the most from fish.

The *Commercial Fish Consumption Table* shown in this booklet separates two types of canned tuna into different categories by the amount a person can eat. "Light" tuna is made from young fish, while "white" tuna like albacore comes from older fish that have higher levels of mercury. When choosing canned tuna, "light" tuna is lowest in mercury but is also lower in the "healthy" fats found in fish.

Fish sticks from the grocery, fast-food sandwiches, or restaurant-prepared fish most often come from pollock, which is low in mercury.

Recent studies have discussed the levels of contaminants in farm-raised salmon versus wild salmon. Wild salmon have been shown to have very low levels of contaminants. While farm-raised salmon are said to have "significantly" higher levels than wild salmon, these levels of contaminants are still NOT high enough to be of serious concern. Farm-raised salmon are actually slightly higher in "helpful" omega-3 fatty acids than wild salmon.

There may be times when friends and family catch fish that you may want to eat. If there is no advice about how much you can eat, then assume it is a Group 2 (one meal per week). This means eating no more than 8 ounces (before cooking) in one week.

It is also likely that, at some point, you may eat more fish and shellfish in one week than you ordinarily would. There is little change in the level of methylmercury in that short period of time. Just lower the amount of fish that you eat over the next couple of weeks.

Advisory Groups

The chart on page 6 (ADVISORY GROUPS FOR INDIANA FISH CONSUMPTION) explains the fish groupings used throughout this Advisory to help in choosing the amount and type of fish that are safe to eat. Additionally, a list of fish species affected by "mercury" on a statewide basis has also been added to this chart.

For certain waters, more or less restrictive advice is needed, because fish have been found to contain higher or lower levels of mercury or PCBs. Follow the advisory information for rivers, lakes and streams.

Carp Advisory for all Indiana Rivers and Streams

Because of the recent appearance of Asian carp in many waterways of the Great Lakes region (which includes Indiana), we will now change the carp listings to be known as "Common Carp". Generally, common carp are contaminated with PCBs. *Unless noted otherwise, carp in all Indiana rivers and streams fall under the following risk groups:*

Common Carp	15-20 inches	Group 3
	20-25 inches	Group 4
Common Carp	**over 25 inches**	**Group 5**

Group 5 Waterways

All fish from the following waters are in the Group 5 advisory due to the high levels of contaminants. **DO NOT EAT ANY FISH CAUGHT IN THESE WATERS:**

Clear Creek, Monroe County
Salt Creek, Downstream of Clear Creek in Monroe County and Lawrence County
Pleasant Run Creek, Lawrence County
Elliot Ditch, Tippecanoe County
Wea Creek, Tippecanoe County
Grand Calumet River/Indiana Harbor Canal, Lake County
Kokomo Creek, Howard County from U.S. 31 to Wildcat Creek
Wildcat Creek, Downstream of the Waterworks Dam in Kokomo through Howard and Carroll Counties
Little Mississinewa River, Randolph County
Little Sugar Creek/Walnut Fork, Montgomery County
Sugar Creek, Montgomery County (I-74 to SR-32)
Stony Creek, Hamilton County

Advisory Groups of the Indiana Fish Consumption Advisory	
Group 1	Unrestricted consumption. **One meal per week for women who are pregnant or breast-feeding, women who plan to have children, and children under the age of 15.**
Group 2	Limit to one meal per week (52 meals per year) for adult males and females. **One meal per month for women who are pregnant or breast-feeding, women who plan to have children, and children under the age of 15.**
Group 3	Limit to one meal per month (12 meals per year) for adult males and females. **Women who are pregnant or breast-feeding, women who plan to have children, and children under the age of 15 do not eat.**
Group 4	Limit to one meal every 2 months (6 meals per year) for adult males and females. **Women who are pregnant or breast-feeding, women who plan to have children, and children under the age of 15 do not eat.**
Group 5	**No consumption (DO NOT EAT).**

IMPORTANT NOTE: For more detailed information, especially for the sensitive population, please review the 2010 Safe Eating Guidelines for Selected Sport Fish from Most of Indiana's Inland Waters.

Don't see your fish or site listed? Assume it is a Group 2 (general population: 1 meal/week; women/children: 1 meal/month).

Location	Species	Fish Size (inches)	Contaminant	Group
Whitewater River	Carp	16-25	☐O	2
		25+	☐O	3
(*Greens Fork, Martindale Creek, Middle Fork, Nolands Fork, West Fork*) Wayne, Fayette, Franklin, and Dearborn counties	Channel Catfish	23+	☐	3
	Golden Redhorse	Up to 13		1
	Longear Sunfish	Up to 5		1
	Northern Hogsucker	Up to 9		1
	Walleye	up to 13		1
	White Sucker	Up to 10		1
Wildcat Creek Howard County (Upstream of the Waterworks Dam in Kokomo)	Bluegill	Up to 6		1
	Common Carp	Up to 19	☐	2
		19+	☐	3
	Longear Sunfish	Up to 5		1
	Rock Bass	Up to 7		1
	Spotted Sucker	up to 13		1
	Walleye	up to 11		1
	All Species	**ALL**	☐	**5**
Howard County (Downstream of the Waterworks Dam in Kokomo)	**All Species**	**ALL**	☐	**5**
Carroll County				
Consumption of fish from the Wildcat Creek in ***Tippecanoe County*** *should be limited to no more than one meal every two months or six meals per year (Group 4) by the general population and NO CONSUMPTION by the sensitive population. Exceptions to this advice for the general population are:*				
Tippecanoe County	**Common Carp**	**ALL**	☐	**5**
	Channel Catfish	14+	☐	4
	Flathead Catfish	14+	☐	4
	Redhorse species	15+	☐	4
	River Carpsucker	16+	☐	4
	Creek Chub	Up to 5		1
Wilson Ditch Miami County	Northern Hogsucker	10+	☐	3

General Population O = **Mercury** ☐ = **PCBs**

Group 1 = Unlimited meals Group 2 = 1 meal/week Group 3 = 1 meal/month

Group 4 = 1 meal/2 months Group 5 = DO NOT EAT

(For women and children, please refer to the Guidelines on Page 7.)

Don't see your fish or site listed? Assume it is a Group 2 (general population: 1 meal/week; women/children: 1 meal/month).

Location	Species	Fish Size (inches)	Contaminant	Group
Kankakee River (Cont.)				
LaPorte/Lake/Newton	**Smallmouth**	22-28	☐	3
	Buffalo	28-32	☐	4
		32+	☐	**5**
	White Crappie	Up to 9		1
Killbuck Creek				
Madison County	Carp	Up to 25	☐	2
		25+	☐	3
	Black Crappie	Up to 10		1
	Bluegill	Up to 7		1
	Rock Bass	Up to 8		1
	Smallmouth Bass	Up to 13		1
	Yellow Bullhead	Up to 10		1
Kilmore Creek				
Clinton County	Carp	Up to 12		1
	Creek Chub	Up to 7		1
Kokomo Creek				
Howard County	**ALL SPECIES**	**ALL**	☐	**5**
Laughery Creek				
Dearborn/Ohio Counties	Carp	All	☐O	2
Dearborn County	White Crappie	Up to 10		1
Little Blue River (Ohio River Basin)				
Crawford County	Bluegill	Up to 7		1
	Carp	Up to 23		1
	Channel Catfish	16+	☐	3
	Freshwater Drum	18+	☐	3
	Largemouth Bass	Up to 10		1
		18+	☐	3
	Sauger	14+	☐	3
	White Crappie	Up to 9		1

General Population O = **Mercury** ☐ = **PCBs**

Group 1 = Unlimited meals Group 2 = 1 meal/week Group 3 = 1 meal/month
Group 4 = 1 meal/2 months Group 5 = DO NOT EAT

(For women and children, please refer to the Guidelines on Page 7.)

Kokomo Tribune; Kokomo, Indiana

July 1, 2010

Most fish in area lakes, streams and rivers are not safe to eat

By MIKE FLETCHER
Tribune staff writer

Kokomo — With rod and reel in hand, Steve Cooney waded into the fast-moving water on the Wildcat Creek, just west of the Kokomo Reservoir Dam near 400 East, in search of that big catch.

Not long after, he landed a nice walleye.

Fortunately for Cooney, the walleye here are safe to eat.

But that's not the case with many waterways around Indiana as contaminates have made eating the fish a risky endeavor.

Asked if he was concerned with the eating restrictions, Cooney said "nope."

"I'll put some in the freezer for later and sometimes I just catch and release," said Cooney.

"I come out here a couple times a week," he said. "I live in Danville and work here during the week. [The water is] a little high right now, but it's a really good time."

While most of the area reservoirs are classified as group 1, which means there is no recommended consumption limit, there are other areas in which any fish caught should not be consumed.

Every year the Indiana Department of Natural Resources issues a Fish Consumption Advisory to inform anglers where it's safe to eat the fish.

The warnings didn't deter Michael Burton or Bryan Bowley, as they fished the waters below the dam.

"We caught a couple of small bluegills so far," said Burton.

"We come out here once or twice a week — it's fun."

"The only thing I usually eat is crappie," said Bowley. "I like the taste of crappie."

Local angler John Martino said while people should pay attention to the warnings, there is still good fishing along the Wildcat Creek.

"Sure there are certain areas high in contaminants, like a major portion of our Wildcat Creek where no fish should be eaten," Martino said.

"But, in areas where fish are safe to eat, it is good for the lake or stream to have some of their residents removed."

The bottom line is: "Do not stop eating fresh-caught fish," he said.

According to Martino, the section of Wildcat Creek where no fish should be consumed begins at the low-head dam located several hundred yards west of U.S. 31. The dam can be seen by looking north from the Carter Street Bridge (Waterworks Road). From there, the group five fish consumption advisory is in effect all the way to the Wildcat's confluence with the Wabash River near Lafayette. It does not begin, as many mistakenly think, at the Kokomo Reservoir dam on 400 East.

But, according to the DNR 2010 Fishing Consumption Guide, bluegill tested east of the Waterworks Dam also fell into group one under the advisory.

Fish consumption advisories are not intended to discourage people from eating all fish taken from Hoosier waters, it's only a guide to help choose what fish are low in contaminants.

Some fish absorb contaminates from the water, suspended sediments and their food. These pollutants then concentrate in the fatty tissue of the fish. Properly cleaning and cooking fish will lower the amount of contaminates. A good note is that two of the tastiest fish, bluegills and crappies, rarely absorb these types of pollutants, Martino said.

Martino said there are a number of people who fish the contaminated area of the Wildcat. He said that's fine, "as long as they are aware of the fish consumption advisory, and there are some people who aren't."

There are 12 waterways that fall into the state's group five designation. Martino said this shouldn't dissuade people from enjoying what he called a fantastic stretch of water.

"The Wildcat — all through Howard County — is phenomenal fishing," he said. "The contaminated areas are the perfect place to practice catch and release. There's no reason to stop fishing it."

Steve Carson and his grandson, Conner Leight, agree.

The pair landed a nice size walleye below the dam Thursday and were hoping for more.

"We got one nice one and we've only been here for 15 minutes," Carson said.

"We were out here yesterday and caught three nice walleyes and eating-size channels [catfish]," he said. "The day before we caught five walleyes — one was about 22 inches long."

Along with the thrill of the catch, Carson also enjoys eating his tasty catches.

"Oh yeah, the walleye are good to eat," he said. "I really don't like the channels. I'll eat the crappies. But, I don't take a lot out of here.

"I like to get out here in June or late May right after they spawn," he continued. "It's really nice out here as long as people would just pick up their trash. I hate seeing all the trash out here."

• Mike Fletcher is the Kokomo Tribune crime and general reporter. He can be reached at 765-454-8565 or mike.fletcher@kokomotribune.com.

Appendix I

INAWC – Kokomo Phase II Wellhead Protection Plan
Potential Contaminant Sources

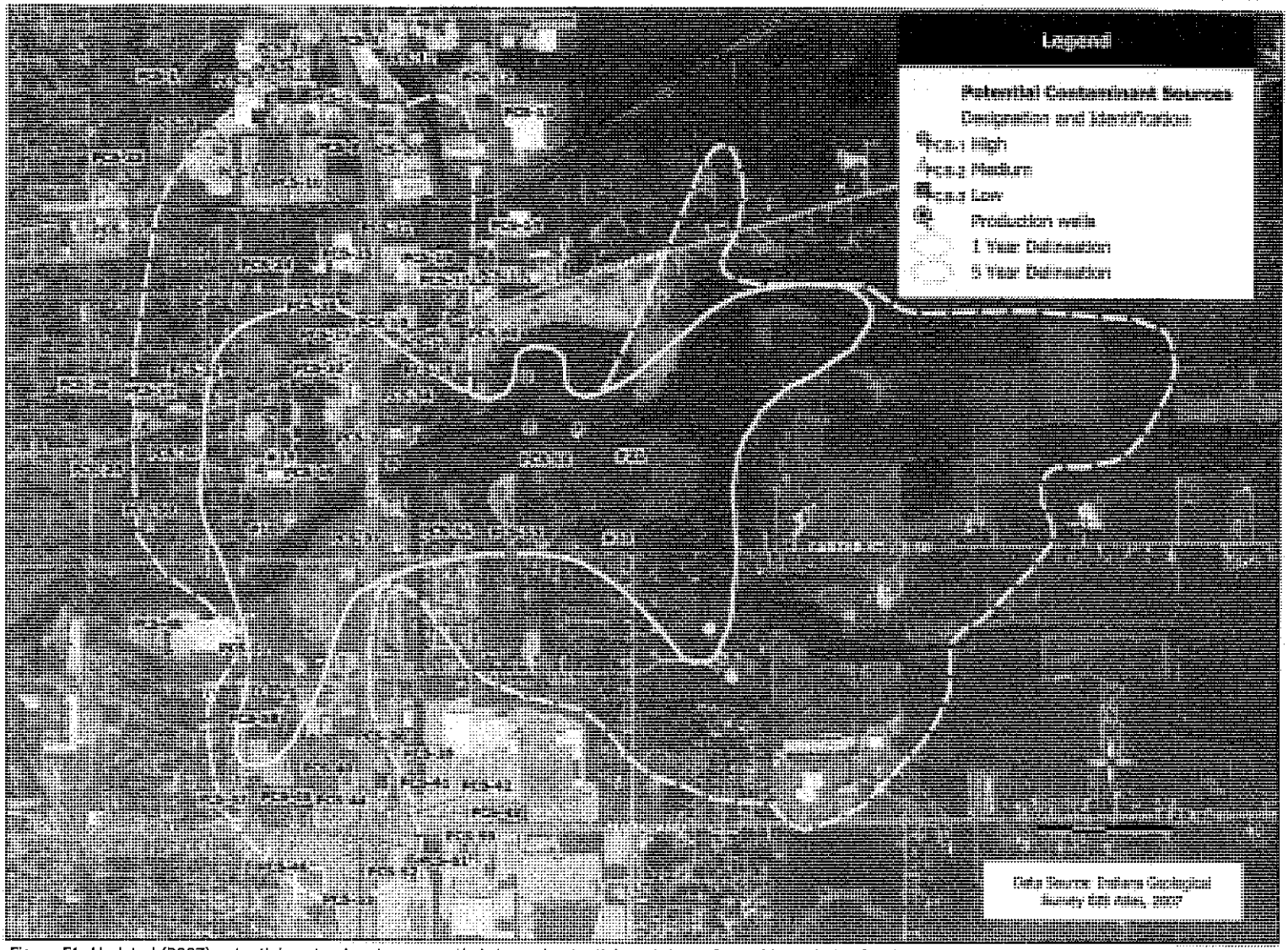


Figure F1. Updated (2007) potential contaminant sources, their hazard potential, and time-of travel boundaries for the Garrison and Main Water Treatment Plant wellfields.

Revised 6-24-08

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																				
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-1	Kokomo Memorial Park Cemetery	1300 E North Street	Kokomo	46901	Craig Wright	765-452-5076	5	M							X										(G) Facility ID 12798	Gasoline, Pathogens, Lawn Maintenance Chemicals	One tank registered as permanently out of service	A	P
PCS-2	Milbank Mfg. Co. Inc.	1400 E Havens St.	Kokomo	46901	N/A	N/A	5	L		X															(B) IND006052930	Solvents, Lubricant and Cutting oils, Degreasers	Industrial site	A	C
PCS-3	Specialty Tool and Die	1614 Rank Parkway Court	Kokomo	46901	N/A	N/A	5	L																	N/A	Solvents, Lubricant and Cutting oils, Degreasers	Industrial site	A	C
PCS-4	Motion Industries	1619 Rank Parkway Court	Kokomo	46901	N/A	N/A	5	L																	N/A	Unknown	Industrial site	A	C
PCS-5	Brambles Equipment Services	1613 Rank Parkway	Kokomo	46901	N/A	N/A	5	L																	N/A	Unknown	None	A	C
PCS-6	Stor-It (formerly ICD Storage)	1050 Rank Parkway	Kokomo	46901	N/A	N/A	5	L																	N/A	Various	None	A	C
PCS-7	Coan Engineering Transmissions	1602 Havens	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Lubricant, Degreasers, Paint	Industrial site	A	C
PCS-8	Transit Mix Gravel Pit	Havens Street	Kokomo	46901	N/A	N/A	5	M																	N/A	Petroleum Products	AST observed	A	C
PCS-9	Coopers Delivery Service	1609 Rank Parkway	Kokomo	46901	N/A	N/A	5	M							X										(G) Facility ID 3563, 18590	Gasoline	Two tanks registered; one has been removed, the other is in service	A	C

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																				
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-10	Indy Tire (formerly Fouts Tire)	1714 E Havens St	Kokomo	46901	N/A	N/A	5	H							X	X									(G) Facility ID 18589, 18591; (H) Site # 9306549	Unknown	Two tanks registered; one kerosene and one gasoline, temporarily out of service	A	C
PCS-11	Storage Facility	SR 31	Kokomo	46901	N/A	N/A	5	L																	N/A	Various	Unknown materials stored. Cars in a grassy area	A	C
PCS-12	Merritts Trucking	1025 Touby Pike	Kokomo	46901	N/A	N/A	5	L																	N/A	Petroleum Products	Bays for truck maintenance.	A	C
PCS-13	UPS	925 N. Touby Pike	Kokomo	46901	Joe Hollowly	765-452-0244	5	H		X					X	X									(B) INR000015206; (G) Facility ID 1705; (H) Site # 9106527, 9106552	Diesel, Gasoline, Used Oil	Six tanks registered; on gas tank in use, one removed and four permanently out of service.	A	C
PCS-14	Empty Industrial Building	815 N. Touby Pike	Kokomo	46901	N/A	N/A	5	H									X								(I) Record # 9510091	Unknown	Spill reported.	I	C
PCS-15	Former Gas Station	1902 Sycamore	Kokomo	46901	N/A	N/A	5	M																	N/A	Petroleum Products	Tank status unknown.	I	C
PCS-16	Machine Shop	Sycamore	Kokomo	46901	N/A	N/A	5	L																	N/A	Machine Shop	Unknown	U	C
PCS-17	Padfields Auto Body	1919 Jefferson	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Auto body shop	A	C
PCS-18	CCX Trucking	1632 E. Jefferson Street	Kokomo	46901	Dan Moesta	765-868-0004	5	H							X	X									(G) Facility ID 8333; (H) Site # 9011507	Diesel	Two tanks registered; one has been removed, the other is permanently out of service.	A	C
PCS-19	Car Lot For Sale	SR 31	Kokomo	46901	N/A	N/A	5	L																	N/A	Petroleum Products	Possibly a former gas station	I	C

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																								
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-20	Mittler Industrial Gases and Welding Supplies	860 Daniel Drive	Kokomo	46901	N/A	N/A	5	M																	N/A	Propane, Welding Chemicals	Propane stored on-site	A	C
PCS-21	Sunbelt Tool Rental (formerly Aggregate Tool Supplies)	850 Daniel Drive	Kokomo	46901	N/A	N/A	5	M																	N/A	Petroleum Products	ASTs observed	A	C
PCS-22	Central Waste Mgmt of Central IN	740 N. Ohio St	Kokomo	46903	N/A	765-459-8053	5	M		X	X				X										(B) IND056106099, IND087037941; (C) Registrant # 34-0004; (G) Facility ID 4059	Various Wastes	One gasoline tank registered; permanently out of service	A	C
PCS-23	Name and Sons, Inc.	808 N Ohio St	Kokomo	46901	N/A	N/A	5	M																		Unknown	Unknown	U	R
PCS-24	Bergman Concrete Construction	1600 Jefferson	Kokomo	46901	N/A	N/A	5	L																	N/A	Unknown	Construction firm	A	C
PCS-25	North American Van Lines	1624 SR 31	Kokomo	46901	N/A	N/A	5	L																	N/A	Unknown	Truck bays, may be a warehouse	A	C
PCS-26	Sims Auto	1627 E. Jefferson	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car bays are visible, may do car maintenance	A	C
PCS-27	Shell Service Station	1640 E. Sycamore	Kokomo	46901	Gary Reinking	765-459-5718	1	H							X	X									(G&H) Facility ID 205	Gasoline	Three gasoline tanks registered; all in use	A	C
PCS-28	McNeals Haircare	N Ohio St.	Kokomo	46901	N/A	N/A	5	L																	N/A	Perm Solutions, Dyes	Beauty shop	A	R
PCS-29	Village Pantry	Ohio and Mulberry	Kokomo	46901	N/A	N/A	5	H							X	X									(G&H) Facility ID 7048	Petroleum Products	Gas station	A	R

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																				
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-30	Central Roofing System	1234 E. Sycamore St.	Kokomo	46901	Sharon Crawford	765-457-1229	5	M							X										(G) Facility ID 9212	Gasoline, Diesel	Two tanks registered; both permanently out of service. Martins Wrecker Svc.	A	R
PCS-31	Graves Sheet Metal Co., Inc.	1242 E. Sycamore	Kokomo	46901	Mark Graves	765-457-4487	5	M							X										(G) Facility ID 9048	Unknown	One gasoline tank registered; permanently out of service	A	R
PCS-32	Former Electric Company	1423 Mulberry	Kokomo	46901	N/A	N/A	5	L																	N/A	PCBs	May have stored transformers which may have contained PCBs	I	R
PCS-33	Gas America (formerly Red Barn Gas Station)	1641 E. Sycamore	Kokomo	46901	N/A	N/A	1	H							X	X									(G) Facility ID 2504; (H) Site # 8902087	Gasoline	Four gasoline tanks registered; all in use	A	C
PCS-34	Cycles Gear	SR 31	Kokomo	46901	N/A	N/A	1	M																	N/A	Solvents, Paints, Waste Oils	AST observed. Possible repair, maintenance	A	C
PCS-35	Bullseye Boats and Guns	148 Creekside	Kokomo	46901	N/A	N/A	1	M																	N/A	Fuels, Oils, Paints, Waxes, Treatment Chemicals	Possible repair, maintenance	A	C
PCS-36	Anderson Car Lot (formerly Texaco Station)	SR 31	Kokomo	46901	N/A	N/A	1	M																	N/A	Petroleum Products, Solvents	According to Keith Fallon of the Howard County Solid Waste District, this used to be a "chop-shop" in which cars were repossessed and cut-up.	I	O
PCS-37	Fill Debris/Construction	SR 31	Kokomo	46901	N/A	N/A	1	H																	N/A	Unknown	Appears to be filled with demolition and construction debris	U	O
PCS-38	Tuffy Muffler	SR 31	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

General Facility Information							Hazard Potential		Agency Databases																								
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-39	Verizon Wireless (formerly GTE Mobilenet)	SR 31	Kokomo	46901	N/A	N/A	5	L																	N/A	Petroleum Products, Used Oil, Auto Wastes	Possibly a former gas station	A	C
PCS-40	Priscilla's Exotic Lingerie (formerly Bud's Auto Repair)	SR 31	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-41	BP Gas Station (formerly Bigfoot Amoco)	1800 E. Markland	Kokomo	46901	N/A	N/A	5	H		X					X	X									(B) IND 984892950; (G&H) Facility ID 1035	Gasoline, Used Oil	Five tanks of gasoline and used oil registered; one permanently out of service	A	C
PCS-42	Superior Auto	1812 Markland Ave.	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-43	Dollar Deals/Don Panco's/Greek's Pizzeria (formerly Pep Boys)	Markland Ave	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-44	Cash Land (formerly Auto Value)	1716 Markland Ave.	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-45	Midas	1706 Markland Ave.	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-46	Jiffy Lube	1701 Markland Ave.	Kokomo	46901	Mike Owsley	765-457-6353	5	M							X										(G) Facility ID 16440	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance. One used oil tank registered. Parking lot partially gravel as if tank removed or repaired.	A	C

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																				
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrant (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System(N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-47	Thrifty Muffler Service	1524 Markland Ave	Kokomo	46901	N/A	N/A	5	M																	N/A	Solvents, Paints, Waste Oils, Auto Wastes	Car repair and maintenance	A	C
PCS-48	Mervis Steel Co.	631 S. Ohio Street	Kokomo	46904	N/A	217-442-5300	5	M		X					X										(B) IND984694501; (G) Facility ID 17134, 20652	Unknown	Former Old Know Building/Kolux Building. One tank registered; permanently out of service	A	C
PCS-49	Indiana-American Water Inc.	1700 E. Superior	Kokomo	46901	Ryan Smith	765-457-5563	1	H							X		X								(G) Facility ID 4068, (I) Record # 9403289	Unknown	Lagoons	A	C
PCS-50	Crown Point Cemetery	1101 E. Sycamore St.	Kokomo	46901	C.K. Weaver	765-457-1791	5	M							X										(G) Facility ID 4956	Gasoline, Pathogens, Lawn Maint. Chemicals	One gasoline tank registered; in service	A	P
PCS-51	PPG Industries (formerly -Easco Aluminum/ Pittco Eng. Systems)	1500 E. Murden	Kokomo	46903	N/A	N/A	5	H		X								X				X		X	(B) IND0062818620; (J) Owner ID 000288; (N) 46903PPGND1500 E; (P) 6951202	Unknown ?	Industrial site As	A	C
PCS-52	Markland Mall/Sears Store (formerly Howard County Goodyear)	US 31 - Markland Ave	Kokomo	46904	N/A	N/A	5	M		X															(B) IND984925941	Solvents, paints, waste oils, automotive wastes	Car repair and maintenance	A	C
PCS-53	Target (Formerly-K-Mart 4014)	1805 Markland	Kokomo	46902	N/A	N/A	5	M							X										(G) Facility ID 5010	Unknown	One used oil tank registered; permanently out of service	U	C
PCS-54	Dump Area	ST 31 & Carter	Kokomo	46901	N/A	N/A	1	M															X		(O) 34020411A	Various	Approximately 100 yards off of SR 31	I	R
PCS-55	B & D Manufacturing	2100 Carter Street	Kokomo	46901	N/A	N/A	1	H																	N/A	Unknown	Industrial site	A	R

Potential Contaminant Sources for Garrison, Main Water Treatment Plant, and Peat Bogs Well Fields

	General Facility Information						Hazard Potential		Agency Databases																						
Facility ID Number	Name	Street Address	City	Zip Code	Contact	Phone Number	Time-of-Travel Zone (years)	Hazard Potential Priority Rating	NPDES (A)	RCRA Notifier (B)	Solid Waste Facilities (C)	Class V Injection Wells (D)	Pesticide Users or Storers (E)	Fertilizer Registrants (F)	Underground Storage Tank (G)	Leaking Underground Storage Tank (H)	Pollution Spills (I)	SARA Title III / Hazardous Materials Storage (J)	Land Application (K)	CERCLA (Superfund, NPL sites) (L)	Pretreatment Program (M)	Toxic Release System (N)	Open Dump (O)	Voluntary Remediation Program (P)	Permit Number	Potential Contaminants	Site Description	Operating Status	Land Use
PCS-56	Indiana-American Water Co. (land application)	Carter Street	Kokomo	46901	N/A	N/A	1	H																	(C) Permit No. 000419; (K) Permit # 000419	Listed on Biosolids database	According to Mr. Leible, Indiana-American is no longer allowed to apply the waste to the site on Carter Street	I	D
PCS-57	Woodland Estates	2176 N 250 East	Kokomo	46901	Dick Freeman	N/A	5	M	X																(A) IN0038784	On-site wastewater treatment system	Located due west of the Peat Bog Well Field. Proposed expansion of residential area in the WHPA.	A	R
PCS-58	Fill Area	along Wildcat Creek	Kokomo	46901	N/A	N/A	1	H																	N/A	Unknown	Disposal of glass processing waste.	I	P
PCS-59	Sam's Club	1917 E. Markland Ave.	Kokomo	46901	N/A	N/A	5	M							X										(G) Facility ID 24810	Fuel, Insecticides, Herbicides	Big box store	A	C
PCS-60	Carrie's Cleaners	1505 W. Sycamore	Kokomo	46901	N/A	N/A	5	M		X															(B) IND984905950	Solvents, detergents	Dry cleaning services	A	C
PCS-61	Williams Quick Lube	1801 E. Markland Ave.	Kokomo	46901	N/A	N/A	5	H							X	X									(G&H) Facility ID 1796	Used oil, solvents	Car repair and maintenance	A	C

Appendix J

Bedrock Characterization Report – Delphi Corporation Former Electronics & Safety Division Plant 1 Property

RFI

BEDROCK CHARACTERIZATION REPORT

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY KOKOMO, INDIANA

Prepared For:
Delphi Corporation

Prepared by:
Conestoga-Rovers & Associates

14496 Sheldon Road, Suite 200
Plymouth, Michigan 48170

Office: 734-453-5123
Fax: 734-453-5201

MARCH 2007
REF. NO. 013477 (29)

TABLE OF CONTENTS

FIGURES

TABLES

ACRONYMS

1,1,1-TCA	1,1,1-trichloroethane
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
AMSL	Above Mean Sea Level
ATV	Acoustic Televiewer
bgs	Below ground surface
BRI	Bedrock Interface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
c-1,2-DCE	cis-1,2-dichloroethene
CRA	Conestoga-Rovers & Associates, Inc.
CSSS	Continental Steel Superfund Site
DCX	Daimler Chrysler
Delphi	Delphi Corporation Former Electronics & Safety Division Plant 1 Property
ERT	Electrical Resistivity Tomography
gpm	Gallons per minute
IAWC	Indiana American Water Company
IDNR	Indiana Department of Natural Resources
ISM	Interim Stabilization Measure
K	Hydraulic Conductivity
KHDC	Kokomo-Howard County Development Corporation
KL	Kokomo Limestone
KLI	Kokomo Limestone Interface
KMnO4	Potassium Permanganate
LC	Liston Creek
LCI	Liston Creek Interface
LLI	Louisville Limestone Interface
MCL	Maximum Contaminant Level
MNA	Monitored Natural Attenuation
mpd	Million gallons per day
MSI	Mississinewa Shale Interface
OTV	Optical Televiewer
PVC	Polyvinyl Chloride
RCRA	Resource Conservation Recovery Act
RI	Remedial Investigation
RQDs	Rock Quality Designations
STL	Severn Trent Laboratories
t-1,2-DCE	trans-1,2-dichloroethene
TCE	Trichloroethene
U.S.EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VC	Vinyl Chloride
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

This Bedrock Investigation and Characterization Report was prepared by Conestoga-Rovers & Associates (CRA) for the Delphi Corporation Electronics and Safety Division (Delphi) former Plant 1 property in Kokomo, Indiana (Site). The purpose of this report is to present procedures, methodologies, and results of multiple investigations used to assess the physical and hydrogeological characteristics of the bedrock aquifer at and adjacent to the Site. The goals of the investigation were to assess the lateral and vertical extent of volatile organic compounds identified in the bedrock aquifer and characterize their potential migration pathways and receptors. The bedrock investigations were conducted by CRA between 2000 and 2007 in accordance with the August 2002 Resource Conservation and Recovery Act (RCRA) Voluntary Corrective Action Agreement between Delphi and the United States Environmental Protection Agency (U.S. EPA). The U.S. EPA Generator ID Number for the Site is IND006068050.

1.1 SITE LOCATION

The Site is located at 700 East Firmin Street within the city limits of Kokomo, Indiana (Figure 1.1). The Site is situated on 35.83 acres of land within Section 6, Township 23N, Range 4E, Center Township, Howard County, Indiana and located approximately halfway between Wildcat Creek and Kokomo Creek (Figure 1.1). The property is also adjacent to a former creek called Pete's Run, which used to bisect the City of Kokomo just north of the Site. However, prior to 1939 it was backfilled to grade level after installing subsurface culverts that currently act as a storm sewer that discharges to Kokomo Creek near its confluence with Wildcat Creek. As shown on Figure 1.2, the Site formerly included five contiguous parcels of 20.77, 8.46, 4.31, 1.93, and 0.36 acres. The Site is surrounded by industrial, commercial and residential properties. There are no environmentally sensitive areas on or surrounding the Site (i.e., wetlands, streams, lakes, woods, etc.).

1.2 SITE HISTORY

The original plant was constructed by Haynes Automotive in 1922 on undeveloped property. Crosley Radio and General Motors purchased the property in 1935 and 1936 respectively. Delphi began operations in 1999 and fulfilled General Motors plans to demolish the plant. Prior to plant demolition, the 724,264 square foot plant had historically been used to produce radios, carburetors, military electronics, and automotive electronics (Figure 1.2). As part of the demolition efforts, the manufacturing

buildings, including the floors and the majority of the surrounding pavement, were removed. The two bedrock production wells were also properly abandoned (Figure 1.2) The parking lot south of Firmin Street and the Administration Building were preserved. In 2001, the Administration Building was expanded (Figure 1.3). In 2003, the former manufacturing parcel (20.87 acres), including the expanded Administration Building, were donated to the Kokomo-Howard County Development Corporation (KHDC). The former Coal Pile storage parcel (1.93 acres) was also donated in 2003 to Bona Vista Corporation. The former wastewater treatment plant/powerhouse parcel (8.46 acres) and the former employee parking lots (4.31 and 0.36 acres, respectively) are likely to be divested in the near future.

1.3 PREVIOUS INVESTIGATIONS

Previous remedial investigations have been conducted at the Site. These investigations were conducted by Earthtech Inc. and Arcadis Geraghty & Miller Inc. prior to 1999 and by CRA after 1999. These investigations identified contaminants in shallow soils and groundwater. The predominant volatile organic compounds (VOCs) detected at the Site are identified below:

- trichlorethene (TCE);
- cis-1,2-dichloroethene (c-1,2-DCE);
- trans-1,2-dichloroethene (t-1,2-DCE);
- 1,1-dichlorethene (1,1-DCE);
- vinyl chloride (VC);
- 1,1,1-trichloroethane (1,1,1-TCA);
- 1,1-dichloroethane (1,1-DCA);
- benzene;
- toluene;
- ethylbenzene; and
- total xylenes.

Of the VOCs identified, TCE was the most predominant compound detected at the Site followed by its degradation products of c-1,2-DCE, t-1,2-DCE, 1,1-DCE, and VC. The suspected source areas of these chlorinated VOCs are shown in Figure 1.2 and include;

- A former oil house area;
- A former scrap storage area;
- A former degreaser area; and,
- A former rail spur.

Concentrations of 1,1,1-TCA and its degradation product 1,1-DCA, were detected in the former oil house area and former rail spur area. The gasoline-related compounds, benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected near a former underground storage tank in the oil house area (Figure 1.2).

In 2001, as part of the Interim Stabilization Measure (ISM), four TCE source-areas identified in shallow soils were remediated using potassium permanganate ($KMnO_4$) to chemically oxidize the TCE and its degradation products. During the ISM, contaminant levels were reduced by an average of approximately 93 percent to concentrations below a site-specific risk-based criteria developed by Environ Corporation in 2001 (Environ 2001). A summary of the ISM activities and results were presented in a CRA report entitled "Interim Stabilization Measures Completion Report" dated March 2005.

Results of groundwater investigations conducted at and adjacent to these former source areas identified that TCE and other VOCs had impacted three saturated zones identified at the Site (a Perched Zone, a Bedrock Interface Zone and a Bedrock Zone). An ongoing groundwater monitoring program, initially implemented in December 2000, and subsequently modified in 2003 and 2006 (CRA Memoranda Nos. 112, 269, and 290), has been used to document concentrations of VOCs in groundwater have been stable or decreasing since the ISM soil remediation activities were completed. During the monitoring programs, groundwater samples were collected from each of the three saturated zones. Initially these samples were collected on a quarterly basis, then a semi-annual basis, and are currently sampled on an annual basis. Simultaneous to this groundwater monitoring program, a bedrock investigation (i.e., installation of 8 new bedrock monitoring wells) was implemented to assess the lateral and vertical extent of VOC impacts as well as potential off-Site receptors of these VOCs. The remainder of this report summarizes the results of the bedrock characterization and VOC contaminant transport investigations.

1.4 REPORT ORGANIZATION

This Bedrock Investigation and Characterization Report is divided into the following sections:

Section 1.0 – Introduction
Section 2.0 – Bedrock Investigation Objectives
Section 3.0 – Bedrock Characterization from Literature Search
Section 4.0 – Bedrock Fracture Identification and Physical Assessment

Section 5.0 – Bedrock Fracture Hydraulic Characterization
Section 6.0 – Bedrock Fracture Groundwater Flow Characterization
Section 7.0 – Bedrock Characterization from VOC delineation
Section 8.0 – Bedrock Groundwater Exposure Analysis
Section 9.0 – Summary and Conclusions
Section 10.0 – Data Assessment Options

2.0 BEDROCK INVESTIGATION OBJECTIVES

The bedrock investigation, as it relates to the Plant 1 remedial investigation (RI), consisted of characterizing the geologic and hydrogeologic properties of three bedrock stratigraphic units in order to identify groundwater and VOC migration pathways. In descending order, these units included the Kokomo Limestone, the Liston Creek Limestone, and the Mississinewa Shale (Figure 2.1). These three units and others are part of a regional bedrock aquifer that provides drinking water to the Kokomo area. The bedrock unit below the Mississinewa Shale (i.e., the Louisville Limestone) and the bedrock unit above the Kokomo Limestone (i.e., the Kenneth Limestone) were not pertinent to the RI and therefore are not discussed in this report. The objectives of the bedrock investigation were to:

- Compile a summary of bedrock information available in published literature;
- Identify and profile physical changes in the bedrock stratigraphy;
- Identify and characterize predominant bedding plane fractures within the bedrock;
- Assess suspected vertical/high angle fractures within the bedrock;
- Assess the hydrogeological characteristics of the fractured bedrock;
- Identify the vertical and lateral extent of VOC impacts in the bedrock units;
- Identify the preferred VOC migration pathways within the bedrock units;
- Compile a summary of bedrock groundwater usage adjacent to the Site;
- Assess potential receptors of VOC-impacted groundwater in the bedrock; and
- Construct a 3-dimensional geologic and hydrogeologic model of the bedrock aquifer to assess various VOC migration and remedial scenarios.

The bedrock investigation proceeded in three phases conducted between 2002 and 2007. During the investigations, 11 bedrock borings were completed to characterize the hydrogeology of the fractured bedrock at and/or adjacent to the Site. The total depth of these borings ranged from 42 to 233 feet below grade. All bedrock borings were advanced through approximately 13 to 30 feet of unconsolidated glacial deposits prior to coring through approximately 24 to 203 feet of bedrock. In each of the three phases, one or more of the investigation methodologies identified below was utilized to characterize the bedrock:

- conducting a literature review to identify pertinent published information on the bedrock units and any previous bedrock studies completed;

- collecting bedrock cores and assigning rock quality designations (RQDs) to characterize the type, physical integrity and properties of the rock;

- completing conventional and advanced downhole geophysical surveys to identify fracture intervals, elevations, and orientations;

- completing advanced surface geophysical tests to identify locations of suspected high angle fractures that may influence groundwater migration pathways;

- initiating downhole testing with a dual packer system and/or heat pulse flowmeter to assess hydraulic properties of the competent rock and fractures identified;

- installing nested monitoring wells constructed to screen specific bedding plan fractures identified within the bedrock to assess changes in hydraulic gradients (horizontal and vertical) and chemical gradients;

- installing a network of pressure transducers within nested bedrock monitoring wells to assess the vertical and lateral hydraulic influence of off-Site pumping operations on the bedding plane fractures identified;

- collecting groundwater samples from the bedrock wells installed for the RI on a quarterly, semi-annual, and/or annual basis to assess temporal changes in VOC concentrations;

- collecting bedrock groundwater samples from existing openhole bedrock wells installed by others to assess the lateral extent of VOC migration and potential exposure pathways; and,

- compiling a 3-dimensional hydrogeologic groundwater flow model of the bedrock system and surrounding the Site to help predict groundwater migration pathways, VOC concentration changes, and potential exposure pathways.

The remainder of this report summarizes the pertinent bedrock data obtained through literature searches and investigative methods used to characterize the physical, hydraulic, and chemical properties of the bedrock.

3.0 BEDROCK CHARACTERIZATION FROM LITERATURE SEARCH

The Kokomo Limestone, Liston Creek Limestone, and the Mississinewa Shale are part of the Wabash Formation and Salina Group that were deposited during the late Silurian Period (approximately 4 million years ago). The average thickness of each unit over the investigation area is approximately 49, 43 and 100 feet, respectively. A bedrock stratigraphic column from the Indiana Geological Survey is presented in Figure 3.1. Regionally, the Site is located within the Cincinnati Arch between the Michigan Basin, the Illinois Basin and the Ohio Basin where the stratigraphic units are relatively flat prior to sloping into the basins(Figure 3.2).

In the vicinity of the Kokomo area, the bedrock units are encountered under approximately 13 to 30 feet of unconsolidated glacial deposits. A general description of this bedrock overburden and each of the bedrock units is presented below. This section also describes features and factors that influence groundwater recharge to the bedrock aquifer.

3.1 BEDROCK OVERBURDEN DESCRIPTION

The predominant surficial geology in the region is a clay-rich glacial till (i.e., a poorly sorted, poorly stratified mixture of sands, silts and clays). Creeks in the area have incised drainage channels into the till and are responsible for the topographic relief over a relatively flat to gently rolling terrain. On a regional basis, these creeks include Deer Creek, Mud Creek, Little Creek, Kokomo Creek, and Wildcat Creek (Figure 3.3). A former creek called Pete's Run used to bisect the City of Kokomo just north of the Site (Figure 3.4). However, it was backfilled to grade level after installing subsurface culverts that currently act as a storm sewer that discharges to Kokomo Creek near its confluence with Wildcat Creek. Ground surface elevations collected along City streets near the Site provided topographic information used to identify the former drainage basins associated with Pete's Run, Wildcat Creek, and Kokomo Creek (Figure 3.5). In the Kokomo area, the erosional and depositional environments associated with the creeks replaced the clay rich till with sand and gravel deposits. These sand and gravel deposits, especially those below and directly adjacent to Wildcat Creek, are thick, highly sorted, permeable (valley train) deposits that yield significant amounts of groundwater. In the area of Wildcat Creek and Pete's Run, these sand and gravel deposits extend to, and are in direct contact with, the top of bedrock. As you move in a lateral direction away from these creeks, clay till deposits are typically encountered on top of the bedrock, although some isolated, laterally-discontinuous lenses of sand and gravel and

perched groundwater are encountered within the till deposits. An example of the typical overburden deposits is shown in geologic cross section A-A', presented in Figure 3.6.

3.2 BEDROCK SURFACE TOPOGRAPHY DESCRIPTION

The bedrock surface topography is relatively flat on a local scale but becomes more pronounced on a regional scale. As shown in the United States Geological Survey (USGS) contour map presented on Figure 3.7, the bedrock surface generally slopes in a westerly to northwesterly direction. The figure also highlights the direction and orientation of former drainage channels cut into the bedrock surface. Two of the most predominant channels are located directly north and south of the City of Kokomo, respectively. Both of these apparent scour channels slope in a northwesterly direction (i.e., channels labeled as "Y1" and "Y2" in Figure 3.7). Several other major drainage channels in the bedrock surface branch off these two predominant channels (i.e., "X1" through "X7"). These branch channels are oriented in a southwest or northeast direction, some of which intersect several east-west channels labeled as "Z1" and "Z2" (Figure 3.7). Based on a 20-foot contour interval shown in the figure, these drainage channels have cut through different bedrock stratigraphic units, including all three under investigation at the Site (i.e., bedrock surface elevations in the western portion of Howard County have cut through the entire thickness of the Kokomo Limestone, Liston Creek Limestone, and Mississinewa Shale). As discussed later in the report, the bedrock channels likely developed along predominant high angle bedrock fractures and are therefore likely to control bedrock groundwater flow directions. These suspected bedrock fractures also appear to influence surface water flow in the overburden deposits as the bedrock drainage channels appear to be in locations and orientations similar to Wildcat Creek and Little Wildcat Creek (i.e., suspected high angle fractures "Y1", "Z2" and "X5"; Figures 3.7 and 3.8).

3.3 KOKOMO LIMESTONE DESCRIPTION

At and adjacent to the Site, the surface of the Kokomo Limestone is covered with 13 to 30 feet of unconsolidated glacial drift. The bedrock unit can be described as a gray, nonfossiliferous limestone laminated with thin bands of black shale. The Kokomo Limestone was named from core samples collected from the Markland Avenue quarry located within the City of Kokomo approximately 1-mile northwest of the Site. At the Site, the top of bedrock is typically encountered between elevations of 787.3 and 804.8 feet above mean sea level (AMSL). The unit is approximately 40 to 60 feet thick. As

indicated in the subsequent sections, the first 5 to 10 feet of the Kokomo Limestone is extremely weathered and fractured as RQDs from core samples collected at the bedrock surface were typically below 50% (i.e., rock of low integrity and high fracturing). Results of various downhole geophysical and hydraulic tests completed during the RI indicate the Kokomo Limestone also contains hydraulically significant fractures below its weathered surface. The most significant of these fractures were identified at specific bedding planes associated with the interbedded shale layers and/or at the base of the unit (i.e., at the interface between the Kokomo Limestone and Liston Creek Limestone). The 1985 USGS report on Water Resources of Howard County (USGS, 1985), indicated the bedrock units slope slightly to the southwest. The physical descriptions and stratigraphic contacts established during the RI activities also indicated the bedding planes of the Kokomo Limestone slope in a west to southwest direction at a <1 percent gradient (i.e., approximately 18.5 feet/mile).

3.4 LISTON CREEK LIMESTONE DESCRIPTION

In areas at and adjacent to the Site, the surface of the Liston Creek Limestone is covered by the Kokomo Limestone. The unit can be described as a gray, nonfossiliferous, dolomitic limestone proliferated with chert nodules. At the Site, the top of the Liston Creek Limestone is typically encountered between elevations of 735.5 and 750.3 feet AMSL and is approximately 43 feet thick in the area. As with the Kokomo Limestone, the Liston Creek slopes to the west-southwest direction at a <1 percent gradient. The RQDs of the Liston Creek were typically 90% or higher (i.e., rock of high integrity and low fracturing). The most hydraulically significant bedding plane fractures were identified in the middle of the unit and at the base of the unit (i.e., at the Liston Creek – Mississinewa Shale Interface).

3.5 MISSISSINEWA SHALE DESCRIPTION

The Mississinewa Shale can be described as a gray, brown or green argillaceous, low-yield, low-permeability, dolomitic siltstone encountered at the base of the Liston Creek Limestone. At the Site, the top of the Shale unit is typically encountered between elevations of 694.5 and 707.2 feet AMSL. The Shale unit is approximately 100 feet thick and acts a low permeability layer to groundwater identified in the bedrock units above it. The RQDs of the Shale were typically 90% or higher. No references on bedding plane fractures were identified in the literature, which is consistent with the absence of bedding plane fractures identified in the bedrock borings that were extended into (i.e., .,

MW-13BR, MW14BR, MW-15BR, and MW-19BR) or through (i.e., MW-18BR) the Mississinewa Shale.

3.6 BEDROCK RECHARGE FROM SURFACE WATER HYDROLOGY

The Site is located between Wildcat Creek to the north and Kokomo Creek to the south. The hydraulic connection between the streambeds and the underlying bedrock was evaluated by the USGS in 1981 by measuring gain or loss of flow from the creeks over specific distances (reaches) of the creeks (USGS, 1985). The results showed four of the 35 streambed reaches monitored in Howard County lost water in one or both measuring events conducted for the study (Figure 3.9). Each of these four reaches was along Wildcat Creek (i.e, Reaches 12, 13, 15, and 18). The location of reaches 12 and 13 were directly upgradient and downgradient of the confluence of Wildcat and Kokomo Creeks, respectively. Reach 15 is located hydraulically downgradient of a surface water reservoir three miles east of Kokomo that is operated by a private utility company that supplies drinking water to the Kokomo area (i.e., Indiana American Water Company (IAWC)). Reach 18 is located at the confluence of Wildcat and Mud Creeks (8 miles east of Kokomo). It should be noted that only Reaches 13 and 18 had net losses in both USGS monitoring events. The data suggests that several reaches along Wildcat creek provide groundwater recharge to the bedrock groundwater system. Potential bedrock recharge from the former creek called Pete's Run was not assessed during the study, as it was no longer accessible. However, based on the saturated sand and gravel deposits in direct contact with the bedrock surface directly north of the Site, the former Pete's Run is expected to contribute to the bedrock groundwater system.

Surface water recharge to the bedrock fracture system was also evaluated by CRA by assessing the time interval required for water levels in the bedrock to increase after a precipitation event. Precipitation infiltration rates through the clay till deposits into the underlying bedrock would likely be very slow except in areas where bedrock fractures are in direct contact with permeable sand and gravel deposits underlying the surface water bodies. Therefore, the bedrock recharge evaluation reviewed time intervals between precipitation dates/rates/duration and resulting increases in surface water levels. These parameters were then compared to subsequent increases in bedrock groundwater levels. The assessment utilized data collected by a local weather station, a USGS Wildcat Creek Gauging Station (i.e., USGS Station #03333700), and downhole pressure transducers that recorded bedrock groundwater elevations in monitoring wells located approximately 0.5 miles from Wildcat or Kokomo Creek. The results are plotted in Figure 3.10. The data shows that there is a direct correlation between precipitation events, surface elevation in Wildcat Creek and bedrock water levels. As shown in

Figure 3.10, an increase in precipitation results in a relatively quick increase in surface water and bedrock groundwater elevations (i.e., spikes in the line connecting dark blue dots represent precipitation events which cause spikes in the red line representing surface water elevations which lead to increases in bedrock groundwater elevations shown in yellow, purple and light blue). Depending on precipitation rates, typical increases to the bedrock water levels occur within 1 to 2 days of a precipitation event. This relatively short timeframe suggests that recharge to the bedrock groundwater system is highly influenced by surface water seepage rates (as compared to seepage rates through the clay till). According to the 1985 USGS Report (1985), the annual precipitation rate in the Kokomo area is approximately 37.9 inches per year. According to the USGS, the average annual stream flow for Wildcat and Kokomo Creeks are approximately 244 and 24 cubic feet per second, respectively (based on data from 1956 through 2005).

3.7 BEDROCK AQUIFER DESCRIPTION

The Kokomo Limestone and the Liston Creek Limestone are the predominant stratigraphic units that comprise the bedrock aquifer in the Kokomo area. Both units are located above the Mississinewa Shale. Groundwater storage and flow in the two limestone units is predominantly through open fractures, joints, bedding planes, and solution channels as flow through uncompromised rock was determined to be negligible. Based on data collected during the RI, groundwater within bedding plane fractures is generally encountered under semi-confined or confined conditions as unfractured bedrock above and below the bedding plane act as an upper and lower confining layers. Additionally, in areas adjacent to creeks or streambeds, the bedrock is typically capped with low permeability clay till, which is acting as a upper confining layer.

Groundwater flow and hydraulic conductivity of the bedrock aquifer is dependant on the hydraulic head pressure, the hydraulic gradient, and physical properties of any fractures present in the unit. The fracture location, orientation, aperture, and connectivity to other fractures, joints, or solution cavities will all effect groundwater flow in the system. Estimates for the bedrock hydraulic conductivities, specific capacities, transmissivities or storage coefficients in the Kokomo area have been developed by others in investigations completed at or near the Site. These include the following:

Hydraulic Conductivity Estimates

• 10^{-4} to 10^{-2} cm/sec	Kokomo Limestone	(Camp Dresser Mckee, 1997)
• $1.7x10^{-3}$ to $3.3x10^{-2}$ cm/sec	Bedrock System	(Burgess and Niple, 1989)

Specific Capacity Estimates

• 3.7 to 52.4 gpm/ft	Bedrock System	(MFG Inc., 1996)
• 21 gpm/ft	Bedrock System	(Eagon & Assoc., 1999)

Transmissivity Estimates

• 1,700 - 6,200 ft^2/day	Bedrock System	(Watkins and Rosenhein, 1963)
• 1,200 ft^2/day	Bedrock System	(Watkins and Rosenhein, 1963)

Storage Coefficients

• 10^{-5} to $2x10^{-3}$	Bedrock System	(Watkins and Rosenhein, 1963)

It should be noted that Watkins and Rosenhein estimates were from a site in Cass County approximately 10 miles north of Kokomo (i.e., at Grissom Air Force Base in Miami county). These estimates suggest that hydraulic characteristics of the bedrock system will vary locally and/or over relatively short distances since they are dependant on the number and size of the fractures encountered by the well. The frequency and orientations of known or suspected bedrock fractures were evaluated as part of the RI and are discussed in greater detail in Section 4.0.

3.8 KOKOMO AREA BEDROCK WELL USERS SURVEY

According to the U.S. Census Bureau, the 2000 population of Kokomo is approximately 46,100 people. The city includes an industrial base with agricultural land uses surrounding the City. Water use is predominantly from the City residential, commercial, and/or industrial facilities. Water sources include surface water from reservoirs east of the City and groundwater in both overburden and bedrock deposits. Based on the VOCs detected in bedrock groundwater samples collected at or near the Site, a Bedrock Well Users Survey was completed to identify active and/or inactive bedrock wells located hydraulically downgradient of the Site. CRA reviewed regulatory and private databases as well as public records to identify bedrock water wells located within a 1.5-mile radius of the Site. This radius was selected after off-Site pumping operations by Daimler Chrysler (DCX), IAWC, and Martin Marietta were identified as the predominant bedrock groundwater withdrawal points that could influence bedrock groundwater flow. These significant groundwater withdrawal facilities are located approximately 0.5, 1.0, and 2.5 miles from the Site, respectively (Figure 3.11).

As shown in Figure 3.12, results of the survey effort identified a total of 281 bedrock wells within 1.5 miles of the Site. Each of the blue squares in the figure represent a surveyed Section that measures 1 mile long by 1 mile wide. Therefore, the Well Users Survey focused on the 9 square miles surrounding the Site, which is located within Section 6 of Range 4E and Township 2N (the center square of the 9 Sections shown on the figure). The bedrock wells were separated into three categories, including; (1) drinking water wells, (2) non-drinking water wells, and (3) monitoring, test or oil & gas wells. The results of the well users survey were summarized in a CRA memorandum entitled "Updated Bedrock Water Well Users Summary" (CRA Memorandum #263, December 3, 2004).

During the Reconnaissance Study, the bedrock wells identified were labeled and plotted with a six-digit registration number assigned by the Indiana Department of Natural Resources (IDNR). Un-registered bedrock wells identified during the survey were given a label that incorporated the property address, a ID number used by the property owner, or a generic number assigned by CRA if a well ID wasn't available.

Data from the bedrock wells located at or adjacent to the Site within Section 6 were included in the bedrock investigation and/or it conclusions. As shown in Figure 3.12, these included the following wells:

- two former production wells at the Delphi Site Well 1 and Well 2 (Well 2 is identified as IDNR Well # 128100);
- two residential wells (1618 Elizabeth and IDNR Well # 128104 at 1400 East Hoffer St)
- one inactive production well (former Kokomo Gas and Fuel well at 900 Boulevard);
- eleven bedrock monitoring well locations ("MW" at various on-Site and off-Site locations);
- four non-residential wells (IDNR Well #'s 128090, 128105, and 248317); and
- three former oil and gas wells that could not be located but are suspected to be abandoned;

The two former production wells located on the Delphi Site (i.e., Well 1 and Well 128100) were both properly abandoned when the former manufacturing plant was decommissioned (1999). The two residential drinking water wells, one active and one inactive (i.e., Wells 128104 and 1618 Elizabeth, respectively) were sampled as part of the bedrock groundwater investigation being conducted by Delphi. The bedrock investigation also included sampling the inactive Kokomo Gas & Fuel production well (Well KGF - 900 Boulevard), two of the non-residential wells (i.e., Wells 128110 and 248317), and each of the monitoring wells installed on and/or adjacent to the Delphi Site

(the "MW" series). As discussed in Section 8.0 of this report, the majority of these bedrock wells appear to be constructed with open boreholes that bisect one or more bedrock stratigraphic units and multiple bedding plane fractures identified underlying the Site. The open-hole construction maximizes the groundwater yield from the well but it also can provide a conduit for contamination to migrate between bedrock fractures that otherwise may not be hydraulically connected. Additionally, a groundwater sample collected from an open-hole well could represent groundwater quality from all the water producing fractured that bisect the well. Therefore, as discussed in Sections 7.0 and 8.0, a single sample result from an open-hole well was conservatively applied to each of the hydraulically significant bedding plane fractures identified in the bedrock investigation.

4.0 BEDROCK FRACTURE IDENTIFICATION AND PHYSICAL ASSESSMENT

Bedrock fracture assessments were conducted to identify evidence that bedrock fractures existed at or near the Site. The assessments included activities to identify high angle and low angle bedrock fractures.

High Angle Fracture Identification and Assessment: To assess potential high angle fractures, a fracture trace analysis was conducted using four different USGS 7.5 minute series topographic maps surrounding the Site (i.e., the Kokomo East, Kokomo West, Galveston and Miami quadrangles, respectively). Additionally, a surface geophysical survey using electrical resistivity was conducted to assess the suspected high angle bedrock fractures identified in the fracture trace analysis.

Low Angle Fracture Identification and Assessment: With exception of MW-18 and MW-19, all bedrock drilling locations were cored so samples could be classified using RQDs. The RQDs were used to provide an initial indication that bedding plane fractures existed within the bedrock units being investigated. To confirm the observations from the RQD/core samples, a series of downhole geophysical and hydraulic tests were conducted at each bedrock boring location. Additional details on each of the fracture assessments conducted during the bedrock investigation are discussed below.

4.1 FRACTURE IDENTIFICATION FROM TOPOGRAPHIC ANALYSIS

A bedrock fracture trace analysis was completed to identify suspected subsurface high angle bedrock fractures locations that could represent zones of enhanced groundwater flow and potential VOC migration. The objective of the fracture trace analysis was to identify linear features (lineaments) on topographic maps that may represent surface expressions of vertical or high angle bedrock fractures. A lineament or surface expression of a bedrock fracture will vary with the thickness of overburden deposits, the type of bedrock (i.e. granite vs. limestone), and the thickness of the fracture zone (which is dependant on the degree of chemical or physical weathering along bedrock bedding planes, joints, etc.). Not all high angle fractures create lineaments but typically the greater the hydraulic properties of a high angle fracture, the greater the likelihood that it will create an identifiable lineament. These lineaments can be difficult to identify within cities, as commercial construction and pavement can cover or obliterate the fracture traces. Therefore, in conducting the fracture trace analysis within the City of Kokomo, the area of interest was expanded to encompass areas beyond the City limits to identify potential fractures that may be laterally continuous across the City (by extrapolating

lineaments identified on both sides of the City). The fracture trace focused on reviewing aerial photographs (for vegetative alignments) and assessing topographic maps for aligned depressions, swales, hillside segments, and stream valleys. Results of the regional fracture trace analysis are presented in Figure 4.1.

The results show evidence of apparent lineaments on a localized and regional scale. These lineaments can be divided into four sets of conjunctive fractures, with each set showing a geographic dominance. The regional fracture patterns observed in the study are summarized below and presented on Figure 4.1.

- In areas along Wildcat Creek prior to its confluence with Kokomo Creek, the most significant regional lineaments appear to be oriented in a southwesterly direction (i.e., suspected fractures A1 through A7 shown in purple highlights on Figure 4.1). These lineaments correspond to a number of valley segments along Wildcat Creek that possess similar alignments and are supported by aligned depressions north of the creek. Suspected conjugate fracture B1 also corresponds to a Wildcat Creek valley segment and a large aligned depression northwest of the City.
- In areas west and north of the City, the most significant regional lineaments appear to be oriented in an east-west direction (i.e., suspected fractures C1 through C12 shown in green highlights on Figure 4.1) that correspond to a number of Wildcat Creek valley segments (i.e., the eastern portion of C3 and the western portion of C7). Suspected fractures C7 and C8 appear to correspond to regional bedrock scour channel Z2 (Figure 3.7).
- In areas within and surrounding the City, the most significant regional lineaments appear to be oriented in a northwesterly direction (i.e., suspected fractures E1 through E10 shown in orange highlights on Figure 4.1). Suspected fractures E3 and E9 appear to be in the same location and orientation as regional bedrock scour channels "Y1" and "Y2" (as shown in the bedrock surface map presented in Figure 3.7). Suspected conjugate fractures F1 through F4 appear to correspond with Wildcat Creek and/or Kokomo Creek valley segments.
- In areas along Wildcat Creek east of the City, the most significant lineaments appear oriented in a southwesterly direction (i.e., suspected fractures G1 and G2 shown in the red highlights on Figure 4.1). Suspected fracture G1 appears to correspond to valley segments for Wildcat Creek and former Pete's Run (Figure 3.4) and regional bedrock scour channel "X5" (Figure 3.7).

The lineaments identified in Figure 4.1 represent potential subsurface high angle fractures and suspected zones of enhanced groundwater flow. In comparing Figures 4.1 and 3.7, the location and orientation of several of these lineaments appear to correlate

well with the drainage channels identified in the bedrock surface map compiled by the USGS. As discussed previously, the apparent scour channels in the bedrock surface likely represent preferential flow paths associated with bedrock fracturing. Conceptually, these suspected bedrock fractures appear to have maintained and controlled groundwater migration pathways prior to and after the deposition of the unconsolidated overburden deposits. However, since lineament study results are not conclusive (i.e., the studies are considered tools to enhance fracture identification), a surface geophysics program was conducted to further assess the suspected fracture locations identified in the fracture trace analysis. Additionally, to supplement the fracture trace and surface geophysics data, a subsurface bedrock drilling program and a subsurface (downhole) geophysics program were conducted at and adjacent to the Site. These activities were completed to confirm the existence of the bedrock fractures and employ investigative methods to characterize their hydraulic properties (see Sections 5.0 and 6.0 of this report).

4.2 FRACTURE IDENTIFICATION FROM SURFACE GEOPHYSICAL ANALYSIS

A series of Electrical Resistivity Tomography (ERT) geophysical surveys were conducted at targeted locations within the City of Kokomo. The purpose of the ERT surveys was to assess suspected locations of high angle fractures identified in the lineament study. In fractured bedrock, these suspected fractures could be acting as preferential groundwater migration pathways between the Site and known off-Site pumping operations that were listed in the IDNR database as significant aquifer withdrawals. These significant groundwater withdrawal locations included the IAWC Wellfield to the north, DCX to the south, and Martin Marietta to the west. Therefore, the ERT surveys were proposed and conducted along 8 east-west streets and 5 north-south streets located between the Site and the off-Site pumping locations (Figure 4.2). Each ERT survey utilized a series of electrodes to inject low electrical current into the subsurface in a linear array (Figure 4.2). Each array began with the first electrode at 0 feet and ended with varying electrode numbers depending on the length of the line. The surveys used an AGI Sting/Swift R8 resistivity meter with subsequent data analysis using EarthImager 2D software. This software filtered data to remove recorded values with greater than 3 percent error prior to modeling it (using finite difference or finite element techniques). Data collection was difficult due to constant traffic along roadways and electrode installation in road subgrade materials (Figure 4.3).

Resistivity Cross Sections: Results of the ERT surveys produced cross sections (pseudosections) of the subsurface showing hydrogeologic conditions in terms of

electrical resistivity. The pseudosections present the apparent resistivity values collected during the surveys using color scales and ranges. For this study, "hot" colors (red, orange, yellow) represent high resistivity, "warm" colors (green, gray) represent intermediate resistivity, and "cold" colors (dark blue, light blue) represent low resistivity. Since water facilitates flow of electrical current, zones of "low resistivity" identified in the survey represent highly saturated/highly conductive areas (i.e., areas shown in blue in the cross sections). The less saturated/dryer materials that have "high resistivities" are shown in red in the cross sections. For the purposes of this project, fracture zones filled with groundwater will have a lower electrical resistivity than the unfractured bedrock near or surrounding the water-filled fracture. With the depth of the potential fractures unknown, the goal of the ERT surveys was to assess subsurface conditions at least 200 feet below grade. Therefore electrode spacings of 15 to 30 feet were used based on available space, desired subsurface resolution, time constraints, and the potential to divert traffic. Tighter electrode spacing provides higher resolution over shorter distances, but limits depth of visibility and requires greater timeframes to complete.

The filtered ERT pseudosections are summarized on Figure 4.4. The results of the geophysical surveys show that resistivities in excess of 1,000 ohm-m likely represent competent bedrock with little fracture porosity and permeability while resistivities less than 50 ohm-m likely represent highly saturated conditions. The cross sections show features assumed to represent saturated high angle fracture zones in a number of different surveys. The location and orientation of some of these potential high angle fractures are similar to those identified in the lineament study (i.e., areas where a continuous column of blue color extends from shallow depths to deeper depths in the cross section).

Fracture Correlation and Connectivity: To assess the correlation between the suspected fractures identified in the lineament study and the apparent fractures identified in the geophysical survey, the lineaments presented in Figure 4.1 were transposed onto the pseudosections presented in Figure 4.4. Each suspected fracture was transposed to locations where they bisected the ERT arrays. As shown in Figure 4.4, the transposed results show a relatively strong correlation between the two fracture identification tools, where both technologies identified a fracture, although in certain cases the geophysical survey identified apparent high angle fractures that were not identified in the lineament study (i.e., columns of blue color in the cross-sections that are not labeled with a fracture identified from the fracture trace).

To assess the hydraulic significance and/or connectivity of the apparent fractures identified, the pseudosections were then plotted in a plan view and combined with an overlay of the fracture trace results (Figure 4.5). The compilation was used to assess the lateral continuity of the suspected high angle fractures across the City of Kokomo and the investigation area. This continuity assessment evaluated locations where suspected fractures bisected ERT survey lines. If these locations showed vertical zones of low resistivity (i.e., blue color) throughout the entire depth of the pseudosection, the apparent fracture was interpreted to be hydraulically significant. If the fracture was hydraulically significant in each of the ERT survey lines it bisected, the fracture was considered to be laterally continuous. Alternatively, if the suspected fracture intercepted the ERT survey line in area of high resistivity (i.e., red or warm colors), the fracture was interpreted to be non-existent or laterally discontinuous. The results of the assessment are presented in Figure 4.5 and discussed below.

Conjugate Fractures AB: As shown in Figure 4.5, suspected fractures A1 and A2 were not assessed by the ERT geophysical survey. However, suspected fracture A3 bisects two survey lines and appears to be laterally continuous across the study area as it intercepts ERT survey lines Carter 1 and Union 1 at locations where low resistivity (blue color) extends throughout the entire depth of the pseudosection. Suspected fractures A4, A5, A6, and A7 bisect a minimum of 2 and up to 8 survey lines. Of these 4 suspected fractures, A4 and A7 could be laterally continuous across the study area as they intercept the ERT lines where low resistivity (a blue color) extends throughout the entire depth of the pseudosection. Fractures A5 and A6 do not appear laterally continuous as they appear to pinch out at the Virginia 2 and Foster 2 survey lines, respectively. Suspected fracture B1 bisects three survey lines and appears it could be laterally continuous across the Site. Suspected fractures B2 and B3, which are located on the south side of the Site, were not assessed by the geophysical survey, as they were not located between the Site and an off-Site pumping well.

Conjugate Fractures CD: As shown in Figure 4.5, suspected fractures C4, C5, C6 and C11 were not assessed through the ERT survey. Suspected fracture C8 does not appear laterally continuous as there is not a corresponding fracture in the Union 1 survey line. Suspected fractures C7, C9 and C10 may extend through the Union survey line but appear to pinch out east of that survey line. The fracture trace analysis identified the majority of the east west fractures are grouped along Wildcat Creek prior to and directly west of its confluence with Kokomo Creek (Figure 4.1). It should also be noted that suspected fracture C1 through C11 corresponds to regional fracture/scour channel Z2 that was identified in Figure 3.7.

Conjugate Fractures EF: As shown in Figure 4.5, suspected fractures E4, and E8 were not assessed by the ERT geophysical survey (i.e., they are located outside of the area of study). However, suspected fractures E5 and E6 bisect four survey lines (i.e., from west to east these include Union 2, Locke, Defenbaugh 2, and Elizabeth). It appears that both fractures could be laterally continuous across the Union 2 and Locke survey lines but they appear to be pinching out at the Defenbaugh and Elizabeth lines. The suspected fractures E5 and/or E6 could be one of the factors that creates a subsurface discontinuity (i.e., fault) and/or groundwater divide in the study area. As discussed in Section 6.0, this subsurface discontinuity could be responsible for the dramatic differences in groundwater elevations observed in wells located on the northeastern portion of the Site vs. those in the southwestern portion of the Site. The subsurface feature may also be responsible for the difference in hydraulic responses to off-Site pumping operations at DCX and IAWC. As discussed in section 6.0, these different hydraulic responses prompted the wells to be assigned a Group 1 and Group 2 designation, which were then assessed separately due to different hydraulic gradients and flow directions. However, as discussed in Section 6.2, the hydraulic responses observed in wells MW-14LCI and MW-1618Eliz show traits of both Group 1 or Group 2 wells, suggesting the subsurface discontinuity attenuates between the Locke and Defenbaugh survey lines. It should also be noted that suspected fractures E3 and E9 correspond to suspected regional fractures "Y1" and "Y2" that were identified in Figure 3.7.

Conjugate Fractures GH: As shown in Figure 4.5, the continuity of suspected fracture G1 could not be assessed by the ERT survey as it only bisected the Carter 1 survey line. Based on the fracture trace results, suspected fracture G2 wasn't expected to extend through the Site: this is supported by the ERT results. Based on the lineament study, the G1 and G2 fracture appear to control a portion of Wildcat Creek. Fracture G1 also bisects a portion of the former Pete's Run and corresponds to suspected regional fracture/scour channel "X5" presented in Figure 3.7.

Undected Fractures: The results of the ERT survey also identified suspected high angle fractures that were undetected in the lineament study due to construction and development within the City. Interpretation and assessment of these suspected fractures suggest that many of them may be laterally discontinuous as they couldn't be clustered or grouped in orientations similar to those predominant regional fractures identified in the lineament study or traced over long distances. One of these laterally discontinuous features was identified in the Carter Street 3 survey east of U.S. Highway 31, which showed a well developed cutter and pinnacle geomorphology that is typically associated with rapid vertical dissolution of bedrock (Figure 4.4). The Carter Street 2 survey east of Wildcat Creek (Figure 4.4) showed evidence of abandoned stream

channels with thick saturated unconsolidated soils or deeply weathered bedrock (although IAWC boring logs from the area indicate they are unconsolidated deposits). These features were not observed in ERT surveys conducted beyond the Wildcat Creek area. Additionally, it appears the degree of saturation identified in the bedrock deposits at the Site is lower than the surrounding areas (based on the percentage of blue color evident in the Defenbaugh Street and Locke Street pseudosections; Figure 4.4). This apparent decrease in saturation is believed to be the result of: (1) the suspected subsurface discontinuity at or near suspected fracture E5 and E6 that reduces groundwater recharge to the Site; and/or (2) the lateral influence of the DCX and IAWC off-site pumping operations drawing water away from this area of the Site (See Section 6.0).

The results of the ERT surveys indicate a limited number of the potential high angle fractures detected (or undetected) in the lineament study could be laterally continuous across the Site. The results of the ERT surveys also show the complexities of identifying, investigating, confirming, and interpreting laterally continuous and/or discontinuous bedrock fractures. The fracture patterns also create challenges in determining local influences on bedrock groundwater flow directions, as hydraulic head pressures and groundwater elevations will vary on their proximity and distance from the fractures.

4.3 BEDROCK PHYSICAL CHARACTERIZATION FROM RQDs

The physical characterization of bedrock core samples is classified through RQDs. These designations are computations that describe the recovery percentage of each bedrock core sample collected. The RQD is determined by measuring and summing all the pieces of the rock core 4 inches and longer in length in the sample (i.e., the core run), and dividing this by the total length of the sample (i.e., the core run length). The RQD formula is presented below.

$$RQD = \frac{\text{Sum of lengths of rock cores} > 4 \text{ inches long} \times 100}{\text{Total length of core run}}$$

The RQD value reflects how competent the rock sample is in terms of discontinuities encountered (fractures) and physical weathering. The RQD values are grouped into the classifications below.

RQD value	Bedrock Classification
<25%	Very Poor
25-50%	Poor
50-75%	Fair
75-90%	Good
90-100%	Excellent

A drill rig equipped with an HQ coring system was utilized to collect 10-foot long bedrock core samples that left a 3$^{7}/_{8}$-inch corehole within the bedrock. Continuous cores of the bedrock were collected in 10 foot intervals from each location until the target depths were reached. These HQ coring depths ranged from approximately 24 feet into bedrock (i.e., 2.5 core runs) to approximately 105 feet into bedrock (i.e., 10.5 core runs). RQDs were calculated from core samples collected at each bedrock boring location except MW-18BR and MW-19BR where sonic coring was utilized to extend the boring through a maximum 203 feet of bedrock. A summary of the RQDs is presented in Table 4.1. The RQD summary table also shows the fracture intervals that were screened during subsequent monitoring well installation activities.

As shown in the table, the well screens were set at intervals of low RQDs, with higher RQDs identified above and below the screened interval. Table 4.1 also shows that competent rock (i.e., RQD of 100%) was detected directly below MW-12KL which may be responsible for the relatively high groundwater elevation at the well compared to other Kokomo Limestone wells installed at the Site (see Section 6.0). Photographs showing typical bedrock appearance and RQDs are presented on Figure 4.6.

The RQD results indicate that rock quality at the surface of the Kokomo Limestone would be classified as "very poor" or "poor," as RQDs typically did not exceed 25% within the uppermost 5 feet or exceed 50% within the uppermost 10 feet of bedrock surface. These classifications are consistent with the visual observations, which noted that the bedrock surface is extremely weathered and fractured. As discussed in the text above, RQDs of 100% denote intact specimens of excellent quality without fracturing. Table 4.1 shows that with the exception of several fracture intervals at depth, the RQD values generally increased with depth, indicating improved rock quality and decreased fracturing between the Kokomo Limestone and the Mississinewa Shale Interface. The bedrock profiles presented in Figures 4.7 through 4.13 indicate RQD values of 85% or higher (i.e., rock of high integrity and low fracturing) were typically recorded through the base of Kokomo Limestone and throughout the Liston Creek Limestone and Mississinewa Shale. As discussed in Section 6.0, the increasing RQDs with depth correlated well with the decreasing fracture frequency and decreasing hydraulic conductivities. This was supported by the results from the downhole packer testing, which showed there is no appreciable groundwater flow in areas of unfractured or competent rock.

4.4 FRACTURE IDENTIFICATION FROM DOWNHOLE GEOPHYSICAL DATA

After reaching target depths, a downhole geophysical logging survey and a hydraulic profiling program was conducted within the open corehole at each bedrock boring location. The various downhole geophysical tests were completed to identify fracture intervals, fracture orientations, stratigraphic contacts, physical properties, and/or hydraulic properties of the most hydraulically significant fractures within the limestone units. The downhole surveys utilized up to three logging systems that were lowered to the bottom of the open corehole to measure the respective bedrock properties thought to be critical for bedrock characterization. The geophysics and hydraulic data were reduced, placed into a comparable format, and analyzed to interpret fracture position, orientation, and hydrogeological characteristics. The seven downhole geophysical surveys completed at the Site are described below. The results of the surveys are presented in Figures 4.7 through 4.13. A complete set of geophysical tests were not completed at each borehole due to time constraints.

Acoustic Televiewer (ATV): The ATV surveys provided a continuous screened image of the borehole by measuring travel response times of acoustic waves bouncing off the corehole wall. Longer travel response times for a return signal in areas of a fracture resulted in a darker line being recorded on the screened image of the corehole wall. The televiewer data identified a number of near horizontal bedding plane fractures in each boring (i.e., the black horizontal lines on the log). No dark black sinusoidual patterns appeared on the ATV logs, indicating that no high angle fractures were encountered in any of the bedrock boring locations. The ATV results suggest the aperture of these bedding plane fractures ranged from 0.25 to 3 inches (Figures 4.7 to 4.13). Generally, as shown in the figures, the fractures with the greatest apertures were encountered at one or more of the following locations (in ascending order): at the Mississinewa Shale Interface, within the Liston Creek Limestone, at the Liston Creek Interface, within the Kokomo Limestone near gamma peak "G", and at or near the weathered surface of the Kokomo Limestone Interface (Bedrock Interface).

Optical Televiewer (OTV): The OTV surveys provided continuous digital, high resolution, color images of the corehole wall. Each OTV profile produced a 360 degree "virtual core". The virtual core was flattened into a 2D image to show the fracture intervals, their relative aperture, and their orientation. The OTV surveys were only completed on bedrock borings MW-18, MW-19, and an existing American Legion Golf Course Irrigation Test Well (MW-AL17T). The survey results identified near horizontal bedding plane fractures in each boring at depths and orientations similar to those identified in the ATV surveys. The results suggest the aperture of these bedding plane fractures

ranged from 0.25 to 9 inches. The largest fracture identified was encountered at the Liston Creek Interface at MW-18 (Figure 2.1). The OTV surveys also identified changes in lithology and foliation (Figure 2.1). OTV survey results from existing off-Site well MW-AL17T showed the following thickness of the bedrock units in the area (the order of these units is consistent with those identified in the Indiana Geological Survey Stratigraphic Column (Figure 3.1)):

- Kokomo Limestone (38 feet);
- Liston Creek Limestone (41 feet);
- Mississinewa Shale (99 feet);
- Louisville Limestone (52 feet);
- Waldran Shale (15 feet), and
- Salamonie Dolomite (>65 feet)

3-Arm Caliper: the caliper survey measured the average corehole diameter with three mechanical arms that scrape the wall of the bedrock corehole. Results were used to identify lithologic transitions and/or significant fractures that were identified by inflections recorded in the diameter profile. The results showed strong correlation between increased borehole diameter and bedding plane fracture positions (Figures 4.7 through 4.13).

Fluid Resistivity: the fluid resistivity survey measured the resistance of bedrock formation (i.e., changes in porosity) using a downhole electrode and a surface electrode. Results were used to identify changes in secondary porosity associated with bedding plane fractures. An increase in pore fluids from a significant water bearing fracture was less resistant than surrounding competent rock causing a decreasing deflection in the resistivity log. The results showed strong correlation between smaller fluid resistivity numbers and higher transmissivities (Figures 4.7 through 4.13).

Spontaneous Potential: the spontaneous potential survey measured the natural flow of current between lithologic contacts, chemistry of interstitial fluids, and/or temperature. Results were used to identify the boundaries between the Kokomo Limestone, the Liston Creek Limestone, and/or the Mississinewa Shale (Figures 4.7 through 4.13).

Natural Gamma: the natural gamma log survey was used to measure the relative amount of shale in the bedrock formations. Shale is a sedimentary rock formed from compressed clay deposits. The clay contained minerals which continuously emit natural radioactive potassium, which when present in the formation, create peaks in the gamma profile (compared to an absence of any peaks or deflections in a limestone without shale). Results of the surveys were used to correlate gamma peaks associated with the

predominant interbedded shale deposits of the Kokomo Limestone. Gamma Peak "A" was assigned to the first/oldest shale deposit interbedded within the Kokomo Limestone with sequential letters given to younger/shallower peaks (i.e, up through Gamma Peak "M" in borehole MW-15). The gamma log results were also used to distinguish the stratigraphic contact between the Kokomo Limestone, Liston Creek Limestone, and the Mississinewa Shale. The contacts between the units were based on the gamma log profile of the Liston Creek Limestone, which had a lower potassium content compared to the other two bedrock formations. Therefore, one of the methods used to identify the top and bottom contacts of the Liston Creek was to evaluate the responses (i.e., deflections) in the gamma log profile. The gamma log profiles showing the various gamma peaks "A" through "M" and the stratigraphic contacts between the bedrock formations are shown on Figures 4.7 through 4.13. The gamma peaks and stratigraphic contacts identified in the natural gamma survey were used as correlation points for developing geologic cross sections of the bedrock units (Figure 7.3).

5.0 BEDROCK FRACTURE HYDRAULIC CHARACTERIZATIONS

Groundwater flow in a bedrock system is typically a function of the size and connectivity of fractures and the hydraulic gradients within those fractures. Therefore, to assess hydraulic properties of the bedrock fractures identified in the geophysical surveys, downhole packer testing and heat pulse flowmeters were utilized to characterize the predominant flow zones within the bedrock system. Single well response tests (i.e., slug tests) were also conducted at select wells to estimate hydraulic conductivities. The results are discussed below.

5.1 DUAL PACKER SYSTEM HYDRAULIC TESTING

After completing the downhole geophysics, a dual packer system (Figure 5.1) was lowered with a winch and cable through the open corehole at 5 of the 11 bedrock well locations (i.e., at MW-13BR, MW-14BR, MW-15BR, MW-16BR, and MW-17BR). The dual packer system was constructed with two inflatable packers that were separated by approximately 5 feet. The unit was utilized to profile continuous 5-foot sections of the corehole until the total depth of the boring was completed. At each 5-foot section, the packers were inflated to conduct the hydraulic tests and then deflated to lower the unit to the next 5-foot section. Within each isolated 5-fooot section, the hydraulic conductivities of the bedrock formation were estimated by conducting a falling head test within the packered interval. During each test, approximately 0.5 to 1.0 gallons of potable water was instantaneously injected into the packered interval through a piping and valve system designed into the packer.

All conductivities from the downhole hydraulic surveys were converted to transmissivities prior to insertion into Table 5.1 and plotting on Figures 4.7 through 4.13. The hydraulic test results provided indirect indications that the most significant fractures identified during the ATV and OTV surveys were also the most hydraulically significant fractures. As shown in Table 5.1, the average transmissivities increased progressively from the Kokomo Limestone to the Liston Creek Interface and decreased sharply below the Liston Creek Interface. The table shows the Liston Creek Interface fracture typically reported the greatest conductivities and transmissivities identified during the testing (i.e., Group 2 Liston Creek Interface wells had transmissivities that ranged from approximately 328 to 802 ft^2/day and averaged approximately 553 ft^2/day). The transmissivity results associated with other bedding plane fractures varied, but were lower than those of the Liston Creek Interface fracture, with averages ranging from approximately 9.9 to 438 ft^2/day (Table 5.1). Excluding the Bedrock Interface Zone,

which has comparable conductivities to the Liston Creek Interface, the data suggest the Liston Creek Interface fracture contains the majority of groundwater within all of the bedrock formations. The Liston Creek Interface fracture also appears to be laterally continuous over a minimum distance of 3,560 feet (i.e., the distance between MW-15BR and MW-18BR). Due to its connectivity and transmissivity, the Liston Creek Interface fracture is considered the predominant flow zone within the bedrock aquifer. Conversely, the data suggests the fracture size or connectivity of other bedding plane fractures is not as consistent over lateral distances as the Liston Creek Interface fracture. This can be seen in the hydraulic test results from the Mississinewa Shale Interface fracture, where the transmissivities ranged from approximately 0.01 to 43 ft^2/day, which are relatively low compared to all fractures in all formations. The hydraulic test results also confirmed that there is no appreciable groundwater flow in areas of unfractured or competent rock.

5.2 HEAT PULSE FLOW METER AND HYDRAULIC TESTING

In bedrock wells MW-18BR and MW-19BR, a heat pulse flowmeter was utilized to measure the rate and vertical direction (up or down) of groundwater flow within the corehole to establish where water enters or exits the borehole. The flow measurements were collected within, above, and below the fracture locations. The flowmeter was capable of measuring flow rates between 0.25 and 1.0 gallon per minute, which corresponds to transmissivities of 96 to 385 ft^2/day. All flow rates were converted to transmissivities prior to plotting (Figures 4.12 and 4.13).

All heat pulse flow meter testing was done under ambient (non-pumping) open-hole conditions. The results of the heat pulse flow meter testing at MW-18BR showed an upflow of 0.2 gallons per minute (gpm) above the Liston Creek Interface and a downflow of at least 1.0 gpm below the Liston Creek Interface, or a combined minimum of 1.2 gpm at the Liston Creek Interface fracture. The minimal downflow measurement of 1.0 gpm exceeded the upper capacity of the meter. Extrapolating the minimal flow rate of 1.2 gpm over 1,440 minutes per day equates to at least 2,160 gallons of water flowing through the Liston Creek Interface fracture at the borehole location per day. However, the OTV results showed the aperture of the Liston Creek Interface fracture was greater at the MW-18 location than at any other bedrock boring location. Although Table 5.1 does not present a transmissivity for MW-18LCI, the data suggest it likely equal to or greater than the other well locations, in which the Liston Creek Interface transmissivities ranged from 328.8 ft^2/day at MW-17 to approximately 802.4 ft^2/day at MW-13.

The results of the flow meter testing at MW-19BR showed a downflow of 0.1 gpm below the Liston Creek Interface, suggesting the Liston Creek fracture is more hydraulically significant than the Liston Creek Interface fracture at the location.

Results of the downhole heat pulse flow meter testing were generally similar to the dual packer system results. The flow meter identified that groundwater movement is greatest within or near the Liston Creek Interface flow zone. The test results also showed no appreciable flow in areas of unfractured or competent rock. No pump tests were conducted to assess specific capacity or open-hole transmissivities.

5.3 SINGLE WELL HYDRAULIC RESPONSE TESTING

Single well response tests (i.e., slug tests) were conducted on 3 bedrock monitoring wells located on and off-Site (i.e., MW-6KL, MW-7KL, and MW-8KL). Each test used a 4-ft. long, 1.5-inch diameter, polyvinyl chloride (PVC) slug and a pressure transducer/datalogger. The slug was lowered into or pulled out of the water column within the well creating a falling head test or rising head test, respectively. The transducer measured the static groundwater elevation at 1-second intervals during the duration of the test. A series of falling head and rising head slug tests were performed at each of the well locations to ensure accurate results. The two most representative sets of groundwater elevation data collected at each location were analyzed using Aqtesolv Version 3.5 software to calculate the hydraulic conductivity (K) of the tested well. The results are presented in Table 5.1. As shown in the table, the average estimated hydraulic conductivity values ranged from 2.16×10^{-2} cm/sec to 8.26×10^{-3} cm/sec which are generally similar to the hydraulic conductivities found in well sorted sand and gravels. The saturated thicknesses of the well locations were adjusted to account for wells set in competent bedrock.

6.0 BEDROCK FRACTURE GROUNDWATER FLOW CHARACTERIZATION

As identified in Section 3.0, regional groundwater flow in the bedrock system is toward the west and northwest (Figure 3.8). On a local scale, groundwater flow directions are influenced by the high capacity groundwater pumping being conducted at IAWC, DCX and Martin Marietta. To assess and characterize these local hydraulic influences, bedrock monitoring wells were installed at 11 different locations that screened specific hydraulically significant fractures identified in the downhole geophysics and hydraulic tests. During and after completing the monitoring well network, pressure transducers were utilized to collect simultaneous water level readings to assess the hydraulic gradients and flow directions within each of the bedding plane fractures identified in the bedrock system. The measurements were collected at each of these 11 bedrock well locations (Table 6.1) and from other existing bedrock wells identified from the surrounding area (Table 6.2). Additional information on the bedrock well installations and transducer studies is presented below.

6.1 BEDROCK MONITORING WELL INSTALLATION

Between June 2000 and November 2004, Boart Longyear, under the supervision of CRA, completed 11 bedrock borings at and adjacent to the Site. As shown on Table 6.1, eight of the 11 bedrock borings were completed with multiple monitoring wells. All bedrock borings installed during the investigation were advanced through approximately 13 to 30 feet of unconsolidated deposits. In the first phase (Phase 1) of the bedrock investigation, the bedrock borings were installed using a permanent 8-inch diameter steel casing (i.e., for bedrock wells MW-6KL, MW-7KL and MW-8KL). The casing was set (grouted) into the top of bedrock and acted as a protective surface casing set between grade level and the bedrock interface. A temporary 6-inch diameter steel casing served as a protective surface casing in the final 8 borings, as these well locations were not at or near a known contaminant source area (i.e., boring locations at MW-12BR, MW-13BR, MW-14BR, MW-15BR, MW-16BR, MW-17BR, MW-18BR and MW-19BR).

Monitoring Well Installation: After the boreholes were advanced through the overburden to the bedrock surface, an HQ coring system was utilized to collect core samples in 10-foot sections (i.e., 10-foot core runs). The HQ coreholes completed for the initial Phase 1 bedrock wells (i.e., MW-6KL, MW-7KL and MW-8KL) were extended approximately 25 to 30 feet below the bedrock surface of the Kokomo Limestone. Groundwater samples collected from these bedrock wells contained VOC concentrations above the U.S.EPA Maximum Contaminant Levels (MCLs). Therefore, deeper bedrock wells were installed

during a Phase 2 bedrock investigation in order to delineate the vertical extent of VOC contamination. The coreholes for these deeper wells were extended approximately 25 to 100 feet below the bedrock surface through the Kokomo Limestone and into or through the underlying Liston Creek Limestone (a more competent dolomitic limestone). Some of these deeper wells were terminated at the top of the Mississinewa Shale, which is considered a low permeability unit that acts as a lower confining unit to the bedrock groundwater system in the limestone units above it.

The top of the Mississinewa Shale, referenced as the Mississinewa Shale Interface, was typically encountered between 81 and 104.5 feet below top of rock or approximately 105.0 to 117.5 feet below grade level. One corehole (MW-18) was extended 102 feet below the Mississinewa Shale Interface into the top of the underlying Louisville Limestone Interface.

Monitoring Well Construction: As described in Section 4.4, the results of the downhole geophysical and hydraulic tests provided indirect indications of 5 predominate flow zones at or above the Mississinewa Shale Interface. These flow zones were identified at specific fractures that appear laterally continuous across the Site and/or laterally continuous across areas adjacent to the Site. The predominant fractures, in ascending order, included one at the Mississinewa Shale Interface, one within the Liston Creek Limestone, one at the Liston Creek Interface, one within the Kokomo Limestone near gamma peak "G", and one (or more) at or within the weathered surface of the Kokomo Limestone. The top of the Kokomo limestone is typically referenced as the Bedrock Interface or Kokomo Limestone Interface. These predominant fractures contained significant hydraulic properties compared to other apparent fractures with smaller apertures or limited lateral extensions. Therefore, these predominant fractures were screened with monitoring wells for subsequent hydraulic gradient and groundwater quality assessments. With exception of MW-6KL, MW-7KL, and MW-8KL (the first bedrock wells installed), each bedrock boring location was completed with multiple, small diameter, 1-inch PVC monitoring wells. The wells were constructed within a single corehole to screen intervals associated with the predominant water-bearing fractures. The number of wells installed within each corehole was dependant on the total depth of the boring and the number of predominant fractures that were intercepted. The screen lengths utilized in the wells varied between 2 feet and 5 feet in length and were dependent on the hydraulic properties identified in downhole testing. However, the screen length of the only well installed below the Mississinewa Shale Interface (i.e., MW-18LLI) was 20 feet long due to the absence of any apparent fractures at the Louisville Limestone Interface. It should also be noted that after completing the deep bedrock monitoring wells, additional wells were installed in the upper portion of the bedrock unit at the MW-12BR and MW-13BR cluster locations. These additional

monitoring wells were installed in a separate borehole at shallower depths adjacent to the deep monitoring wells. These shallower wells were set in zones with lower RQDs (zones of greater fracturing) with at least 5 feet of separation between the screens. A summary of the construction details for each bedrock monitoring well is presented on Table 6.1.

Monitoring Well Designations: The nested multi-level cluster wells were labeled with a suffix that corresponds to the bedrock formation and bedding plane fracture they are screened across. These suffixes, in descending elevation, include "BRI", "KL", "LCI", "LC", "MSI", and "LLI", which represent abbreviations for the Bedrock Interface (BRI), the Kokomo Limestone (KL), the Liston Creek Limestone Interface (LCI), the Liston Creek Limestone (LC), the Mississinewa Shale Interface (MSI), and the Louisville Limestone Interface (LLI). As identified above, only one bedrock well was installed to the Louisville Limestone Interface to assess the hydraulic conditions below the Mississinewa Shale (i.e., well MW-18LLI was installed to a depth of approximately 230 feet below ground surface (bgs)). Based on the slow groundwater recharge rates observed at MW-18LLI during subsequent development and sampling activities, the potential bedding plane fracture at the Louisville Limestone Interface is not considered hydraulically significant.

In addition to the stratigraphic designations, monitoring wells completed within the Kokomo Limestone and Liston Creek Limestone contain supplemental suffixes that provide information on their screened interval and/or elevation. In the Kokomo Limestone, monitoring wells set between the Kokomo Limestone Interface and Liston Creek Interface used their Gamma Peak intervals to identify the screened elevation (i.e., Gamma Peak "A" was assigned to the first/oldest shale deposit interbedded within the Kokomo Limestone with sequential letters given to younger/shallower peaks up through Gamma Peak "M"). For example, bedrock monitoring well MW-14KL(FG) was set between Gamma Peaks "F" and "G".

In the Liston Creek Limestone, monitoring wells set between the Liston Creek Interface and Mississinewa Shale Interface used a numbering system to identify their screened elevation (i.e., fractures within the Liston Creek below the Liston Creek Interface were numbered sequentially as "1", "2" or "3" in order in which they were encountered). For example, bedrock monitoring well MW-14LC(1) was the first fracture encountered within the Liston Creek Limestone below the Liston Creek Interface fracture.

Monitoring Well Depths: Generally, the maximum depths of the well screens installed in the bedrock formations were determined based on decreasing VOC concentrations at depth, decreasing fracture frequency at depth, decreasing hydraulic conductivities at

depth, and the known 100-foot thick low permeability aquitard (Mississinewa Shale). These bedrock hydrogeologic conditions along with the apparent absence of a bedding plane fracture at the base of the Mississinewa Shale indicate wells screened below the Mississinewa Shale Interface are not warranted. Other data supporting the maximum depth of the monitoring wells should be no more than 105 to 180 feet bgs are summarized below. This 75 foot interval between 105 and 180 feet bgs is equivalent to the top and/or bottom depths of the Mississinewa Shale and corresponds to elevations of 635 and 710 AMSL.

- The 180-foot depth is approximately 20 to 90 deeper than the most conductive bedrock groundwater flow zone identified in the three closest IAWC high-capacity production wells (Well 7, Well 18, and Well C). As shown in Table 6.3, production zones deeper than 180 feet were generally classified as "negligible" (MFG, 1996).

- The 180-foot depth is at least 40 to 50 feet deeper than any groundwater monitoring well completed at the Continental Steel Superfund Site (Table 6.4) which is located approximately 2 miles west-northwest of the Site;

- The 180-foot depth is as deep as the deepest residential well within a one-mile radius of the Site;

- The 180-foot depth is approximately 25 to 30 feet deeper than the two active high capacity industrial production wells in the area (i.e., DCX and Martin Marietta); and,

- The 180-foot depth extends through the third formation of the bedrock aquifer (i.e., the Mississinewa Shale) and in the case of MW-18LLI, is into the fourth formation of the aquifer (i.e., Louisville Limestone). Neither the Mississinewa Shale or the Louisville Limestone have been subjected to environmental and/or groundwater quality assessments (to the best of our knowledge).

Upon completion, all bedrock monitoring wells were developed to visually silt-free (non-turbid) conditions using a submersible pump and surveyed by CRA to the nearest 0.01 foot (Table 6.1). Since no visual or olfactory evidence of impacts were observed, all soil cuttings generated from drilling activities were dispersed to the ground surface surrounding the boring (i.e., in accordance with the January 1992 U.S.EPA document entitled, "Guide to Management of Investigation - Derived Waste"). All wastewater generated from on-Site and off-Site drilling activities were containerized and analyzed for VOCs and discharged to a City sanitary sewer. All PPE, trash, and miscellaneous refuse were disposed of in appropriate trash receptacles.

6.2 GROUNDWATER TRANSDUCER STUDIES AND WELL GROUPINGS

As the network of multilevel monitoring wells was being established, manual water level measurements were collected from the wells to assess groundwater elevations, hydraulic gradients and flow directions within the bedding plane fractures of the bedrock system. Results of these manual gauging events identified constant water level fluctuations and a variety of groundwater flow direction changes. Therefore, downhole pressure transducers were installed in a set of monitoring wells screening the same laterally-continuous, bedding plane fracture (i.e., all wells which monitor the Liston Creek Interface fracture) so that simultaneous readings could be collected from the same flow zone to establish a representative flow direction. The transducers measured water levels every 15 minutes. Periodic Site visits were scheduled so the transducer data could be downloaded, compiled, reduced and plotted. In a sequential fashion, the transducers were relocated during subsequent Site visits to other wells monitoring a different bedding plane fracture (or flow zone). At other times, the transducers were stacked within multiple wells installed at a single well cluster to assess the vertical hydraulic gradient within the bedrock units (i.e., transducers installed at wells MW-15MSI, MW-15LC, MW-15LCI, MW-15KL, etc.).

Divergent Groundwater Flow Directions: The transducer data indicate divergent groundwater flow directions are present throughout the upper portion of the bedrock system (i.e., within the Kokomo Limestone and Liston Creek Interface fractures). The changes in hydraulic gradients and groundwater flow directions appear to be created by the pumping of the off-Site DCX, IAWC and Martin Marrietta wells surrounding the Site in combination with suspected fracture discontinuity (i.e., fault) within the bedrock formations.

Off-Site Groundwater Pumping Operations: Off-Site pumping operations from three facilities adjacent to the Site have the potential to influence groundwater elevations and flow directions at the Site. These include:

- The IAWC Wellfield operations located approximately 4,800 feet northeast of the Site;
- The DCX Transmission Plant process water operations located approximately 2,800 feet south-southeast of the Site; and,
- The Martin Marietta Limestone Quarry operations located approximately 12,600 feet west of the Site (although the possibility of any influence from these operations appears to be minimal).

The IAWC operates six active bedrock production wells for the City of Kokomo municipal well field that extend between 202 and 383 feet below grade (Table 6.2). These wells extend into the Salamonie Dolomite, which is located approximately 170 feet below the Mississinewa Shale Interface. The DCX wells extend approximately 140 feet below grade (i.e., approximately 20 feet below the Mississinewa Shale Interface). The Martin Marietta Quarry wells extend approximately 145 feet below grade (i.e., the sump intake is approximately 10 feet below the Mississinewa Shale Interface). The approximate volume of groundwater pumped from these high capacity bedrock wells in million gallons per day (mpd) is:

- IAWC — approx. 5.0 mgd or 3,472 gpm
- Martin Marietta — approx. 4.6 mgd or 3,194 gpm
- DCX — approx. 0.172 mgd or 120 gpm

The IAWC and DCX pumping operations create two distinct pumping patterns (signatures) due to the time intervals and volumes of groundwater pumped. The DCX pumping is typically associated with the shift operations at the plant, with reduced or no pumping on third shift and/or weekends. The IAWC pumping is a 7-day a week operation, although different wells may be operational at different times depending on water demand. The pumping patterns from these off-Site operations appear to influence groundwater elevations in bedrock monitoring wells at and adjacent to the Site. This hydraulic influence from the off-Site pumping operations can be seen in the hydrographs created from the transducer data, which show that individual monitoring wells and select fractures react differently to the off-Site pumping operations.

Group 1 and Group 2 Well Designations: For purposes of analysis, and based on the different reactions to the off-Site pumping, water levels in wells that matched the pumping signature of the IAWC operations were designated "Group 1 wells" while those matching the DCX signature were designated "Group 2 wells". The groupings were established using the hydrographs discussed below. It should be noted that the pumping signatures observed in the hydrographs could not be directly correlated to the off-Site pumping wells at IAWC or DCX because transducers could not be placed in the production wells due to well construction issues or authorization issues so although the data could not be used to show direct correlations, the water level trends and fluctuation patterns observed in the transducer data could be indirectly matched to the off-Site pumping operations. Additionally, a regional transducer study was conducted after identifying water levels and hydraulic relationships may have changed over time. This regional transducer study utilized a number of existing accessible bedrock wells that were installed by others, some of which were constructed with an open corehole that

intercepted multiple bedding plane fractures. A summary of the well locations utilized during this program is presented on Figure 6.1.

Typical DCX Signature Hydrograph: Figure 6.2 presents hydrograph data from these on-Site and one off-Site Group 2 bedrock monitoring wells that show a typical DCX pumping signature with cyclic water level fluctuations on days when the plant is operational. Water levels in these monitoring wells decrease during production hours and rebound when the plant is not in production (i.e., between shifts, on weekends, during holidays, or portions of July and December when the plant is shutdown for maintenance operations). As shown in this and other hydrographs, water elevation changes can range between 2 to 4 feet within 1 to 2 hours.

Typical IAWC Signature Hydrograph: Figure 6.3 presents hydrograph data from these off-Site Group 1 monitoring wells that show a typical IAWC pumping signature with daily cyclic water level changes (including weekends). Water levels decrease during production hours and rebound before the next daily pumping event. Several of the IAWC production wells are pumped 24 hours a day, seven days a week (i.e., Production Well 18). Other wells are pumped only when water demand increases (i.e., Production Well 19). As shown in this and other hydrographs, water elevation changes can range between 2 to 4 feet within 6 to 8 hours.

Bedrock Interface Hydrograph - Group 1 and Group 2 Well Designations: Figure 6.4 presents hydrograph data from September 2005 and April 2006 that shows relatively consistent patterns between all the on-Site and off-Site Bedrock Interface wells. However, the amplitude of the water level oscillations associated with MW-8BRI, MW-10BRI, TWOH-39BRI, TWOH-35BRRI, and TWOH-92BRI are lower as compared to the other wells. In using these slightly muted responses recorded by the transducers and their relative proximity to the IAWC wells, the following Group 1 and Group 2 designations were made. The Bedrock Interface well construction details are presented in Table 6.4.

Group 1 BRI Wells	Group 2 BRI Wells
MW-8 BRI *	MW-6BRI
MW-10BRI	MW-7BRI
TWOH-39BRI	MW-9BRI
TWOH-35BRI	MW-11BRI
TWOH-92BRI	MW-12BRI
	MW15-BRI
	TW-2120BRI
* Well could be Group 1 or 2	TW-2153BRI
(it has shown variable signatures)	TWOH-86BRI

Kokomo Limestone Hydrograph – Group 1 and Group 2 Well Designations: Figure 6.5 presents an April 2006 hydrograph that shows the Kokomo Limestone wells can be accurately separated into two well groupings. Monitoring wells MW-18KL(EF) and MW-19KL(EF) reflect the IAWC pumping signature and possess water levels that are at least 7 to 9 feet below those that reflect the DCX pumping signature. This elevation difference is significant in a regional bedrock groundwater system considering the wells are located within 1,600 feet of each other and likely reflects a hydraulic discontinuity caused by a suspected high angle fracture or fault located between the two well groups. Using the pumping signatures, the difference in water elevations, and their relative proximity to IAWC or DCX pumping operations, the wells were assigned the Group 1 or 2 designations identified below. It should be noted that monitoring well MW-14KL is the only well within that multi-level well cluster that exhibits water level patterns associated with the Group 2 wells. All other bedrock monitoring wells at that location (i.e., MW-14LCI, MW-14LC, and MW-14MSI) show characteristics of the Group 1 wells.

Group 1 KL Wells	Group 2 KL Wells
MW-18KL(EF)	MW-6KL(FG)
MW-19KL(EF)	MW-7KL(FG)
	MW-8KL(FG)
	MW-13KL(G)
	MW-14KL(EF)
	MW-15KL(FG)
	MW-16KL(FG)
	MW-17KL(FG)

Liston Creek Interface Hydrograph – Group 1 and Group 2 Well Designations: Figure 6.6 presents an April 2006 hydrograph that shows the Liston Creek Interface wells can be accurately separated into two well groupings, with two wells that appear to share attributes of both groups. Monitoring wells MW-18LCI and MW-19LCI reflect the IAWC pumping signature and possess water levels that are at least 6 to 10 feet below those that reflect the DCX pumping signature. This elevation difference is significant in a regional bedrock groundwater system considering the wells are located within 800 feet of each other and are likely related to a hydraulic discontinuity caused by a suspected high angle fracture or fault located between the two well groups. Water levels and patterns at monitoring wells MW-14LCI and MW-1618 Elizabeth (both wells have an open corehole construction) appear to reflect a combination of IAWC and DCX signatures. However, based on water levels similar to those detected at MW-18LCI and MW-19LCI, these two wells that show signatures of both pumping operations appear to be more strongly associated with the IAWC signature. As shown in the hydrograph, the Group 1 classification for MW-14LCI and MW-1618 Elizabeth is based on their water levels being at least 5 to 8 feet lower than those in Group 2, even though they are

screened in the same fracture (and other fractures due to the open hole well construction). The hydrograph also includes the water levels recorded from the American Legion Golf Course water well from the 17th tee (i.e., designated as MW-AL17T, which is an open corehole construction) and the CSSS Intermediate Aquifer Monitoring Well IA-110. As shown in Figure 6.6, both of these wells are similar to those in Group 2. Therefore using the pumping signatures, the difference in water elevations, and their relative proximity to IAWC or DCX operations, the following Group 1 and Group 2 designations were made:

Group 1 LCI Wells	Group 2 LCI Wells
MW-18LCI	MW-13LCI
MW-19LCI	MW-15LCI
MW-14LCI	MW-16LCI
MW-1618Eliz	MW-17LCI
	MW-AL17T
	IA-110 (CSSS)

Liston Creek Hydrograph – Group 1 and Group 2 Well Designations: Figure 6.7 presents a November and December 2005 hydrograph that shows the on-Site and off-Site Liston Creek monitoring wells can be accurately separated into two well groupings. Monitoring wells MW-14LC, MW-18LC, and MW-19LC reflect the IAWC pumping signature and possess water levels that are at least 3 feet below those that reflect the DCX pumping signature. This elevation difference is significant in a regional bedrock groundwater system considering the wells are located within 800 feet of each other and is likely related to hydraulic discontinuity caused by a suspected high angle fracture or fault located between the two well groups. Using the pumping signatures, the difference in water elevations, and their relative proximity to IAWC or DCX operations, the following Group 2 or Group 2 designations were made:

Group 1 LC Wells	Group 2 LC Wells
MW-14LC	MW-13LC
MW-18LC	MW-15LC
MW-19LC	MW-16LC
	MW-17LC

Mississinewa Shale Interface Hydrograph - Group 1 and Group 2 Designations: Figure 6.8 presents an April 2006 hydrograph that shows the Mississinewa Shale Interface wells can be accurately separated into two well groupings. Monitoring wells MW-14MSI, MW-18MSI and MW-19MSI reflect the IAWC pumping signature and possess water levels that are at least 2 to 20 feet below those that reflect the DCX pumping signature. The dramatic difference in groundwater elevations between the two well groups likely reflects the fact that the hydraulic connection of the Mississinewa Shale Interface

fracture to the IAWC pumping operations is much greater than its hydraulic connection to the DCX pumping operations. Using the pumping signatures, the difference in water elevations, and their relative proximity to IAWC or DCX operations, the following Group 1 or Group 2 designations are:

Group 1 MSI Wells	Group 2 MSI Wells
MW-14MSI	MW-13MSI
MW-18MSI	MW-15MSI
MW-19MSI	

6.3 GROUP 1 AND GROUP 2 BEDROCK INTERFACE WELLS GROUNDWATER FLOW AND GRADIENTS

Groundwater elevation data recorded by the transducers installed in Group 1 and Group 2 Bedrock Interface Wells during September 2004 and March 2006 were used to evaluate predominant groundwater flow directions in this flow zone at and adjacent to the Site.

Group 1 and Group 2 Bedrock Interface Wells – Groundwater Elevations: As shown in Figure 6.4, the range of groundwater elevations in the all the Bedrock Interface wells typically range within 5 feet of one another and are typically 20 feet higher than the groundwater elevations identified in the Kokomo Limestone fracture (Figure 6.5).

Group 1 and Group 2 Bedrock Interface Wells - Groundwater Flow Directions: As shown in Figures 6.9 and 6.10, the September 2005 and March 2006 data show that groundwater flow directions for Bedrock Interface flow zone are typically in a northwesterly direction. However, off-Site areas adjacent to the northeast corner of the Site have shown a northerly flow component in the winter seasons of previous gauging events.

Group 1 and Group 2 Bedrock Interface Wells - Horizontal Hydraulic Gradients: As shown in Figures 6.9 and 6.10, the horizontal hydraulic gradients in the Bedrock Interface wells is approximately 0.005 ft/ft.

Group 1and Group 2 Bedrock Interface Wells - Vertical Hydraulic Gradients: Figure 6.11 shows hydrographs for two Bedrock Interface wells (MW-7BRI and MW-8BRI) and two Kokomo Limestone wells (MW-7KL(FG) and MW-8KL(FG) constructed at the same location. The transducer data shows a general similarity in groundwater elevation patterns between the flow zones, suggesting that the Bedrock Interface flow zone has a general hydraulic connection to the underlying Kokomo Limestone flow zone (not a

direct hydraulic connection). These hydrographs suggest a relatively competent layer exists between the two zones that would retard vertical migration of contaminants. Based on the vertical separation between the two flow zones, the conceptual vertical gradient would be approximately 0.4 ft/ft.

6.4 GROUP 1 BEDROCK WELLS - GROUNDWATER FLOW AND GRADIENTS

Groundwater elevation data recorded by the transducers installed in Group 1 wells (i.e., MW-14BR, MW-18BR, MW-19BR and/or MW-1618Eliz) during October 2005 and April 2006 were used to evaluate predominant groundwater flow directions and gradients in areas adjacent to the northeast corner of the Site. The groundwater data was collected from the Kokomo Limestone, Liston Creek Interface, Liston Creek and Mississinewa Shale Interface fractures in order to compile groundwater flow maps for each flow zone.

Group 1 Wells – Groundwater Elevations: As shown below, the April 2006 groundwater elevations in the Group 1 wells varied between fractures and were typically at least 6 to 10 feet lower than those in the Group 2 wells screened in the same flow zone:

	Group 1 Wells	Group 2 Wells
Flow Zone	Approx. GW Elev. Range	Approx. GW Elev. Range
BRI	800 and 802	801.5 and 805.5
KL	777 and 782	787 and 795
LCI	779 and 784	785 and 794
LC	779 and 781	788 and 790
MSI	773 and 781	780 and 785

Group 1 Wells - Groundwater Flow Directions: The October 2005 data show that groundwater movement for the three of the four predominant flow zones (i.e., Liston Creek Interface, Liston Creek and Mississinewa Shale Interface) is in a northeasterly direction (Figure 6.12). The groundwater flow direction in the Group 1 Kokomo Limestone flow zone is likely to be to the northeast. However, as it takes three wells in a triangular pattern to establish a groundwater flow direction, the groundwater movement within the Kokomo Limestone flow zone could not be calculated as only two Group 1 wells were installed (MW-18KL and MW-19KL). In order to produce a flow map for the Kokomo Limestone flow zone, groundwater elevation data from a Group 2 well (MW-14KL) would have to be combined with data from two Group 1 wells (MW-18KL and MW-19KL). As discussed in Section 6.2, MW-14KL was the only well in that nested cluster to exhibit Group 2 signatures. However, based on the data from Group 1

wells MW-18KL and MW-19KL, the use of data from Group 2 well MW-14KL would not likely change the groundwater flow direction but would distort the horizontal hydraulic gradient represented on the figure.

As shown in Figures 6.12 and 6.13, the April 2006 Group 1 groundwater and hydraulic gradient data for the Liston Creek Interface, Liston Creek and Mississinewa Shale Interface flow zones is consistent with the October 2005 data. Both groundwater contour maps utilized a contour interval of 0.5 feet. As shown in the hydrographs presented in Figures 6.5 through 6.8, the groundwater elevations maintained their positions relative to one another without criss-crossing over an elevation from another well. This indicates the northeast groundwater flow directions are relatively consistent over the monitoring periods. With the USGS data showing that the regional bedrock groundwater flow direction is in a westerly direction (Figure 3.8), the northeast flow directions observed in the flow zones associated with these Group 1 wells suggest the IAWC pumping operations influence water levels and hydraulic gradients in areas directly northeast of the Site property boundary. The gradient data and the hydrograph data suggest the IAWC pumping influence within the Liston Creek Interface, Liston Creek and Mississinewa Shale Interface fractures appears to be at least 4,000 ft (i.e., the distance between IAWC Well C and monitoring well MW-14). However, it should be noted that the pumping operations from the IAWC wells did not appear to influence water levels in the Group 2 Kokomo Limestone fracture at MW-14KL. This suggests the Kokomo Limestone bedding plane fracture may not be laterally continuous in a northerly direction or based on its southwesterly dip, the Kokomo Limestone fracture subcrops in a northeasterly direction prior to reaching the wellfield. If the Kokomo Limestone fracture subcrops prior to the wellfield, it would not bisect the wellfield wells and therefore reduce or eliminate IAWC influence in the Kokomo Limestone flow zone. However, the northeast flow direction identified in the Liston Creek Interface, Liston Creek and Mississinewa Shale Interface fractures would be consistent with the IAWC pumping operations to the northeast, and the IAWC pumping signatures identified in the hydrographs.

Group 1 Horizontal Hydraulic Gradients: As shown in Figures 6.12 and 6.13, the horizontal hydraulic gradients in the three Group 1 wells were steepest in the Mississinewa Shale Interface fractures and shallowest in the Liston Creek Interface and Liston Creek fractures.

Fracture	Upgradient Well/Elevation	Downgradient Well/Elevation	Distance	Horizontal Hydraulic Gradient
KL	---	---	---	NA
LCI	MW-14/783.64	MW-18/779.77	1,660 ft.	0.0024 ft/ft
LC	MW-14/777.98	MW-18/776.48	1,660 ft.	0.0009 ft/ft
MSI	MW-14/781.83	MW-18/773.86	1,660 ft.	0.0049 ft/ft

This gradient data is consistent with the downhole hydraulic testing data, which suggested the Liston Creek Interface and Liston Creek fractures were the most hydraulically significant. The greater hydraulic conductivities and transmissivities in the Liston Creek Interface and Liston Creek fractures combined with a shallower hydraulic gradient suggests these two flow zones have a greater fracture continuity and/or connectivity than the flow zones associated with the Kokomo Limestone and Mississinewa Shale Interface fractures (i.e., connection to other fractures and/or groundwater recharge sources).

Group 1 Vertical Hydraulic Gradients: Figure 6.14 shows hydrographs for three Group 1 well clusters (MW-14, MW-18, and MW-19). The data show that the vertical gradients vary by location and may be a function of their proximity to a high angle fracture.

Fracture Interval	Vertical Hydraulic Gradient
MW-14KL & LCI	0.19 ft/ft
MW-14LCI & LC	0.16 ft/ft
MW-14LC & MSI	0.013 ft/ft
MW-18KL & LCI	0.005 ft/ft
MW-18LCI & LC	0.014 ft/ft
MW-18LC & MSI	0.16 ft/ft
MW19KL and LCI	0.0002 ft/ft,
MW-19LCI & LC	0.0001 ft/ft,
MW-19LC & MSI	0.036 ft/ft

The hydrographs show that water levels in the Kokomo Limestone, Liston Creek Interface and Liston Creek fractures at monitoring wells MW-18 and MW-19 are almost identical in terms of patterns and elevations. The data suggest that these three flow zones may be hydraulically connected by a high angle fracture located closer to MW-18 than to MW-19 (based on smaller drawdown peaks at MW-18). The data also suggest

that this suspected hydraulic connection does not extend to the Mississinewa Shale Interface fracture, as the Mississinewa Shale Interface water levels are at least 1 to 6 feet lower than those in the Liston Creek fracture.

The hydrograph for MW-14KL also shows that the Kokomo Limestone fracture does not appear to be hydraulically connected to the Liston Creek Interface or Liston Creek fractures as the water levels in the Kokomo Limestone are at least 6 to 8 feet higher than those in the Liston Creek Interface (Figure 6.4). The hydraulic connection and vertical gradients between flow zones is likely dependant on the location, number, depth, and apertures of high angle fractures in the area.

6.5 GROUP 2 BEDROCK WELLS - GROUNDWATER FLOW AND GRADIENTS

Groundwater elevation data recorded by the transducers installed in Group 2 wells (i.e., MW-13BR, MW-15BR, MW-16BR, MW-17BR and MW-AL17T) during October 2005 and April 2006 were used to evaluate predominant groundwater flow directions within and adjacent to the southwest portion of the Site. The groundwater data was collected from the Kokomo Limestone, Liston Creek Interface, Liston Creek and Mississinewa Shale Interface fractures in order to compile groundwater flow maps for each flow zone.

Group 2 Wells – Groundwater Elevations: As shown below, the April 2006 groundwater elevations in the Group 2 wells varied between fractures and were typically at least 5 feet higher than those in the Group 1 wells screened in the same fractures:

	Group 2 Wells	Group 1 Wells
Flow Zone	Approx. GW Elev. Range	Approx. GW Elev. Range
KL	787 and 795	775 and 789
LCI	785 and 794	774 and 783
LC	788 and 790	774 and 781
MSI	780 and 785	768 and 782

Group 2 Groundwater Flow Directions: There are two predominant bedrock groundwater flow directions for the Group 2 wells. The first flow direction is observed when DCX pumping operations are active and the second flow direction is observed when DCX pumping operations are inactive. There are also some short term transient flow directions that occur after pumping operations are reduced or terminated and prior to water levels reaching their natural steady state conditions. All the flow directions are dependent on the duration, rate and volume of groundwater removed during the DCX

pumping operations. In assessing hydrograph data from Group 2 wells, it appears that the predominant flow direction under pumping conditions can change to the predominant flow direction under non-pumping conditions within approximately 1.5 days. However, this timeframe will depend on the pumping rates prior to the gradient changing event. As shown in the hydrograph in Figure 6.15, the groundwater elevations recorded for the Group 2 wells do not always maintain their positions relative to one another and criss-cross elevations from another well at various times. The data show that groundwater elevations in monitoring well MW-13LCI fluctuate between the highest and the lowest (i.e., highest when DCX is pumping and lowest when DCX is not pumping). The changes in groundwater flow direction during this particular monitoring event is shown by the directional arrows above the hydrograph. The data suggests that recharge rates and gradients will vary within each flow zone and are dependent upon the fracture continuity and connectivity.

Group 2 Flow Direction Under DCX Non-pumping Conditions: Figure 6.16 shows that groundwater flow directions in December 2005 for the Kokomo Limestone, Liston Creek Interface and Liston Creek Group 2 flow zone under DCX non-pumping conditions is southwesterly, easterly, and northeasterly., respectively. Groundwater flow direction for the Mississinewa Shale Interface could not be determined, as data was only available from two Group 2 Mississinewa Shale Interface wells which is not enough data to make a determination. As shown in Figure 6.17, the April 2006 non-pumping Group 2 groundwater flow data is consistent with the December 2005 data. Both groundwater contour maps utilized a contour interval of 0.2 feet (the same contour interval used for the Group 1 wells). With a regional bedrock groundwater flow direction in a westerly direction, the southerly flow direction observed in the Kokomo Limestone flow zone under non-pumping conditions could be related to insufficient time to recover to natural steady state conditions (i.e., after DCX pumping reduced), or a natural condition related to preferential flow toward a highly conductive high angle fracture. The easterly and northeasterly groundwater flow observed under non-pumping conditions in the Liston Creek Interface and Liston Creek fractures could be related to the influence created from the IAWC pumping operations or a natural condition related to preferential flow toward a highly conductive high angle fracture.

Group 2 Flow Direction Under DCX Pumping Conditions: The December 2005 data show that groundwater flow directions for the Kokomo Limestone, Liston Creek Interface and Liston Creek flow zones under a pumping condition is southeast, northeast, and northeast, respectively (Figure 6.16). With exception of the Liston Creek flow zone, the April 2006 GW flow data is consistent with the December 2005 data (Figure 6.17). However, the GW flow in the Liston Creek fracture changes from northwest to southeast, but is within its typical range of fluctuation. The southerly flow direction in

the Kokomo Limestone flow zone would be consistent with the DCX pumping operations to the south, and the DCX pumping signatures identified in the hydrographs. Based on the hydrograph data, the radial influence of the DCX pumping within the Kokomo Limestone flow zone appears to be at least 3,750 ft (i.e., the distance between the DCX pumping well and MW-14).

Group 2 Wells - Horizontal Hydraulic Gradients: As shown in Figure 6.16, the horizontal hydraulic gradients in the three Group 2 wells under a reduced or non-pumping scenario were steepest in the Kokomo Limestone and Liston Creek fractures and shallowest in the Liston Creek Interface fractures (i.e., 0.002 ft/ft, 0.001 ft/ft and 0.0008 ft/ft, respectively).

As shown in Figure 6.16 and 6.17, the horizontal hydraulic gradients in the three Group 2 wells under a pumping scenario were steepest in the Kokomo Limestone and Liston Creek fractures and shallowest in the Liston Creek Interface fracture (i.e., 0.003 ft/ft, 0.002 ft/ft and 0.003 ft/ft, respectively).

Group 2 Wells - Vertical Hydraulic Gradients: Figure 6.18 shows hydrographs for four Group 2 well clusters (MW-13BR, MW-15BR, MW-16BR, and MW-17BR). The data show the vertical gradients are steepest between the Kokomo Limestone and Liston Creek Interface fractures (i.e., approximately 0.02 ft/ft, 0.05 ft/ft, and 0.02 ft/ft, respectively) and shallowest between the Liston Creek Interface and the Liston Creek fractures (approximately 0.008 ft/ft, 0.032 ft/ft, and 0.007 ft/ft, respectively). Although not shown on the MW-15 hydrograph, water levels in the Kokomo Limestone Interface fracture is approximately 13 feet higher than the Kokomo Limestone fracture, indicating no hydraulic connections between the two flow zones. The MW-15 hydrograph also shows the water levels at the Liston Creek Interface fracture are lower than the water levels in the Mississinewa Shale Interface fracture, indicating no hydraulic connections between the two flow zones and the decreased continuity and connectivity of the Mississinewa Shale Interface fracture (i.e., the confining pressure in the Mississinewa Shale Interface fracture is greater than the head pressure in the Liston Creek Interface fracture, creating and upward vertical gradient and greater elevations in the Mississinewa Shale Interface). The MW-17 hydrograph shows the Liston Creek Interface and Liston Creek water levels are almost identical in terms of patterns and elevations. The data suggests that these two flow zones may be hydraulically connected. The hydrograph for MW-16 shows that water levels in the Kokomo Limestone fracture are approximately 2.5 feet higher than the Liston Creek Interface fracture and approximately 3 feet higher than the Liston Creek fracture, indicating decreased hydraulic continuity between the three flow zones. The hydraulic connection

between flow zones is likely dependant on the location, number, depth, and apertures of high angle fractures in the area.

6.6 BEDROCK GROUNDWATER FLOW OVERVIEW

Based on the transducer studies completed during the bedrock investigations, groundwater flow directions and gradients are influenced by the following;

- Continued variable pumping patterns associated high capacity groundwater pumping from the DCX production wells, which creates a southerly hydraulic gradient at the Site in the Group 2 wells. The hydraulic gradients can change up to 135 degrees when DCX is not operating the well (i.e., during weekends, holidays, annual shutdowns, etc.);
- Continued variable pumping patterns and flow rates associated with high capacity pumping operations from the IAWC production wells, which creates a northeasterly hydraulic gradient at the Site in the Group 1 wells during periods of IAWC operation; and
- Divergent and variable hydraulic gradients and groundwater flow directions from suspected faults within the bedrock.

7.0 BEDROCK CHARACTERIZATION FROM VOC DELINEATION

A bedrock groundwater-sampling program was implemented to assess temporal changes in groundwater quality at and adjacent to the Site. The sampling program was started in December 2000 and was initially conducted on a quarterly basis. In each sampling event, groundwater samples collected from the monitoring well network were submitted to Severn Trent Laboratories (STL) for analysis of VOCs. Five quarterly groundwater sampling events were conducted prior to implementing the ISM VOC soil remediation activities in August 2001. The ISM activities reduced VOC concentrations at each of the known VOC source areas by an average of 93%. After completing the VOC soil remediation activities, the quarterly sampling continued for more than two years. Based on the relatively stable concentrations of VOCs reported by the laboratory, the groundwater sampling frequency was reduced to semi-annual and annual sampling events. The sampling has included each of the 11 multi-level bedrock monitoring wells and existing active and inactive off-Site residential, commercial, or industrial bedrock water wells. These off-Site well locations included:

- 725 East Boulevard (MW-725Blvd)
- 1618 South Elizabeth Street (MW-1618Eliz)
- 1400 East Hoffer Street (MW-1400Hoff)
- 1351 State Street (MW-1351State)
- 900 East Boulevard (MW-900Blvd)

7.1 VOC DETECTIONS

The analytical results for the VOCs detected at the bedrock interface and the bedrock groundwater systems are summarized in Tables 7.1 and 7.2, respectively. The analytical results are also plotted on Figures 7.1 and 7.2, respectively. In order to help identify VOCs detected in specific fractures, Figures 7.3, 7.4, 7.5 and 7.6 summarize VOCs identified in the KL, LCI, LC and MSI flow zones, respectively. As shown below, groundwater sample analytical results identified 12 VOCs in the Bedrock Interface Zone and 5 VOCs in the Bedrock Zone.

Bedrock Interface VOC Detections

- chloroform
- TCE,
- c-1,2-DCE,
- t-1,2-DCE,
- 1,1-DCE
- VC,
- 1,1,1-TCA,
- 1,1-DCA,
- Benzene,
- Toluene,
- Ethylbenzene, and
- Xylenes

Bedrock VOC Detections

TCE
c-1,2-DCE
VC
1,1-DCA
Benzene

As identified in Section 1.3 TCE was the most frequently detected VOC constituent in Site soils and in groundwater encountered in the Perched Zone. TCE is a common solvent formerly used in industrial manufacturing as a degreaser. It degrades into c-1,2-DCE, t-1,2-DCE, 1,1-DCE, and VC. 1,1,1-TCA is another common solvent used in industrial manufacturing and it degrades into 1,1-DCA. TCE was used at the Site until 1977 and 1,1,1-TCA was used at the Site until 1999. The two solvents were also likely used in other manufacturing facilities throughout the City of Kokomo. The BTEX constituents are components of gasoline or diesel fuel.

7.2 VOC CONCENTRATIONS

A list of VOCs identified in the bedrock system that were detected at least twice (in the same well) during the monitoring program and in concentrations that exceeded the U.S.EPA MCLs are summarized below. As identified in the table below, the maximum VOC concentrations detected in groundwater decrease with depth. This can be seen when assessing the c-1,2-DCE or vinyl chloride concentrations or each flow zone. Additionally, the VOC concentrations in bedrock are generally within an order of magnitude of the MCLs. The analytical summary was divided into Group 1 Bedrock Wells and Group 2 Bedrock Wells (See section 6.3 and 6.4 for additional details). This is because the two groups react differently to off-Site pumping operations and possess different groundwater flow directions and different hydraulic gradients. The two groups are also exposed to different high angle fractures, which appear to bisect different areas of the Site.

	USEPA		Group 1 Wells – Flow Zones and Max. Conc.			
	MCL	BRI	KL	LCI	LC	MSI
VOC	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
TCE	0.005	4.3[TW35]	ND	ND	ND	ND
c-1,2-DCE	0.070	11.0[TW35]	ND	0.620	0.480	0.210
t-1,2-DCE	0.100	0.200[TW35]	ND	ND	ND	ND
VC	0.002	1.0[TW35]	ND	0.099	0.080	0.051
1,1,1-TCA	0.200	ND	ND	ND	ND	ND
1,1-DCA	0.005	0.056[TW39]	ND	0.065	0.057	0.025

	USEPA		Group 2 Wells – BR Flow Zones and Max. Conc.			
	MCL	BRI	KL	LCI	LC	MSI
VOC	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
TCE	0.005	11.0[MW7]	0.004	0.027	ND	ND
c-1,2-DCE	0.070	24.0[MW7]	0.58	2.300	0.600	0.095
t-1,2-DCE	0.100	0.210[MW7]	ND	ND	ND	ND
VC	0.002	0.240[TW2153]	0.069	0.018	0.076	0.015
1,1,1-TCA	0.200	0.670[MW7]	ND	ND	ND	ND
1,1-DCA	0.005	0.130[TW2153]	0.023	0.008	0.008	0.007

7.3 VOC DISTRIBUTION

The analytical data summaries presented in Section 7.2 show the distribution of VOC mass throughout the different flow zones identified in the bedrock groundwater system. With exception of the Kokomo Limestone flow zone in the Group 1 Wells, the bedrock investigation data summarized in Section 7.2 shows VOC impacts were identified at the bedrock interface and within each significant bedrock bedding plane fracture encountered between the bedrock surface and the top of the Mississinewa Shale. This interval encompasses the entire Kokomo Limestone and Liston Creek Limestone units, including the Mississinewa Shale Interface. Groundwater analytical results from a sample collected below the Mississinewa Shale (i.e., at the Louisville Limestone Interface) detected no VOCs. Therefore, the depth of the VOC-impacted bedrock groundwater ranges from approximately 25 feet below grade to approximately 120 feet below grade (or at elevations between 783 and 688 feet AMSL).

Absence of VOCs at Group 1 KL Flow Zone: The analytical data from the Group 1 wells in the summary table in Section 7.2 shows the Kokomo Limestone flow zone is not impacted by VOCs. The absence of VOCs in the Kokomo Limestone fracture is consistent with the hydrograph data discussed in Section 6.0. A series of hydrographs shows monitoring well MW-14KL is the only well from all the multi-level wells constructed at locations MW-14BR, MW-18BR and MW-19BR to be associated with the Group 2 Wells. All other wells at that location are classified as Group 1 wells (i.e., all "KL", "LCI", "LC" and "MSI" wells). The hydrograph presented in Figure 6.5 confirms water levels at MW-14KL are influenced by the DCX pumping operations while all the other wells are influenced by the IAWC pumping operations (Figures 6.5, 6.6, 6.7 and 6.8). The pumping influences shown in the hydrographs suggests that groundwater flow would be in a southwesterly direction from MW-14KL towards the DCX pumping well while groundwater flow at MW-14LCI, MW-14LC, and MW-14MSI would be in the northeasterly direction toward the IAWC pumping. This divergent flow between the uppermost fracture and the lower fractures at the MW-14BR location may be related to the southwest dip of the bedding planes. It is believed that the flow zone associated with the Kokomo Limestone fracture trends in an upward direction to the northeast and may subcrop prior to being intercepted by any of the IAWC pumping wells. The Kokomo Limestone flow zone also dips in a southwesterly direction so the fracture would be intercepted by the DCX pumping well. A conceptual cross section showing this relationship is presented in Figure 7.7. As shown in the figure, the Kokomo Limestone flow zone at the MW-14 location is considered hydraulically upgradient of the Site's former VOC source areas. The absence of VOCs in the groundwater at this interval may reflect its upgradient location.

c-1,2-DCE Distribution Migration as an Indicator Parameter: The tables in Section 7.2 shows concentrations of c-1,2-DCE are the most prevalent VOC constituent detected in the bedrock system in both the Group 1 and Group 2 wells. The highest concentrations of c-1,2-DCE were detected in Bedrock Interface wells installed directly downgradient or within former source areas (i.e., TW-35BRI and MW-7BRI, respectively). With exception of the Kokomo Limestone flow zone associated with the Group 1 wells (which is suspected to upgradient of the former VOC source areas), the data shows that concentrations of c-1,2-DCE decrease 1 to 2 orders of magnitude between the Bedrock Interface and the first hydraulically significant fracture below the Bedrock Interface flow zone (i.e., the Kokomo Limestone flow zone). As shown in the table, the maximum c-1,2-DCE concentrations detected in these two flow zones decreases from 11.0 ppm to non-detect in the Group 1 wells and from 24.0 to 0.1 ppm in the Group 2 wells. The dramatic decrease in concentrations suggest there is a limited hydraulic connection between the weathered surface of the bedrock interface and the first hydraulically

significant fracture below the bedrock interface (i.e., the Kokomo Limestone flow zone). This limited hydraulic connection is also supported by the decrease in the number of VOCs detected between the Bedrock Interface and Kokomo Limestone flow zones (i.e., 11 to 5 respectively). The data table also shows the concentrations of c-1,2-DCE typically decrease continuously between Kokomo Limestone, Liston Creek Interface, Liston Creek, and Mississinewa Shale Interface flow zones. However, the c-1,2-DCE concentrations detected at depth are generally in the same order of magnitude (i.e. 0.62, 0.48, 0.21 ppm in the Group 1 wells, respectively), which suggests that the hydraulic connection between the Kokomo Limestone, Liston Creek Interface, Liston Creek and Mississinewa Shale Interface flow zones is much greater than the connection between the Bedrock Interface and Kokomo Limestone flow zones.

7.4 VOC DISTRIBUTION IN PERCHED ZONE

The distribution of VOCs detected in the Perched Zone is presented in Figure 7.8. The figure presents total VOC concentrations in parts per million. The figure shows the greatest VOC concentrations were detected in or near the former VOC source areas summarized on Figure 1.2 (i.e., the former east-west railroad spur, the former degreaser area, the former scrap storage area, and the former oil house area). The VOC impacts form a continuous plume covering the majority of the former manufacturing parcel and a portion of the former WWTP parcel. Portions of the plume along the northern property line extend off-Site. Portions of the plume in the northeast corner of the Site appear to be influenced by the preferential migration pathway associated with the former Pete's Run.

7.5 VOC DISTRIBUTION IN KOKOMO LIMESTONE BEDROCK INTERFACE FLOW ZONE

The distribution of VOCs detected in the Kokomo Limestone Bedrock Interface flow zone is presented in Figure 7.9. The figure presents total VOC concentrations in parts per million. The figure shows the greatest VOC concentrations were detected in or near the former VOC source areas summarized on Figure 1.2 (i.e., the former east-west railroad spur, the former degreaser area, the former scrap storage area, and the former oil house area). The VOC impacts appear to form a continuous plume covering the majority of the former manufacturing parcel and a portion of the former WWTP parcel. Portions of the plume along the northern property line extend off-Site. Overall, the shape of the VOC plume appears consistent with the northwesterly groundwater flow directions identified in the Bedrock Interface flow zone (Figures 6.9 and 6.10). Portions

of the plume in the northeast corner of the Site appear to be influenced by the preferential migration pathway associated with the former Pete's Run. High capacity groundwater pumping from the two former production wells at the Site may have also influenced the plume shape while limiting its lateral migration as a cone of depression would have formed around the well creating groundwater movements and hydraulic gradients toward the extraction well.

7.6 VOC DISTRIBUTION IN THE KL FLOW ZONE

Kokomo Limestone Group 1 Wells - VOC Distribution: As previously discussed in Section 7.2, no VOCs have been detected in the two Group 1 wells screened in the Kokomo Limestone flow zone (i.e., MW-18KL(EF) and MW-19KL(EF)). Due to the absence of VOCs in these two wells (Figure 7.3), the southerly flow direction in the Group 2 Kokomo Limestone wells (the "A" plots in Figures 6.16 and 6.17), and the significant groundwater elevation differences between Group 1 and 2 Kokomo Limestone wells (Figure 6.5), we can conclude that a subsurface discontinuity is present between these two Group 1 Kokomo Limestone wells and MW-14KL. This potential discontinuity and the IAWC pumping operations may be responsible for creating the significant de-watering and drawdown effects observed in wells MW-18KL and MW-19KL.

Kokomo Limestone Group 2 Wells – VOC Distribution: The distribution of VOCs detected in Group 2 wells in the Kokomo Limestone flow zone is presented in Figure 7.2 and 7.3 . The figure presents total VOC concentrations in parts per million. With exception of MW-14KL(EF) and MW-12KL(H), all Group 2 Kokomo Limestone wells contained at least one of the three VOCs currently detected in the flow zone (i.e., cis-1,2-DCE, VC, and 1,1-DCA). The absence of VOCs in monitoring well MW-14KL is likely related to its hydraulically upgradient location to the Site. The absence of VOCs in monitoring well MW-12KL(H) may be related to its limited hydraulic connection to other wells screening the Kokomo Limestone fracture.

The greatest VOC concentrations were detected at wells MW-13KL and MW-15KL, both or which are located hydraulically downgradient of the source area. Overall, the shape of this VOC plume appears consistent with the southerly groundwater flow direction identified in the Kokomo Limestone flow zone for wells MW-15KL, MW-16KL, and MW-17KL (Figure 6.16a). The termination of the Delphi high capacity groundwater pumping operations and the continued high capacity groundwater pumping from the DCX production wells south of the Site may have influenced the plume shape and its lateral migration.

The greatest VOC concentrations in the second plume were detected in MW-6KL and MW-8KL. Overall, the shape of this VOC plume appears generally consistent with the easterly groundwater flow direction identified in the Kokomo Limestone flow zone for Monitoring wells MW-6KL(FG), MW-7KL(FG), MW-8KL(FG) and MW-14KL(EF) (Figure 6.16a). Based on the groundwater elevations presented in Figure 6.5, the Kokomo Limestone flow zone in the area of these four wells appears separate from the other Group 2 wells, suggesting a lateral discontinuity. This potential discontinuity, the termination of the high capacity pumping at Delphi, and the continued high capacity pumping operations at DCX may have influenced the plume shape and its lateral migration. Additionally, it should be noted that VOC concentrations at MW-8KL(FG) have typically been non-detect with the exception of the sampling events conducted in the month of December (Figure 7.2). This suspected trend is likely related to seasonal changes in hydraulic gradients and flow directions. Apparent seasonal changes in groundwater flow directions have also effected VOCs detected at monitoring well MW-8BRI, which was installed adjacent to MW-8KL (Figure 7.1).

Based on the southerly flow direction in the Kokomo Limestone flow zone and the VOC concentrations detected at MW-15KL, groundwater samples were collected from off-Site wells located between the Site and the DCX pumping well (i.e., MW-725Blvd and MW-900Blvd). The analytical results show no VOCs were detected in well MW-725Blvd. However, a VC concentration of 0.0034 ppm was detected at the Kokomo Gas and Fuel facility in well MW-900Blvd (Figure 7.5). Both wells are constructed with an open corehole that bisects multiple bedding plane fractures. Therefore, the VC concentration could be from the Kokomo Limestone fracture or from the Liston Creek Interface, Liston Creek, or Mississinewa Shale Interface fractures.

7.7 VOC DISTRIBUTION IN THE LCI FLOW ZONE

Liston Creek Limestone Interface Group 1 Wells – VOC Distribution: The distribution of VOCs detected in Group 1 wells in the Liston Creek Interface flow zone is presented in Figure 7.2 and 7.4. The figure presents total VOC concentrations in parts per million. Figure 7.2 shows that three VOCs have been detected in the Group 1 Liston Creek Interface wells (i.e., in MW-14LCI, MW-18LCI, and MW-19LCI). The three VOCs include cis-1,2-DCE, VC, and 1,1-DCA. The greatest concentrations of each VOC were detected at MW-14LCI. Downgradient wells MW-18LCI contained concentrations of VC (0.0045 ppm) while no VOCs were detected in MW-19LCI. Existing Liston Creek Interface well MW-1618Eliz detected VC in its original sampling event but detected no VOCs in two subsequent sampling events. Overall, the shape of the VOC plume appears consistent with the northeasterly groundwater flow directions identified in the Liston

Creek Interface flow zone (the "B" plots of Figures 6.12 and 6.13). The termination of the Delphi high capacity groundwater pumping and the continued high capacity groundwater pumping from the IAWC and DCX production wells northeast and south of the Site may have influenced the plume shape. As shown in Figure 6.6, water levels in monitoring wells MW-14LCI and MW-1618Eliz appear to be influenced by both pumping operations. Therefore, groundwater movement in the Liston Creek Interface flow zone in this area of the City may be divergent.

Liston Creek Limestone Interface Group 2 Wells – VOC Distribution The distribution of VOCs detected in Group 2 wells in the Liston Creek Interface flow zone is presented in Figure 7.2 and 7.4. The figure presents total VOC concentrations in parts per million. As shown on Figure 7.2, four VOCs have been detected the Group 2 Liston Creek Interface wells (W-13LCI, W-15LCI, MW-16LCI and MW-17LCI). The four VOCs include TCE, cis-1,2-DCE, VC, and 1,1-DCA. The greatest VOC concentrations have been detected at MW-15LCI. The VOC concentrations appear relatively stable throughout the monitoring program. Overall, the shape of this VOC plume appears consistent with the easterly groundwater flow direction identified in the Liston Creek Interface flow zone for wells MW-15KL, MW-16KL, and MW17KL (the "B" plots of Figures 6.16 and 6.17). Based on the easterly groundwater flow direction, the termination of the Delphi high capacity groundwater pumping operations and the continued high capacity groundwater pumping from the DCX production wells south of the Site and the IAWC production wells northeast of the Site may have influenced the plume shape and its lateral migration.

7.8 VOC DISTRIBUTION IN THE LISTON CREEK FLOW ZONE

Liston Creek Limestone Group 1 Wells – VOC Distribution: The distribution of VOCs detected in Group 1 wells in the Liston Creek flow zone is presented in Figure 7.2 and 7.5. The figure presents total VOC concentrations in parts per million. Figure 7.2 shows that three VOCs have been detected in the Group 1 Liston Creek wells (MW-14LC, MW-18LC, and MW-19LC). The three VOCs include cis-1,2-DCE, VC, and 1,1-DCA. The greatest concentrations of each VOC were detected at MW-14LC. Downgradient well MW-18LCI contained concentrations of c-1,2-DCE and VC, while no VOCs were detected in MW-19LC. Overall, the shape of the VOC plume appears consistent with the northeasterly groundwater flow directions identified in the Liston Creek flow zone (the "C" plots of Figures 6.12 and 6.13). The termination of the high capacity groundwater pumping operations at the Site and the continued high capacity groundwater pumping from the IAWC production wells northeast of the Site may have influenced the plume shape.

Liston Creek Limestone Group 2 Wells – VOC Distribution The distribution of VOCs detected in Group 2 wells in the Liston Creek flow zone is presented in Figure 7.2 and 7.5. The figure presents total VOC concentrations in parts per million. Figure 7.2 shows that three VOCs have been detected in the Group 2 Liston Creek wells (MW-13LC, MW-15LC, MW-16LC, and MW-17LC). The three VOCs include cis-1,2-DCE, VC, and 1,1-DCA. The greatest VOC concentrations have been detected at MW-15LCI. The VOC concentrations appear relatively stable throughout the monitoring program. Overall, the shape of this VOC plume appears consistent with the easterly groundwater flow direction identified in the Liston Creek Interface flow zone for wells MW-15KL, MW-16KL, and MW17KL (the "C" plots of Figures 6.16 and 6.17).

7.9 VOC DISTRIBUTION IN THE MISSISSINEWA SHALE INTERFACE FLOW ZONE

Mississinewa Shale Interface Group 1 Wells – VOC Distribution: The distribution of VOCs detected in Group 1 wells in the Mississinewa Shale Interface flow zone is presented in Figure 7.2 and 7.6. The figure presents total VOC concentrations in parts per million. Figure 7.2 shows that four VOCs have been detected in the Group 1 Mississinewa Shale Interface wells (i.e., in MW-14MSI, MW-18MSI and MW-19MSI). The four VOCs include cis-1,2-DCE, t-1,2,DCE, VC, and 1,1-DCA . The greatest concentrations of each VOC were detected at MW-14MSI. No VOCs were detected in downgradient wells MW-18MSI and MW-19MSI. Overall, the shape of the VOC plume appears consistent with the northeasterly groundwater flow directions identified in the Mississinewa Shale Interface flow zone (the "D" plots of Figures 6.12 and 6.13). The termination of the high capacity groundwater pumping operations at the Site and the continued high capacity groundwater pumping from the IAWC production wells northeast of the Site may have influenced the plume shape.

Mississinewa Shale Interface Group 2 Wells – VOC Distribution: The distribution of VOCs detected in Group 2 wells in the Mississinewa Shale Interface flow zone is presented in Figure 7.2 and 7.6. The figure presents total VOC concentrations in parts per million. Figure 7.2 shows that three VOCs have been detected in the two Group 2 Mississinewa Shale Interface wells (MW-13MSI and MW-15MSI). The three VOCs include cis-1,2-DCE, VC, and 1,1-DCA. The greatest concentrations of each VOC were detected at MW-13MSI. No VOCs were detected in downgradient well MW-15MSI. The VOC concentrations at MW-13MSI appear to be decreasing or stable throughout the monitoring program.

7.10 VOC MIGRATION IN THE LLI FLOW ZONE

Louisville Limestone Interface: Table 7.2 shows that no VOCs have been detected at the Louisville Limestone Interface (i.e., at MW-18LLI).

7.11 STATISTICAL ANALYSIS OF VOC DETECTIONS

A summary of the historical groundwater analytical results for all wells in the monitoring program is presented in Tables 7.1 and 7.2. The results were assessed using a Mann-Kendall statistical trend analysis. Data sets containing greater than 50 percent non-detects utilized a Logistic Regression trend test in place of the Mann-Kendall test in conformance with recommendations made in Chapter 13 of USGS (2002). The results of the trend tests are presented on Tables 7.1 and 7.2.

Bedrock Interface Zone – Statistical Analysis: Since the VOC soil remedial activities were completed in February 2002, up to fifteen groundwater sampling events have been conducted at wells screened in the Bedrock Interface. As shown in Table 7.1, the VOC concentrations in the Bedrock Interface are currently stable. The stability is confirmed by results of a Mann-Kendall statistical evaluation, which identified decreasing concentration trends and/or no significant trends (i.e., stable concentrations). The absence of any increasing concentration trends indicates plume stability and the absence of any lateral migration of VOCs.

Bedrock Zone – Statistical Analysis:, Up to fifteen groundwater sampling events have been conducted at monitoring wells screened in the Bedrock Zone since the VOC soil remedial activities were completed in February 2002. As shown in Table 7.2, the VOC concentrations in the Bedrock Zone are currently stable. The stability is confirmed by results of a Mann-Kendall statistical evaluation, which identified decreasing concentration trends and/or no significant trends (i.e., stable concentrations). The absence of any increasing concentration trends indicates VOC stability and the absence of an expanding plume.

8.0 BEDROCK GROUNDWATER EXPOSURE ANALYSIS

The following existing bedrock wells were identified in areas adjacent to the Site and have been sampled as part of the bedrock investigation. The purpose of the sampling was to assess the presence and concentrations of VOCs in groundwater at the location and any potential exposure scenarios related to the groundwater quality. The results of the sampling activities are summarized below.

- 725 East Boulevard – D&D Construction commercial office well (IDNR Well #248251). Water used for consumptive purposes and to wash vehicles. No VOCs were detected in groundwater samples collected from the well (Figure 7.2).

- 900 East Boulevard – Kokomo Gas and Fuel inactive production well (IDNR Well # Not Available). Well used for irrigating lawn and washing vehicles. A groundwater sample collected from the well detected c-1,2-DCE and VC. Concentrations of VC are above the MCLs (Figure 7.2).

- 1618 Elizabeth - Former Residential water well (IDNR Well # Not Available). Drinking water currently supplied by City Water. Water formerly used for consumptive purposes. The initial groundwater sample collected from the well detected concentrations of c-1,2-DCE and VC below MCLs. No VOCs were detected in two recent sampling events (Figure 7.2).

- 1400 East Hoffer - Residential water well (IDNR Well #128104). Water used for consumptive purposes. Groundwater samples from the well has detected c-1,2-DCE and VC. Concentrations of both VOCs are below the U.S. EPA MCLs (Figure 7.2).

- 1351 State Street – Globe Surfer commercial office well (IDNR Well #128110). Water used for consumptive purposes. No VOCs were detected in the groundwater sample collected from the well (Figure 7.2).

As discussed previously in this report, other known water users in the area of the Site include DCX and IAWC. The production wells at the DCX facility have not been sampled to our knowledge. The IAWC production wells are sampled by IAWC personnel on an annual basis. Additional details on the well and the groundwater analytical results are described below:

- 1700 East Superior – IAWC Well B
- 1700 East Superior – IAWC Well C

- 1700 East Superior – IAWC Well 7 (inactive)
- 1700 East Superior – IAWC Well 18
- 1700 East Superior – IAWC Well 19
- 1700 East Superior – IAWC Well 20
- 1700 East Superior – IAWC Well 21

As shown on Figure 8.1, Vinyl Chloride concentrations above the MCL of 2 ppb were detected at three IAWC production wells (i.e., Well C, Well 18, and Well 19). The figure also shows IAWC Well 7 had detected vinyl chloride and 1,1-DCA concentrations above MCLs prior to being abandoned in 1997. Other than the MCL exceedances shown in the figure, no other criteria associated with potential exposure to bedrock groundwater has been exceeded.

Groundwater elevations collected from Delphi monitoring wells, IAWC production wells and other existing off-Site residential commercial or industrial wells were used to create a 3-dimensional groundwater model of the Site and areas adjacent to the Site (CRA 2007). The groundwater flow map shows a northeasterly flow direction toward the IAWC wellfield and a westerly flow direction toward the Martin Marietta quarry (Figure 8.1). Based on the pumping rate and depth , bedrock groundwater elevations in this area drop approximately 40 to 70 feet in the general vicinity of these pumping operations. The groundwater elevations are also influenced by the regional bedrock fractures (as discussed in Section 4.0). Figure 8.2 shows the locations of existing monitoring wells as they relate to the fracture trace interpretations presented on Figure 4.5.

9.0 SUMMARY AND CONCLUSIONS

Between 2001 and 2007, a multiple phase remedial investigation was completed at the Delphi Corporation former Plant 1 facility in Kokomo, Indiana to assess the lateral and vertical extent of VOC groundwater impacts on and adjacent to the property. The remedial investigation included:

- Installing soil borings within glacial overburden and bedrock deposits;
- Collecting and analyzing soil samples for chemical and/or physical analysis;
- Installing temporary and permanent monitoring wells in the overburden deposits;
- Collecting and analyzing groundwater samples from the overburden for chemical analyses;
- Collecting bedrock cores to assess rock quality, fracture frequency and fracture orientation;
- Completing advanced surface and subsurface geophysics to identify and assess bedrock fractures;
- Installing bedrock monitoring wells to assess hydraulically significant fractures;
- Collecting and analyzing groundwater samples from the bedrock for chemical analyses;
- Completing hydraulic testing in wells installed in overburden and bedrock deposits;
- Completing vapor intrusion studies;
- Developing a site-specific risk-based criteria (RBC) for soil impacts identified;
- Completing a soil interim corrective action to eliminate unacceptable exposures;
- Completing DNAPL removal activities as part of the interim corrective action;
- Implementing engineering controls to eliminate direct contact, inhalation and ingestion exposures to impacted shallow groundwater;
- Implementing quarterly, semi-annual, and/or annual groundwater monitoring programs to assess temporal changes in groundwater quality;
- Developing and creating a groundwater flow and chemical transport model to assess remedial options and contaminant transport simulations.

The results and findings of the investigations can be summarized as follows:

9.1 BACKGROUND SUMMARY AND CONCLUSIONS

1. The Site is located at 700 East Firmin Street within the city limits of Kokomo, Indiana.

2. The former 35.83 acre Site included five contiguous parcels of 20.77, 8.46, 4.31, 1.93, and 0.36 acres. The five parcels included a manufacturing parcel (20.77), a waste water treatment plant (WWTP) parcel (8.46), and three parking lots. The Site is surrounded by industrial, commercial and residential properties (Figure 1.2).

3. The entire plant was decommissioned and demolished in 1999. Concrete slabs under and adjacent to the manufacturing buildings were removed and all storm sewer and sanitary sewer lines connecting to the City sewer system were plugged/abandoned at property boundary. Two high capacity bedrock production wells were also properly abandoned.

4. The plant used degreasing solvents trichloroethene prior to 1977 and 1,1,1,-trichloroethane prior to 1984 as part of their manufacturing operations. Comprehensive soil investigations conducted at the Site after the demolition activities were completed identified four areas on the main manufacturing parcel where concentrations of these solvents were inadvertently released to shallow soils. A number of current or former facilities within the City of Kokomo are also known or suspected to have used these same solvents.

5. Soil remedial actions were completed on the former manufacturing parcel and on the former WWTP parcel to treat impacted soils to current and future site-specific commercial, industrial, or park land scenarios. Each of these two parcels is currently open grass fields with the potential to be redeveloped.

6. Comprehensive groundwater investigations conducted at and adjacent to the Site have identified chlorinated solvents and their degradation products in three saturated zones identified at the Site (i.e., a Perched Zone, and Bedrock Interface Zone, and a Bedrock Zone). A Corrective Measure Proposal for addressing these groundwater impacts will be submitted to the U.S.EPA in March 2007.

7. Significant bedrock groundwater pumping operations are conducted at three facilities located within the City of Kokomo. These include the Daimler Chrysler (DCX) Transmission Plant, the Indiana American Water Company (IAWC) Municipal Well Field, and the Martin Marietta Limestone Quarry. These facilities pump approximately 0.172, 5.0, and 4.6 million gallons per day, respectively, and are located approximately 0.5 miles south, 1.0 miles northeast, and 2.5 miles west of the Site, respectively.

9.2 UNCONSOLIDATED GEOLOGICAL SUMMARY AND CONCLUSIONS

1. The predominant surficial geology in the region is a clay-rich glacial till (i.e., typically a poorly sorted, poorly stratified mixture of sands, silts and clays). Creeks in the area have incised drainage channels into the till and are responsible for the topographic relief over a relatively flat to gently rolling terrain. Ground surface elevations at and adjacent to the Site are approximately 805 to 820 feet above mean sea level.

2. Based on boring logs completed during various investigation activities, the general geologic profile at the Site consists of 13 to 30 feet of unconsolidated glacial till deposits overlying over 200 feet of consolidated bedrock deposits. The glacial till can be subdivided into five units and the upper 200 feet of bedrock can be subdivided into three units.

3. The five unconsolidated units consist of a surficial fill material followed by four native deposits of alternating silty clay and sand. These native units, in descending order, include; (1) a brown "upper" silty clay unit; (2) a brown "upper" sand unit; (3) a gray "lower" silty clay unit; and (4) a gray "lower" sand unit referred to as the bedrock interface unit. The upper sand unit is partially saturated and referred to as the Perched Zone. The lower sand is completely saturated and referred to as the Bedrock Interface (BRI) Zone (Figure 7.7).

4. The combined thickness of the unconsolidated units range from approximately 13 to 30 feet. The surficial fill was/is present across the entire Site. Both the "upper" and "lower" clay units pinch out completely in areas just north of the Site causing the two sand units to merge and form a single unit (in areas within and adjacent to the former creek called Pete's Run). Both sand units thin and pinch out completely in areas on the southern portions of the Site (near the Administration Building).

9.3 BEDROCK GEOLOGICAL SUMMARY AND CONCLUSIONS

1. The three bedrock stratigraphic units assessed during the investigation include, in descending order, the Kokomo Limestone, the Liston Creek Limestone, and the Mississinewa Shale (Figure 2.1). These three units are encountered under near horizontal conditions but do slope to the southwest at rate of less than 10 feet per mile (2%). These units and others are part of a regional bedrock aquifer that provides drinking water to the City of Kokomo.

2. The Kokomo Limestone is encountered directly below the unconsolidated sands of the Bedrock Interface Zone and directly above the Liston Creek Limestone. The bedrock surface is extremely weathered with rock quality designations (RQDs) typically less than 5% within the first 5 feet of rock (i.e., rock of high fracturing and low integrity). The bedrock unit can be described as a gray, nonfossiliferous limestone laminated with thin bands of black shale. The average thickness of the unit in the Kokomo area is approximately 43 feet. A laterally continuous bedding plane fracture was identified at the base of the unit and is therefore referred to as the Liston Creek Interface or "LCI" fracture. Other hydraulically significant bedding fractures were identified between approximately 20 to 30 feet above the base of the unit, and are referred to as the Kokomo Limestone or "KL" fractures. These "KL" fractures were referenced to specific interbedded shale layers identified in the downhole geophysical activities (by peaks in the gamma logs). Each of the 13 significant interbedded shale layers was labeled alphabetically (from "A" to "M") starting at the base of the formation. The letter assigned to each shale layer was then incorporated into the well ID as a suffix (i.e., monitoring well MW-8KL(FG) was a well set in the Kokomo Limestone between shale layers F and G).

3. The Liston Creek Limestone is encountered directly below the Kokomo Limestone and directly above the Mississinewa Shale. The Liston Creek can be described as a gray, nonfossiliferous, dolomitic limestone proliferated with chert nodules. Compared to the Kokomo Limestone, the Liston Creek Limestone has a higher magnesium content (dolomitic) and is therefore much more resistant to weathering. The unit is approximately 40 to 50 feet thick. A laterally continuous bedding plane fracture was identified at the base of the unit and is referred to as the Mississinewa Shale Interface or "MSI" fracture. Other bedding plane fractures were identified approximately 20 to 38 feet above the base of the unit, and are referred to as the Liston Creek fractures "LC(1)", "LC(2)", or "LC(3)", which are numbered in the order in which they were encountered.

4. The Mississinewa Shale is encountered directly below the Liston Creek Limestone and directly above the Louisville Limestone. The shale unit can be described as a gray, brown or green argillaceous, low-yield, low-permeability, dolomitic siltstone. The unit is approximately 100 feet thick and acts a low permeability layer to groundwater identified in the bedrock units above it. The RQDs of the Shale were typically 90% or higher (i.e., rock of high integrity and little to no fracturing). No references on bedding plane fractures were identified in the literature or identified in the field. No bedrock monitoring wells were completed within the shale but one

well was set at the base of unit at the interface with the Louisville Limestone (MW-18LLI).

5. The results of conventional hydraulic testing and advanced downhole geophysical surveys conducted within the bedrock borings confirmed the presence, elevation, orientation, and hydraulic properties of the near horizontal bedding plane fractures. The most hydraulically significant zones or fractures encountered at the Site, in descending order, include the BRI, (or KLI), KL, LCI, LC, and MSI. Of the predominant fractures identified, the LCI was typically the most significant. These bedrock bedding plane fractures (and other joints and solution cavities) are responsible for transmitting groundwater within the aquifer, as movement in un-fractured portions of the bedrock aquifer were determined to be insignificant. It was also identified that the bedrock fracture frequency and the hydraulic significance of those fractures decreased with depth. A network of multilevel monitoring wells were constructed to screen individual fractures identified during the groundwater investigations.

6. Efforts to identify high angle fractures that may connect to the bedding plane fractures was difficult as commercial construction and pavement covered or obliterated fracture traces (lineaments) within the City and constant car traffic hindered completion of advanced surface geophysical surveys conducted across City streets and right-of-ways. However, results of lineament studies and geophysical efforts did identify suspected high angle fractures at and adjacent to the Site. The predominant high angle fractures of greatest interest appear to be oriented in a northeast-southwest direction between the Site and a Well field owned by the Indiana American Water Company (IAWC). These suspected high angle fractures in combination with known bedding plane fractures have apparently created zones of increased hydraulic conductivity and transmissivity within the bedrock between the Site and surrounding high capacity pumping operations at IAWC and DCX. Based on hydrograph data collected during the investigation the hydraulic influence of the pumping operations at IAWC and DCX can be seen in monitoring wells installed at the Site.

7. The combined results of the lineament studies and the hydraulic assessments indicate a suspected bedrock fault is present at the Site. The feature appears to extend from the northern property line in a northwest direction. Based on Site water levels, this vertical bedrock feature restricts flow within bedding plane fractures and acts as a groundwater divide promoting divergent groundwater flow within the bedrock aquifer. This feature may be partially responsible for increasing the

hydraulic influence from the IAWC pumping operations on Site water levels. The feature also appears to increase the hydraulic influence that the DCX pumping operations (located south of the Site) have on the water levels at the Site.

9.4 SOIL INVESTIGATION SUMMARY AND CONCLUSIONS

1. A total of 19 VOCs were detected in soil samples collected from the Site. These VOCs include:

benzene	2-butanone	trichloroethene	acetone
ethylbenzene	1,1,1-trichlorethane	cis-1,2-dichloroethene	methylene chloride
styrene	1,1,2-trichloroethane	trans-1,2-dichloroethene	cis-1,3-dichloropropene
toluene	1,2-dichloroethane	1,1-dichloroethene	chloromethane
total xylenes	tetrachloroethene	vinyl chloride	

2. Of the 19 VOCs identified in the soil sample analytical results, only trichloroethene (TCE) was detected in concentrations above its respective site-specific risk-based criteria (RBC). TCE was also the most predominant VOC detected at the Site and was therefore used as the primary indicator of VOC contamination in surface and subsurface soils. Some of these same VOCs have been detected in Site groundwater.

3. Soil sample analytical results detected several SVOCs. However, none of the SVOCs were detected above their respective site-specific industrial/commercial RBC.

4. Metal soil sample analytical results detected fourteen constituents, including arsenic, barium, beryllium, cadmium, chromium, copper, cyanide, mercury, nickel, selenium, silver, vanadium, and zinc. However, none of the metals detected exceed their respective industrial/commercial RBC.

5. PCB soil sample analytical results detected Aroclors 1242, 1248, and 1254 (the most predominant Aroclor detected was 1248). The PCB soil impacts were concentrated in the northern portion of the Site under buildings constructed or renovated between 1925 and 1968, indicating the PCBs detected were the result of pre-1978 release (the effective date of the Toxic Substances Control Act). The PCBs detected in concentrations above the site-specific RBCs were remediated in 2001 during an Interim Stabilization Measure (ISM). The PCB soil impacts identified at the Powerhouse (on the former WWTP parcel) were remediated (excavated) to unrestricted residential levels less than 1 ppm. The PCB soil impacts identified on

the former manufacturing parcel were remediated (excavated) to the most stringent Site-specific RBC criteria associated with a parkland scenario.

9.5 HYDROGEOLOGICAL SUMMARY AND CONCLUSIONS

1. Three predominant saturated zones have been identified at the Site, including a Perched Zone, a Bedrock Interface Zone and a Bedrock Zone. These three saturated zones can be further divided into 10 groundwater flow zones, including one in the Perched Zone, one in the Bedrock Interface Zone and 8 within the Bedrock Zone (i.e., four predominant fractures with divergent flow directions).

2. Groundwater within the Perched Zone is encountered within sand deposits perched on the laterally discontinuous silty clay layer. Its saturated thickness is typically a couple feet thick. The depth to water in the Perched Zone is approximately 8 to 12 feet below grade but the water table has fluctuated by several feet over the last seven years. Groundwater flow is generally in a northerly direction toward former Pete's Run but migration can also be influenced by some former Site utility corridors (i.e., sanitary and/or storm sewers). VOCs identified in Perched Zone groundwater have migrated off-Site in several locations along the northern property boundary (Figure 7.8).

3. Groundwater within the Bedrock Interface Zone is encountered at the base of the Glacial Till unit directly above the weathered bedrock surface of the Kokomo Limestone. The BRI Zone is comprised of a sand and/or sand and gravel. It's typically a couple feet thick and encountered under semi-confined conditions approximately 20 to 25 feet below grade. Groundwater flow is generally northwesterly with a seasonal northerly component. The Bedrock Interface Zone merges with the Perched Zone directly north of the Site (within and adjacent to Pete's Run) in areas where the clay layer supporting the Perched Zone pinches out. The highly weathered and fractured top of bedrock is also considered to be part of the Bedrock Interface Zone, which can increase the saturated thickness of the Bedrock Interface by 5 feet or more. VOCs identified in Bedrock Interface Zone groundwater have migrated off-Site in several locations along the northern property boundary (Figure 7.9).

4. Excluding suspected high angle fractures and solution cavities, groundwater in the Bedrock Zone is predominately encountered within the laterally continuous bedding plane fractures of the Kokomo Limestone and Liston Creek Limestone. In

descending order, the four most hydraulically significant fractures (or flow zones) include:

- the "KL" flow zone within the Kokomo Limestone;
- the "LCI" flow zone at the Liston Creek Interface/base of the Kokomo Limestone;
- the "LC" flow within the Liston Creek Limestone; and
- the "MSI" flow zone at the Mississinewa Shale Interface/base of the Liston Creek.

5. At least five monitoring wells were installed within each of these bedding plane fractures to assess fracture-specific groundwater gradients, groundwater flow directions, and groundwater quality. However, differences in bedrock water elevations recorded from monitoring wells installed in the northeast and southwest portions of the Site suggest the continuity of the bedding planes are disrupted by a fault.

6. Based on the results of downhole geophysical surveys, the apertures of these bedding plane fractures range from 0.25 to 9 inches but vary laterally as they're dependant on the chemical dissolution/volume of water moving through the them. The greatest apertures were typically identified in the LCI flow zone while the lowest apertures were identified in the MSI flow zone.

7. Based on pressure transducer data and the USGS stream gauge data, an increase in surface water levels and bedrock groundwater elevations occur within 1 to 2 days of the precipitation event (Figure 3.10). The relatively quick increase in bedrock water levels after a precipitation event indicates the bedrock groundwater system is hydraulically connected to the surface water system and is recharged by vertical seepage through the creek bottom into suspected high angle or vertical bedrock fractures that bisect the Creeks. This bedrock recharge mechanism is supported by a USGS study that classified 4 reaches of Wildcat Creek as losing portions of the stream.

8. Groundwater monitoring has been conducted on a quarterly, semi-annual and/or annual basis using some or all of the 23 existing Perched Zone wells, 15 existing Bedrock Interface Wells, and 37 existing Bedrock Wells. The 37 Bedrock wells were completed at 11 different locations. With exception of the first 3 bedrock wells installed, each bedrock boring location was completed with multiple (up to 5), small diameter, 1-inch polyvinyl chloride monitoring wells. The wells were constructed

within a single corehole to screen intervals associated with the predominant water-bearing fractures. The number of wells installed within each corehole was dependant on the total depth of the boring and the number of predominant fractures that were intercepted.

9. The average hydraulic conductivities of the saturated zones increase with depth until the LCI or LC fracture, at which point they decrease with depth. The hydraulic conductivities, hydraulic gradients, and estimated linear groundwater velocities for the Perched Zone, Bedrock Interface Zone, and Bedrock Zone are shown below:

Saturated Zone	Hydraulic Conductivity (cm/sec)	Hydraulic Gradient (ft/ft)	Linear Velocity (cm/sec)
Perched	5.7×10^{-3}	0.005	1.1×10^{-4}
Bedrock Interface	5.8×10^{-2}	0.005	1.3×10^{-3}
Bedrock Group 1		0.0003	
Bedrock Group 2		0.0024	

9.6 GROUP 1 AND GROUP 2 BEDROCK MONITORING WELLS

1. Pressure transducers used to record groundwater elevations in bedrock monitoring wells completed at and adjacent to the Site show that the DCX and IAWC pumping operations influence groundwater gradients and groundwater flow directions within the bedrock groundwater system at the Site. The DCX well pumping operations are relatively constant during the week and reduced or terminated on weekends and holidays. The IAWC pumping operations are daily (seven days a week) but at variable extraction rates and times. The Martin Marietta pumping operations operate daily (seven days a week) and work on a float mechanism where the pump is automatically activated and de-activated when water levels hit specified thresholds.

2. Bedrock groundwater monitoring wells with water elevations that respond to the IAWC pumping operations were designated as Group 1 Wells while wells with water elevations that responded to the DCX operations were designated as Group 2 Wells.

3. The Group 1 wells are located off-Site in areas adjacent to the northeast corner of the Site (Figure 6.1). Group 2 wells are located in the southwest corner of the Site. A summary of Group 1 and Group 2 wells is shown below.

4. Groundwater elevations within the Group 1 wells can change up to 2 to 4 feet within 6 to 8 hours while water elevations in the Group 2 wells can change between 2 and 4 feet within several hours.

9.7 GROUNDWATER FLOW DIRECTIONS

1. Based on simultaneous readings from pressure transducer placed in Group 1 and Group 2 wells that screen the same fracture, groundwater flow within these fractures is divergent.

2. The predominant groundwater flow directions for the Group 1 Wells in the LCI, LC, and MSI flow zones is in a northeasterly direction. The groundwater flow direction for the Group 1 KL flow zone could not be determined from the two wells that monitor the zone. Due to the bedrock geology, this Group 1 KL Zone is considered upgradient of the VOC impacts detected at the Site while the Group 1 LCI, LC and MSI wells are located downgradient of the Site.

3. There are two bedrock groundwater flow directions for the Group 2 wells. The first flow direction is observed when DCX pumping operations are active and the second flow direction is observed when DCX pumping operations are inactive. There are also some short term transient flow directions that occur after pumping operations are reduced or terminated and prior to water levels reaching their natural steady state conditions. The maximum difference between the two flow directions is approximately 135 degrees.

4. The predominant groundwater flow directions for the Group 2 Wells in the KL, LCI, and LC flow zones is in a southerly, easterly and northeasterly direction, respectively. The groundwater flow direction for the Group 2 MSI flow zone could not be determined from the two wells that monitor the zone.

5. The predominant bedrock groundwater flow directions and hydraulic gradients have changed multiple times based on the number of On-Site and Off-Site high capacity wells that have stopped pumping (i.e., Delphi Production Well & IAWC Well 7) and those where pumping rates have been or are currently variable (i.e., DCX and IAWC wells).

9.8 VOC IMPACTED GROUNDWATER DISTRIBUTION SUMMARY AND CONCLUSIONS

1. VOC impacts were identified in 9 of the 10 flow zones identified at the Site (i.e., from the Perched Zone to the top of the Mississinewa Shale). No VOCs were identified in the KL flow zone in the Group 1 Wells.

2. Statistical analysis conducted on the groundwater analytical results from the ongoing monitoring program indicate the VOC concentrations detected in the Perched Zone, Bedrock Interface Zone and the Bedrock Zone are showing reducing or stable trends. The data indicates the VOC and DNAPL source removal actions associated with the Interim Stabilization Measures were successful.

3. The most prevalent VOC detected in the Perched Zone was TCE. The most prevalent VOC detected in the BRI Zone was c-1,2-DCE and the most prevalent VOC detected in the Bedrock Zone was vinyl chloride. The highest VOC concentrations were generally detected in wells installed directly downgradient or within former source areas (i.e., MW-7WT, MW-7BRI, MW-7KL(FG) and TW-35BRI respectively).

4. Concentrations of 5 VOCs detected in the Perched Zone groundwater exceed Site-Specific Construction Worker Dermal or Vapor Inhalation criteria. Concentrations 11 VOCs detected in the BRI Zone groundwater exceed MCLs (although the BRI groundwater is not considered a potable water supply). Concentrations of six VOCs detected in the Bedrock Zone exceed MCLs. The VOC that exceed MCLs include TCE, c-1,2-DCE, Benzene, VC, ethylbenzene, and 1,1-DCA.

5. VOC impacts detected in the Perched Zone and Bedrock Interface Zone have migrated off-site at several locations along the northern property line. The VOC migration appears to be influenced by the former location and orientation of Pete's Run. VOC impacts detected Bedrock Zone appear to have migrated off-Site. However, it is unclear if the VOCs detected in off-Site bedrock wells are from Site releases or from known or suspected releases associated with other facilities within the City that have used the same solvents.

6. The VOC mass is groundwater decreases with depth. The maximum total VOC concentration in the Perched Zone is approximately 100 ppm. The maximum total VOC concentration in the Bedrock Interface Zone is approximately 14 ppm. The maximum total VOC concentration in the Bedrock Zone is approximately 0.6 ppm. The Perched Zone contains approximately 80 percent of the Total VOC mass in groundwater.

7. The dramatic decrease in concentrations between the Bedrock Interface Zone and the underlying bedrock zones suggest there is a limited hydraulic connection between the weathered surface of bedrock interface and the first hydraulically significant fracture below the bedrock interface (i.e., the KL flow zone).

8. Groundwater analytical results from a sample collected below the Mississinewa Shale at the Louisville Limestone Interface (MW-18LLI) did not detect any VOCs suggesting the VOCs have not migrated below the shale unit.

9. The presence and distribution of VOCs in the Bedrock Zone have been affected by each of the following:

   - Termination of the Delphi high capacity bedrock groundwater pumping operations after the Plant was shut down. The former Delphi production wells likely created hydraulic gradients toward the point of groundwater extraction and therefore helped limit lateral migration of VOCs;
   - Presence of similar VOC use at current or former industrial properties located within the City of Kokomo (e.g., Continental Steel), indicating the VOCs detected adjacent to the Site could be from sources other than Delphi;
   - The spatial relationships and connectivity between the bedrock fractures, joints, bedding planes, and solution channels within the aquifer create complex, tortuous groundwater flow directions that are very difficult to map and verify;
   - Continued variable pumping patterns associated high capacity groundwater pumping from the DCX production wells, which creates a southerly hydraulic gradient at the Site in the Group 2 wells. The hydraulic gradients can change up to 135 degrees when DCX is not operating the well (i.e., during weekends, holidays, annual shutdowns, etc.);
   - Continued variable pumping patterns and flow rates associated with high capacity pumping operations from the IAWC production wells, which creates a northeasterly hydraulic gradient at the Site in the Group 1 wells during periods of IAWC operation;
   - Divergent and variable hydraulic gradients and groundwater flow directions from suspected faults within the bedrock.

9.9 GROUNDWATER EXPOSURE PATHWAYS SUMMARY AND CONCLUSIONS

1. The potential exposure pathways associated with the VOC-impacted groundwater identified in the Perched Zone have been addressed by engineering and/or institutional controls. A summary of the mechanisms to prevent ingestion, inhalation, or dermal exposures is provided below:

   Perched Zone On-Site Drinking Water Exposure Pathway: Concentrations of 8 VOCs detected on-Site in Perched Zone groundwater exceed U.S.EPA MCLs. However, groundwater in this zone is relatively shallow (approx. 8 to 12 feet bgs), has a limited saturated thickness (approx. 2 to 4 feet), marginal hydraulic conductivity, and is laterally discontinuous. Therefore the Perched Zone groundwater is not considered a potable water source and MCLs are not appropriate criteria. Additionally, a 2003 deed restriction placed on the property prevents the installation or use of drinking water wells on the Site in future developments. A municipal source currently supplies drinking water to the Site.

   Perched Zone Off-Site Drinking Water Exposure Pathway: Concentrations of 9 VOCs detected off-Site in Perched Zone groundwater exceed U.S.EPA MCLs (but as identified above, MCLs do not apply). Potential exposure to these off-Site impacts is limited as CRA's water users report did not identify any known off-Site drinking water wells constructed within the Perched Zone. Delphi has also initiated discussions with the City of Kokomo to expand the area currently covered by an Ordinance that prohibits drinking water wells within known off-Site areas VOC impacts. This would eliminate future off-Site drinking water exposure pathways.

   Perched Zone Groundwater Contact Pathway: Concentrations of 5 VOCs detected on-Site or off-Site in Perched Zone groundwater exceed Site-specific dermal contact criteria. The 2003 deed restriction on the property prevents on-Site excavation below 8-feet below grade and therefore eliminates potential on-Site dermal exposures to VOC-impacted groundwater. To address the off-Site areas where VOC impacts exceed dermal contract criteria, Delphi has enlisted in a mandatory notification program through the Indiana Underground Plant Protection Service so they can advise construction workers conducting subsurface activities within the impacted groundwater area to take appropriate measures of protection

   Perched Zone Groundwater Volatilization Exposure Pathway: Concentrations of 4 VOCs detected on-Site in Perched Zone groundwater exceed site specific volatilization to indoor air pathways. The on-Site exceedances are located in the northern portion of

the main manufacturing parcel in areas currently covered by grass fields. These on-Site groundwater volatilization exposure pathways have been addressed through a deed restriction prohibiting basements in any future on-Site construction, while the off-Site areas have been addressed by institutional controls (i.e., Delphi has enlisted in Indiana's UPPS mandatory notification program).

2. The potential exposure pathways associated with the VOC-impacted groundwater detected in the Bedrock Interface Zone are identical to the exposure pathways for the Perched Zone. Therefore the engineering and institutional controls implemented for the Perched Zone are also protective of Bedrock Interface Zone impacts.

3. The potential exposure pathways associated with the VOC-impacted groundwater identified in the Bedrock Zone will be addressed by institutional controls and active remediation in the Perched Zone (see CRA's March 2007 Corrective Measures Proposal). The proposed remedial alternative will prevent ingestion, inhalation, or dermal exposures is provided below:

4. Based on the results of CRA's Bedrock Groundwater Users Assessment, the closest point of bedrock drinking water, direct contact and/or groundwater volatilization exposure surrounding the Site include the potable and non-potable wells identified below:

	Well Address	Well Owner	Well Type	Well Use
1.	1001East Boulevard	DCX	Industrial	Cooling Water
2.	900 East Boulevard	Kokomo Gas & Fuel	Commercial	Lawn Irrigation
3.	725 East Boulevard	B&D Construction	Commercial	Potable
4.	1351 East State Street	Jarrett Trucking	Commercial	Potable
5.	1400 East Hoffer Street	James Hoppes	Residential	Potable
6.	IAWC Production Wells (i.e., Wells B,C,7,18,19,&20)	IAWC	Commercial	Potable

Although the source of the VOCs in bedrock groundwater in these well can not be confirmed, several of them contain VOC concentrations above U.S.EPA MCLs. Based on the groundwater flow model results, which conservatively assumed the VOC impacts were related to the Site, a proposed groundwater remediation for the Perched Zone impacts (> 5 ppm) would reduce VOC concentrations at the point of drinking water exposure by up to 65 percent and would therefore be protective of MCLs at the point of drinking water exposure for the IAWC.

The potential groundwater dermal and/or inhalation pathways associated with the VOCs detected in bedrock groundwater were compared to site-specific groundwater standards that were developed using generally accepted maintenance worker exposure assumptions. The potential exposure assumptions and the resulting site-specific groundwater criteria are summarized in Table 1.1. As shown in the table, Vinyl Chloride has the most stringent criteria of 93 ppb. The greatest vinyl chloride concentrations detected in off-Site bedrock were less than 10 ppb. Delphi will also be conducting periodic groundwater monitoring to evaluate VOC trends in the Bedrock Zone to ensure protection of potential receptors.

5. Utilizing the current and/or proposed Corrective Measures no additional bedrock investigation or characterization is warranted.

10.0 REFERENCES

Conestoga-Rovers & Associates, Memorandum No. 112, October 2000. "Groundwater Monitoring Plan" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, March 2001. "Current Conditions Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, April 2002. "2001 Annual Groundwater Monitoring Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, July 2002. "Interim Stabilization Measures Completion Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, February 2003. "2002 Annual Groundwater Monitoring Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, Memorandum No. 269, March 2004. "Groundwater Monitoring Plan Revision No. 1" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, April 2004a. "2003 Annual Groundwater Monitoring Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, Memorandum 263, December 2004. "Updated Bedrock Water Well Users Summary" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, March 2005. "2004 Annual Groundwater Monitoring Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, Memorandum 290, June 2005. "Revised Groundwater Monitoring Plan – Revision No. 2" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, April 2006. "2004 Annual Groundwater Monitoring Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Conestoga-Rovers & Associates, March 2007. "Groundwater Model Summary Report" Delphi-Delco Electronics Systems Plant 1, Kokomo, Indiana.

Environ, April 2001. "Risk-Based Criteria For Evaluating Potential Human Exposures" Delphi-Delco Electronics Plant 1, Kokomo, Indiana.

Indiana Division of Natural Resources - Division of Water, 2006. Online resource, "Significant Water Withdrawal Facility Data, Northeast Quadrant" from http://www.in.gov/dnr/water/water_availability/SWWF/northeast.html

MFG Environmental Inc., August 1996. "Phase II Investigation Report" PPG Industries, Inc. Kokomo, Indiana.

Smith, S.B., M.A. Hardy and E.J. Crompton, 1985. "Water Resources of Wildcat Creek and Deer Creek Basins, Howard and Parts of Adjacent Counties, Indiana, 1979-82, U.S. Geological Survey Water-Resources Investigation Report 85-4076" prepared in cooperation with the Indiana Department of Natural Resources, Indianapolis, Indiana.

USGS, 2002. Techniques of Water-Resources Investigations of the United States Geological Survey, Book 4, Hydrologic Analysis and Interpretation, Chapter A3, Statistical Methods in Water Resources, by D.R. Helsel and R. M. Hirsch, U.S. Geological Survey, September 2002.

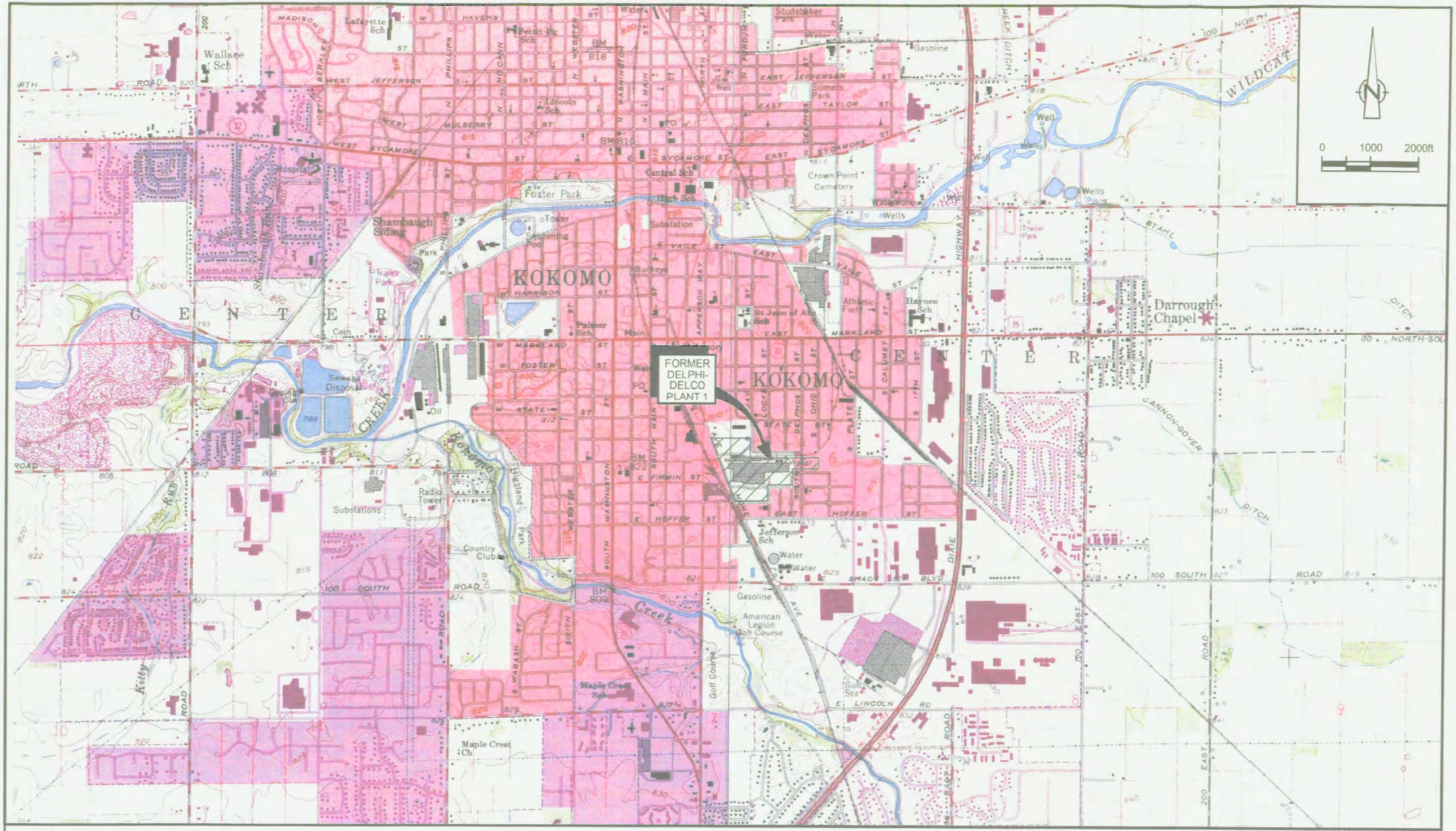
BEDROCK CHARACTERIZATION REPORT

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY
DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

FIGURES AND TABLES

Prepared For:
Delphi Corporation

MARCH 2007
REF. NO. 013477 (29)



SOURCE: USGS QUADRANGLE MAPS;
KOKOMO EAST & KOKOMO WEST, INDIANA

figure 1.1
REGIONAL SITE LOCATION
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE030 MAR 27/2007

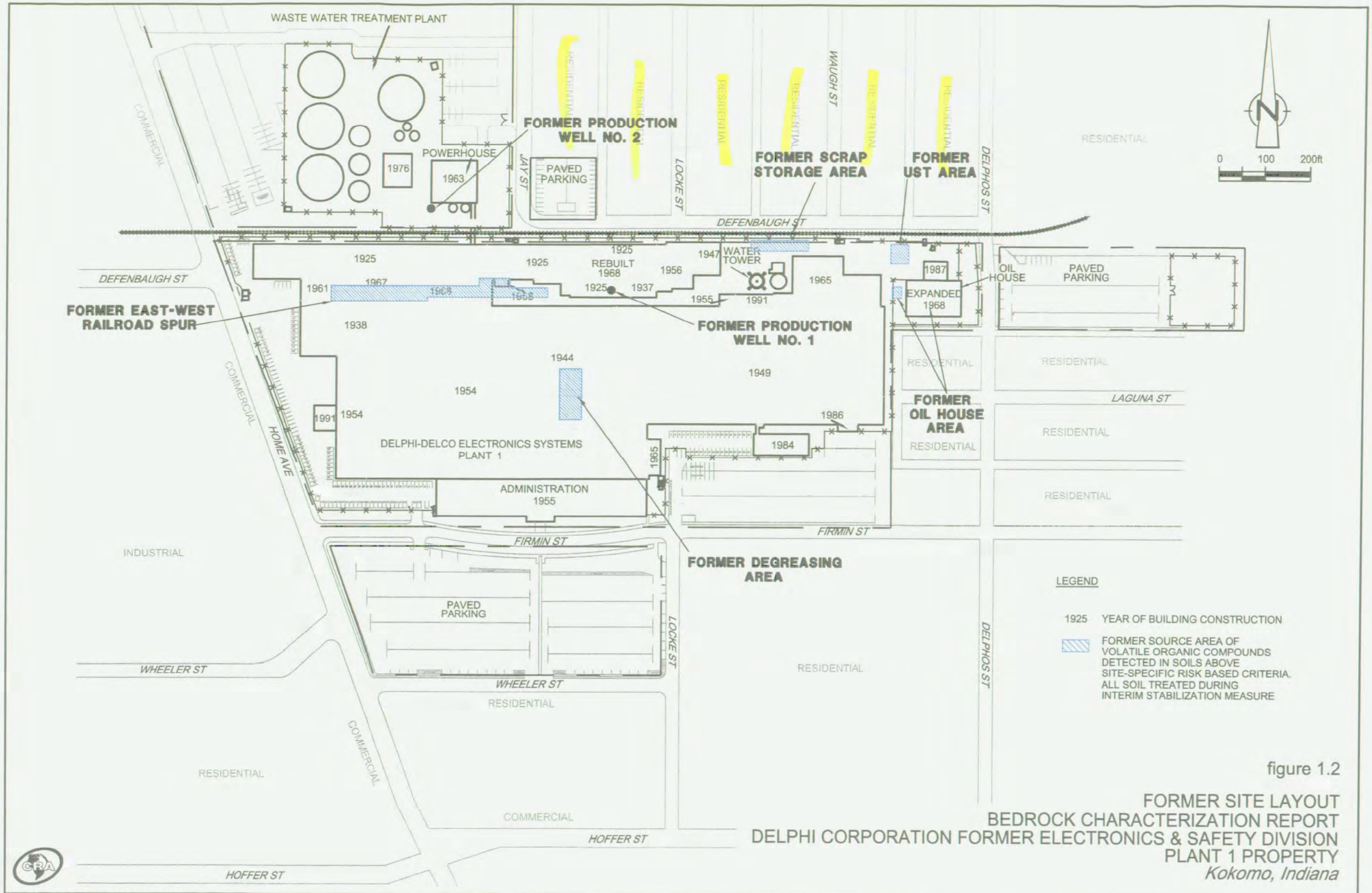


figure 1.2

FORMER SITE LAYOUT
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE028 MAR 27/2007

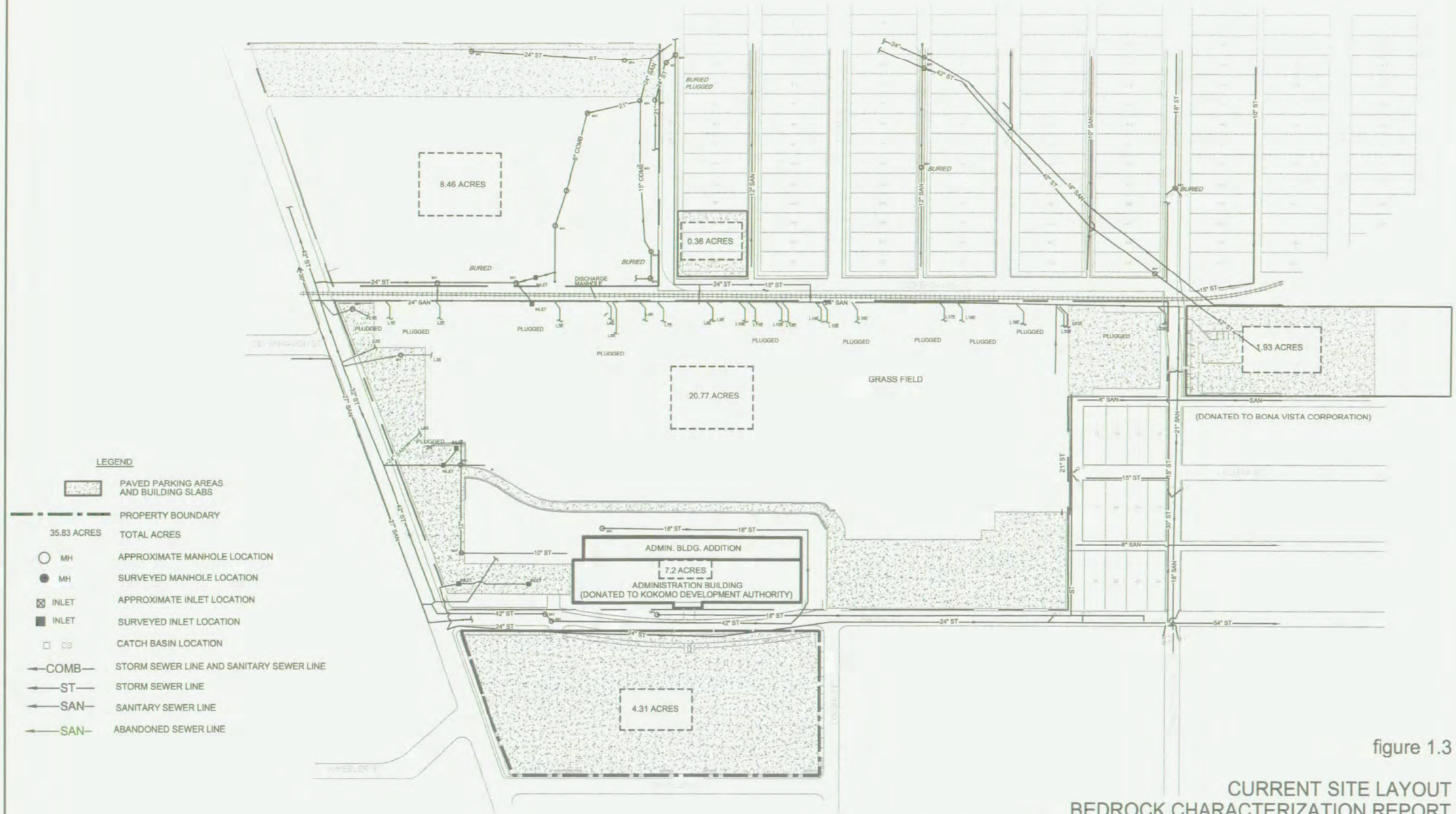


figure 1.3

CURRENT SITE LAYOUT
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE014 MAR 27/2007

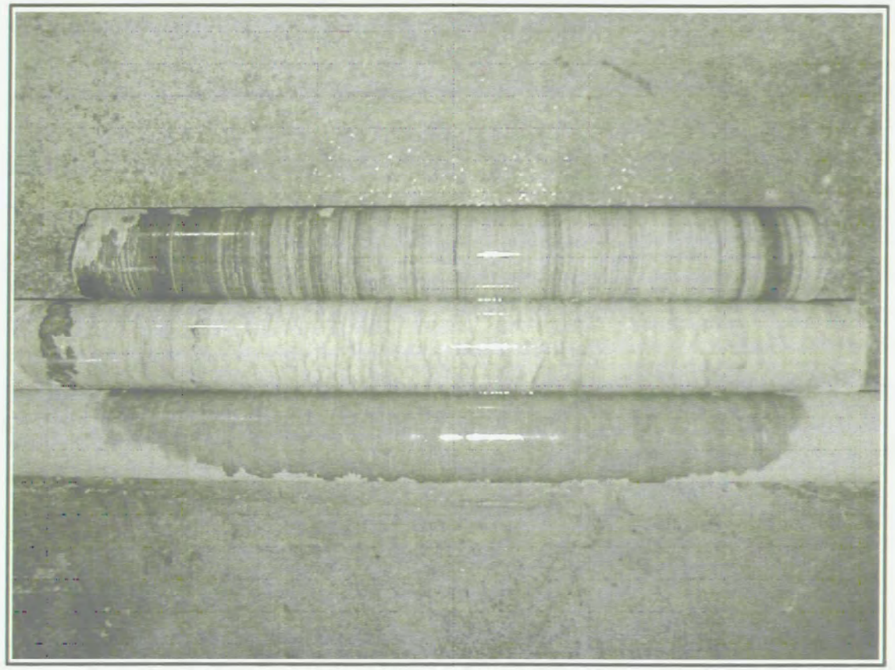


PHOTO 1: TOP TO BOTTOM: BEDROCK CORES OF KOKOMO LIMESTONE, LISTON CREEK LIMESTONE AND MISSISSINEWA SHALE

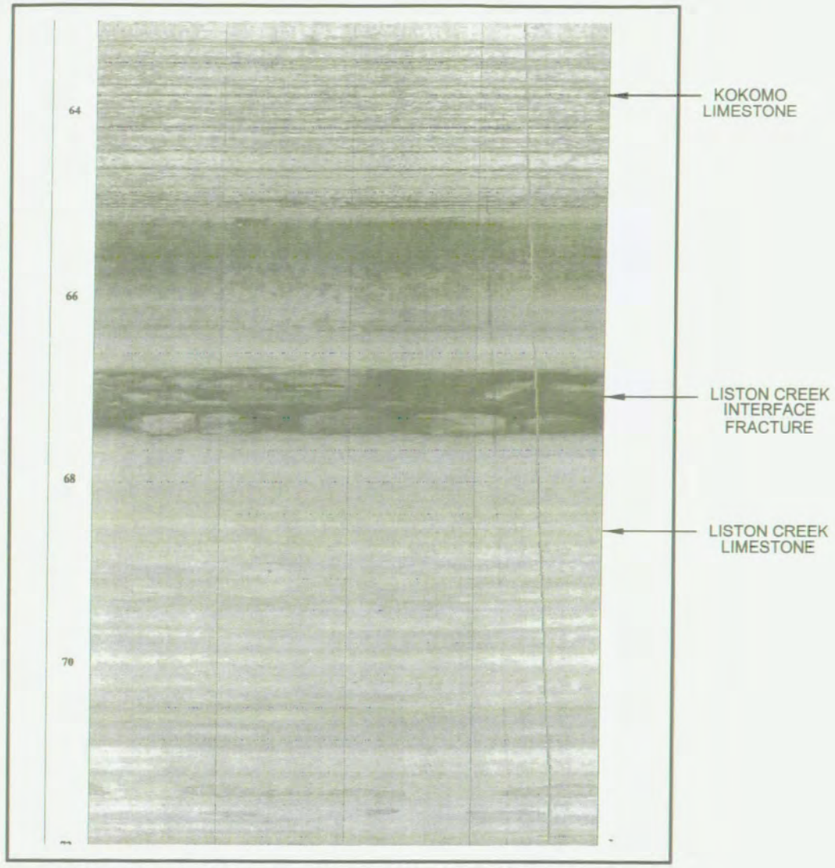
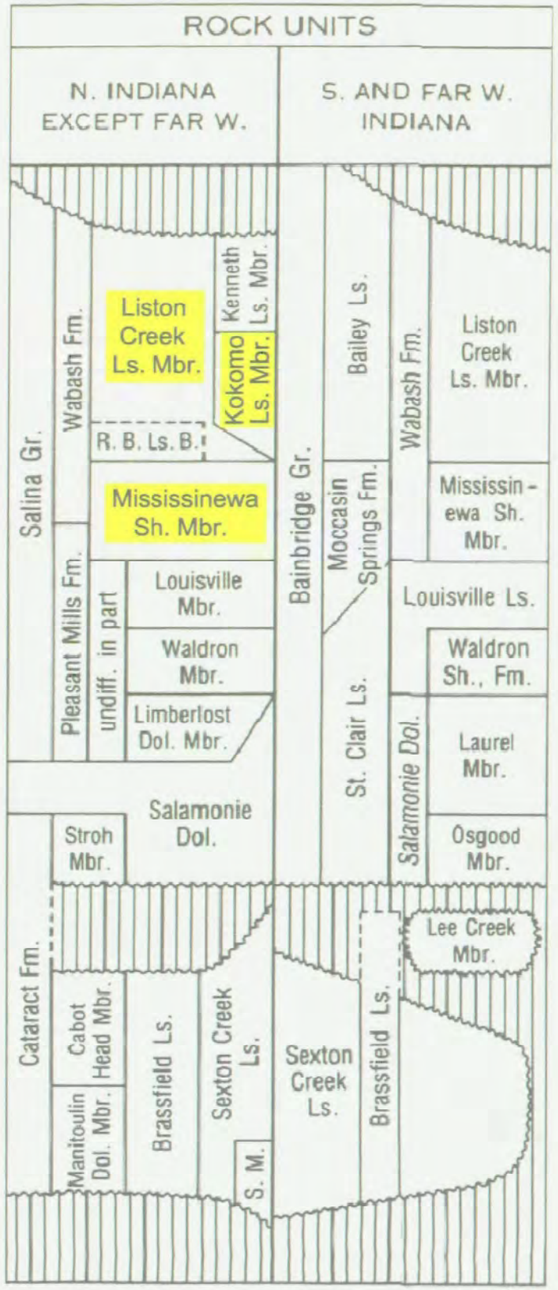


PHOTO 2: OPTICAL TELEVIEWER IMAGE OF MW-18 FROM 63 TO 72 ft. bgs. INCLUDES KOKOMO LIMESTONE, LISTON CREEK INTERFACE BEDDING PLANE FRACTURE, AND LISTON CREEK LIMESTONE.

figure 2.1

PHOTOGRAPH OF BEDROCK CORES
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana



D. SILURIAN

LEGEND

Fm - Formation
Mbr - Member
Ls - Limestone
Dol - Dolomite

figure 3.1

INDIANA GEOLOGICAL SURVEY STRATIGRAPHIC COLUMN
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

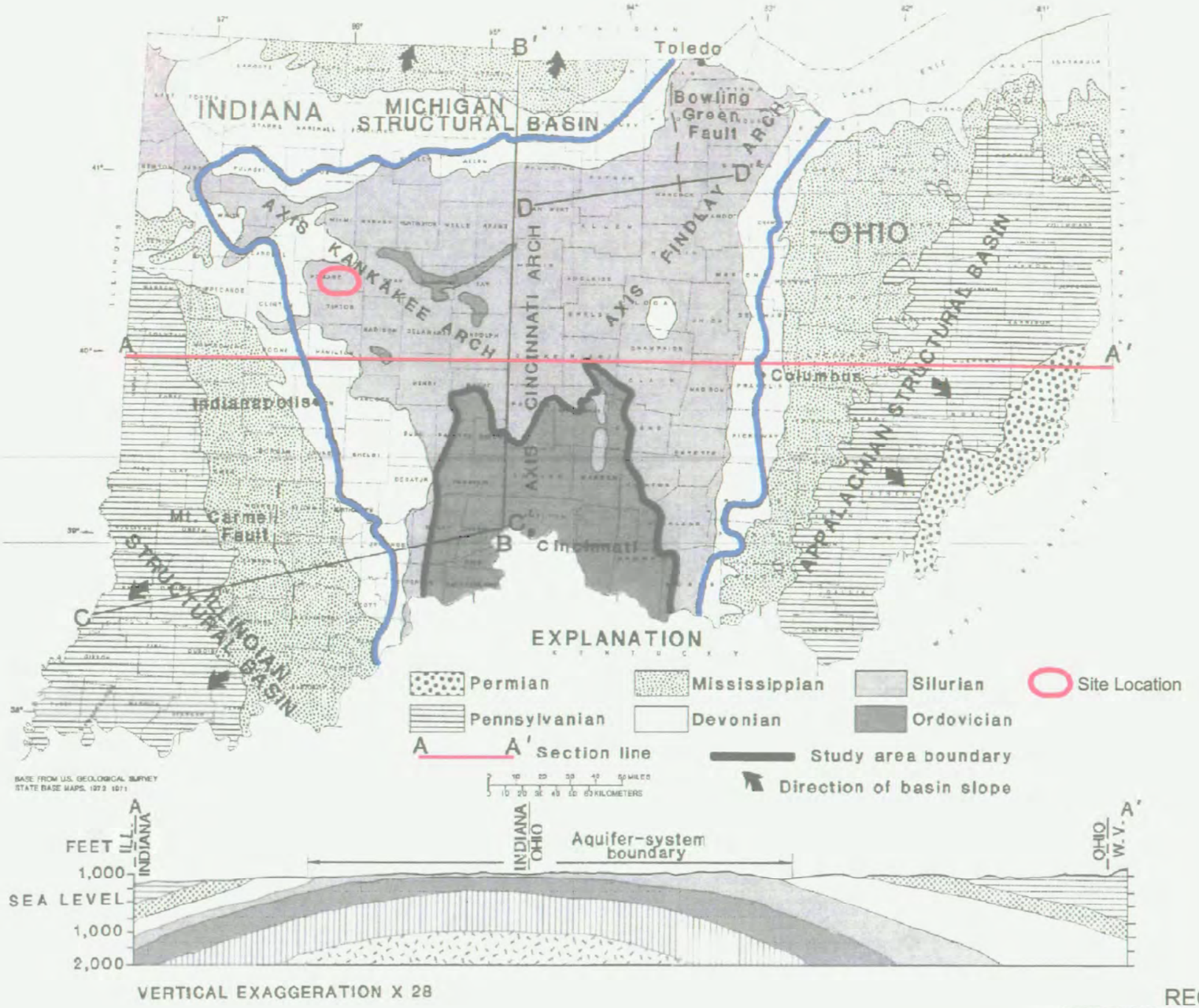


figure 3.2

REGIONAL GEOLOGIC SETTING
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

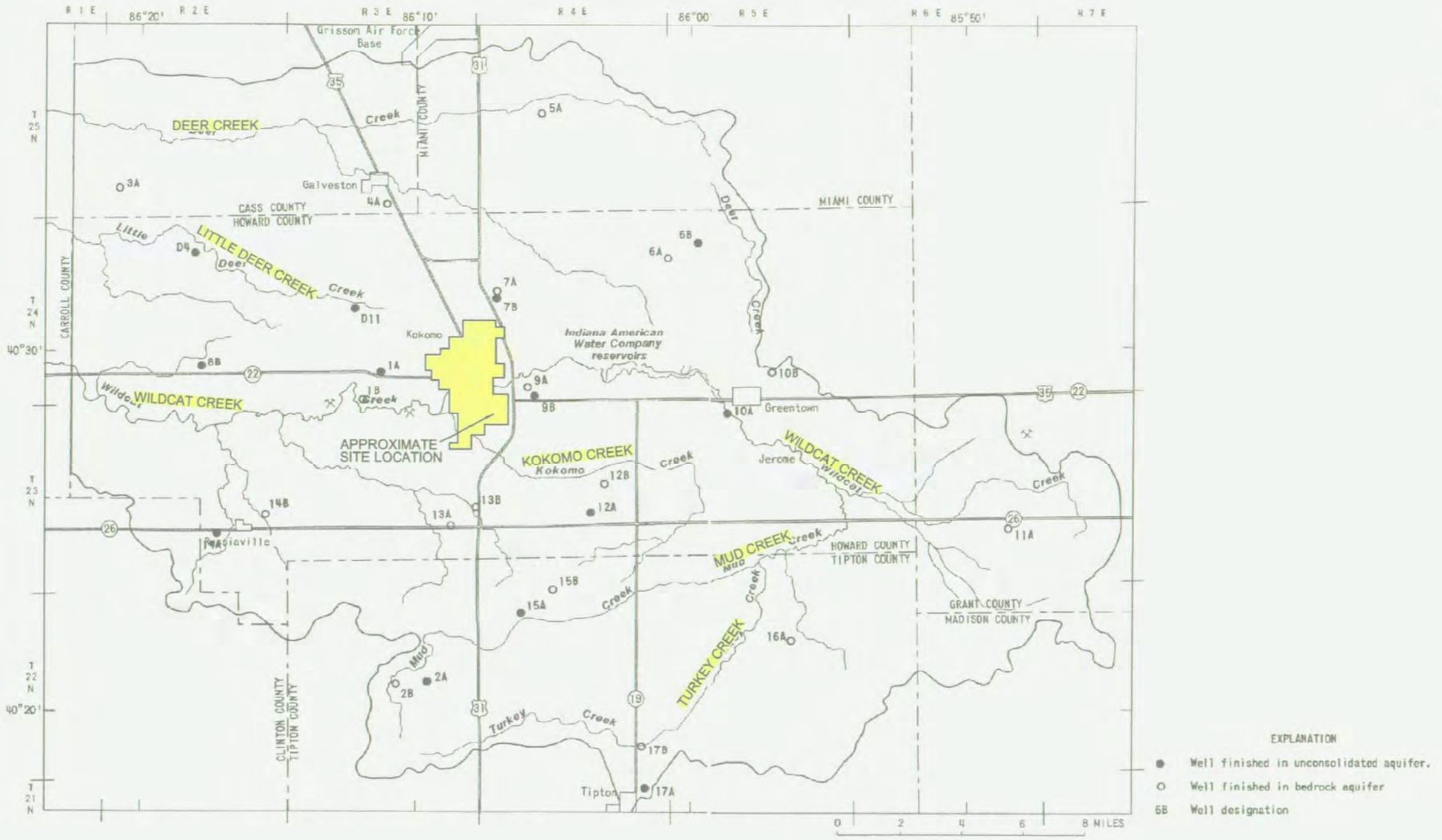
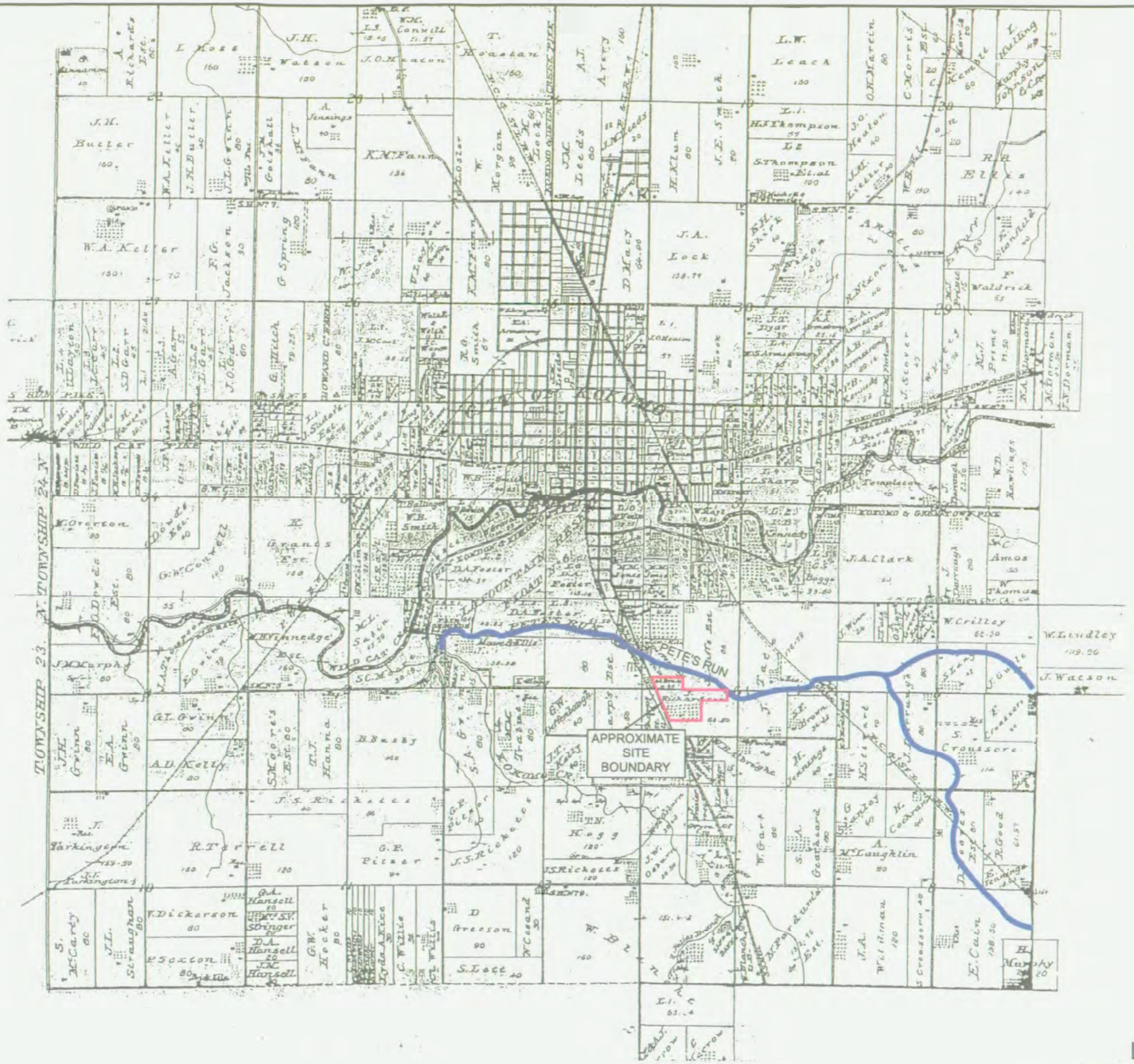


Figure 16.-- Ground-water-quality sampling sites.

figure 3.3

REGIONAL DRAINAGE BASIN & CREEKS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE015 MAR 27/2007



KOKOMO ≈ 1889

REFERENCE: PERTZ, W.J., 1889. MAP OF KOKOMO AND HER INDUSTRIE: IN FILE, KOKOMO PUBLIC LIBRARY, 1 PLATE.

figure 3.4
LOCATION OF FORMER PETE'S RUN
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE034 MAR 28/2007

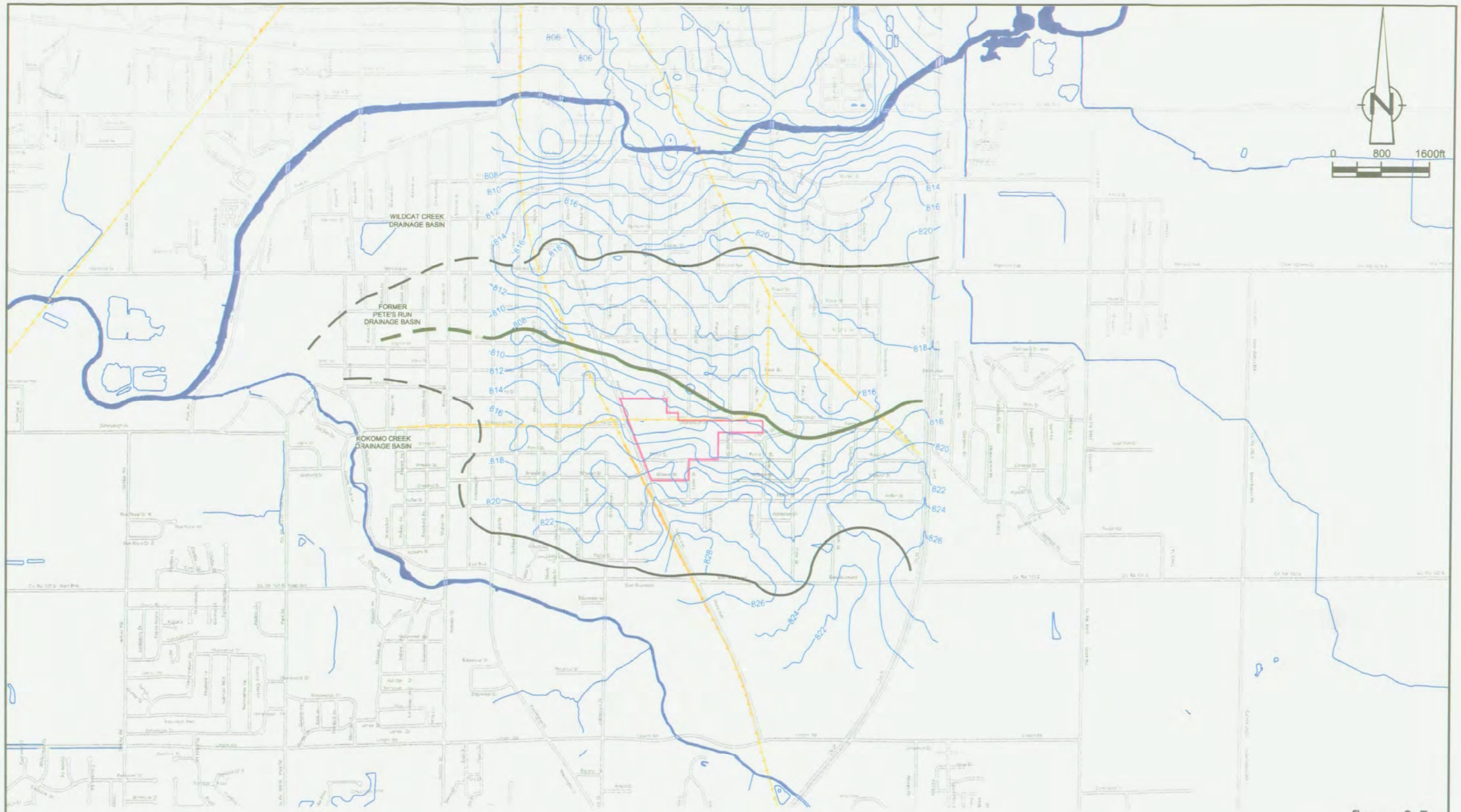
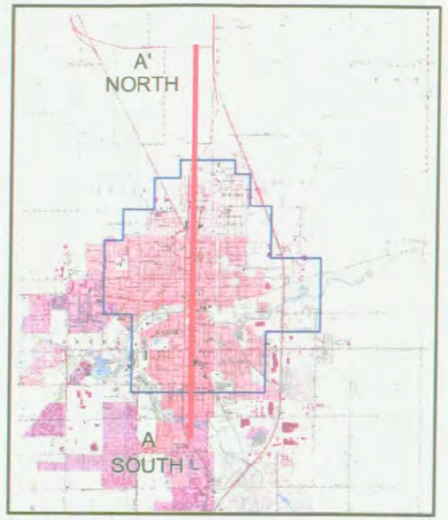


figure 3.5

CITY OF KOKOMO TOPOGRAPIC SURVEY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE050 MAR 28/2007

REGIONAL CROSS SECTION
LOCATION MAP



CROSS-SECTION SHOWN IN VERTICAL EXAGGERATION

APPROXIMATE LOCATION OF
DELPHI-DELCO PLANT 1

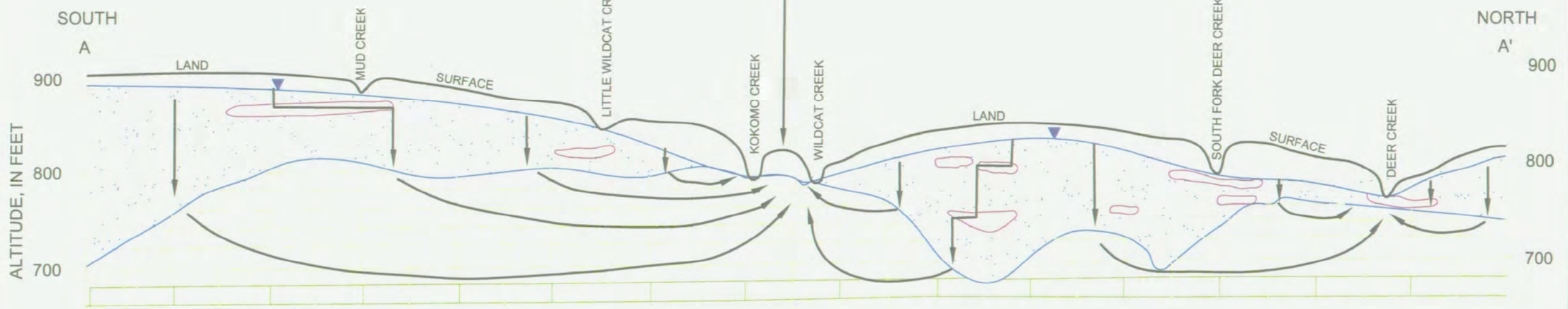
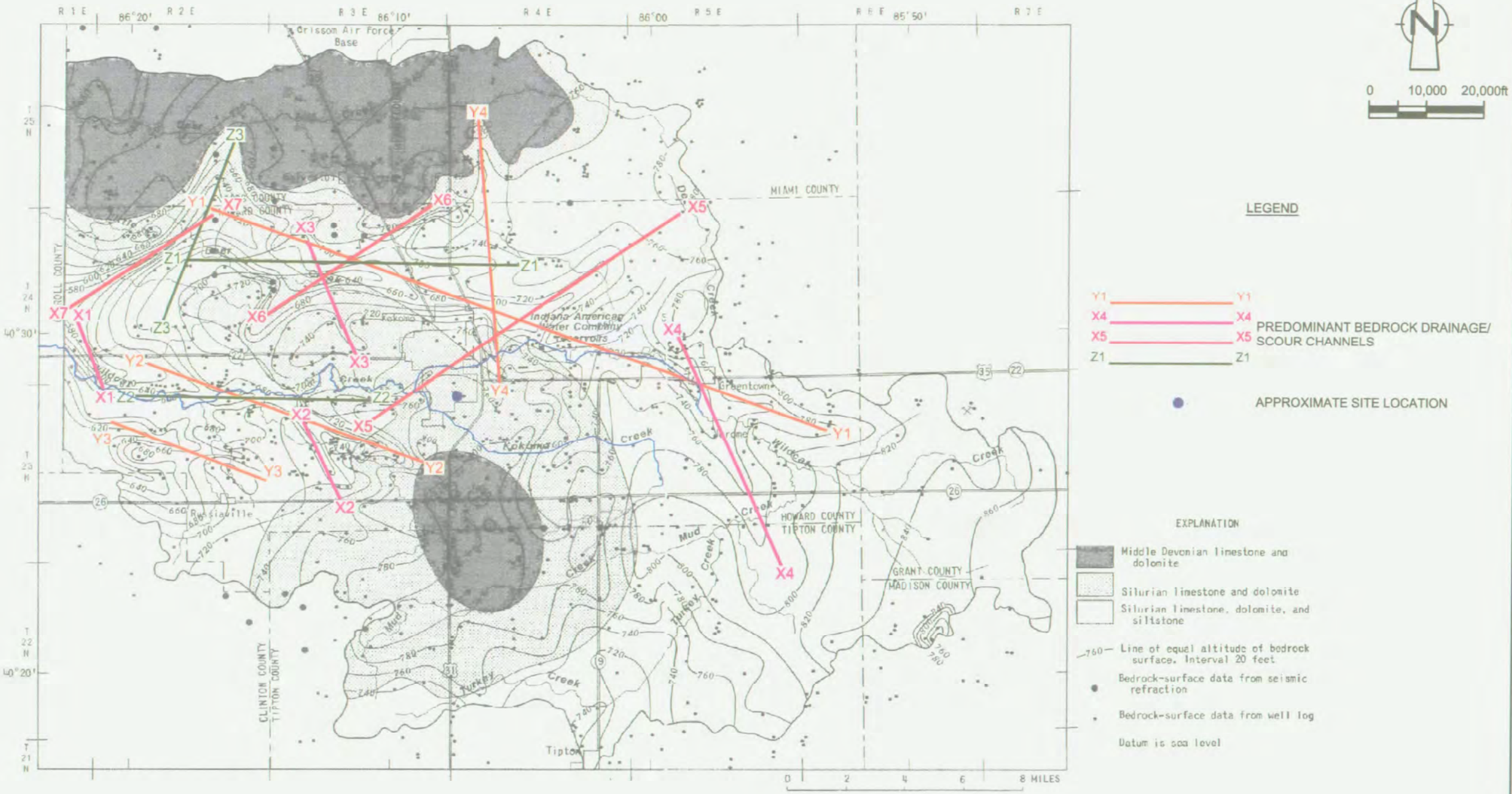


figure 3.6

USGS REGIONAL GEOLOGIC CROSS SECTION A - A'
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

SOURCE:
GEOLOGICAL SURVEY WATER RESOURCES
INVESTIGATION REPORT 85 - 4076

13477-31(029)GN-DE016 MAR 27/2007



LEGEND

Y1 Y1
X4 X4
X5 X5
Z1 Z1
PREDOMINANT BEDROCK DRAINAGE/ SCOUR CHANNELS

APPROXIMATE SITE LOCATION

EXPLANATION

- Middle Devonian limestone and dolomite
- Silurian limestone and dolomite
- Silurian limestone, dolomite, and siltstone
- 760 — Line of equal altitude of bedrock surface. Interval 20 feet
- Bedrock-surface data from seismic refraction
- Bedrock-surface data from well log

Datum is sea level

Figure 3.-- Geology and topography of bedrock.

Bedrock geology from W. J. Wayne, G. H. Johnson, and S. J. Keller (1966, Part A), and A. M. Burger, J. L. Forsyth, R. S. Nicoll, and W. J. Wayne (1971, Part A).

figure 3.7
USGS BEDROCK SURFACE ELEVATION CONTOUR MAP
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

figure 3.8

USGS BEDROCK GROUNDWATER CONTOUR MAP
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

SOURCE:
GEOLOGICAL SURVEY WATER RESOURCES
INVESTIGATION REPORT 85-4076

CRA

13477-31(029)GN-DE017 MAR 27/2007

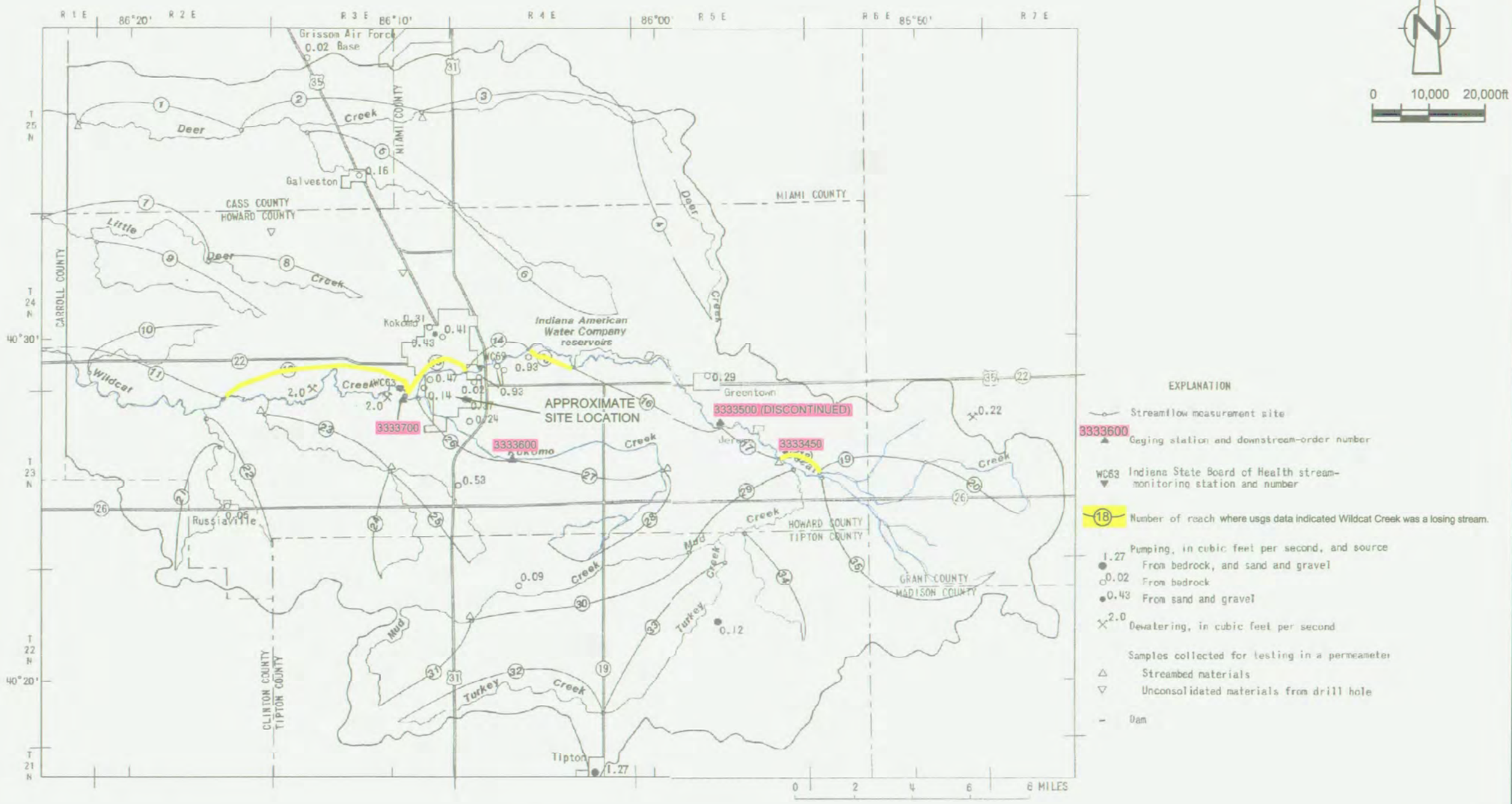


Figure 4.-- Surface-water-data and ground-water pumping sites, 1981.

figure 3.9

USGS STREAMBED REACHES AND STREAMFLOW MEASUREMENTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

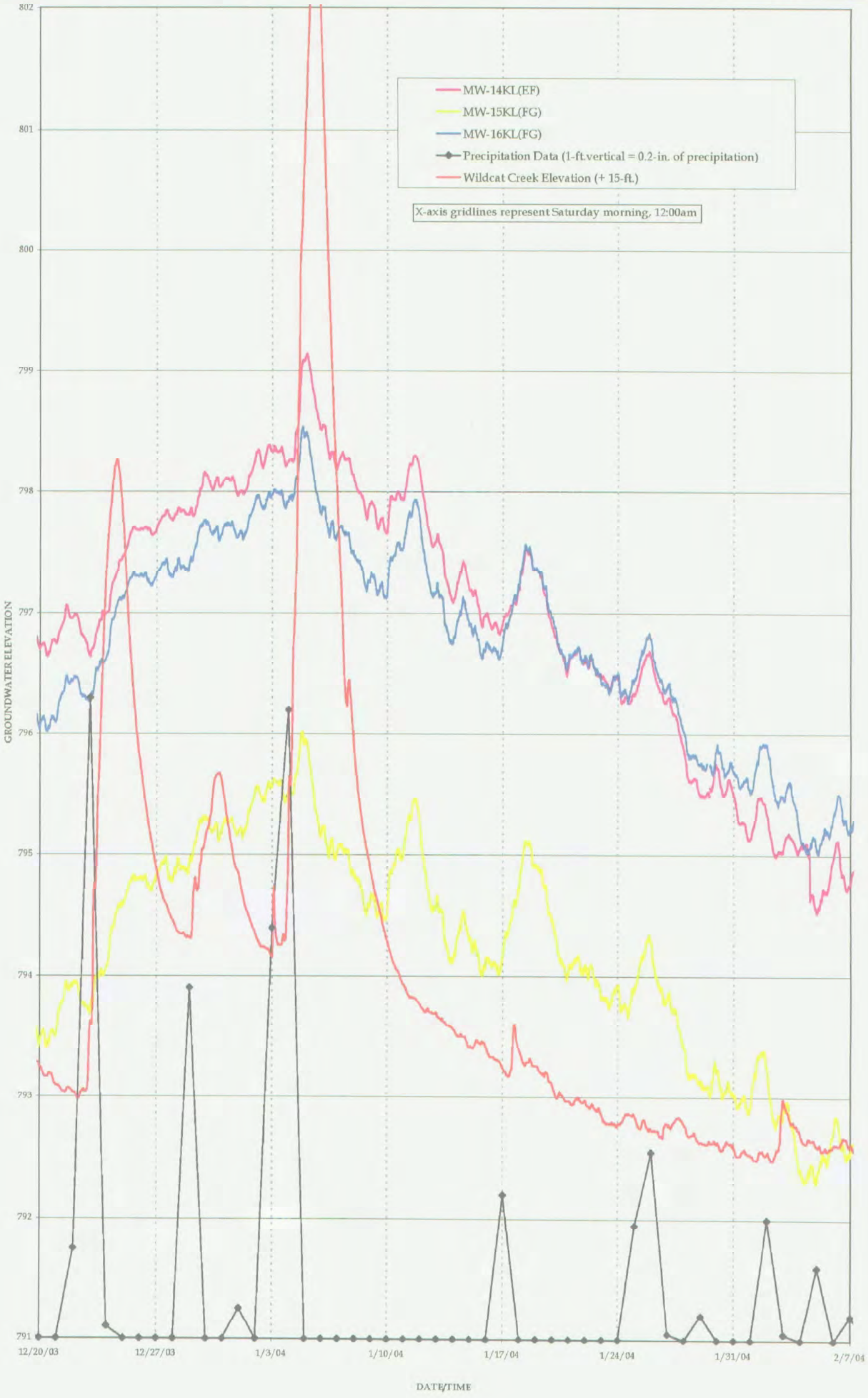


figure 3.10

BEDROCK RECHARGE ASSESSMENT AND CORRELATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

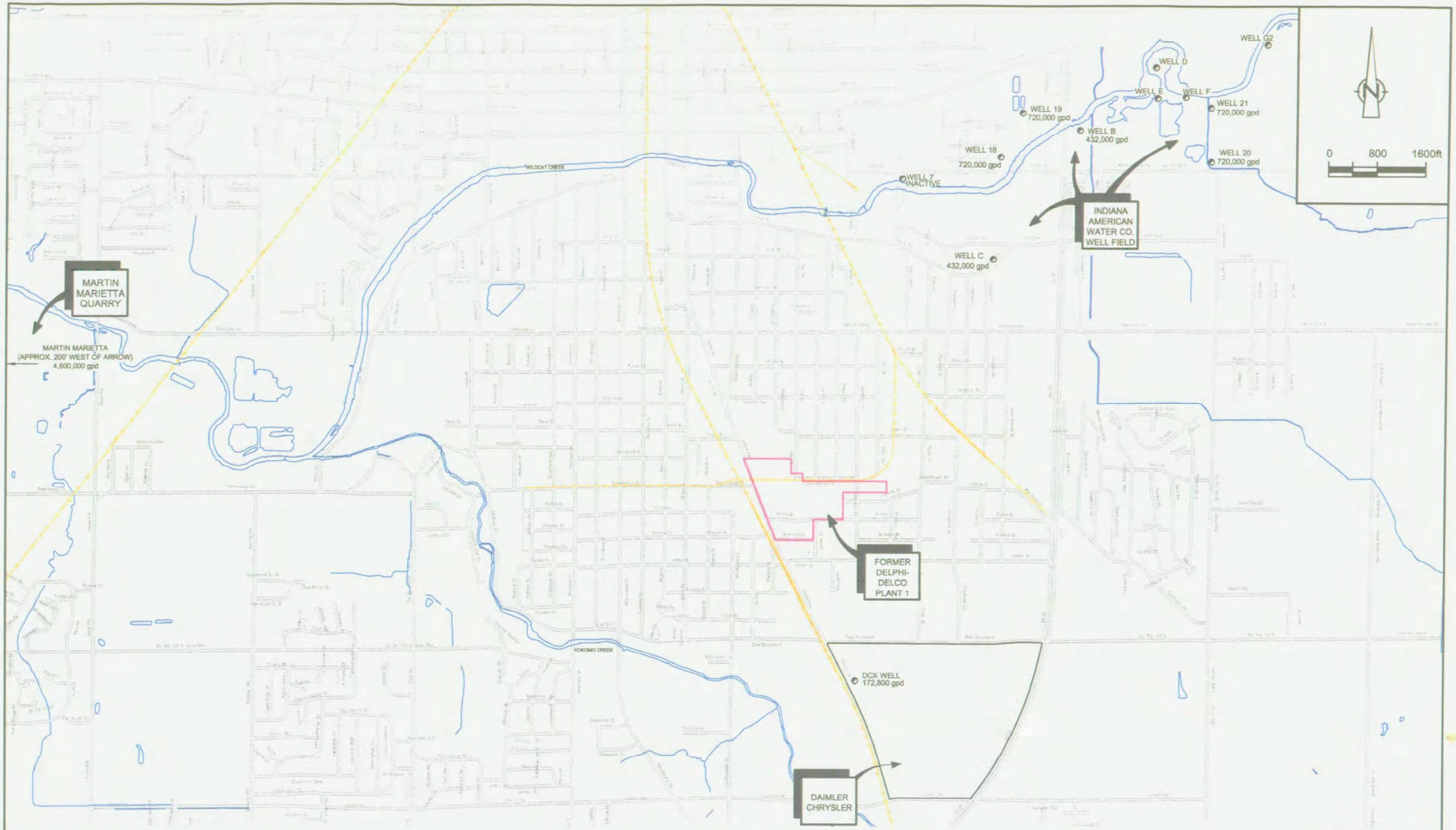
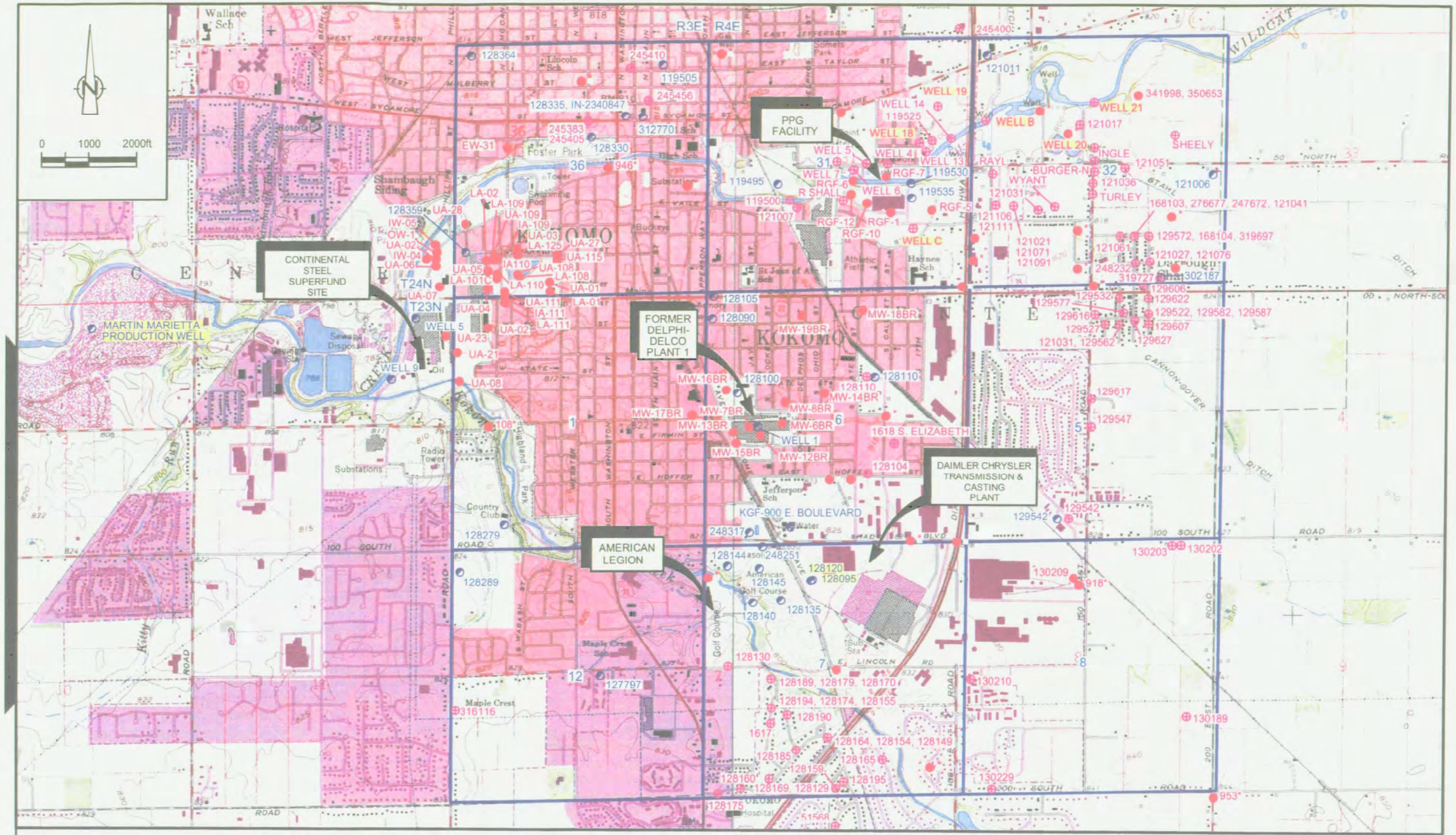


figure 3.11
LOCATION OF SIGNIFICANT BEDROCK GROUNDWATER WITHDRAWALS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE035 MAR 28/2007



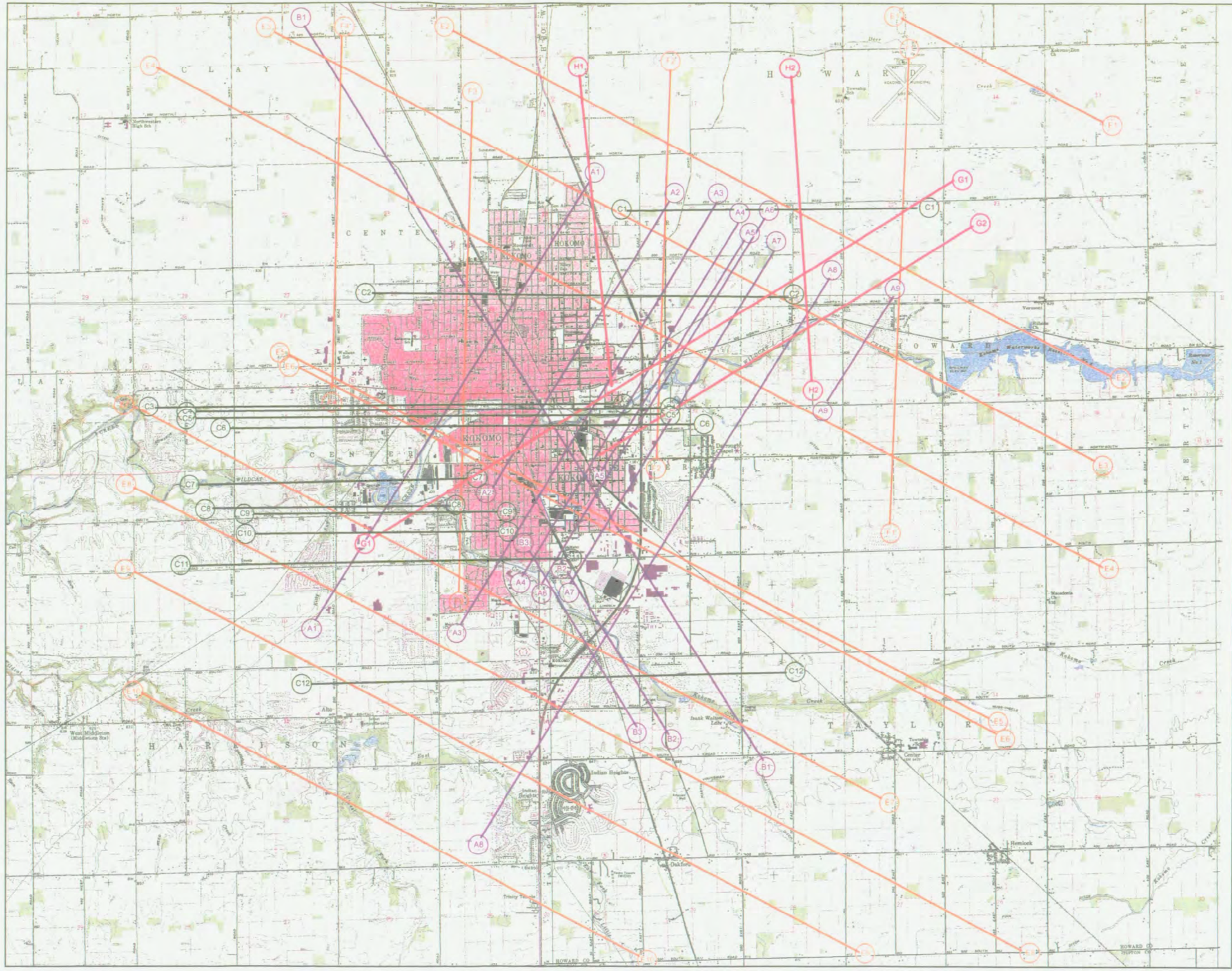
LEGEND

- SECTION BOUNDARY
- 31 SECTION NUMBERS
- EW-31 MONITORING/TEST/OIL & GAS WELL
- * OIL/GAS WELL WITH UNKNOWN DEPTH
- 918 * OIL/GAS WELL DRILLED TO 918 ft. bgs. LOCATION DETERMINED BY 1/2004 IGS PETROLEUM DATABASE
- WELL B SIGNIFICANT WATER WITHDRAWL WELL
- WELL 21 COMMERCIAL/INDUSTRIAL/NON-DRINKING WATER WELL
- 128104 RESIDENTIAL/DRINKING WATER WELL
- 130199 IDNR/IDEM REFERENCE NUMBER

figure 3.12

LOCATION OF FORMER AND/OR EXISTING BEDROCK WELLS NEAR SITE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE031 MAR 27/2007



No	Revision	Date	Initial

0 1250 2500ft

LEGEND

- A/B SUSPECTED CONJUGATE HIGH ANGLE FRACTURES FROM LINEAMENT STUDY
- C/D SUSPECTED CONJUGATE HIGH ANGLE FRACTURES FROM LINEAMENT STUDY
- E/F SUSPECTED CONJUGATE HIGH ANGLE FRACTURES FROM LINEAMENT STUDY
- G/H SUSPECTED CONJUGATE HIGH ANGLE FRACTURES FROM LINEAMENT STUDY
- FORMER DELPHI PLANT 1 PROPERTY

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved:

DRAWING STATUS

Status	Date	Initial

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY, KOKOMO, INDIANA

BEDROCK CHARACTERIZATION REPORT

LOCATION OF REGIONAL BEDROCK FRACTURES

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
G.H.	N.K.	AUG, 2006	
Scale:	Project No:	Report No:	Drawing No:
1"=3000'	13477-31	029	4.1

13477-31(029)GN-DE011 MAR 27/2007

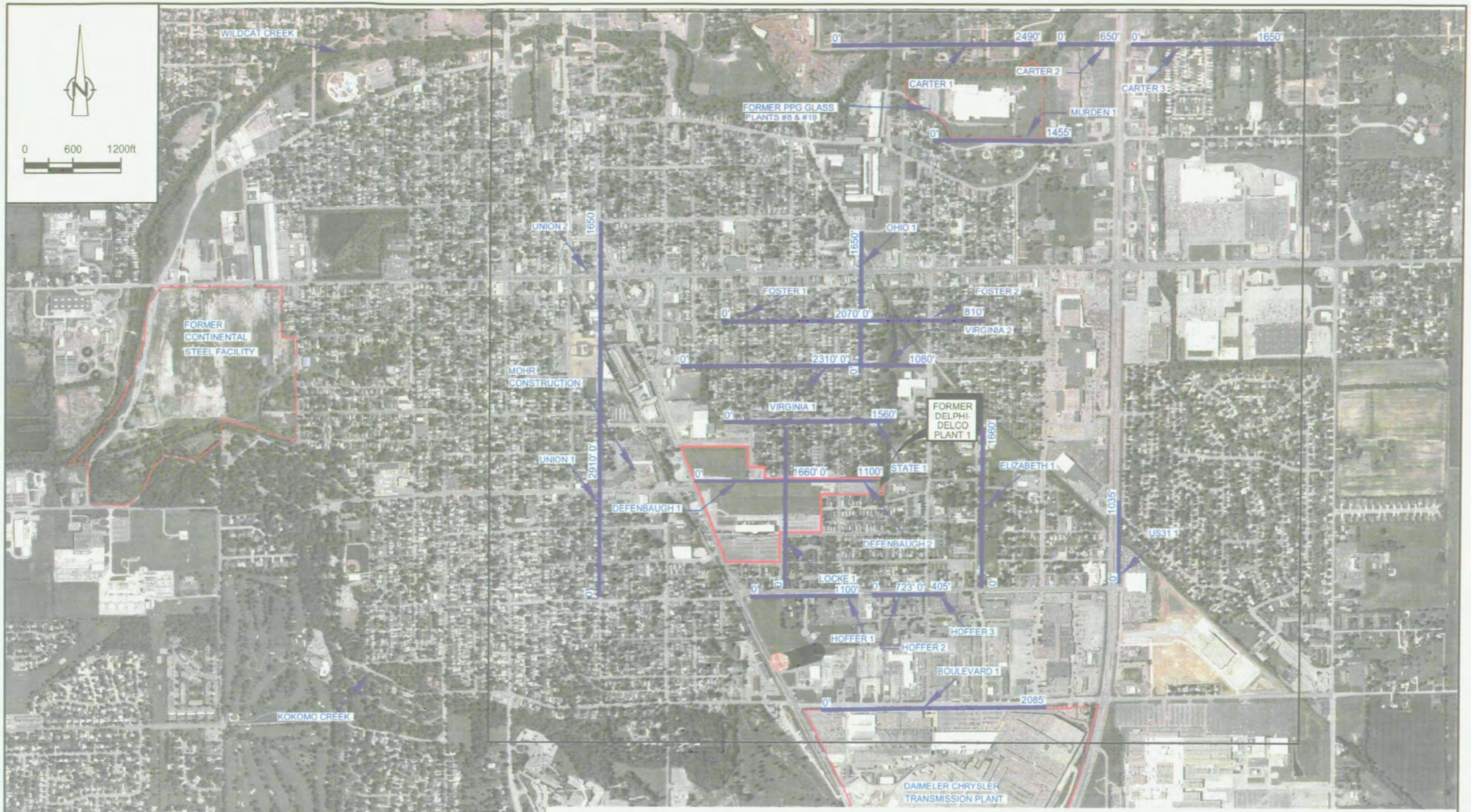


figure 4.2

LEGEND

BEDROCK INVESTIGATION AREA

LOCATION OF SURFACE GEOPHYSICAL ARRAYS USING ELECTRICAL RESISTIVITY TOMOGRAPHY (ERT)

INDUSTRIAL FACILITY

CARTER 1 STREET NAME AND ERT SURVEY NO.

LOCATION OF SURFACE GEOPHYSICAL SURVEYS (ERT ARRAYS)
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
BEDROCK CHARACTERIZATION REPORT
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE036 MAR 28/2007

PHOTO 1. SUPERSTING R8 CONTROL BOX AND POWER SUPPLY

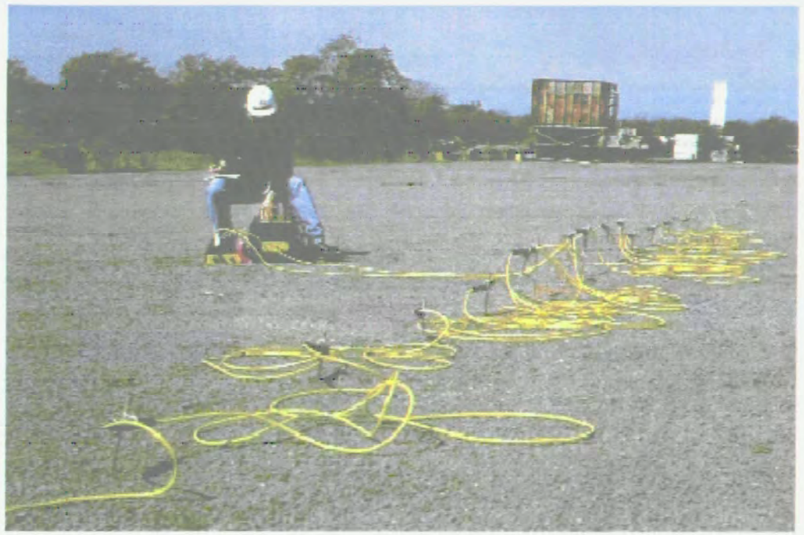


PHOTO 2. TYPICAL ERT ARRAY SETUP

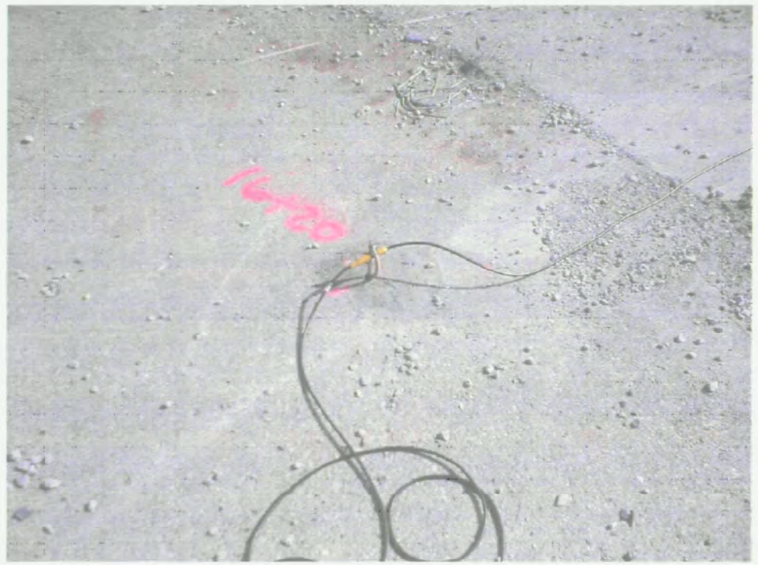
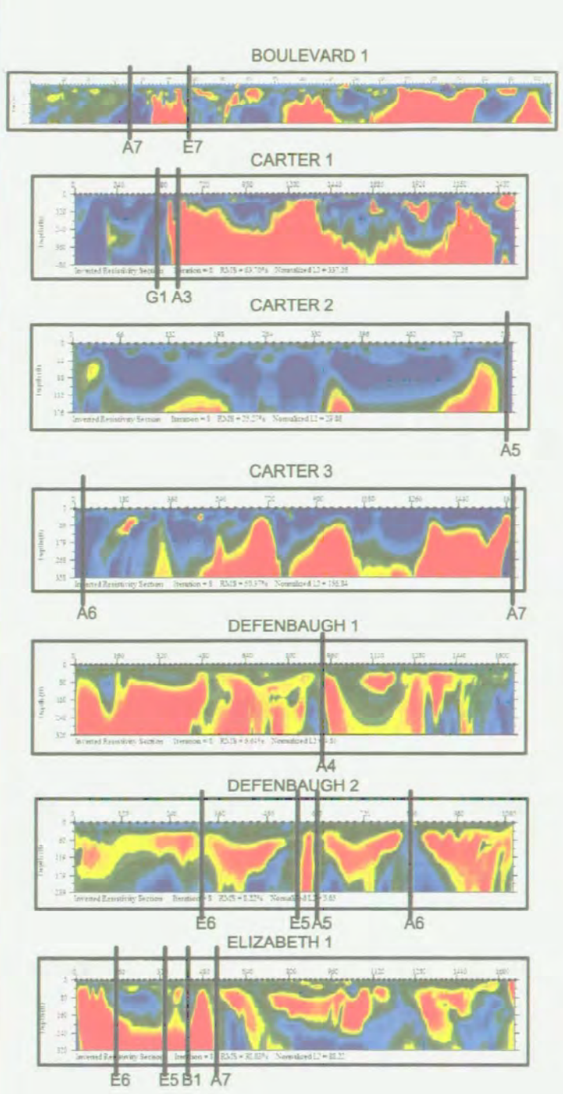


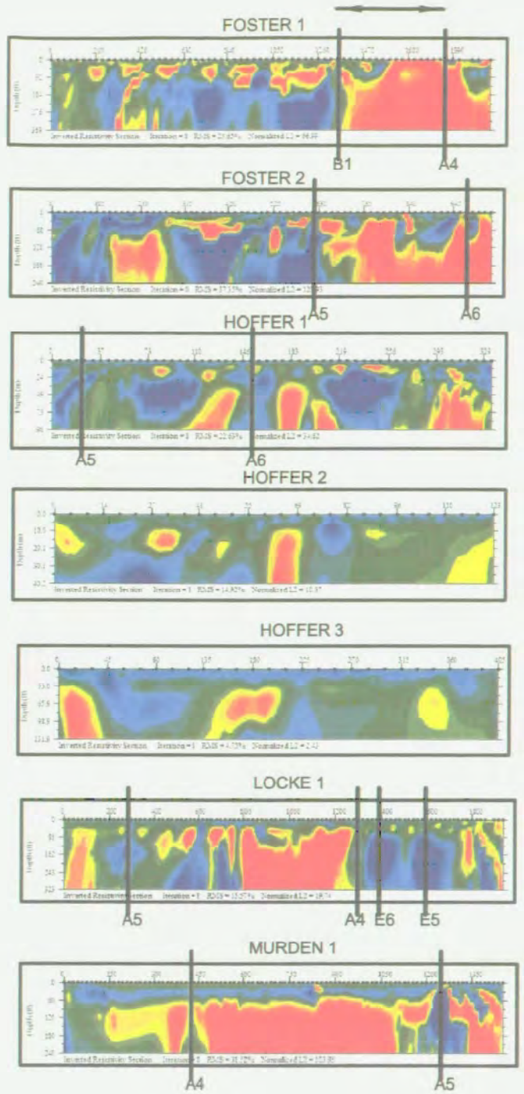
PHOTO 3. ELECTRODE CONNECTED TO STAINLESS STEEL ELECTRODE STAKE

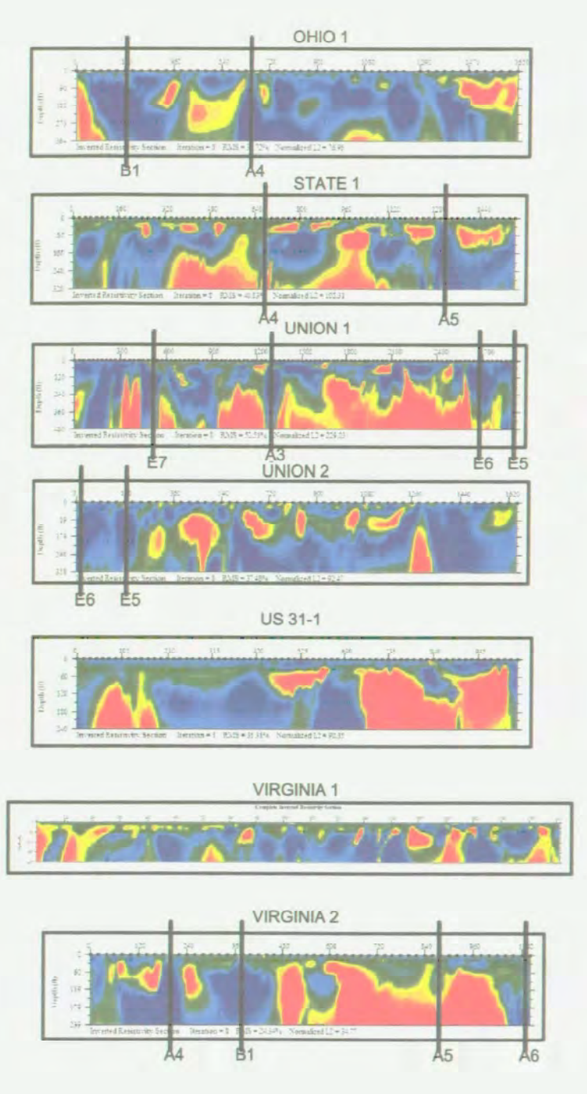
PHOTO 4. SUPERSTING R8 CONTROL PANEL AND POWER SUPPLY

figure 4.3

PHOTOGRPHAS OF ERT ARRAY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana







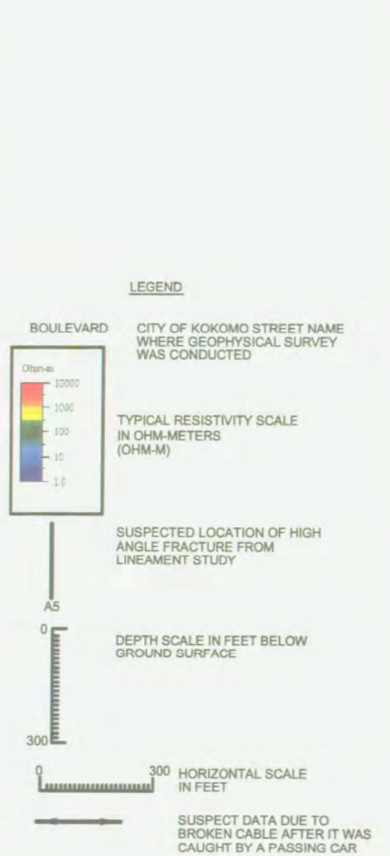


figure 4.4

ERT PSEUDOSECTION DATA SUMMARY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

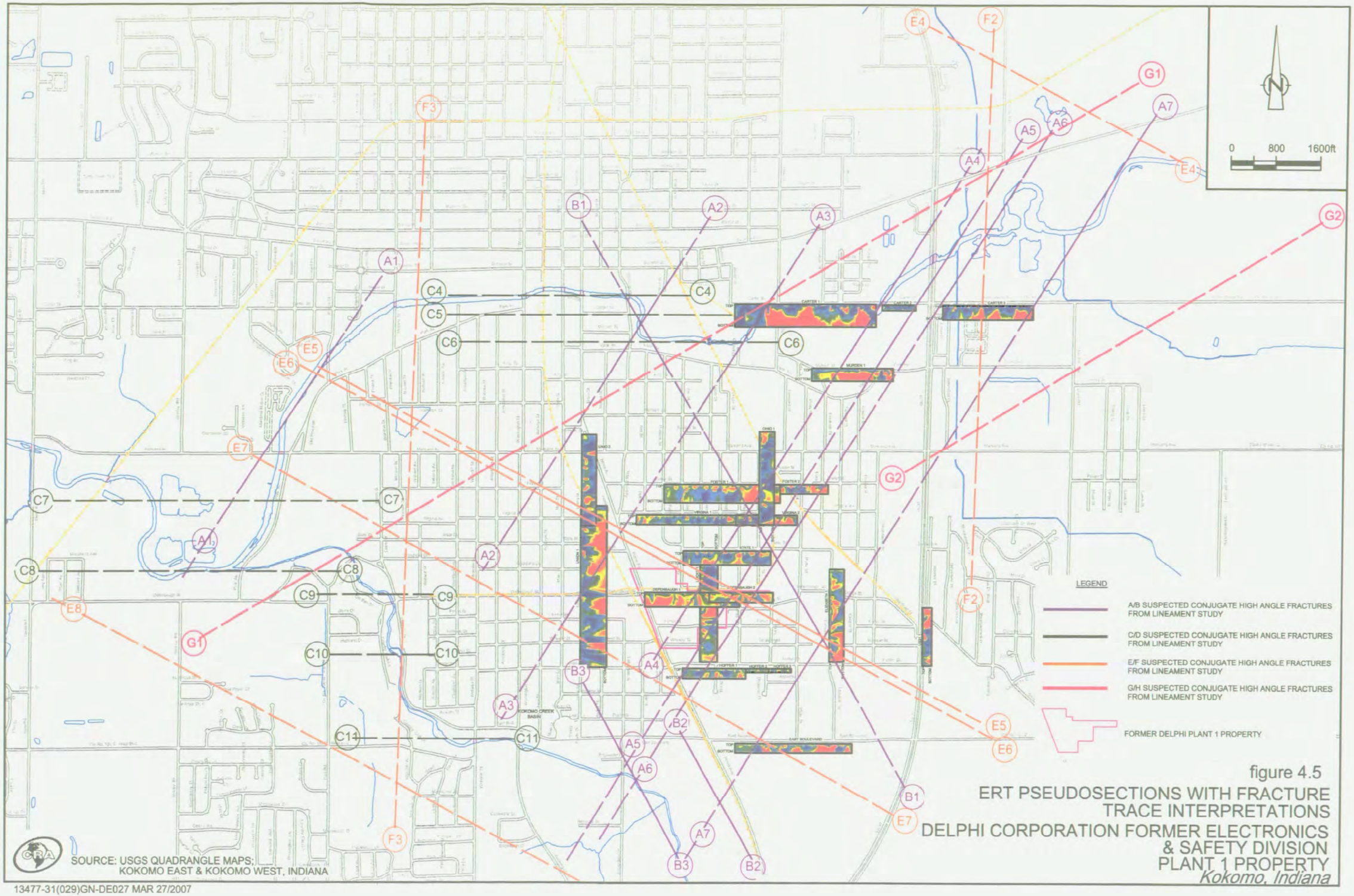
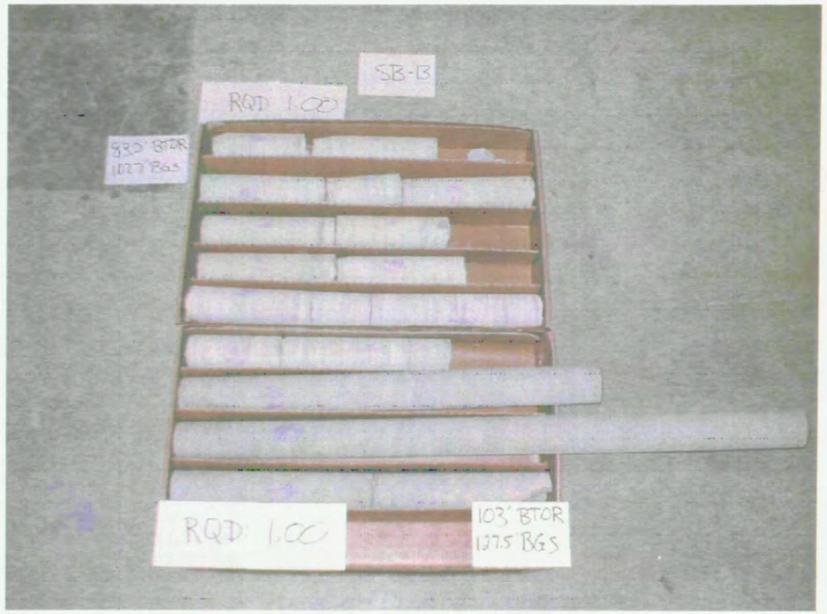


figure 4.5
ERT PSEUDOSECTIONS WITH FRACTURE TRACE INTERPRETATIONS
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE027 MAR 27/2007

1. PHOTOGRAPH OF BEDROCK CORES COLLECTED FROM THE KOKOMO LIMESTONE 24.5 TO 34.5 FEET BELOW GRADE AT BORING SB-13/MW-13 THAT SHOW VERY POOR ROCK QUALITY WITH RQDs OF 13% TO 27%.



2. PHOTOGRAPH OF BEDROCK CORES COLLECTED FROM THE MISSISSINEWA SHALE 107.5 TO 127.5 FEET BELOW GRADE AT BORING SB-13/MW-13 THAT SHOW EXCELLENT ROCK QUALITY WITH RQDs OF 100%.

LEGEND

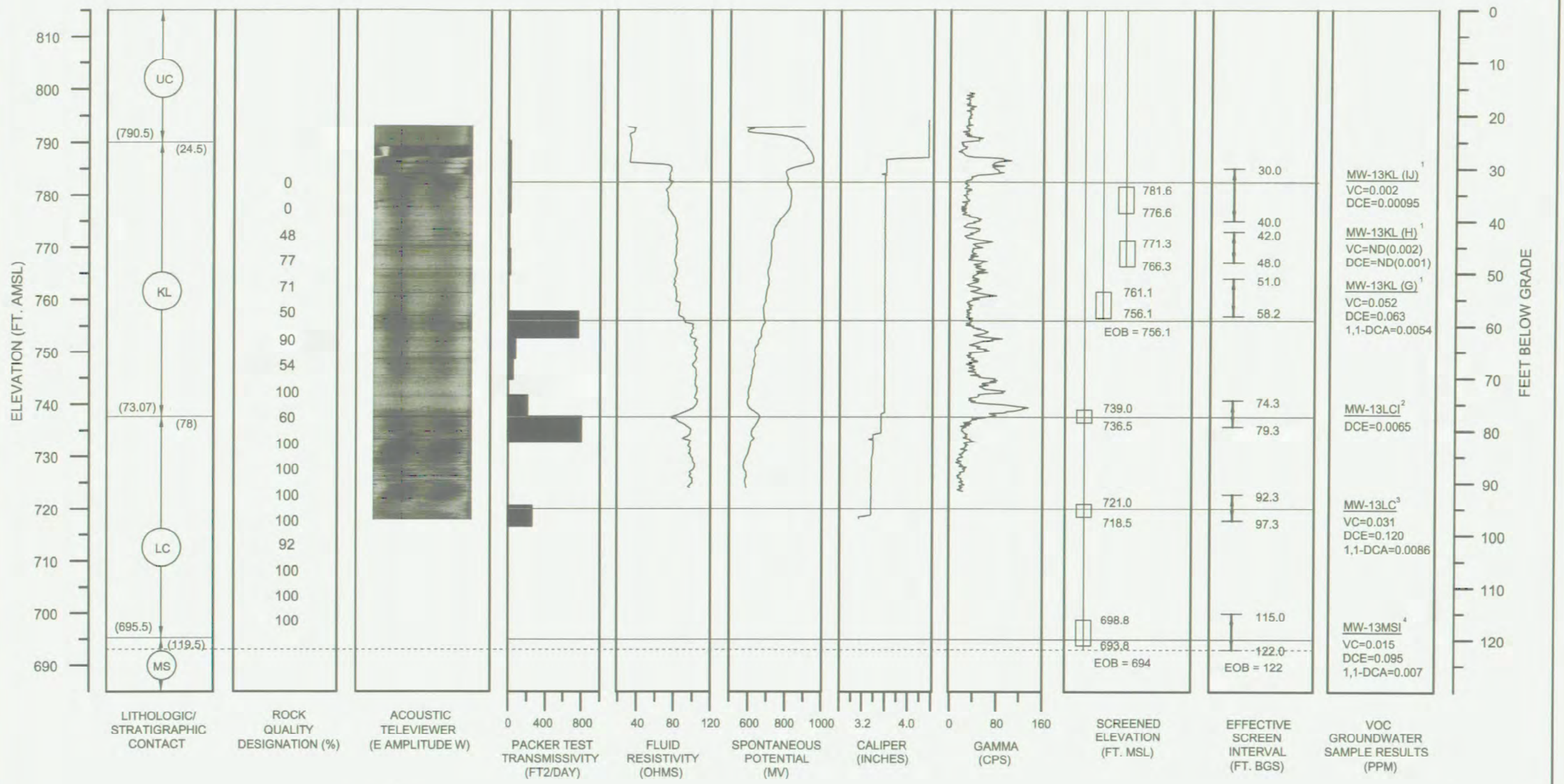
RQD - ROCK QUALITY DESIGNATION
BGS - BELOW GROUND SURFACE
BTOR - BELOW TOP OF ROCK
RQC - ROCK QUALITY CLASSIFICATION

RQD (%)	RQC
0-25%	VERY POOR
25-50%	POOR
50-75%	FAIR
75-90%	GOOD
90-100%	EXCELLENT

figure 4.6

PHOTOGRAPHS SHOWING BEDROCK ROCK QUALITY DESIGNATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

MW-13BR DATA SUMMARY



LEGEND

RQD = MODIFIED CORE RECOVERY (<4") / LENGTH OF CORE x 100

RQD: ROCK QUALITY DESIGNATION

0-25% VERY POOR
25-50% POOR
50-75% FAIR
75-90% GOOD
90-100% EXCELLENT

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT²/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

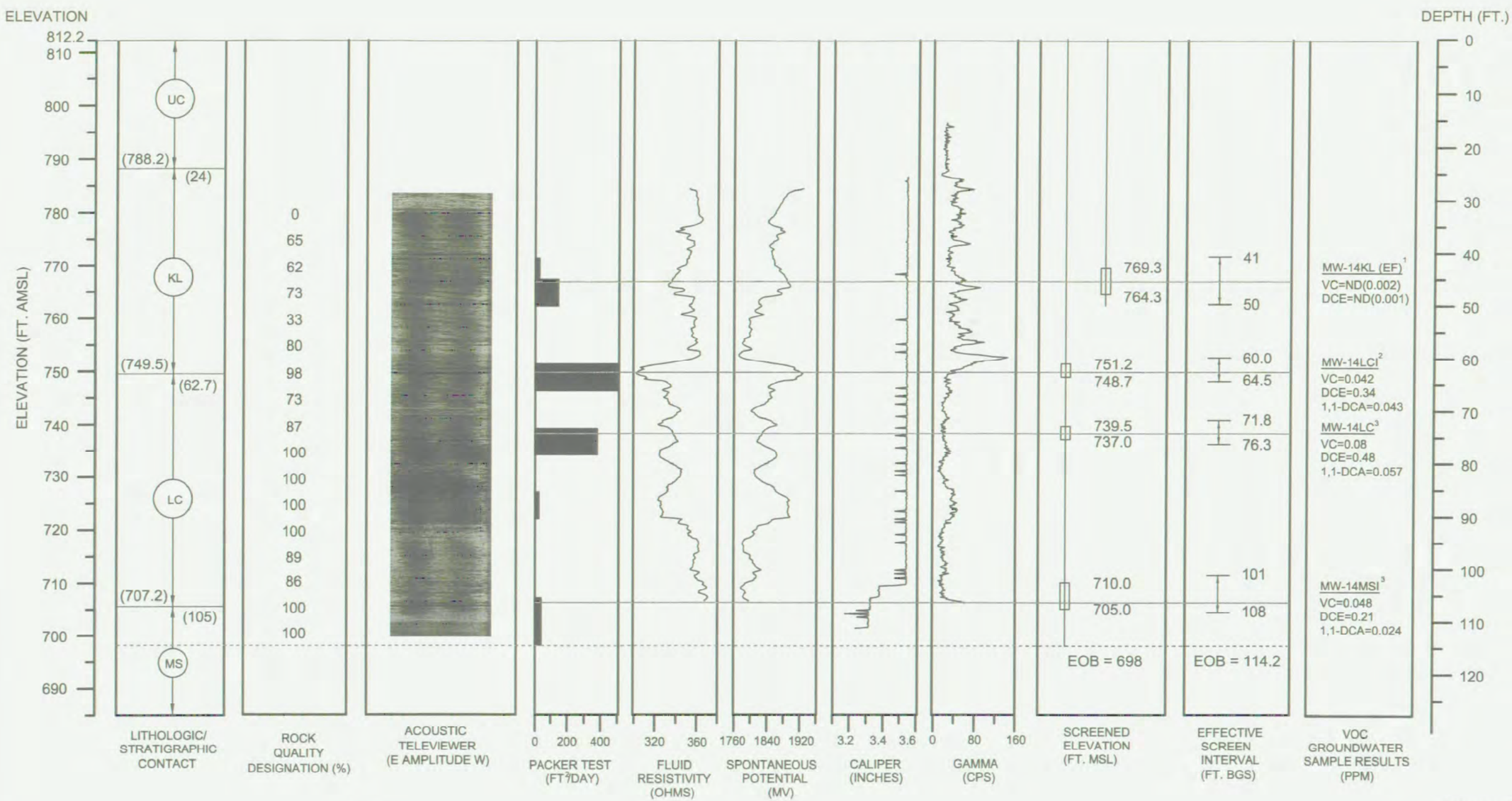
1-GROUNDWATER SAMPLE COLLECTED 9/2/03
2-GROUNDWATER SAMPLE COLLECTED 3/30/05
3-GROUNDWATER SAMPLE COLLECTED 11/4/03
4-GROUNDWATER SAMPLE COLLECTED 11/5/03
AMSL = ABOVE MEAN SEA LEVEL

figure 4.7

MW-13BR BOREHOLE GEOPHYSICS AND HYDRALIC PROFILE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE037 MAR 28/2007

MW-14BR DATA SUMMARY



LEGEND

RQD = MODIFIED CORE RECOVERY (<4") / LENGTH OF CORE x 100

RQD: ROCK QUALITY DESIGNATION

0-25% VERY POOR
25-50% POOR
50-75% FAIR
75-90% GOOD
90-100% EXCELLENT

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT²/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

1-GROUNDWATER SAMPLE COLLECTED 9/3/03
2-GROUNDWATER SAMPLE COLLECTED 12/8/05
3-GROUNDWATER SAMPLE COLLECTED 12/3/03
AMSL = ABOVE MEAN SEA LEVEL

figure 4.8

MW-14BR BOREHOLE GEOPHYSICS AND HYDRAULIC PROFILE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE038 MAR 28/2007

MW-15BR DATA SUMMARY

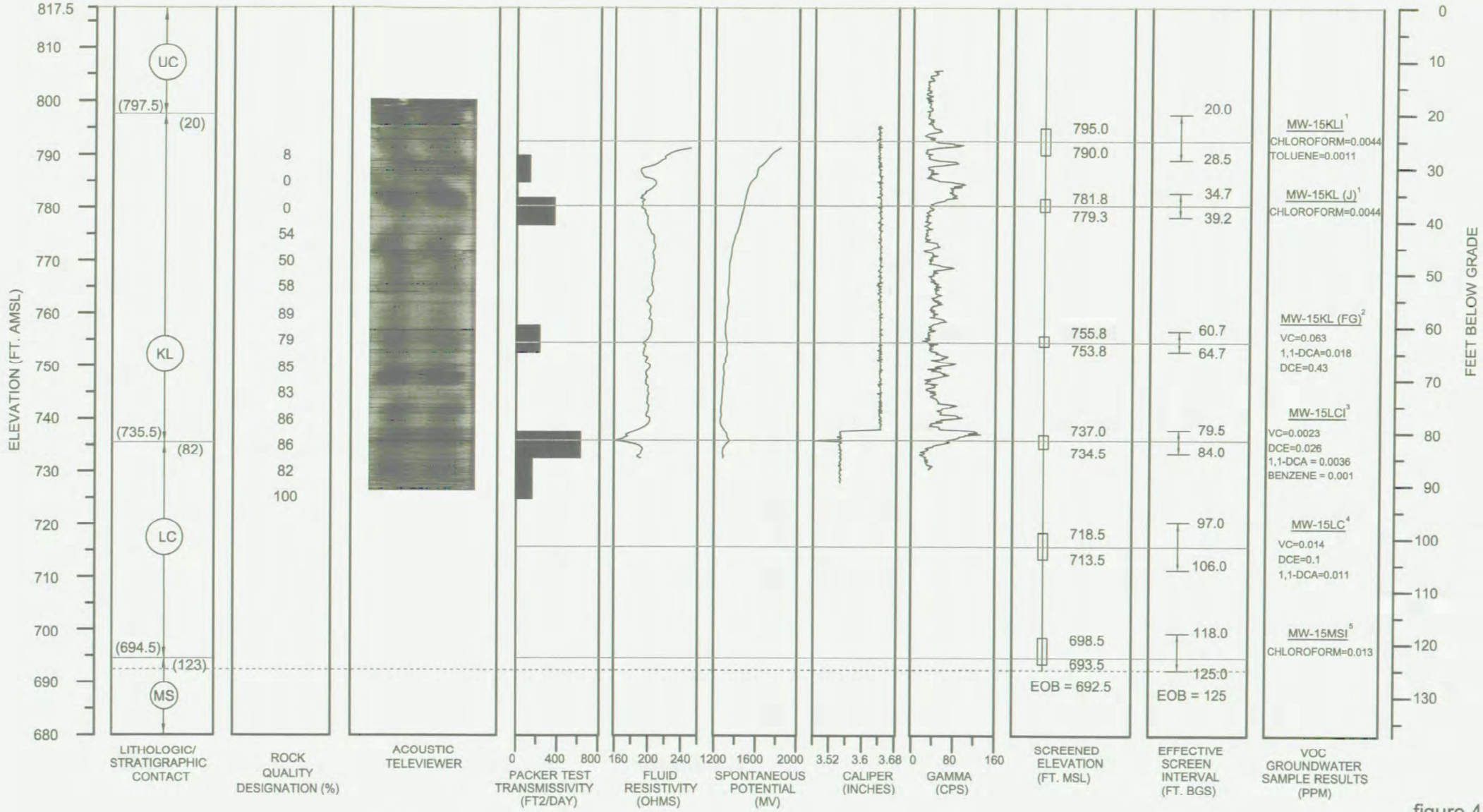


figure 4.9

LEGEND

RQD = MODIFIED CORE RECOVERY (<4") / LENGTH OF CORE x 100
RQD: ROCK QUALITY DESIGNATION

0-25% VERY POOR
25-50% POOR
50-75% FAIR
75-90% GOOD
90-100% EXCELLENT

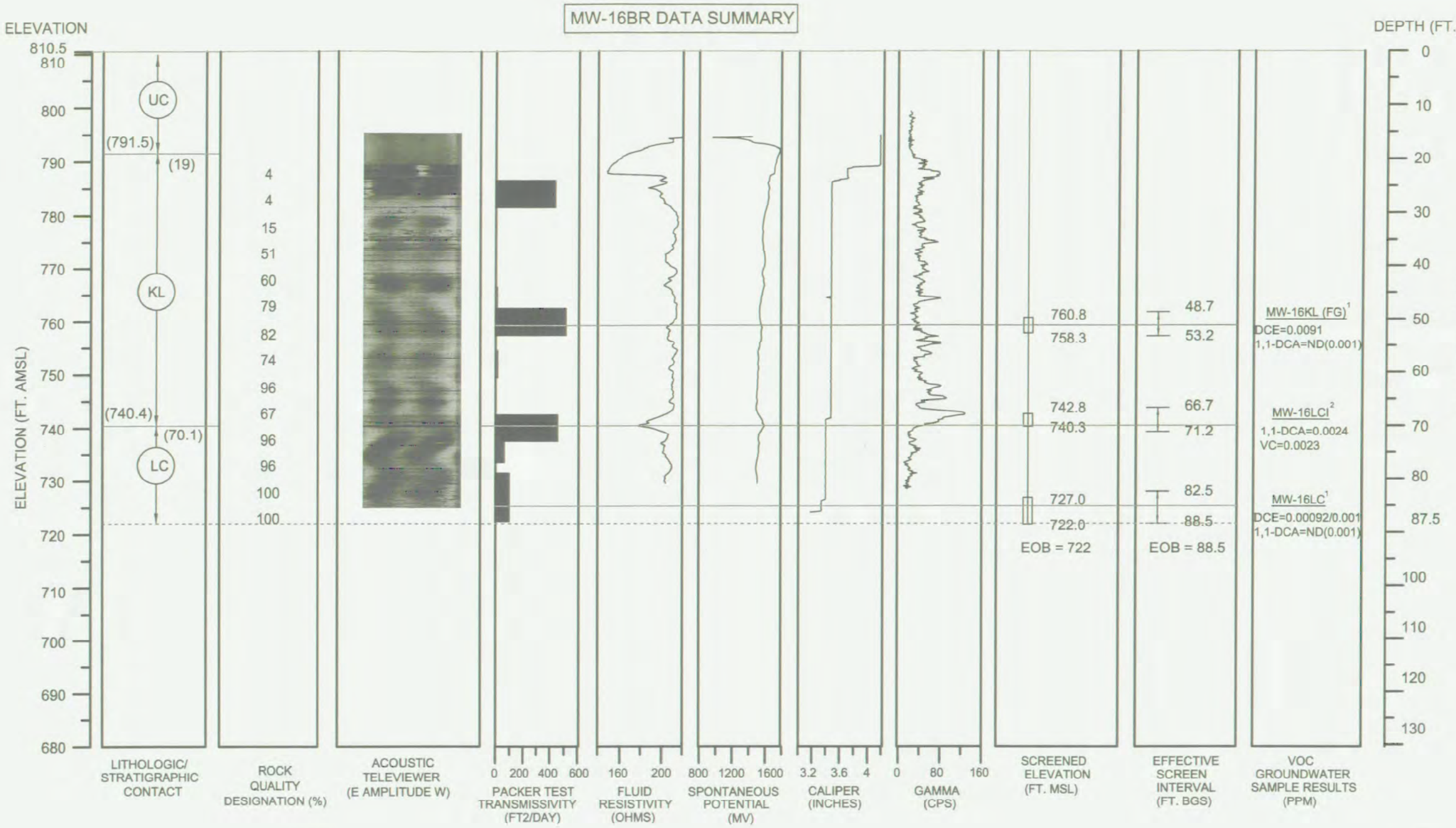
VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT²/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

1-GROUNDWATER SAMPLE COLLECTED 11/4/03
2-GROUNDWATER SAMPLE COLLECTED 6/22/06
3-GROUNDWATER SAMPLE COLLECTED 12/8/05
4-GROUNDWATER SAMPLE COLLECTED 12/3/03
5-GROUNDWATER SAMPLE COLLECTED 11/5/03

MW-15BR BOREHOLE GEOPHYSICS AND HYDRAULIC PROFILE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE039 MAR 28/2007



LEGEND

RQD = MODIFIED CORE RECOVERY (<4") / LENGTH OF CORE x 100

RQD: ROCK QUALITY DESIGNATION

0-25% VERY POOR
25-50% POOR
50-75% FAIR
75-90% GOOD
90-100% EXCELLENT

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT?DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

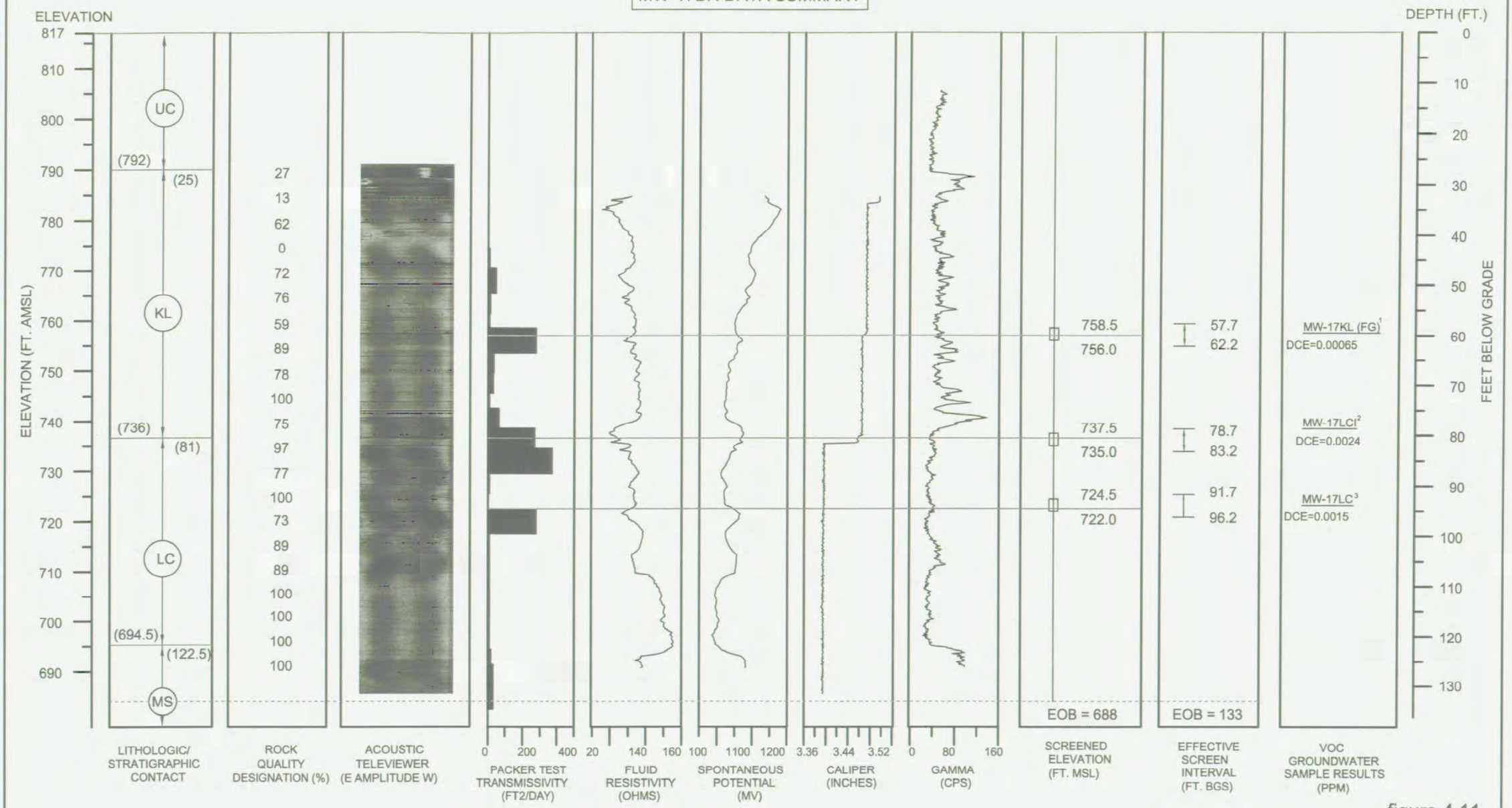
1-GROUNDWATER SAMPLE COLLECTED 11/5/03
2-GROUNDWATER SAMPLE COLLECTED 3/31/05
AMSL = ABOVE MEAN SEA LEVEL

figure 4.10

MW-16BR BOREHOLE GEOPHYSICS AND HYDRAULIC PROFILE
BEDROCK CHARACTERIZATION
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE040 MAR 28/2007

MW-17BR DATA SUMMARY



LITHOLOGIC/ STRATIGRAPHIC CONTACT | ROCK QUALITY DESIGNATION (%) | ACOUSTIC TELEVIEWER (E AMPLITUDE W) | PACKER TEST TRANSMISSIVITY (FT2/DAY) | FLUID RESISTIVITY (OHMS) | SPONTANEOUS POTENTIAL (MV) | CALIPER (INCHES) | GAMMA (CPS) | SCREENED ELEVATION (FT. MSL) | EFFECTIVE SCREEN INTERVAL (FT. BGS) | VOC GROUNDWATER SAMPLE RESULTS (PPM)

LEGEND

RQD = MODIFIED CORE RECOVERY (<4") / LENGTH OF CORE x 100
RQD: ROCK QUALITY DESIGNATION

0-25% VERY POOR
25-50% POOR
50-75% FAIR
75-90% GOOD
90-100% EXCELLENT

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT^2/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

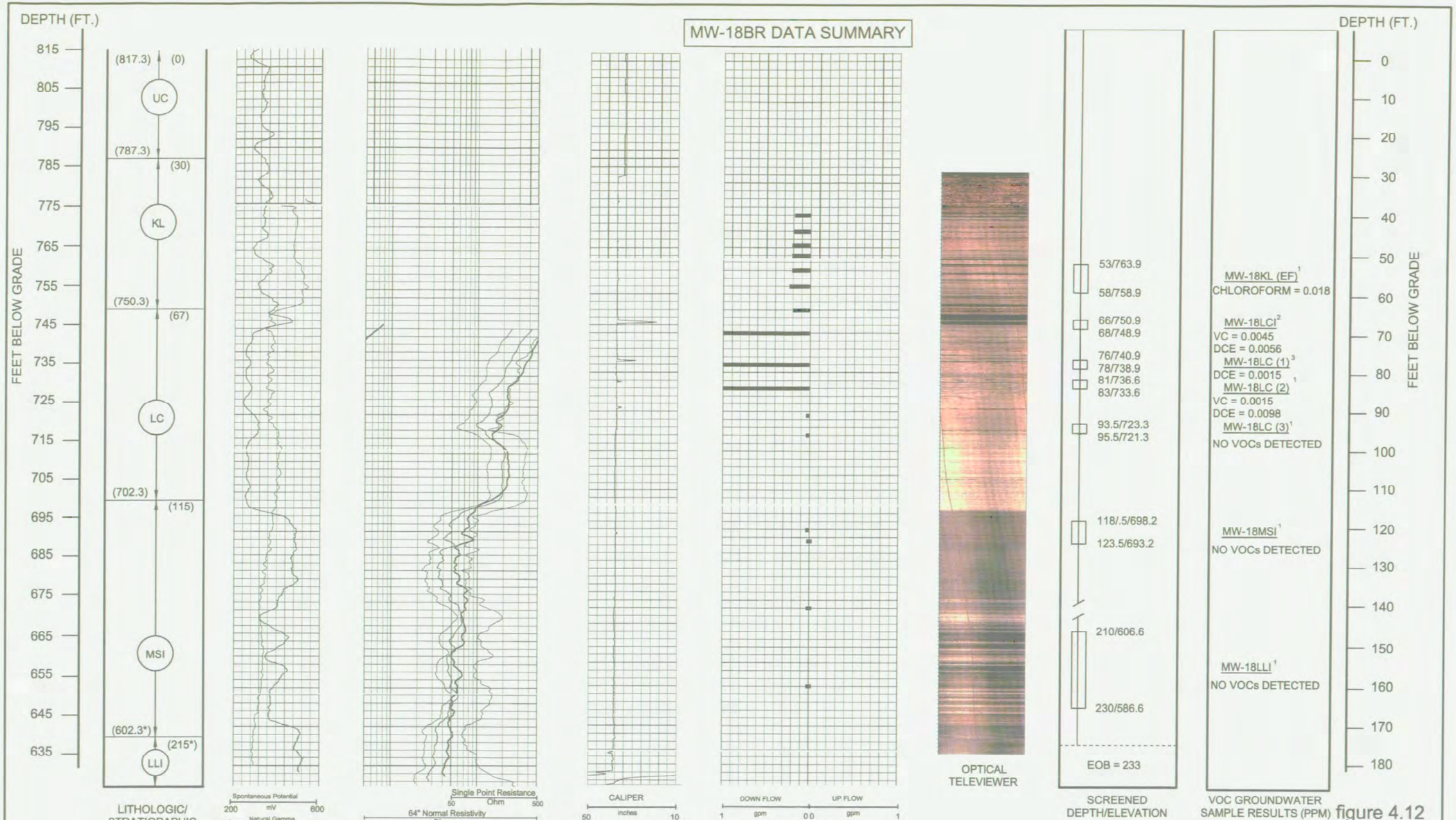
1-GROUNDWATER SAMPLE COLLECTED 12/3/03
2-GROUNDWATER SAMPLE COLLECTED 3/31/05
3-GROUNDWATER SAMPLE COLLECTED 12/8/05
AMSL = ABOVE MEAN SEA LEVEL

figure 4.11

MW-17BR BOREHOLE GEOPHYSICS AND HYDRAULIC PROFILE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE041 MAR 28/2007

MW-18BR DATA SUMMARY



LEGEND

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENE CONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT²/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

WELL SCREEN

1-GROUNDWATER SAMPLE COLLECTED 12/23/04
2-GROUNDWATER SAMPLE COLLECTED 3/30/05
3-GROUNDWATER SAMPLE COLLECTED 12/8/05

figure 4.12

MW-18BR BOREHOLE GEOPHYSICS AND HYDRAULIC PROFILE

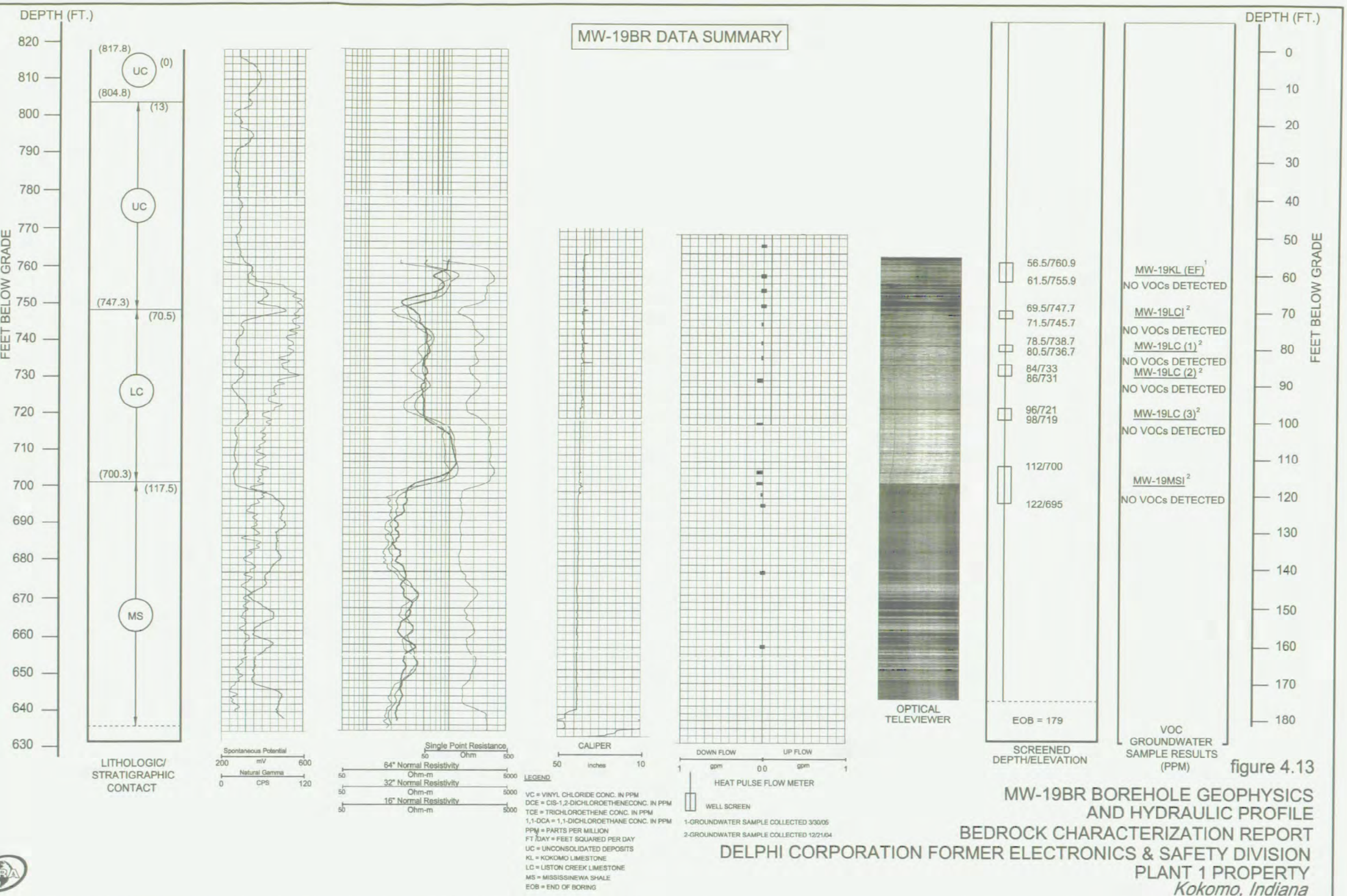
BEDROCK CHARACTERIZATION REPORT

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY

Kokomo, Indiana

13477-31(029)GN-DE066 MAR 28/2007

MW-19BR DATA SUMMARY



LEGEND

VC = VINYL CHLORIDE CONC. IN PPM
DCE = CIS-1,2-DICHLOROETHENECONC. IN PPM
TCE = TRICHLOROETHENE CONC. IN PPM
1,1-DCA = 1,1-DICHLOROETHANE CONC. IN PPM
PPM = PARTS PER MILLION
FT 2/DAY = FEET SQUARED PER DAY
UC = UNCONSOLIDATED DEPOSITS
KL = KOKOMO LIMESTONE
LC = LISTON CREEK LIMESTONE
MS = MISSISSINEWA SHALE
EOB = END OF BORING

1-GROUNDWATER SAMPLE COLLECTED 3/30/05
2-GROUNDWATER SAMPLE COLLECTED 12/21/04

figure 4.13

MW-19BR BOREHOLE GEOPHYSICS
AND HYDRAULIC PROFILE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE068 MAR 28/2007

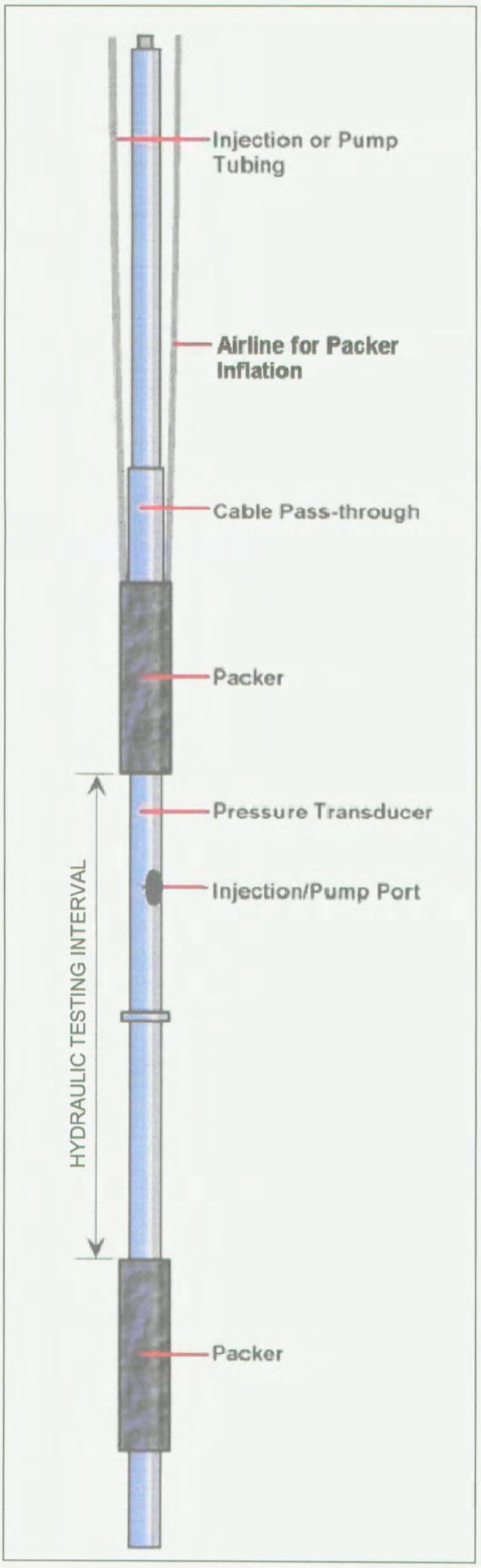
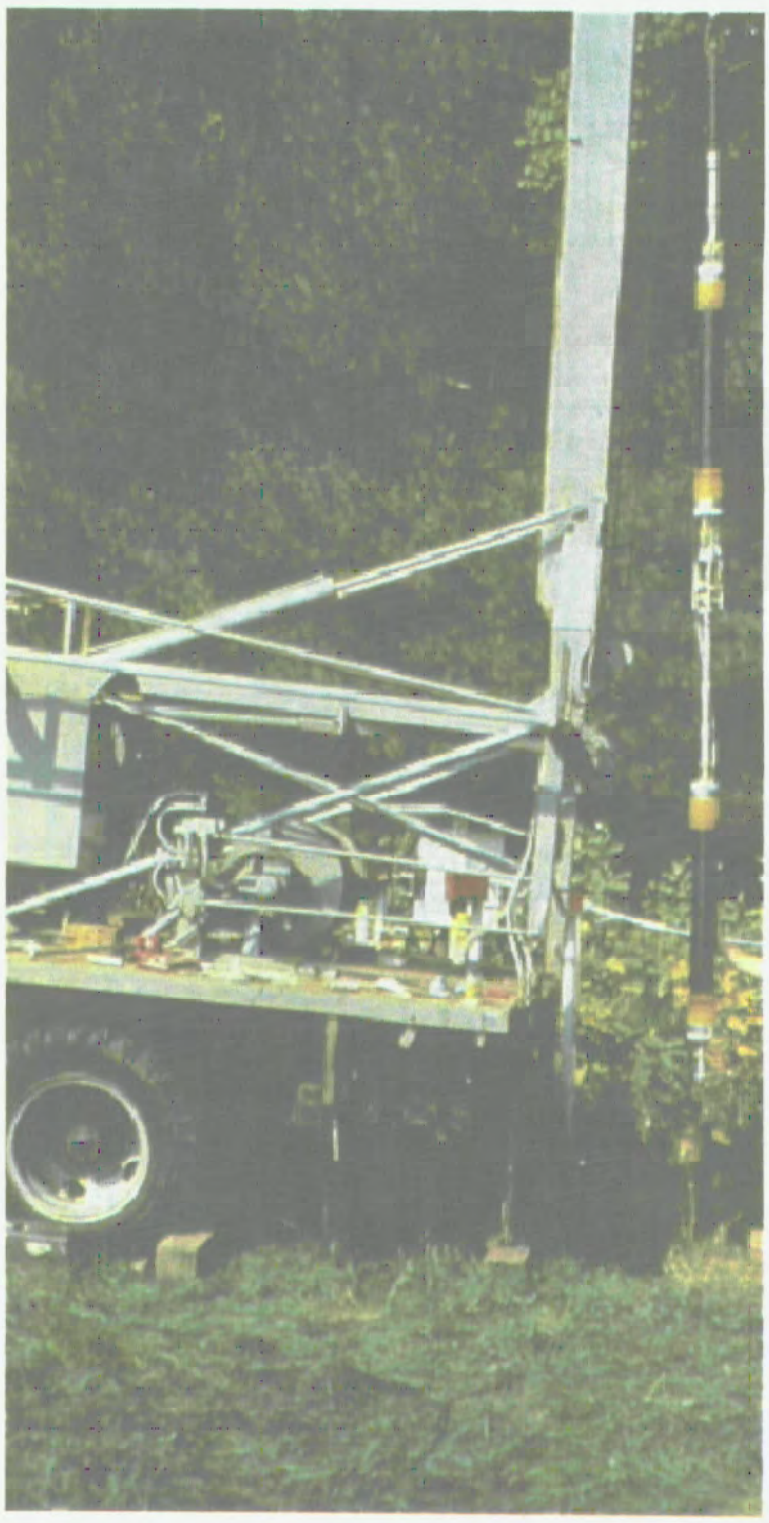


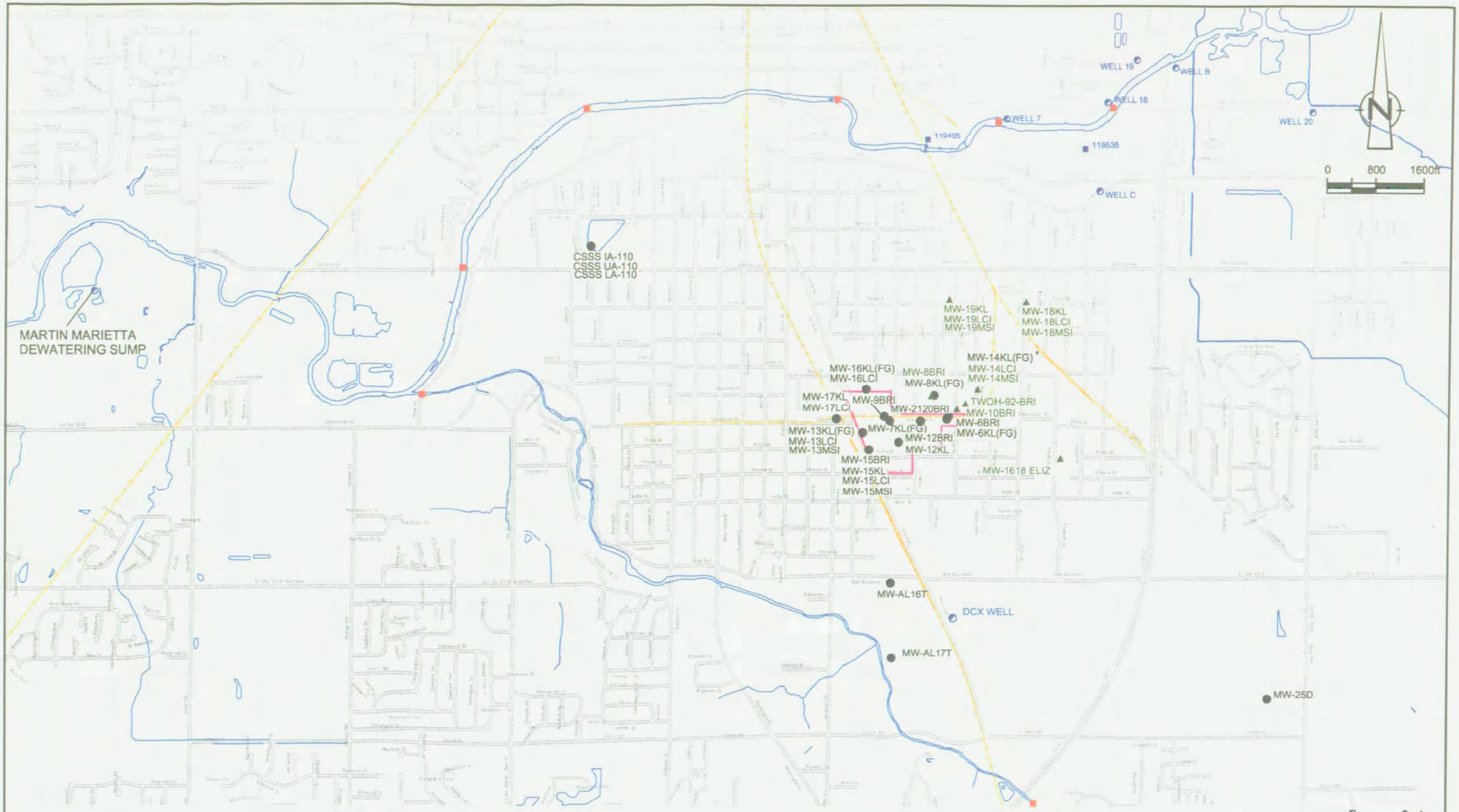
DIAGRAM OF TYPICAL
DUAL PACKER SYSTEM



PHOTOGRAPH OF TYPICAL DUAL PACKER SYSTEM

figure 5.1

DIAGRAM AND PHOTOGRAPH OF DUAL PACKER SYSTEM
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana



LEGEND

■	MANUAL SURFACE WATER ELEVATION MEASUREMENT
▲ MW-19KL	GROUP 1 MONITORING WELL
● MW-16KL(FG)	GROUP 2 MONITORING WELL
* MW-14KL(FG)	HYDROGRAPH OF WATER LEVELS FROM THE WELL ARE CONSISTENT WITH THOSE EXHIBITED BY GROUP 2 WELLS
WELL 18	SIGNIFICANT BEDROCK WATER WITHDRAWAL FACILITY WELL LOCATION
119495	ACCESSIBLE BEDROCK WELLS

figure 6.1

BEDROCK WELL LOCATIONS FOR REGIONAL TRANSDUCER STUDY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE021 MAR 27/2007

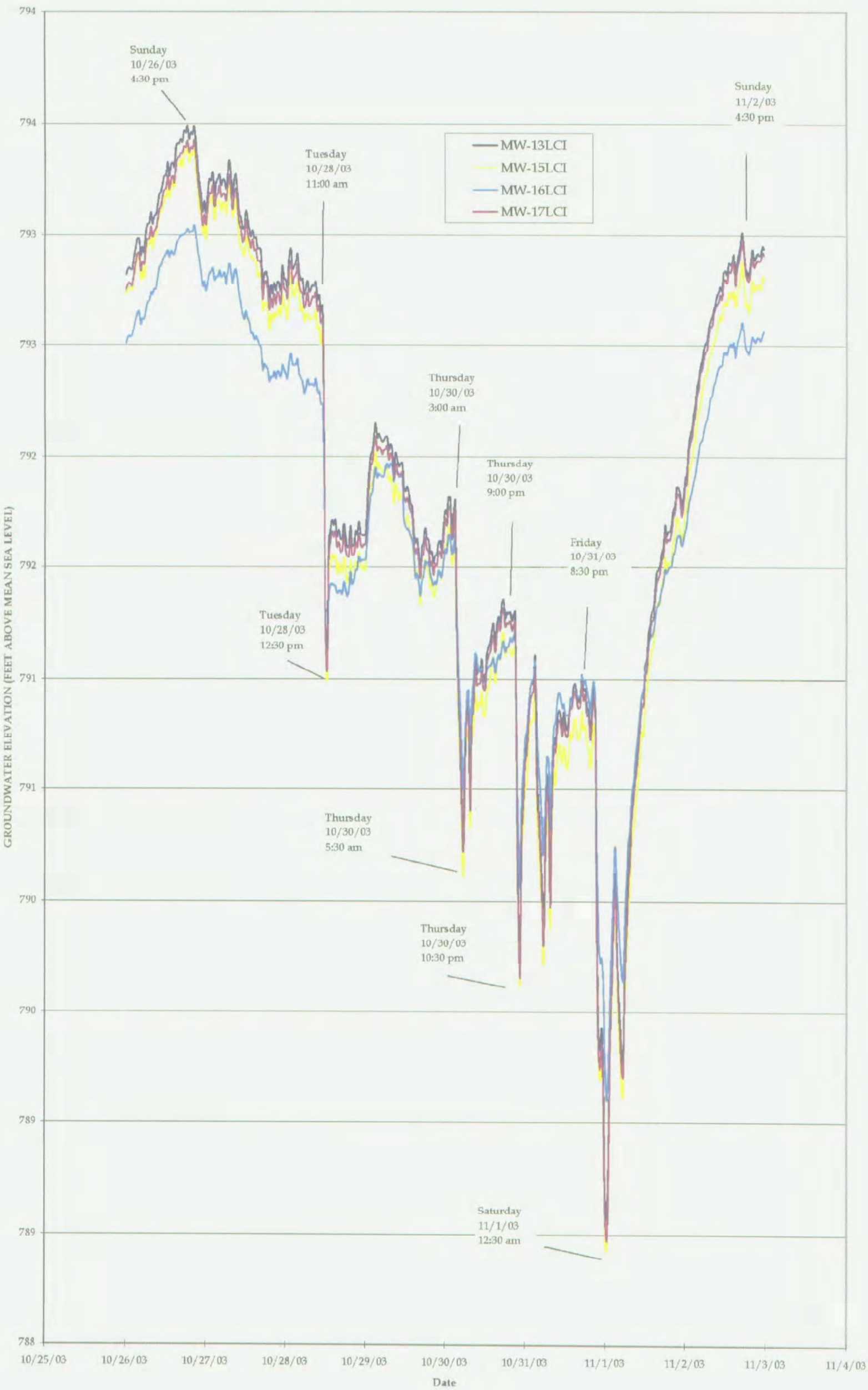


figure 6.2

TYPICAL DCX SIGNATURE HYDROGRAPH
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE051 MAR 28/2007

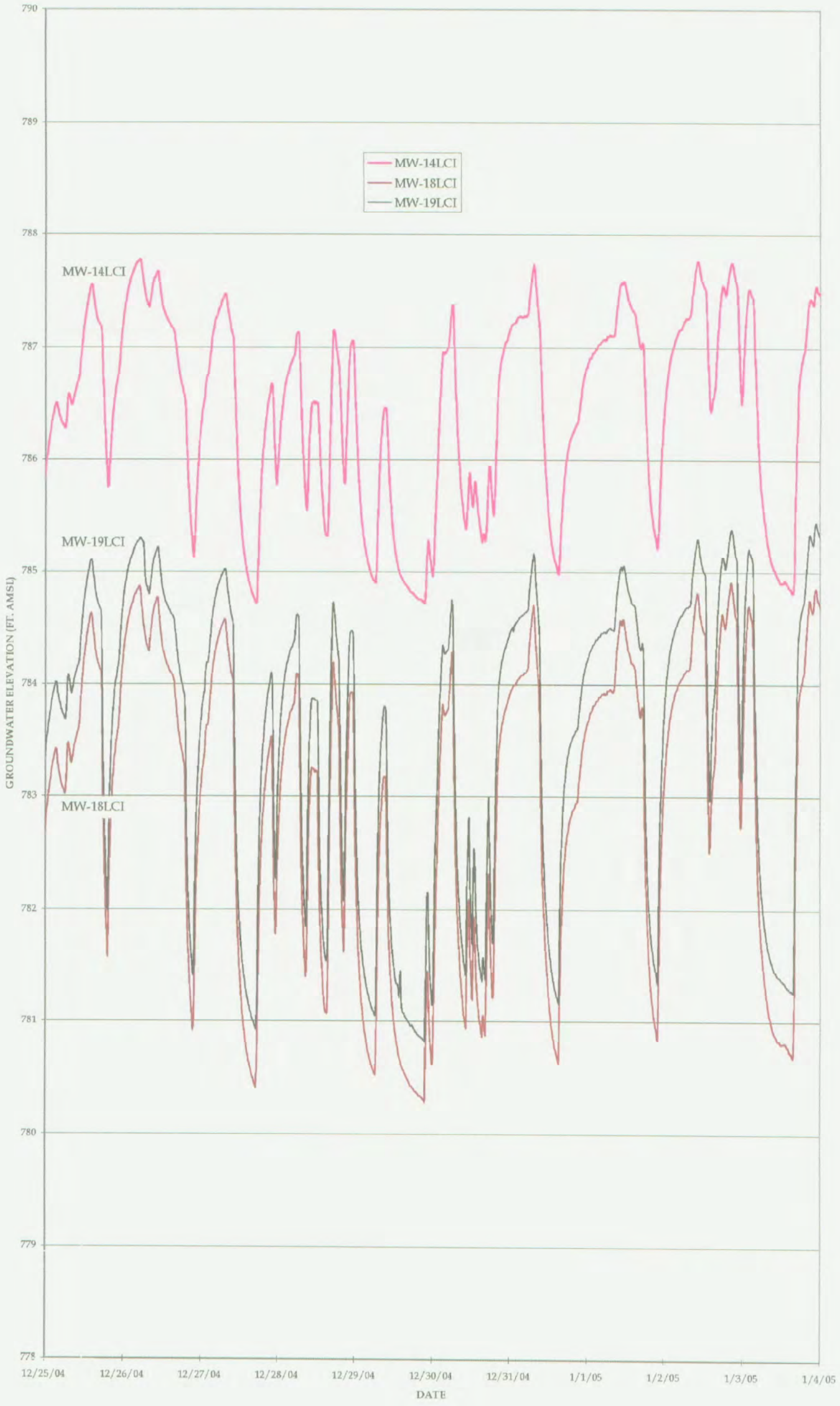


figure 6.3

TYPICAL IAWC SIGNATURE HYDROGRAPH
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE052 MAR 28/2007

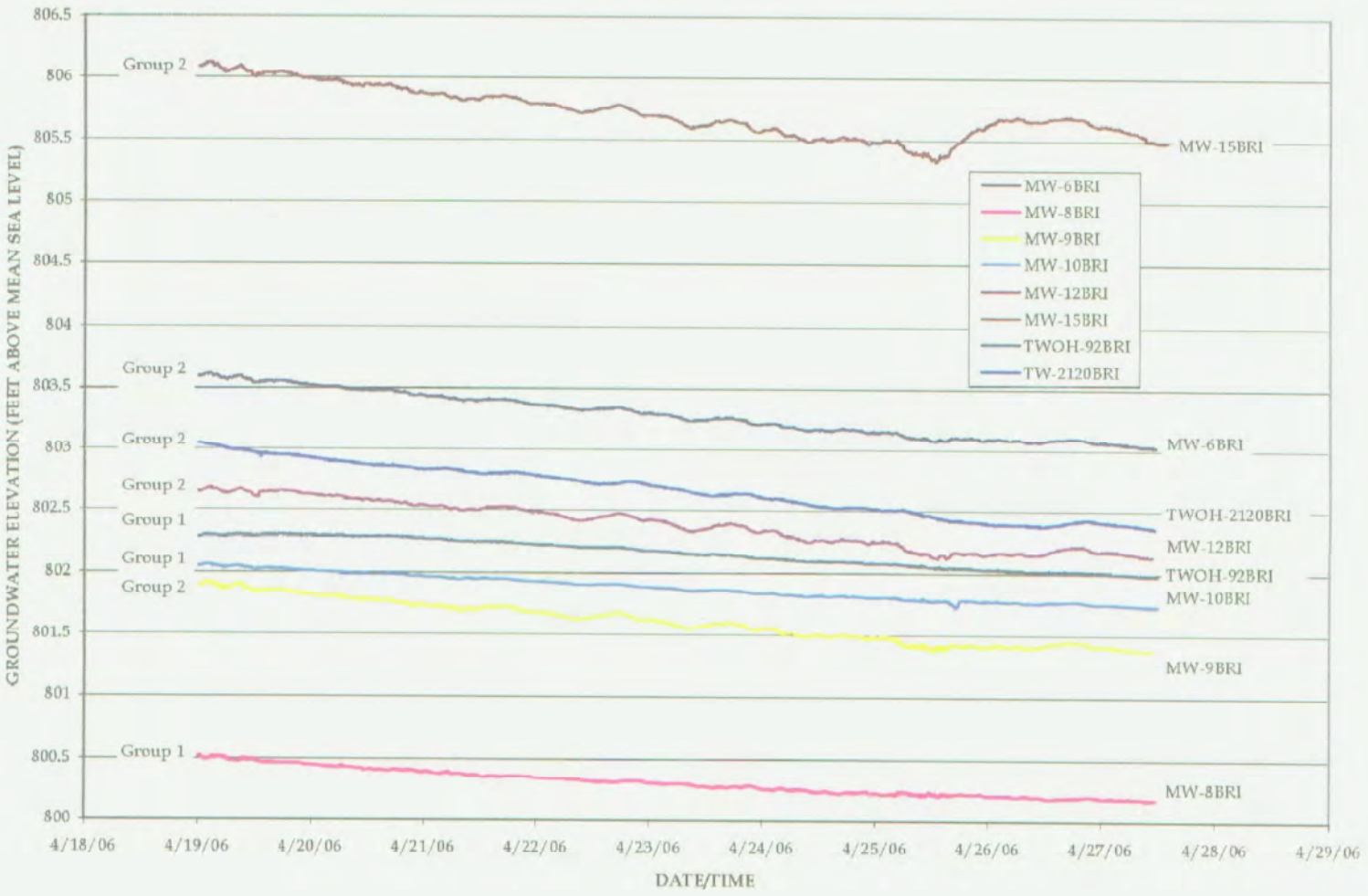


figure 6.4

BEDROCK INTERFACE HYDROPGRAPH-GROUP 1 AND 2 WELL DESIGNATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE022 MAR 27/2007

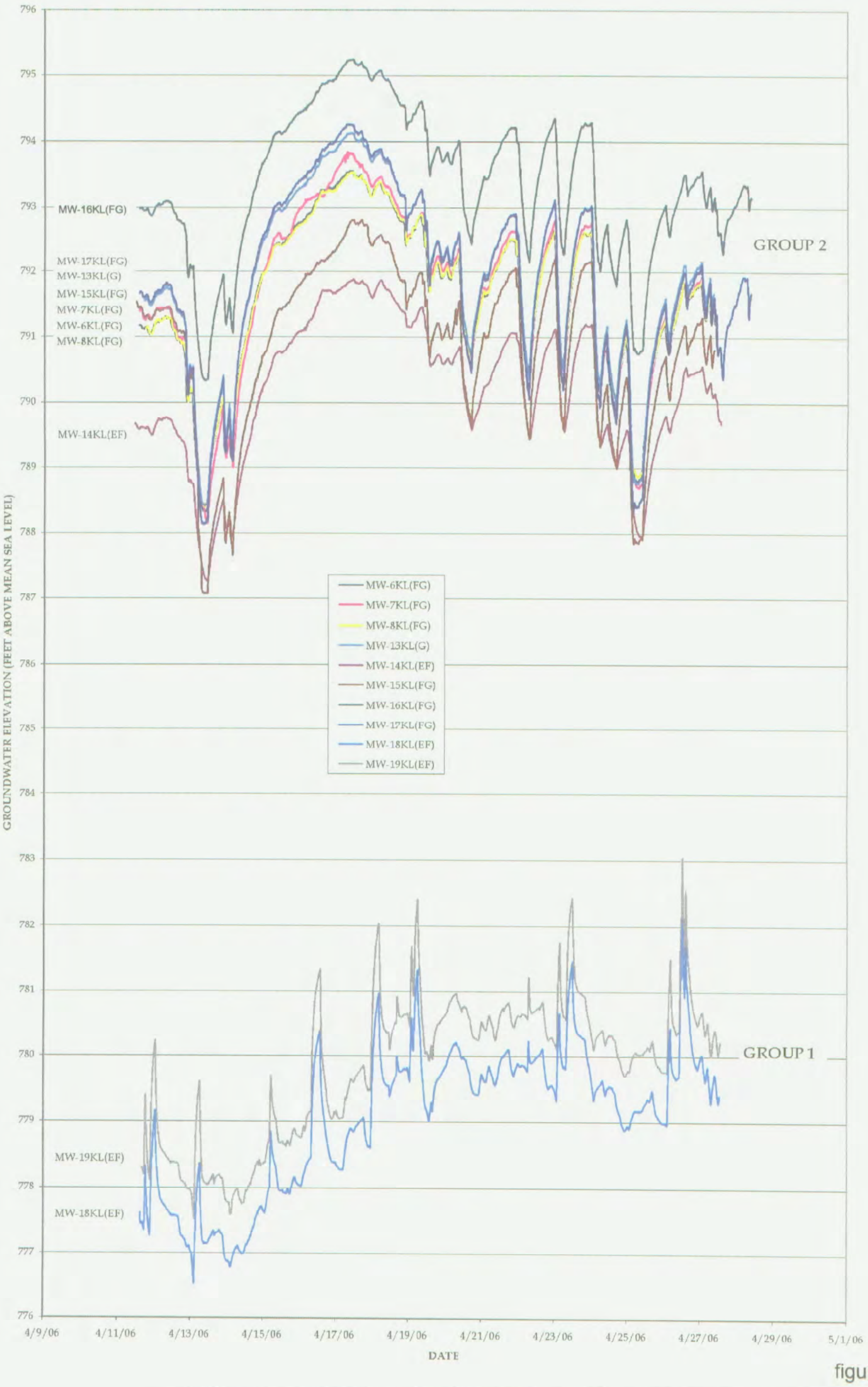


figure 6.5

KOKOMO LIMESTONE HYDROGRAPH-GROUP 1 AND 2 WELL DESIGNATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE023 MAR 27/2007

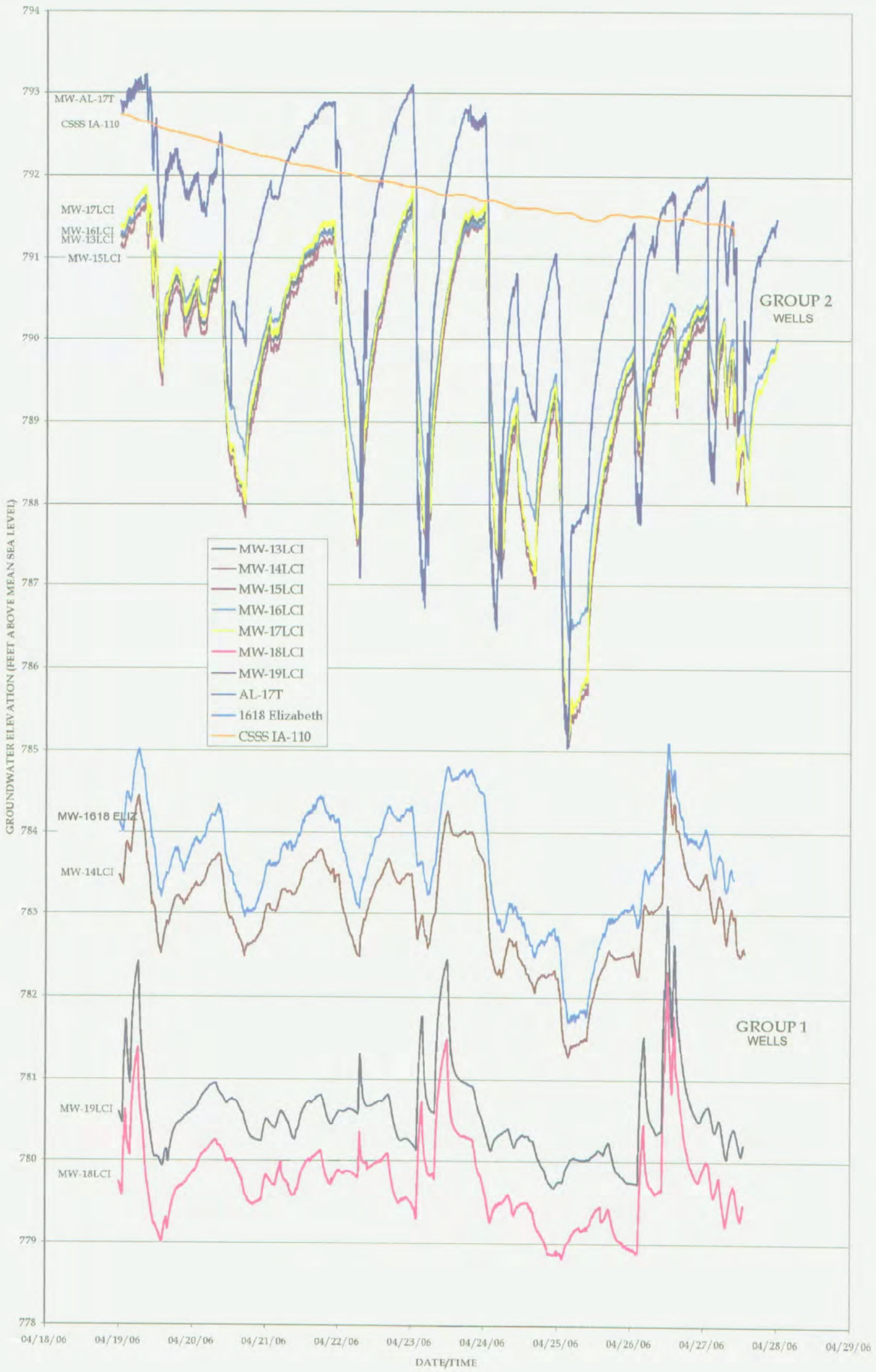


figure 6.6

LISTON CREEK INTERFACE HYDROGRAPH-GROUP 1 AND 2 WELL DESIGNATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE025 MAR 27/2007

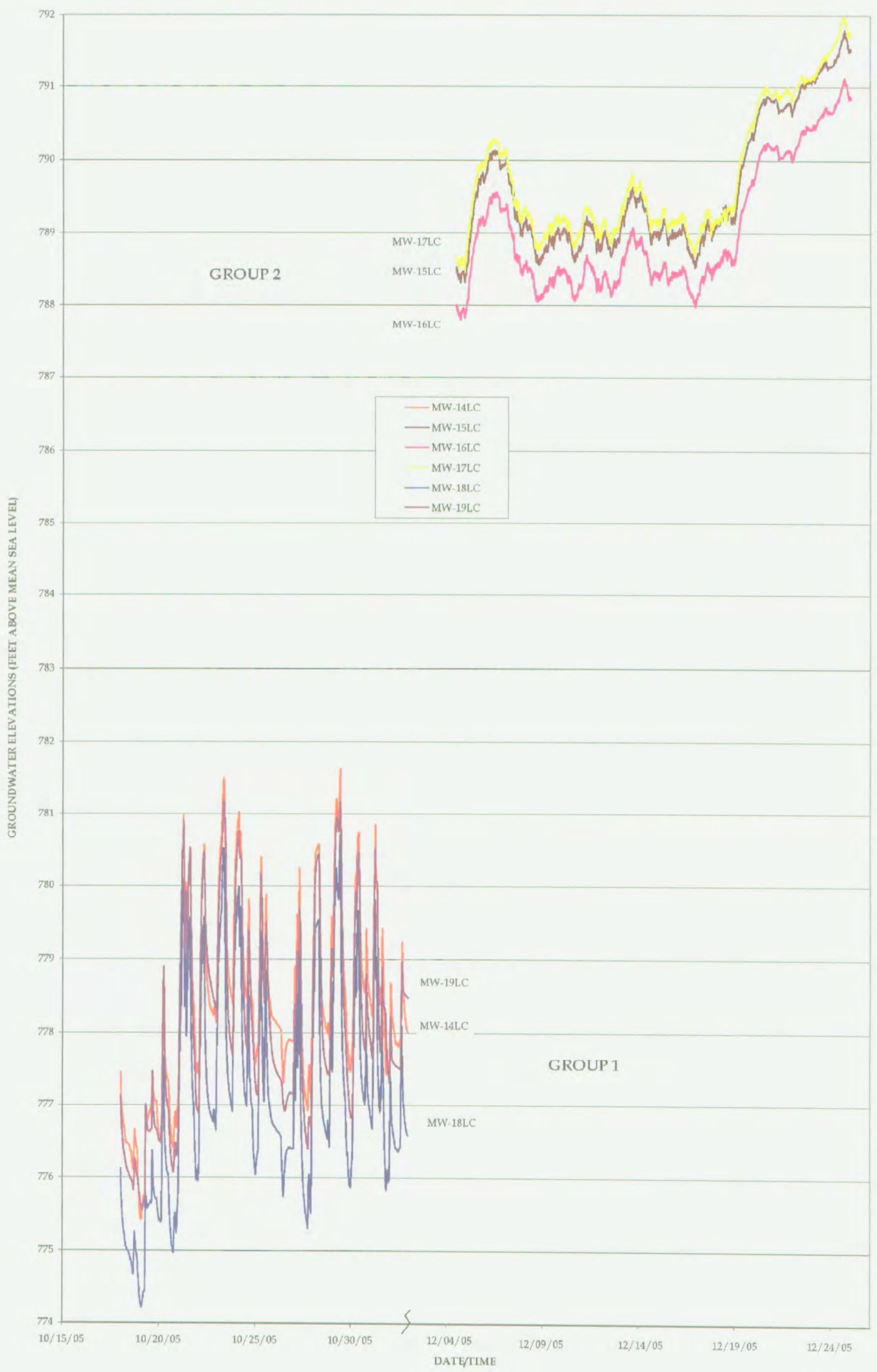


figure 6.7

LISTON CREEK HYDROGRAPH-GROUP 1 AND 2 WELL DESIGNATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE024 MAR 27/2007

figure 6.8

MISSISSINEWA SHALE HYDROGRAPH-GROUP 1 AND 2 WELL DESIGNATIONS
BEDROCK CHARATERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE026 MAR 27/2007

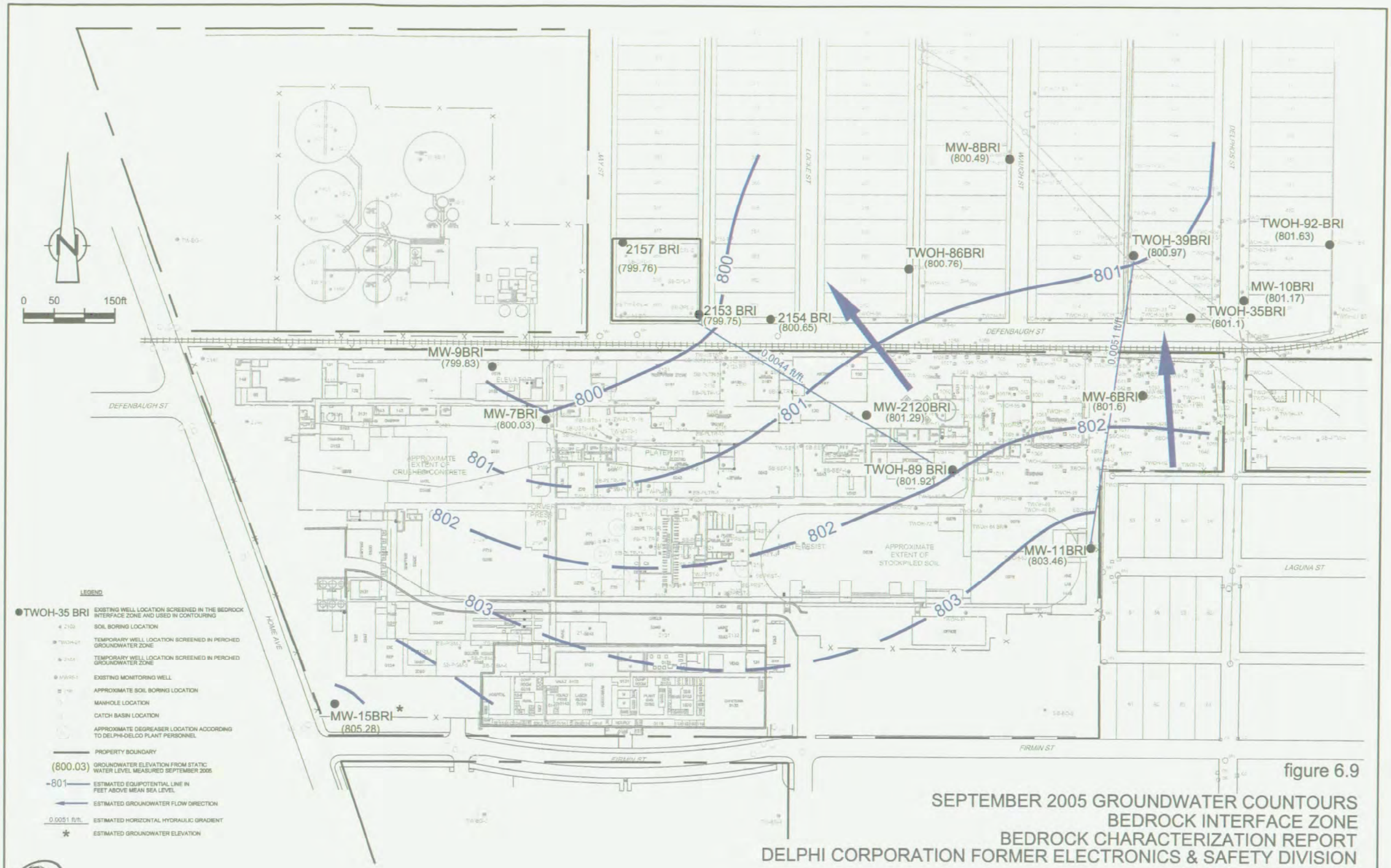


figure 6.9

SEPTEMBER 2005 GROUNDWATER COUNTOURS
BEDROCK INTERFACE ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE054 MAR 28/2007

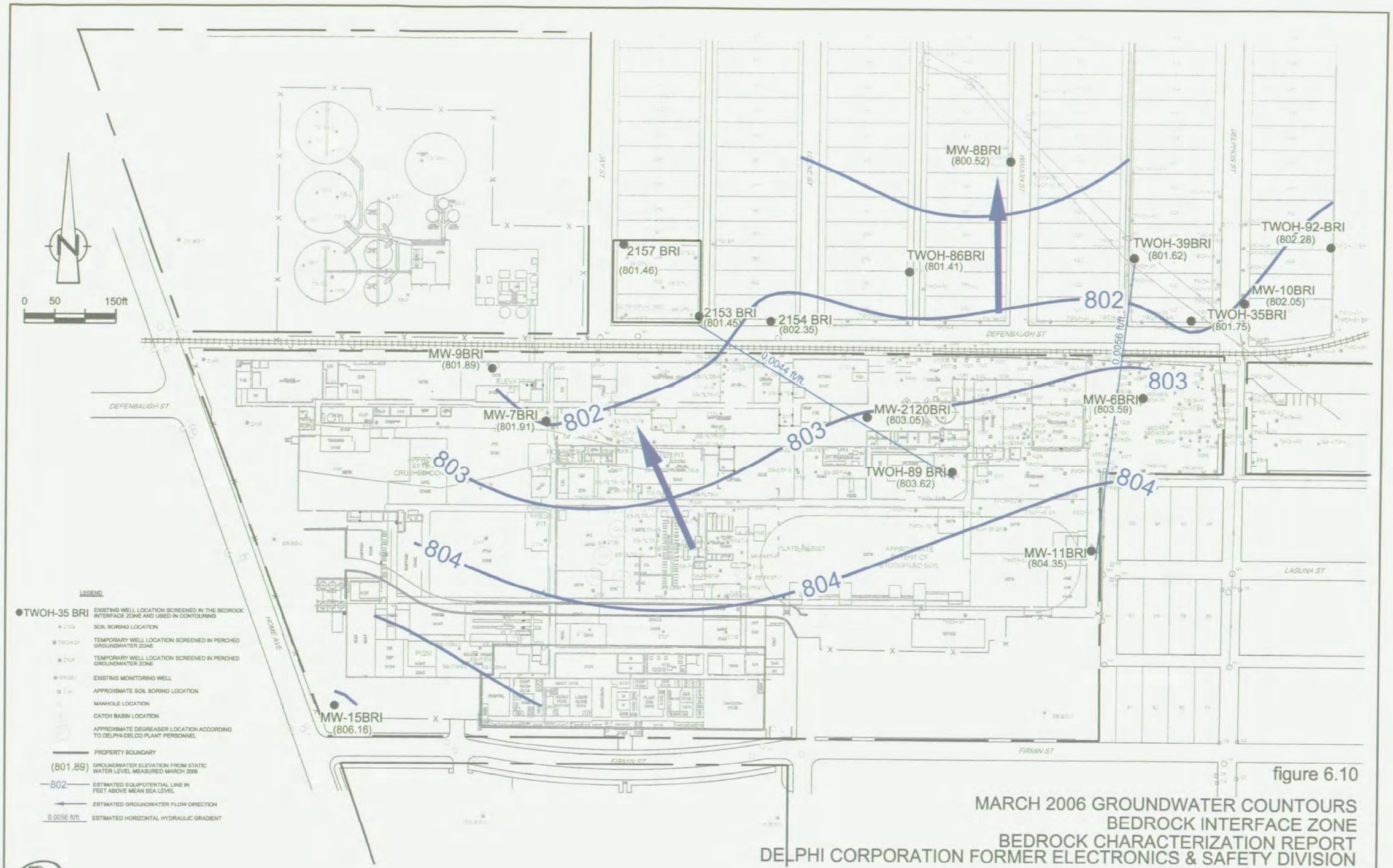
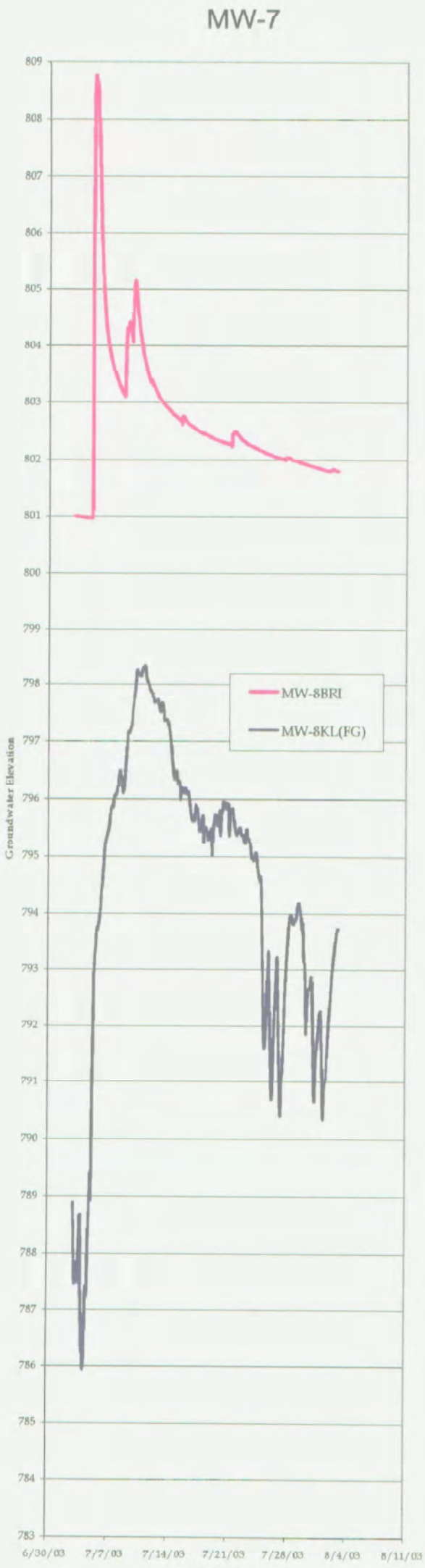


figure 6.10

MARCH 2006 GROUNDWATER COUNTOURS
BEDROCK INTERFACE ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE055 MAR 28/2007



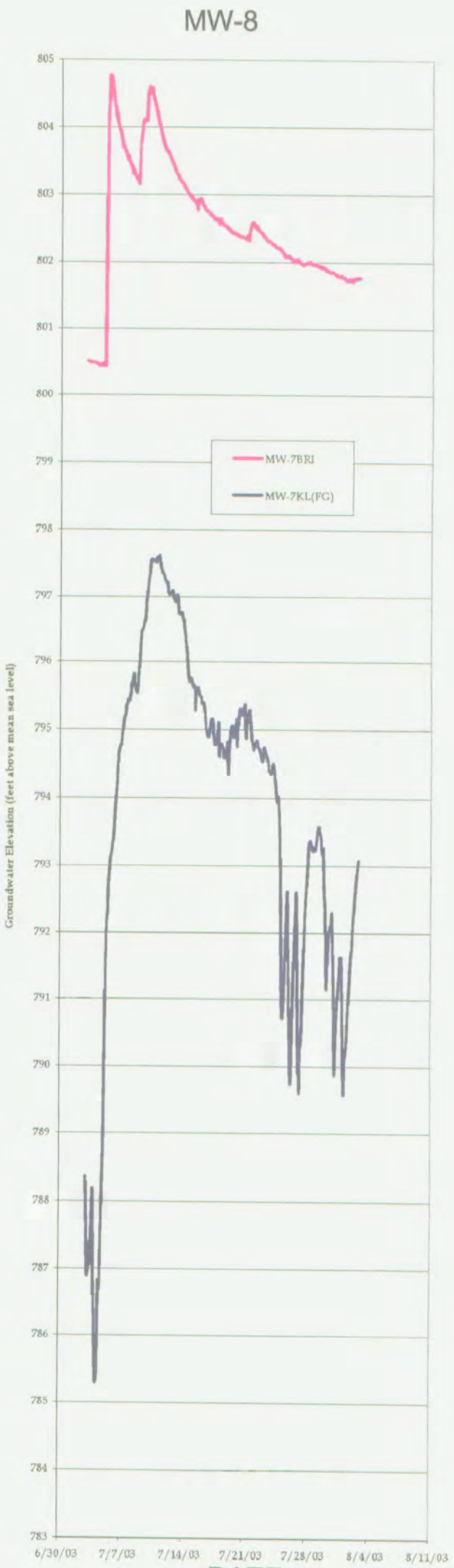
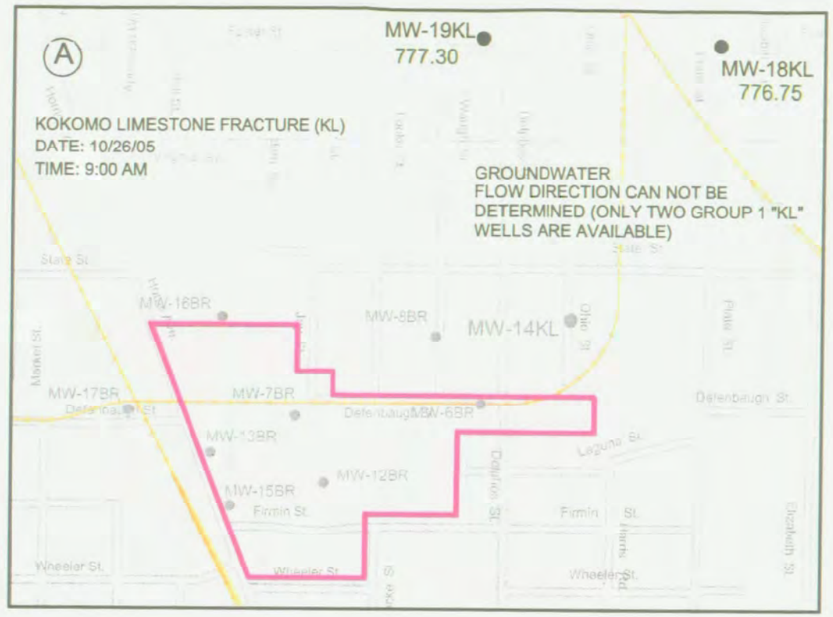
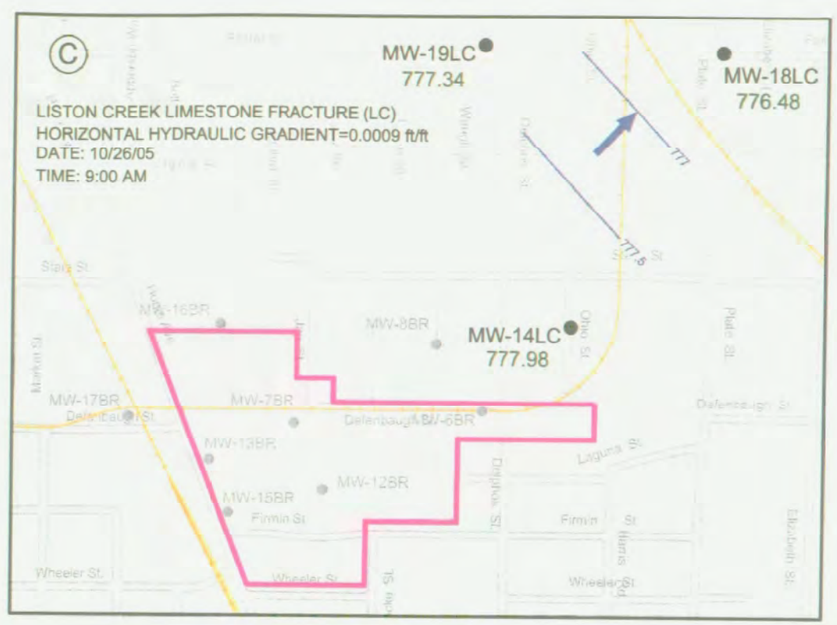


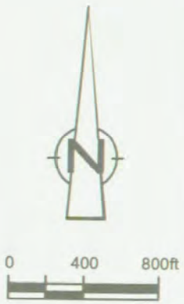
figure 6.11

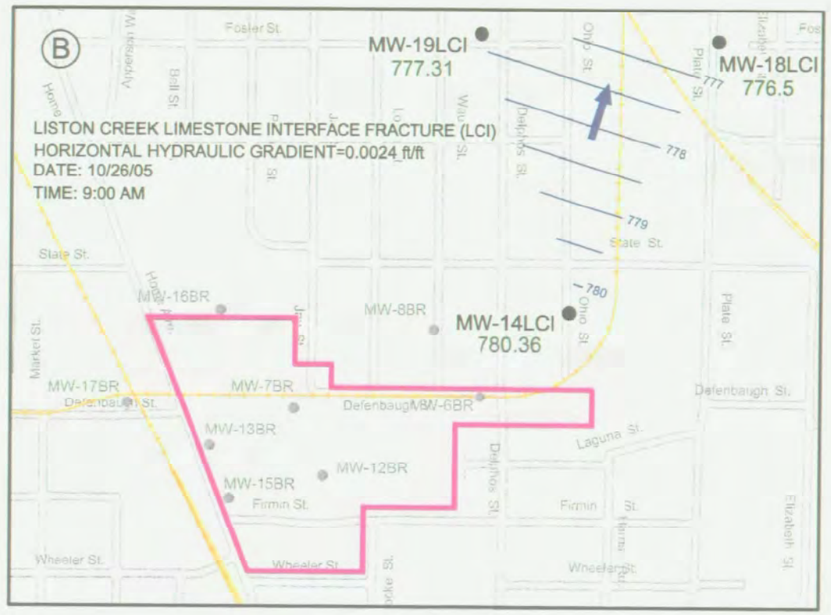
GROUP 1 AND 2 BEDROCK INTERFACE WELLS- VERTICAL HYDRAULIC GRADIENTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE056 MAR 28/2007









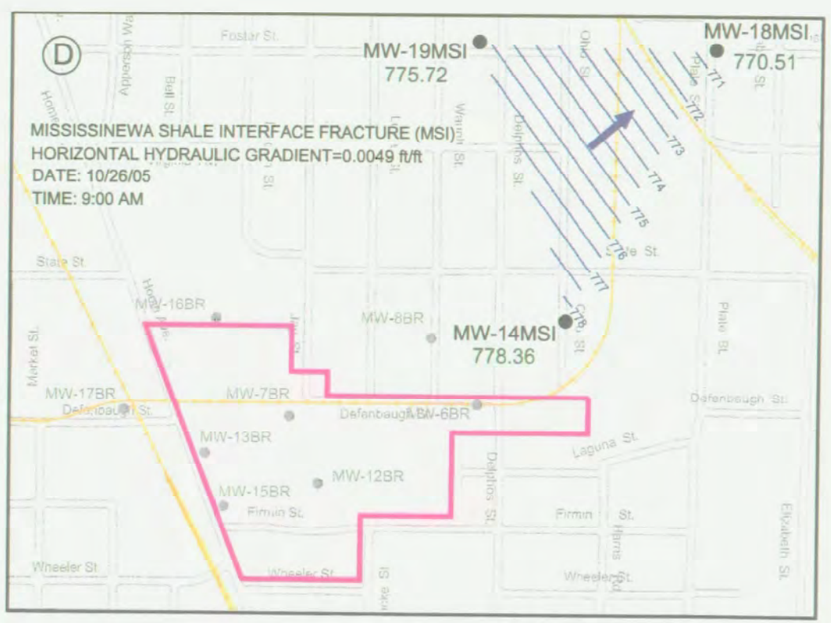
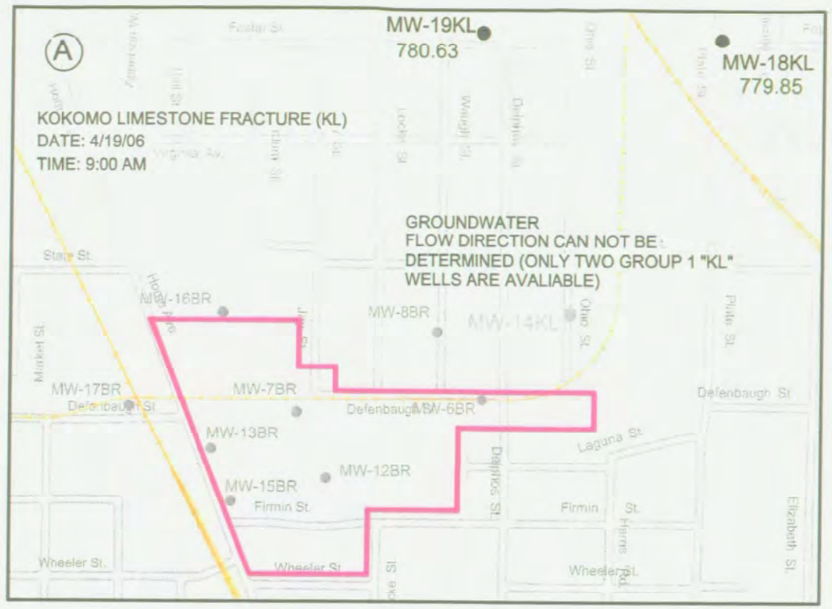
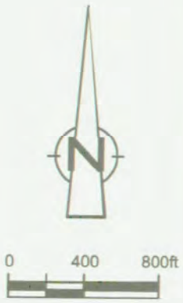


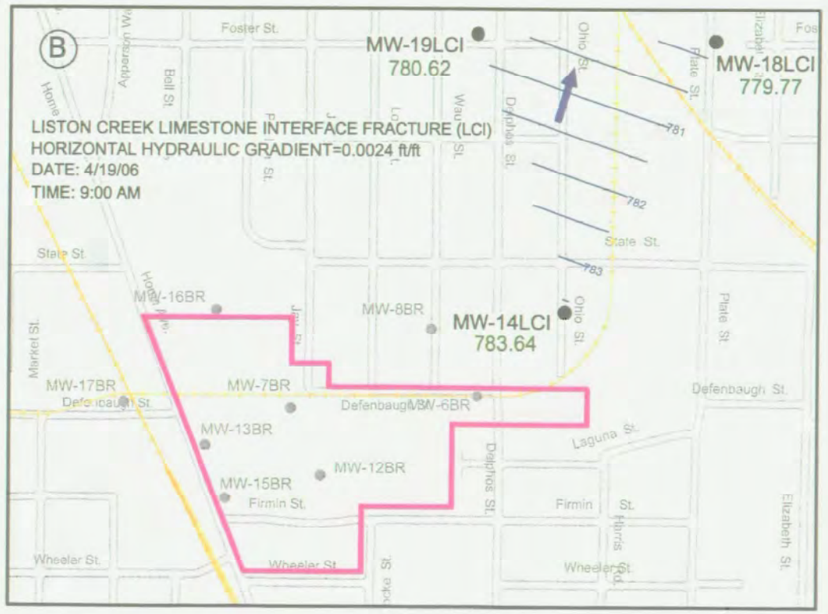
figure 6.12

GROUP 1 WELLS PREDOMINANT GROUNDWATER FLOW DIRECTIONS (OCTOBER, 2005)
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE002 MAR 27/2007







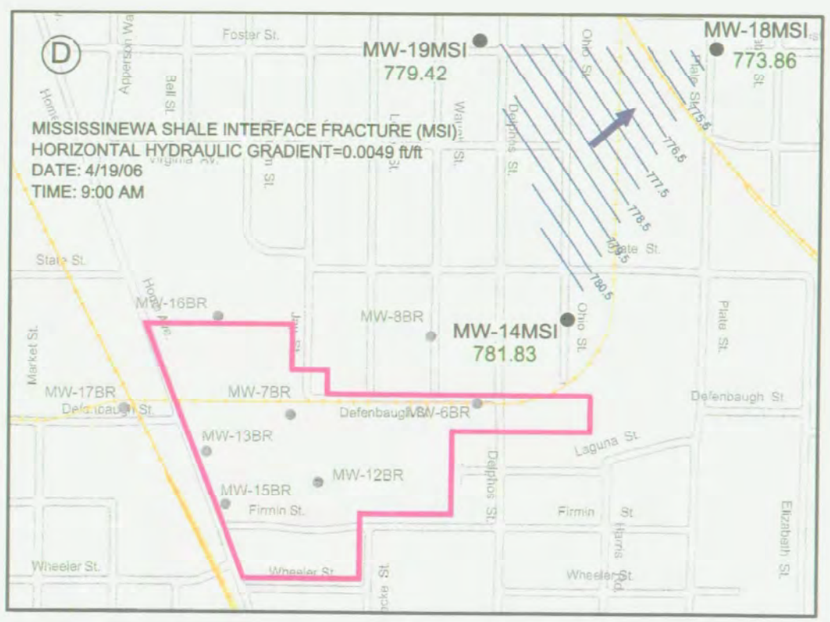


figure 6.13

GROUP 1 WELLS PREDOMINANT GROUNDWATER FLOW DIRECTIONS (APRIL, 2006)
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

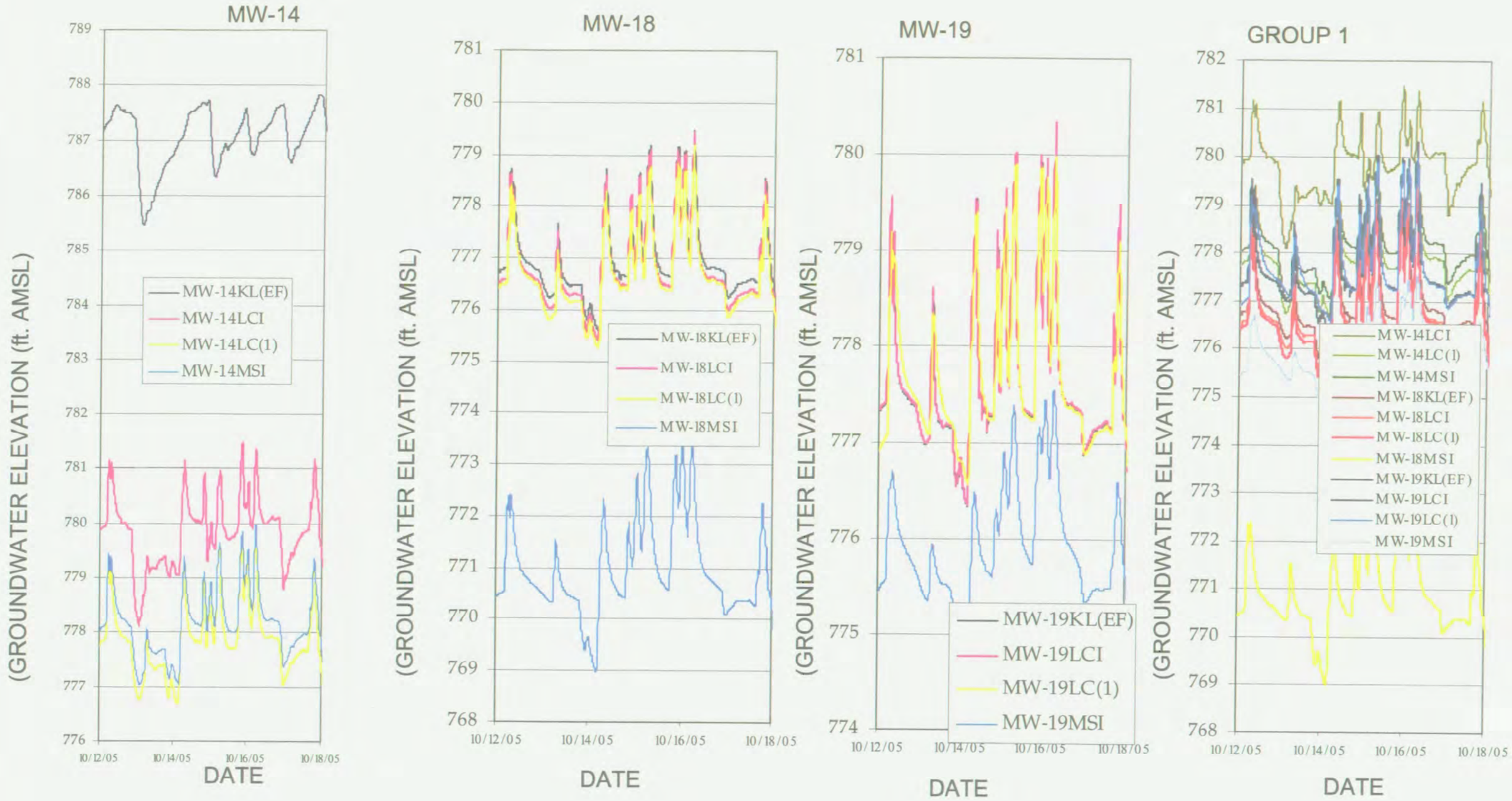


figure 6.14

GROUP 1 WELLS-VERTICAL HYDRAULIC GRADIENTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE047 MAR 28/2007

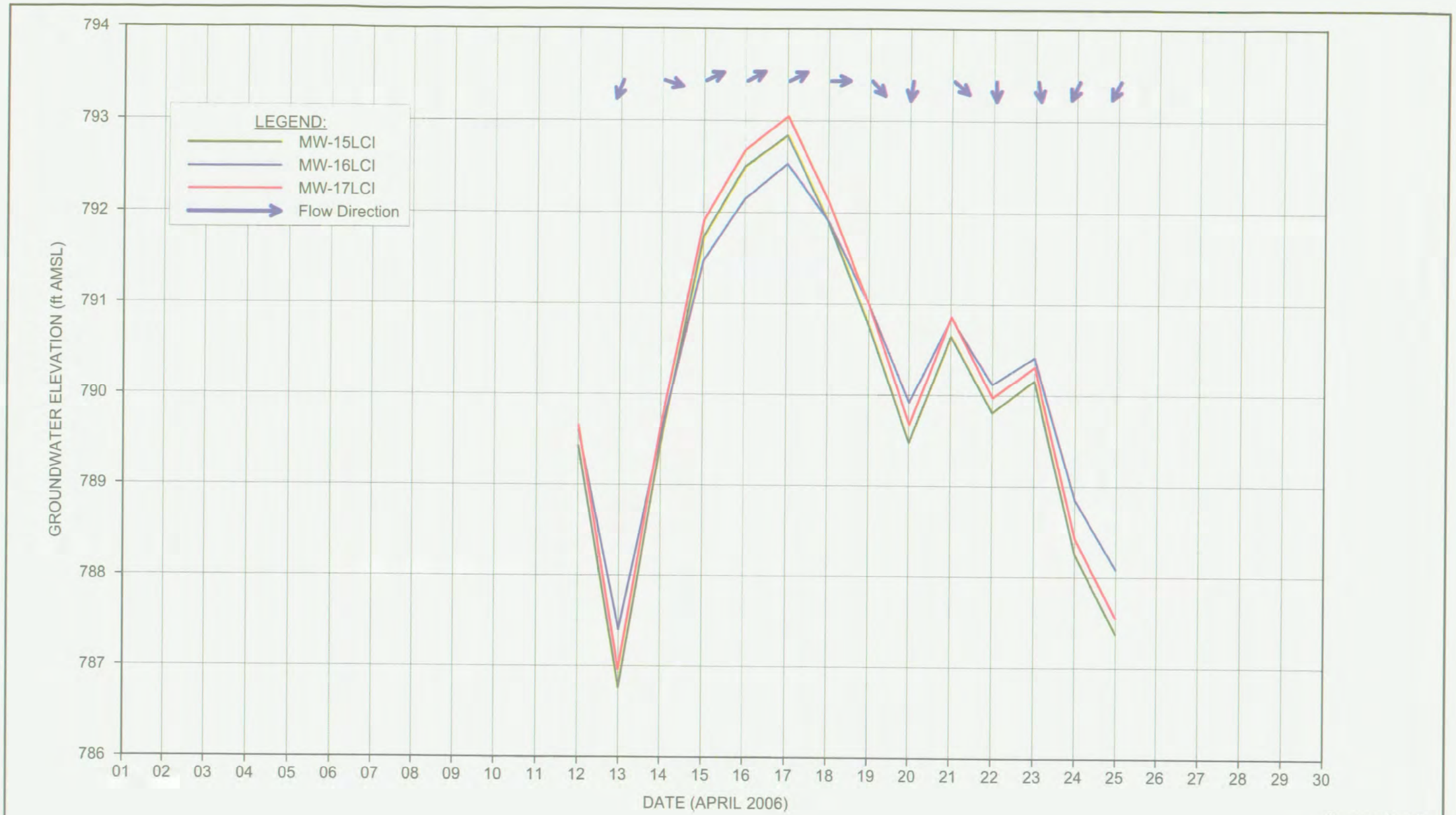
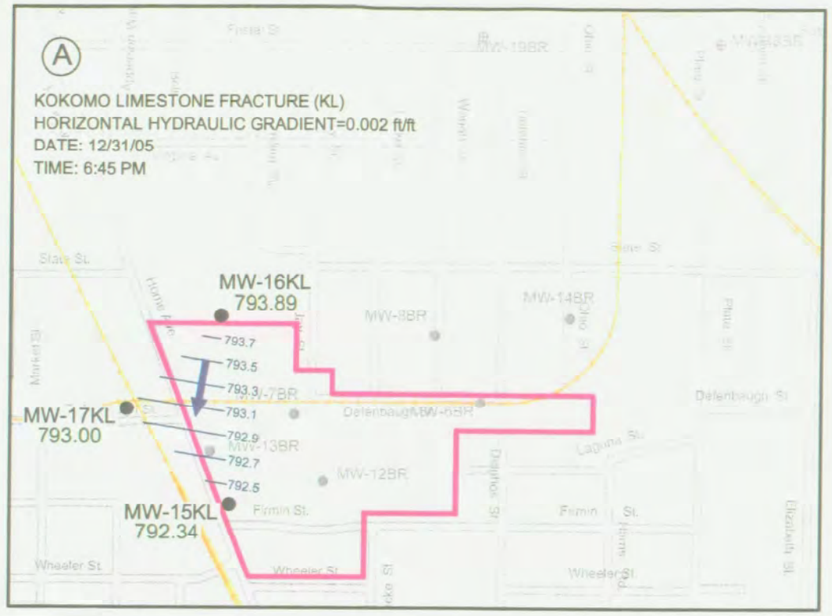
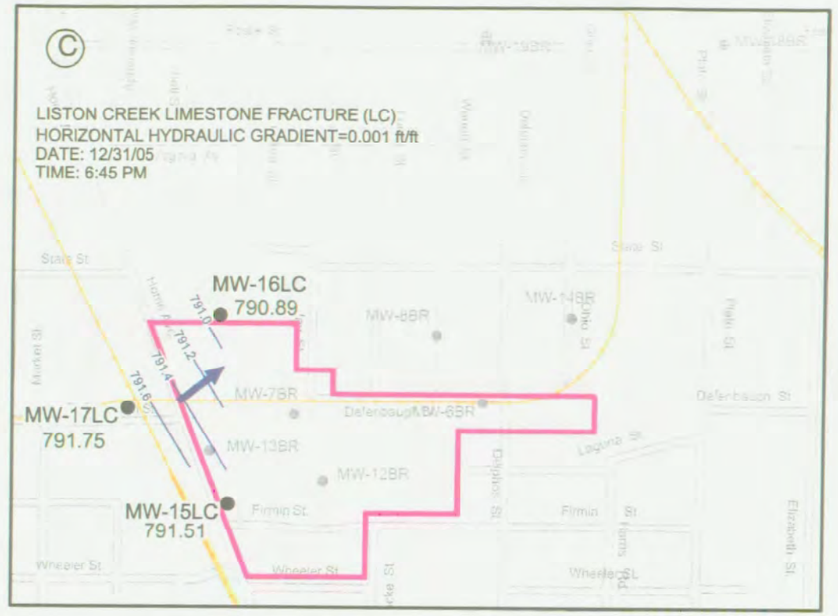


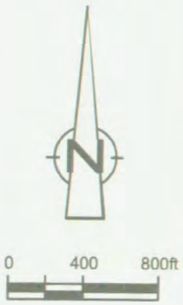
figure 6.15

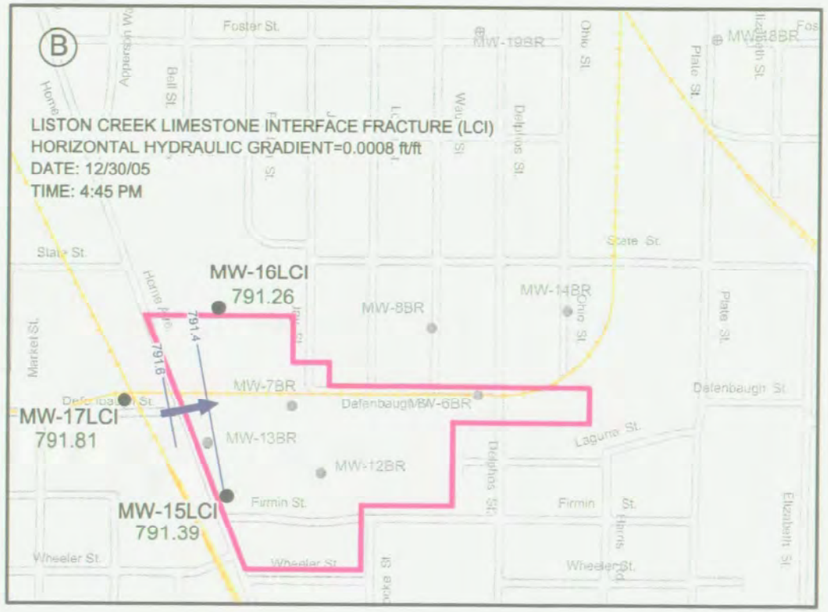
GROUP 2 WELLS - OFFSITE PUMPING INFLUENCE ON HYDRAULIC GRADIENTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-WA-HYD (N:\HEG\13477\GroundwaterLevel\13477-31(29-figure6-15.grf) Mar 27/2007









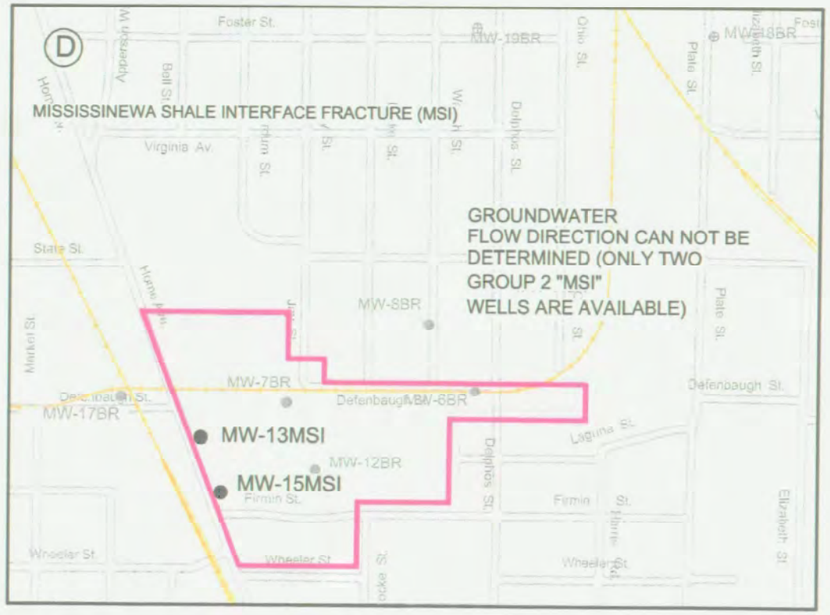
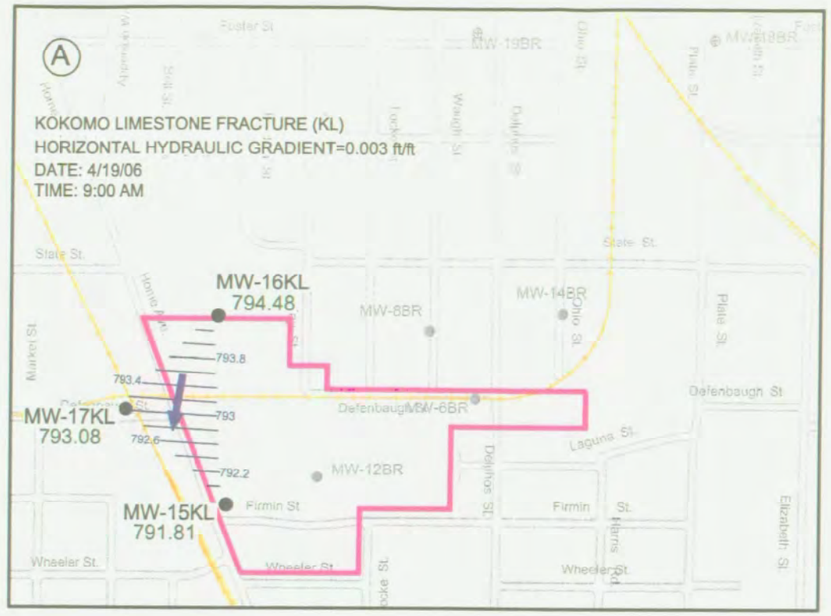
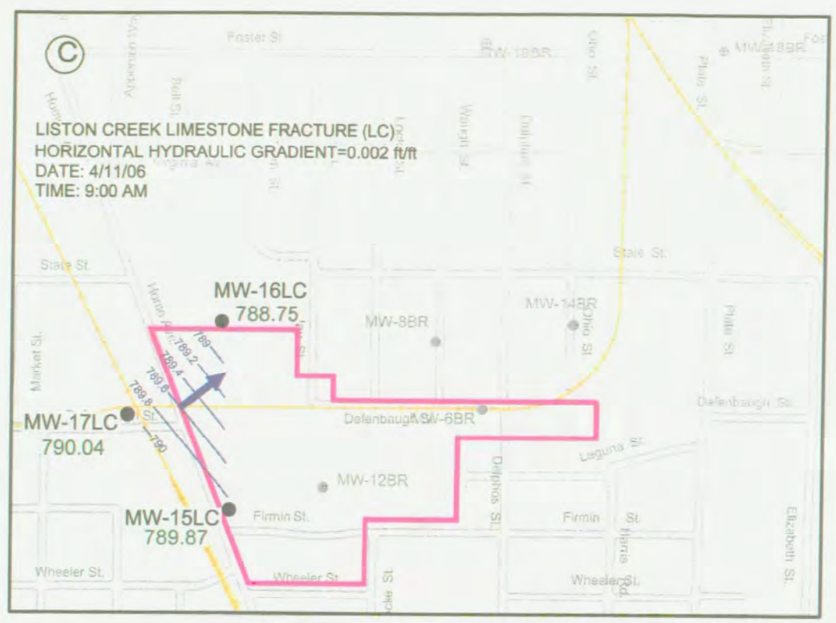


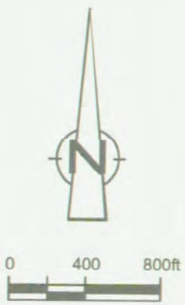
figure 6.16

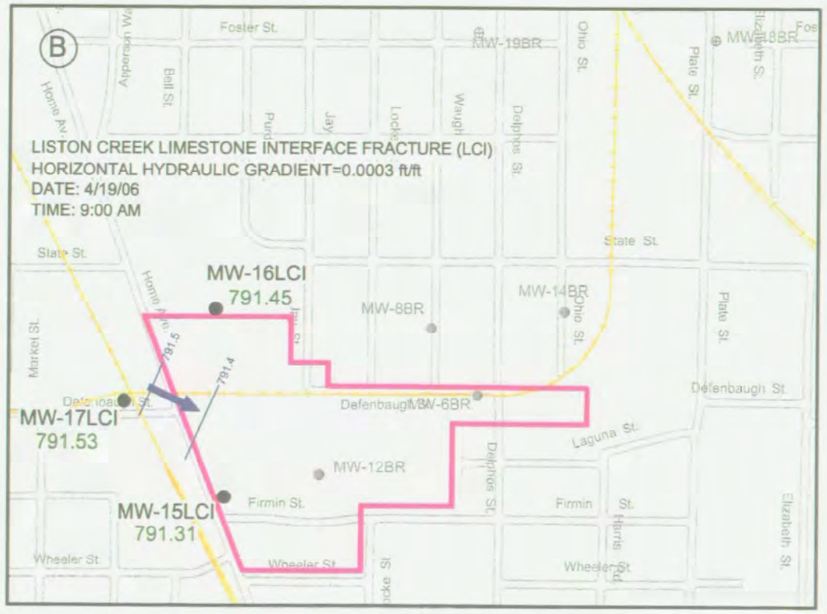
GROUP 2 WELLS PREDOMINANT GROUNDWATER FLOW DIRECTIONS-DCX NON-PUMPING CONDITIONS (DECEMBER, 2005)
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE003 MAR 27/2007









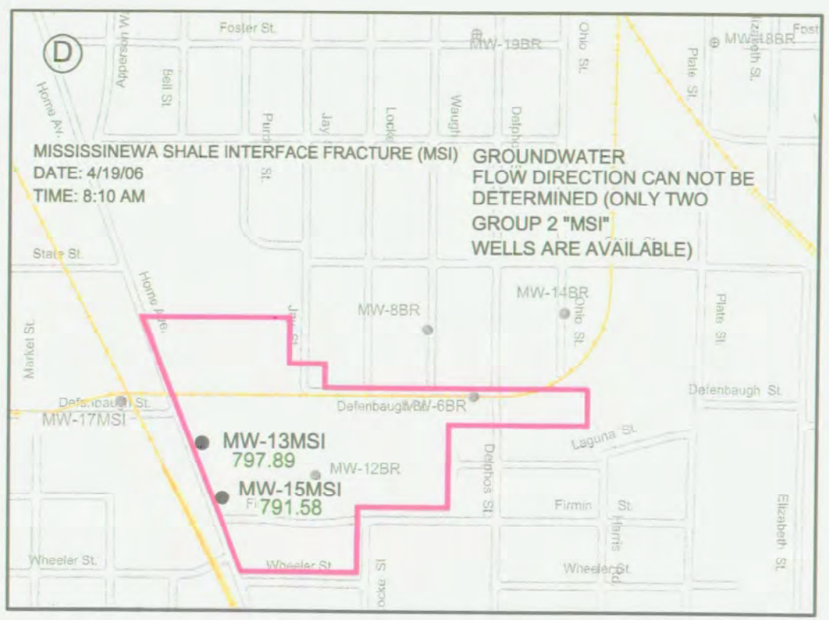


figure 6.17

GROUP 2 WELLS PREDOMINANT GROUNDWATER FLOW DIRECTIONS-DCX PUMPING CONDITONS (APRIL, 2006)
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE044 MAR 28/2007

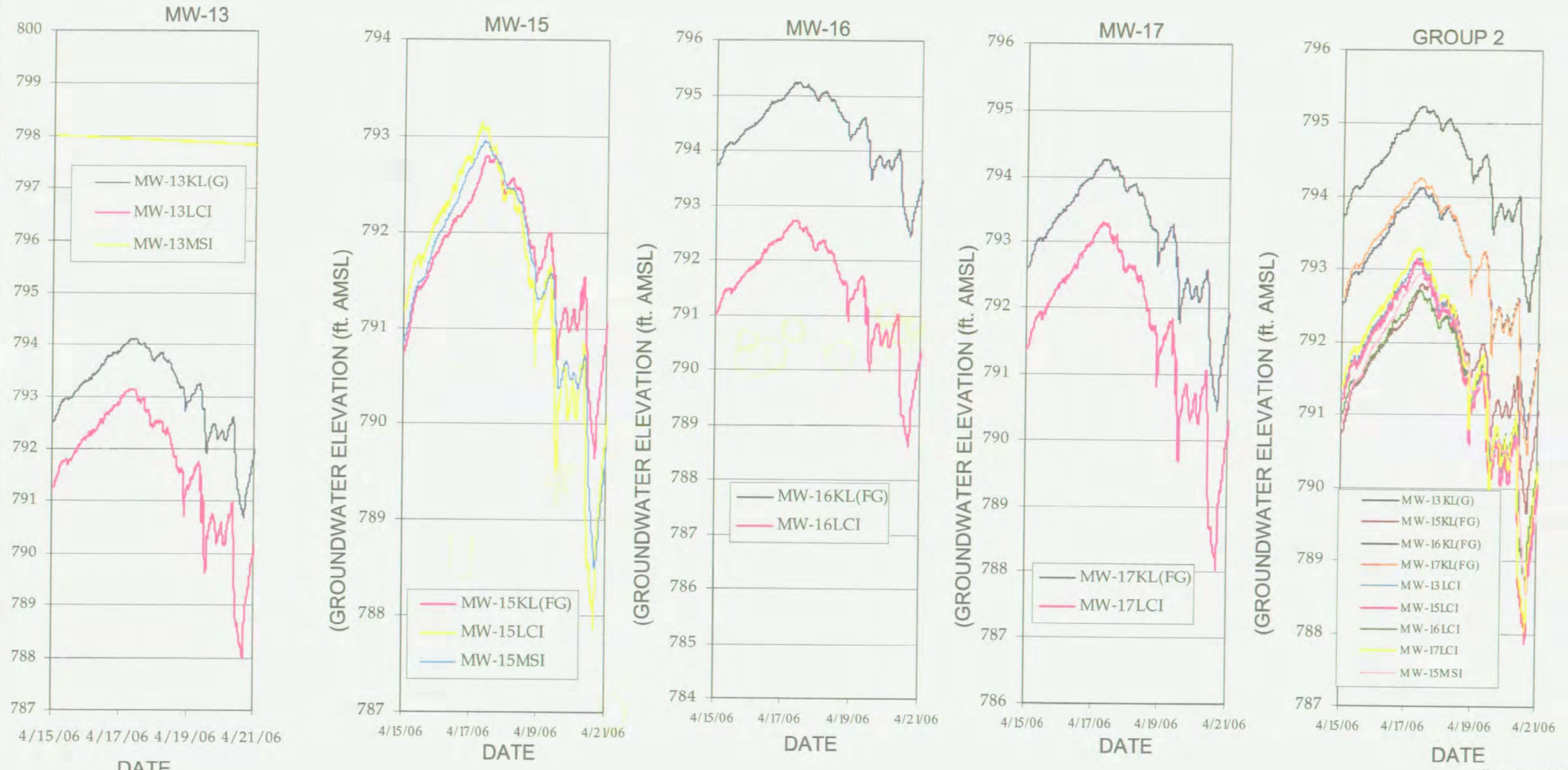


figure 6.18

GROUP 2 WELLS-VERTICAL HYDRAULIC GRADIENTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE048 MAR 28/2007

TWOH-86BRI (17.5-21ft bgs)	C-1,2-DCE	TCE	VC
12/08/00	0.0059	0.009	ND (0.002)
03/07/01	ND (0.0005)	ND (0.001)	0.0042
06/14/01	ND (0.001)	ND (0.001)	0.002
09/12/01	ND (0.0005)	ND (0.001)	ND (0.002)
12/01/01	ND (0.0005)	ND (0.001)	ND (0.002)
03/13/02	ND (0.0005)	ND (0.001)	0.0033
09/24/02	ND (0.0005)	ND (0.001)	ND (0.002)
12/03/02	ND (0.0005)	ND (0.001)	ND (0.002)
03/20/03	ND (0.0005)	ND (0.001)	ND (0.002)
06/03/03	ND (0.0005)	ND (0.001)	ND (0.002)
09/03/03	ND (0.0005)	ND (0.001)	ND (0.002)
12/04/03	ND (0.0005)	ND (0.001)	ND (0.002)
12/22/04	ND (0.001)	ND (0.001)	0.0032

MW-6BRI (21-23ft bgs)	C-1,2-DCE	TCE	VC
06/03/00	0.00055	ND (0.001)	0.019
12/04/00	0.001	ND (0.001)	0.033
03/09/01	0.00081/0.00076	ND (0.001)/ND (0.001)	0.0091/0.0096
06/13/01	ND (0.001)/ND (0.001)	0.001/ND (0.001)	0.003/ND (0.001)
09/11/01	0.0013	ND (0.001)	0.013
12/01/01	ND (0.0005)	ND (0.001)	ND (0.002)
03/12/02	ND (0.0005)	ND (0.001)	ND (0.002)
06/26/02	ND (0.0005)	ND (0.001)	ND (0.002)
09/24/02	0.00069	ND (0.001)	0.0065
12/03/02	0.00065	ND (0.001)	0.013
03/21/03	0.00083	ND (0.001)	0.012
06/03/03	0.0007	ND (0.001)	0.0087
09/04/03	0.00057	ND (0.001)	0.002
12/03/03	ND (0.0005)	ND (0.001)	ND (0.002)
06/14/04	ND (0.0005)	ND (0.001)	ND (0.002)
12/22/04	ND (0.001)	ND (0.001)	ND (0.001)

TWOH-39BRI (13.5-18.5ft bgs)	1,1-DCA	1,2-DCA	Acetone	Benzene	C-1,2-DCE	Chloroethane	TCE	VC
12/08/00	ND (0.031)	ND (0.31)	ND (0.31)	0.078	0.43	ND (0.062)	0.086	0.97
03/06/01	0.048	ND (0.02)	ND (0.2)	0.066	0.43	ND (0.04)	ND (0.02)	0.75
06/13/01	0.008	0.002	ND (0.1)	0.011	0.081	0.004	0.001	ND (0.001)
09/11/01	0.0018	ND (0.001)	0.01	0.002	0.014	ND (0.002)	ND (0.001)	0.033
12/01/01	0.004	ND (0.0025)	ND (0.025)	ND (0.0025)	0.043	ND (0.005)	ND (0.0025)	0.043
03/12/02	0.04	ND (0.017)	ND (0.17)	0.042	0.22	ND (0.033)	ND (0.017)	0.35
06/28/02	0.053	ND (0.025)	ND (0.25)	0.069	0.35	ND (0.05)	ND (0.025)	0.64
09/24/02	0.06	ND (0.02)	ND (0.2)	0.09	0.23	ND (0.04)	ND (0.02)	0.57
12/03/02	0.058	ND (0.025)	ND (0.25)	0.1	0.33	ND (0.05)	ND (0.025)	0.72
03/20/03	0.057 J	ND (0.02)	ND (0.2)	0.078 J	0.23 J	ND (0.04)	ND (0.02)	0.57 J
06/03/03	0.042	0.013	ND (0.01)	0.068	0.23	ND (0.002)	ND (0.001)	0.65
09/03/03	0.054	ND (0.025)	ND (0.25)	0.069	0.25	ND (0.05)	ND (0.025)	0.63
12/04/03	0.052	ND (0.02)	ND (0.2)	0.085	0.25	ND (0.04)	ND (0.02)	0.54
12/22/04	0.07	ND (0.012)	ND (0.12)	0.077	0.15	ND (0.012)	ND (0.012)	0.42
12/07/05	0.027	ND (0.0033)	ND (0.033)	0.037	0.045	ND (0.0033)	0.0036	0.17

TW-2153BRI (17-22ft bgs)	1,1-DCA	1,1-DCE	Benzene	C-1,2-DCE	T-1,2-DCE	TCE	VC
04/06/00	0.041	0.0051	0.014	0.39 D	0.0032	0.0023	0.072
12/05/00	0.08	ND (0.04)	ND (0.04)	0.73	ND (0.02)	ND (0.04)	0.17
03/08/01	0.074	ND (0.025)	ND (0.025)	0.63	ND (0.012)	ND (0.025)	0.13
06/12/01	0.093	0.007	0.016	0.92	0.004	0.003	0.22
09/12/01	0.11	ND (0.033)	ND (0.033)	0.73	ND (0.017)	ND (0.033)	0.21
12/01/01	0.13	ND (0.04)	ND (0.04)	0.97	ND (0.02)	ND (0.04)	0.24
03/13/02	0.091	ND (0.025)	ND (0.025)	0.7	ND (0.012)	ND (0.025)	0.14
06/27/02	0.094	ND (0.04)	ND (0.04)	0.84	ND (0.02)	ND (0.04)	0.15
09/23/02	0.12	ND (0.033)	ND (0.033)	0.93	ND (0.017)	ND (0.033)	0.18
12/03/02	0.068	ND (0.03)	ND (0.03)	0.8	ND (0.015)	ND (0.03)	0.24
03/21/03	0.077/0.079	ND (0.025)/ND (0.025)	ND (0.025)/ND (0.025)	0.7/0.7	ND (0.012)/ND (0.012)	ND (0.025)/ND (0.025)	0.18/0.18
06/03/03	0.055	ND (0.018)	ND (0.018)	0.55	ND (0.0091)	ND (0.018)	0.12
09/03/03	0.061	ND (0.025)	ND (0.025)	0.65	ND (0.012)	ND (0.025)	0.15
12/04/03	0.068	ND (0.025)	ND (0.025)	0.71	ND (0.012)	ND (0.025)	0.15
12/21/04	0.069	ND (0.025)	ND (0.025)	0.82	ND (0.025)	ND (0.025)	0.17
12/07/05	0.03/0.027	ND (0.01)/ND (0.012)	0.016/0.015	0.66/0.62	ND (0.01)/ND (0.012)	ND (0.01)/ND (0.012)	0.20/0.2

MW-10BRI (17-22ft bgs)	1,1-DCA	1,1-DCE	C-1,2-DCE	T-1,2-DCE	TCE	VC
12/08/00	ND (0.036)/ND (0.036)	ND (0.036)/ND (0.036)	0.57/0.58	ND (0.018)/ND (0.018)	1.3/1.3	ND (0.071)/ND (0.071)
03/07/01	ND (0.067)	ND (0.067)	1.7	ND (0.033)	0.82	ND (0.13)
06/12/01	0.028	0.003	1.8	0.045	0.32	0.006
09/11/01	ND (0.067)	ND (0.067)	1.9	ND (0.033)	0.45	ND (0.13)
12/01/01	ND (0.062)	ND (0.062)	2.4	ND (0.031)	0.14	ND (0.12)
03/12/02	ND (0.05)	ND (0.05)	1.4	ND (0.025)	0.39	ND (0.1)
06/28/02	ND (0.05)	ND (0.05)	1.4	ND (0.025)	0.37	ND (0.1)
09/23/02	ND (0.04)/ND (0.04)	ND (0.04)/ND (0.04)	1.3/1.4	ND (0.02)/ND (0.02)	0.6/0.58	ND (0.08)/ND (0.08)
12/03/02	ND (0.04)	ND (0.04)	1.1	ND (0.02)	0.62	ND (0.08)
03/20/03	ND (0.04)	ND (0.04)	1	ND (0.02)	0.96	ND (0.08)
06/02/03	ND (0.033)	ND (0.033)	1.2	ND (0.017)	0.42	ND (0.067)
09/02/03	ND (0.04)	ND (0.04)	1.1	ND (0.02)	0.52	ND (0.08)
12/04/03	ND (0.04)	ND (0.04)	1	ND (0.02)	0.44	ND (0.08)
12/22/04	ND (0.02)	ND (0.02)	0.8	ND (0.02)	0.76	0.032
12/07/05	0.019	ND (0.012)	0.71	ND (0.012)	0.59	0.055

MW-9BRI (16-20ft bgs)	1,1,1-TCA	1,1-DCA	1,1-DCE	C-1,2-DCE	T-1,2-DCE	TCE	VC
12/06/00	ND (0.017)	0.019	ND (0.017)	0.23	0.012	0.032	0.12
12/01/01	0.022/0.022	0.039/0.039	0.0017/ND (0.002)	0.025/0.026	0.0031/0.003	0.049/0.051	ND (0.0033)/ND (0.004)
12/02/02	0.016	0.036	ND (0.0033)	0.094	0.008	0.051	0.023
12/04/03	ND (0.01)	0.01	ND (0.01)	0.27	0.01	0.017	0.032
12/21/04	0.009	0.033	ND (0.005)	0.17	0.0098	0.032	0.026
12/06/05	ND (0.004)	0.012	ND (0.004)	0.2	0.007	0.022	0.043

MW-7BRI (31.5-25.5ft bgs)	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	C-1,2-DCE	Chloroethane	Chloroform	T-1,2-DCE	TCE	Toluene	VC
06/22/00	0.42	ND (0.17)	0.99	ND (0.17)	ND (0.17)	3.7	ND (0.33)	ND (0.17)	ND (0.063)	0.74	ND (0.17)	ND (0.33)
12/04/00	0.47	ND (0.4)	1.9	ND (0.4)	ND (0.4)	10	ND (0.8)	ND (0.4)	ND (0.2)	1.8	ND (0.4)	ND (0.8)
03/08/01	ND (0.62)	ND (0.62)	2.1	ND (0.62)	ND (0.62)	17	ND (1.2)	ND (0.62)	ND (0.31)	3.6	ND (0.62)	ND (1.2)
06/11/01	0.65/0.67	0.006/0.006	2.2/2.1	0.15/0.3	0.094/0.096	15/15	0.027/0.03	0.019/0.02	0.21/0.2	3.5/3.5	0.001/0.001	0.4/0.41
09/12/01	ND (0.83)	ND (0.83)	2.4	ND (0.83)	ND (0.83)	24	ND (1.7)	ND (0.83)	ND (0.42)	11	ND (0.83)	ND (1.7)
12/02/01	ND (0.33)	ND (0.33)	1.4	ND (0.33)	ND (0.33)	8.6	ND (0.67)	ND (0.33)	ND (0.17)	4	ND (0.33)	ND (0.67)
03/12/02	0.56	ND (0.33)	1.7	ND (0.33)	ND (0.33)	10	ND (0.67)	ND (0.33)	ND (0.17)	4.1	ND (0.33)	ND (0.67)
06/28/02	ND (0.5)	ND (0.5)	1.7	ND (0.5)	ND (0.5)	15	ND (1)	ND (0.5)	ND (0.25)	6.9	ND (0.5)	ND (1)
09/23/02	0.45	ND (0.33)	1.9	ND (0.33)	ND (0.33)	12	ND (0.67)	ND (0.33)	0.18	5	ND (0.33)	ND (0.67)
12/02/02	0.53	ND (0.4)	1.7	ND (0.4)	ND (0.4)	9.8	ND (0.8)	ND (0.4)	ND (0.2)	3.9	ND (0.4)	ND (0.8)
03/21/03	0.41	ND (0.2)	1.5	ND (0.2)	ND (0.2)	8.1	ND (0.4)	ND (0.2)	ND (0.1)	2	ND (0.2)	ND (0.4)
06/04/03	0.4	ND (0.25)	1.8	ND (0.25)	ND (0.25)	7.3	ND (0.5)	ND (0.25)	ND (0.12)	1.4	ND (0.25)	ND (0.5)
09/04/03	0.39	ND (0.33)	1.8	ND (0.33)	ND (0.33)	9.4	ND (0.67)	ND (0.33)	ND (0.17)	2.7	ND (0.33)	ND (0.67)
12/05/03	0.38	ND (0.33)	1.4	ND (0.33)	ND (0.33)	8	ND (0.67)	ND (0.33)	ND (0.17)	3.7	ND (0.33)	ND (0.67)
06/14/04	ND (0.5)	ND (0.5)	1.5	ND (0.5)	ND (0.5)	10	ND (1)	ND (0.5)	ND (0.25)	4.6	ND (0.5)	ND (1)
12/21/04	ND (0.33)	ND (0.33)	1.5	ND (0.33)	ND (0.33)	9.7	ND (0.33)	ND (0.33)	ND (0.33)	5.1	ND (0.33)	ND (0.33)
12/06/05	0.38	ND (0.1)	1.6	0.13	ND (0.1)	8.1	ND (0.1)	ND (0.1)	ND (0.1)	3.3	ND (0.1)	0.25

MW-12BRI (20-25ft bgs)	1,1-DCA	TCE	VC
03/22/03	ND (0.001)	ND (0.001)	ND (0.002)

TW-2120BRI (17.5-19.5ft bgs)	1,1,1-TCA	1,1-DCA	C-1,2-DCE	T-1,2-DCE	TCE	VC
12/08/00	ND (0.025)	0.27	0.51	0.016	0.72	ND (0.05)
12/02/01	ND (0.12)	0.12	0.49	ND (0.062)	3	ND (0.25)
12/02/02	0.072	0.2	1.4	ND (0.033)	2.2	ND (0.13)
12/05/03	ND (0.1)	0.31	2.5	ND (0.05)	2.2	ND (0.2)
12/22/04	ND (0.091)	0.33	2.8	ND (0.091)	2.4	0.11
12/07/05	0.042	0.24	0.61	0.03	0.52	0.036

MW-39BRI (17-20ft bgs)	1,1-DCA	1,1-DCE	Benzene	C-1,2-DCE	Chloroethane	Ethylbenzene	T-1,2-DCE	TCE	Toluene	VC
12/08/00	ND (0.42)/ND (0.33)	ND (0.42)/ND (0.33)	0.73/0.71	11/11	ND (0.83)/ND (0.67)	ND (0.42)/ND (0.33)	ND (0.21)/ND (0.17)	1.6/1.6	ND (0.42)/ND (0.33)	1/0.97
03/06/01	ND (0.25)	ND (0.25)	0.31	7.9	ND (0.5)	ND (0.25)	ND (0.12)	1.7	ND (0.25)	0.55
06/12/01	0.066	0.016	ND (0.5)	11	0.011	0.001	0.2	3.9	0.004	0.92
09/12/01	ND (0.2)	ND (0.2)	ND (0.2)	5.2	ND (0.4)	ND (0.2)	ND (0.1)	1.5	ND (0.2)	0.6
12/01/01	ND (0.071)	ND (0.071)	ND (0.071)	2.3	ND (0.14)	ND (0.071)	ND (0.036)	0.44	ND (0.071)	0.14
03/12/02	ND (0.33)	ND (0.33)	ND (0.33)	8.4	ND (0.67)	ND (0.33)	ND (0.17)	3.4	ND (0.33)	ND (0.67)
06/27/02	ND (0.26)	ND (0.26)	ND (0.26)	7.9	ND (0.5)	ND (0.26)	0.14	4	ND (0.25)	0.61
09/24/02	ND (0.31)/ND (0.25)	ND (0.31)/ND (0.25)	ND (0.31)/ND (0.25)	9.9/9.5	ND (0.82)/ND (0.5)	ND (0.31)/ND (0.25)	ND (0.16)/0.13	4.3/4.2	ND (0.31)/ND (0.25)	0.81/0.78
12/03/02	ND (0.4)	ND (0.4)	ND (0.4)	8.9	ND (0.8)	ND (0.4)	ND (0.2)	4.1	ND (0.4)	1
03/20/03	ND (0.4)	ND (0.4)	ND (0.4)	7.9	ND (0.8)	ND (0.4)	ND (0.2)	3.9	ND (0.4)	ND (0.8)
06/02/03	ND (0.25)	ND (0.25)	ND (0.25)	7.1	ND (0.5)	ND (0.25)	ND (0.12)	3.1	ND (0.25)	0.67
09/03/03	ND (0.33)	ND (0.33)	ND (0.33)	9.4	ND (0.67)	ND (0.33)	ND (0.17)	3.1	ND (0.33)	1
12/04/03	ND (0.14)	ND (0.14)	ND (0.14)	4.3	ND (0.29)	ND (0.14)	ND (0.071)	0.95	ND (0.14)	ND (0.29)
12/22/04	ND (0.33)	ND (0.33)	ND (0.33)	11	ND (0.33)	ND (0.33)	ND (0.33)	3	ND (0.33)	0.94
12/07/05	ND (0.17)	ND (0.17)	0.3	6.6	ND (0.17)	ND (0.17)	ND (0.17)	2.1	ND (0.17)	0.94

MW-6BRI (20-23ft bgs)	1,1-DCA	1,1-DCE	Benzene	C-1,2-DCE	Chloroethane	Ethylbenzene	T-1,2-DCE	Toluene	VC	Xylenes
06/22/00	ND (0.05)	ND (0.05)	1	0.17	ND (0.1)	ND (0.05)	ND (0.025)	ND (0.05)	ND (0.1)	0.069
06/23/00	ND (0.038)	ND (0.038)	1.5	-	ND (0.077)	1.2	-	1.6	0.11	4.3
12/05/00	ND (0.33)	ND (0.33)	12	0.27	ND (0.67)	ND (0.33)	ND (0.17)	ND (0.33)	ND (0.67)	ND (0.33)
03/09/01	ND (0.1)	ND (0.1)	2.8	0.19	ND (0.2)	ND (0.1)	ND (0.05)	ND (0.1)	ND (0.2)	ND (0.1)
06/12/01	0.036/0.061	0.001/ND (0.001)	2.5 J/1.5	0.13/1.5	0.19/0.002	0.019/0.15	0.001/0.011	0.021/0.24	0.036/0.36	0.11/0.4
12/01/01	ND (0.14)	ND (0.14)	3.9	ND (0.071)	ND (0.29)	ND (0.14)	ND (0.071)	ND (0.14)	ND (0.29)	ND (0.14)
06/29/02	ND (0.14)	ND (0.14)	4.7	ND (0.071)	ND (0.29)	ND (0.14)	ND (0.071)	ND (0.14)	ND (0.29)	ND (0.14)
12/02/02	ND (0.2)	ND (0.2)	5.1	ND (0.1)	ND (0.4)	ND (0.2)	ND (0.1)	ND (0.2)	ND (0.4)	0.22
06/02/03	ND (0.11)	ND (0.11)	3	0.096	ND (0.22)	ND (0.11)	ND (0.056)	ND (0.11)	ND (0.22)	ND (0.11)
12/04/03	ND (0.1)/0.0021	ND (0.1)/ND (0.002)	3.1/ND (0.002)	0.15/0.0041	ND (0.2)/ND (0.004)	ND (0.1)/ND (0.002)	ND (0.05)/ND (0.001)	ND (0.1)/ND (0.002)	ND (0.2)/ND (0.004)	ND (0.1)/ND (0.002)
12/21/04	0.078/0.064	ND (0.033)/ND (0.033)	1.1/0.79	0.47/0.4	ND (0.033)/ND (0.033)	ND (0.033)/ND (0.033)	ND (0.033)/ND (0.033)	ND (0.033)/ND (0.033)	0.092/0.052	ND (0.067)/ND (0.067)
12/06/05	ND (0.083)	ND (0.083)	4.9	0.096	ND (0.083)	ND (0.083)	ND (0.083)	ND (0.083)	ND (0.083)	ND (0.17)

MW-11BRI (17-22ft bgs)	1,1-DCA	Toluene	Xylenes
12/07/00	0.001	0.001	0.0012
12/01/01	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)
12/02/02	0.001	ND (0.001)	ND (0.001)
12/04/03	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)

LEGEND

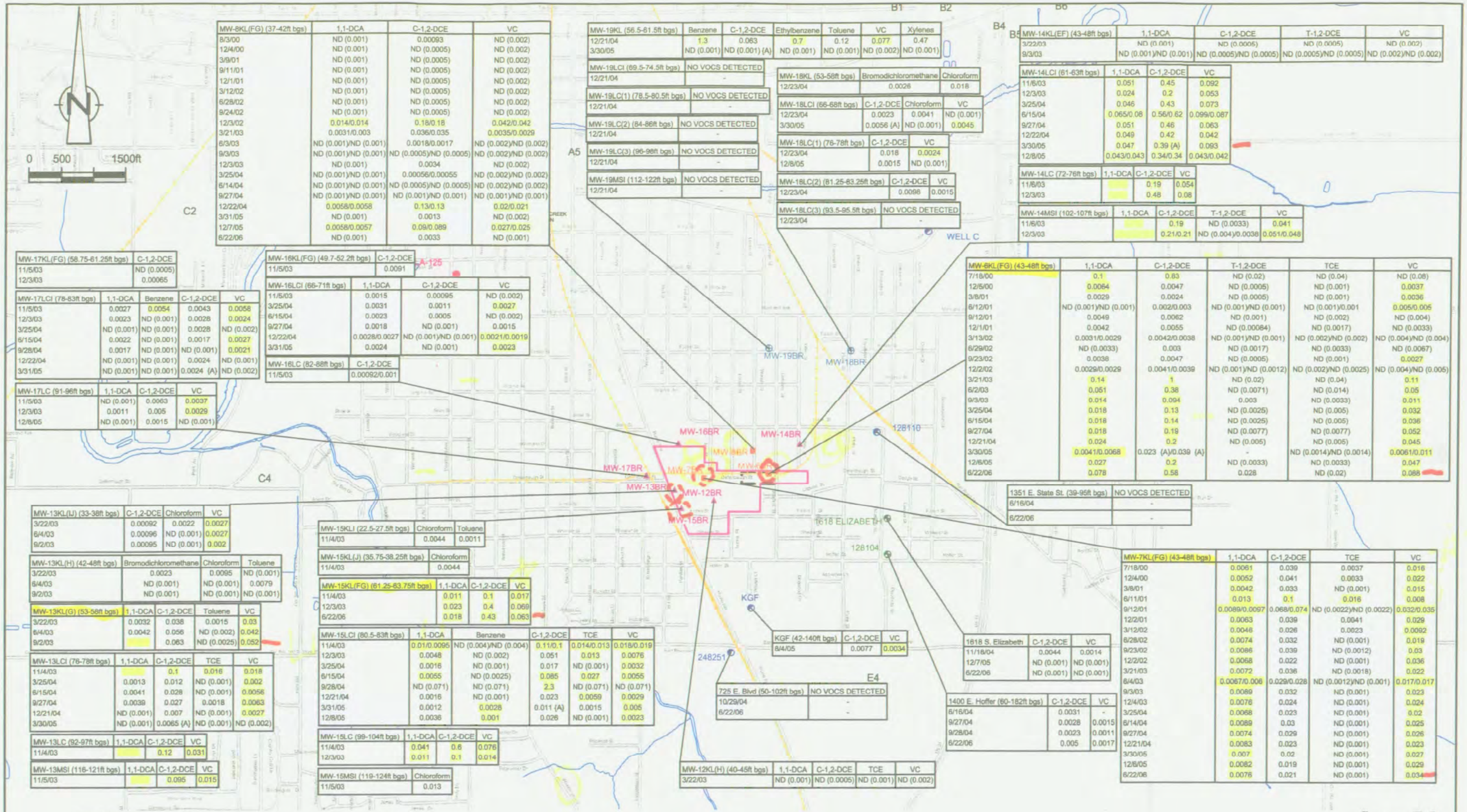
VOLATILE ORGANIC CHEMICAL CONCENTRATION EXCEEDS U.S. EPA MAXIMUM CONTAMINATION LEVEL (MCL)

1,1,1-TCA = 1,1,1-TRICHLOROETHANE IN mg/L, MCL=0.2 mg/L
TOLUENE IN mg/L, MCL =1.0 mg/L
ETHYLBENZENE IN mg/L, MCL =0.7 mg/L
BENZENE IN mg/L, MCL =0.005 mg/L
1,1-DCA = 1,1-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
1,2-DCA = 1,2-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
C-1,2-DCE = CIS-1,2-DICHLOROETHENE IN mg/L, MCL=0.07 mg/L
T-1,2-DCE = TRANS-1,2 DICHLOROETHENE IN mg/L, MCL=0.1 mg/L
TCE = TRICHLOROETHENE IN mg/L, MCL=0.005 mg/L
VC = VINYL CHLORIDE IN mg/L, MCL=0.002 mg/L
J = ESTIMATED VALUE

figure 7.1

SUMMARY OF VOC DETECTIONS IN GROUNDWATER
BEDROCK INTERFACE ZONE
CURRENT CONDITIONS SUMMARY
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE053 MAR 28/2007



WELL ID SUFFIX

KL KOKOMO LIMESTONE
(IJ)(G) (FG)(H) GAMMA PEAKS WITHIN THE KOKOMO LIMESTONE
LCI LISTON CREEK LIMESTONE INTERFACE WITH KL
LC LISTON CREEK LIMESTONE
(1) UPPERMOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
(2) 2nd MOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
MSI MISSISSINEWA SHALE INTERFACE WITH LC

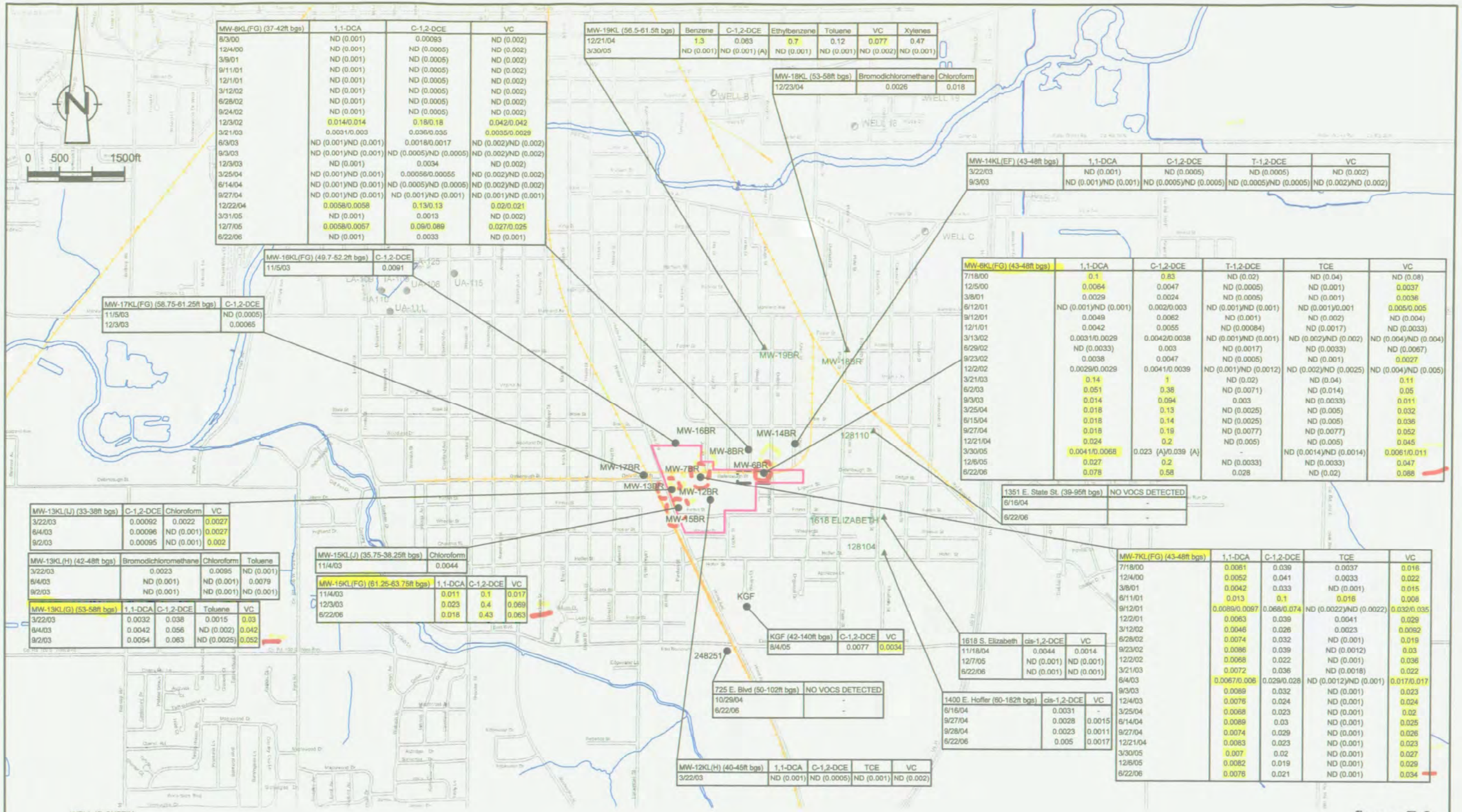
LEGEND

MW-#BR PHASE I BEDROCK MONITORING WELL
MW-14BR PHASE II BEDROCK MONITORING WELL
MW-18BR PHASE III BEDROCK MONITORING WELL
WELL 21 INDIANA AMERICAN WELL
128104 RESIDENTIAL WELL ADDRESS AND IDNR/IDEM REFERENCE NUMBER
VOLATILE ORGANIC CHEMICAL CONCENTRATION EXCEEDS U.S. EPA MAXIMUM CONTAMINATION LEVEL (MCL)
1,1-DCA = 1,1-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
C-1,2-DCE = CIS-1,2-DICHLOROETHENE IN mg/L, MCL=0.07 mg/L
T-1,2-DCE = TRANS-1,2 DICHLOROETHENE IN mg/L, MCL=0.1 mg/L
TCE = TRICHLOROETHENE IN mg/L, MCL=0.005 mg/L
VC = VINYL CHLORIDE IN mg/L, MCL=0.002 mg/L
J = ESTIMATED VALUE
TOLUENE MCL = 1.0 mg/L
BENZENE MCL = 0.005 mg/L
ETHYLBENZENE MCL = 0.7 mg/L

figure 7.2

SUMMARY OF VOC DETECTIONS IN GROUNDWATER BEDROCK ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE049 MAR 28/2007



MW-8KL(FG) (37-42ft bgs)	1,1-DCA	C-1,2-DCE	VC
8/3/00	ND (0.001)	0.00093	ND (0.002)
12/4/00	ND (0.001)	ND (0.0005)	ND (0.002)
3/9/01	ND (0.001)	ND (0.0005)	ND (0.002)
9/11/01	ND (0.001)	ND (0.0005)	ND (0.002)
12/1/01	ND (0.001)	ND (0.0005)	ND (0.002)
3/12/02	ND (0.001)	ND (0.0005)	ND (0.002)
6/28/02	ND (0.001)	ND (0.0005)	ND (0.002)
9/24/02	ND (0.001)	ND (0.0005)	ND (0.002)
12/3/02	0.014/0.014	0.18/0.18	0.042/0.042
3/21/03	0.0031/0.003	0.036/0.035	0.0035/0.0029
6/3/03	ND (0.001)/ND (0.001)	0.0018/0.0017	ND (0.002)/ND (0.002)
9/3/03	ND (0.001)/ND (0.001)	ND (0.0005)/ND (0.0005)	ND (0.002)/ND (0.002)
12/3/03	ND (0.001)	0.0034	ND (0.002)
3/25/04	ND (0.001)/ND (0.001)	0.00056/0.00055	ND (0.002)/ND (0.002)
6/14/04	ND (0.001)/ND (0.001)	ND (0.0005)/ND (0.0005)	ND (0.002)/ND (0.002)
9/27/04	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)	ND (0.001)/ND (0.001)
12/22/04	0.0058/0.0058	0.13/0.13	0.02/0.021
3/31/05	ND (0.001)	0.0013	ND (0.002)
12/7/05	0.0058/0.0057	0.09/0.089	0.027/0.025
6/22/06	ND (0.001)	0.0033	ND (0.001)

MW-19KL (56.5-61.5ft bgs)	Benzene	C-1,2-DCE	Ethylbenzene	Toluene	VC	Xylenes
12/21/04	1.3	0.083	0.7	0.12	0.077	0.47
3/30/05	ND (0.001)	ND (0.001) (A)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)

MW-18KL (53-58ft bgs)	Bromodichloromethane	Chloroform
12/23/04	0.0026	0.018

MW-14KL(EF) (43-48ft bgs)	1,1-DCA	C-1,2-DCE	T-1,2-DCE	VC
3/22/03	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.002)
9/3/03	ND (0.001)/ND (0.001)	ND (0.0005)/ND (0.0005)	ND (0.0005)/ND (0.0005)	ND (0.002)/ND (0.002)

MW-16KL(FG) (49.7-52.2ft bgs)	C-1,2-DCE
11/5/03	0.0091

MW-17KL(FG) (58.75-61.25ft bgs)	C-1,2-DCE
11/5/03	ND (0.0005)
12/3/03	0.00065

MW-6KL(FG) (43-48ft bgs)	1,1-DCA	C-1,2-DCE	T-1,2-DCE	TCE	VC
7/18/00	0.1	0.83	ND (0.02)	ND (0.04)	ND (0.08)
12/5/00	0.0064	0.0047	ND (0.0005)	ND (0.001)	0.0037
3/8/01	0.0029	0.0024	ND (0.0005)	ND (0.001)	0.0036
6/12/01	ND (0.001)/ND (0.001)	0.002/0.003	ND (0.001)/ND (0.001)	ND (0.001)/0.001	0.005/0.005
9/12/01	0.0049	0.0062	ND (0.001)	ND (0.002)	ND (0.004)
12/1/01	0.0042	0.0055	ND (0.00084)	ND (0.0017)	ND (0.0033)
3/13/02	0.0031/0.0029	0.0042/0.0038	ND (0.001)/ND (0.001)	ND (0.002)/ND (0.002)	ND (0.004)/ND (0.004)
6/29/02	ND (0.0033)	0.003	ND (0.0017)	ND (0.0033)	ND (0.0067)
9/23/02	0.0038	0.0047	ND (0.0005)	ND (0.001)	0.0027
12/2/02	0.0029/0.0029	0.0041/0.0039	ND (0.001)/ND (0.0012)	ND (0.002)/ND (0.0025)	ND (0.004)/ND (0.005)
3/21/03	0.14	1	ND (0.02)	ND (0.04)	0.11
6/2/03	0.051	0.38	ND (0.0071)	ND (0.014)	0.05
9/3/03	0.014	0.094	0.003	ND (0.0033)	0.011
3/25/04	0.018	0.13	ND (0.0025)	ND (0.005)	0.032
6/15/04	0.018	0.14	ND (0.0025)	ND (0.005)	0.036
9/27/04	0.018	0.19	ND (0.0077)	ND (0.0077)	0.052
12/21/04	0.024	0.2	ND (0.005)	ND (0.005)	0.045
3/30/05	0.0041/0.0068	0.023 (A)/0.039 (A)	-	ND (0.0014)/ND (0.0014)	0.0061/0.011
12/6/05	0.027	0.2	ND (0.0033)	ND (0.0033)	0.047
6/22/06	0.078	0.58	0.028	ND (0.02)	0.088

1351 E. State St. (39-95ft bgs)	NO VOCS DETECTED
6/16/04	-
6/22/06	-

MW-13KL(J) (33-38ft bgs)	C-1,2-DCE	Chloroform	VC
3/22/03	0.00092	0.0022	0.0027
6/4/03	0.00096	ND (0.001)	0.0027
9/2/03	0.00095	ND (0.001)	0.002

MW-13KL(H) (42-48ft bgs)	Bromodichloromethane	Chloroform	Toluene
3/22/03	0.0023	0.0095	ND (0.001)
6/4/03	ND (0.001)	ND (0.001)	0.0079
9/2/03	ND (0.001)	ND (0.001)	ND (0.001)

MW-13KL(G) (53-58ft bgs)	1,1-DCA	C-1,2-DCE	Toluene	VC
3/22/03	0.0032	0.038	0.0015	0.03
6/4/03	0.0042	0.056	ND (0.002)	0.042
9/2/03	0.0054	0.063	ND (0.0025)	0.052

MW-15KL(J) (35.75-38.25ft bgs)	Chloroform
11/4/03	0.0044

MW-15KL(FG) (61.25-63.75ft bgs)	1,1-DCA	C-1,2-DCE	VC
11/4/03	0.011	0.1	0.017
12/3/03	0.023	0.4	0.069
6/22/06	0.018	0.43	0.063

KGF (42-140ft bgs)	C-1,2-DCE	VC
8/4/05	0.0077	0.0034

1618 S. Elizabeth	cis-1,2-DCE	VC
11/18/04	0.0044	0.0014
12/7/05	ND (0.001)	ND (0.001)
6/22/06	ND (0.001)	ND (0.001)

725 E. Blvd (50-102ft bgs)	NO VOCS DETECTED
10/29/04	-
6/22/06	-

1400 E. Hofler (80-182ft bgs)	cis-1,2-DCE	VC
6/16/04	0.0031	-
9/27/04	0.0028	0.0015
9/28/04	0.0023	0.0011
6/22/06	0.005	0.0017

MW-12KL(H) (40-45ft bgs)	1,1-DCA	C-1,2-DCE	TCE	VC
3/22/03	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.002)

MW-7KL(FG) (43-48ft bgs)	1,1-DCA	C-1,2-DCE	TCE	VC
7/18/00	0.0081	0.039	0.0037	0.016
12/4/00	0.0052	0.041	0.0033	0.022
3/8/01	0.0042	0.033	ND (0.001)	0.015
6/11/01	0.013	0.1	0.016	0.008
9/12/01	0.0089/0.0097	0.068/0.074	ND (0.0022)/ND (0.0022)	0.032/0.035
12/2/01	0.0063	0.039	0.0041	0.029
3/12/02	0.0046	0.026	0.0023	0.0092
6/28/02	0.0074	0.032	ND (0.001)	0.019
9/23/02	0.0086	0.039	ND (0.0012)	0.03
12/2/02	0.0068	0.022	ND (0.001)	0.036
3/21/03	0.0072	0.036	ND (0.0018)	0.022
6/4/03	0.0067/0.006	0.029/0.028	ND (0.0012)/ND (0.001)	0.017/0.017
9/3/03	0.0089	0.032	ND (0.001)	0.023
12/4/03	0.0076	0.024	ND (0.001)	0.024
3/25/04	0.0068	0.023	ND (0.001)	0.02
6/14/04	0.0089	0.03	ND (0.001)	0.025
9/27/04	0.0074	0.029	ND (0.001)	0.026
12/21/04	0.0083	0.023	ND (0.001)	0.023
3/30/05	0.007	0.02	ND (0.001)	0.027
12/6/05	0.0082	0.019	ND (0.001)	0.029
6/22/06	0.0076	0.021	ND (0.001)	0.034

WELL ID SUFFIX

KL KOKOMO LIMESTONE
(IJ)(G) (FG)(H) GAMMA PEAKS WITHIN THE KOKOMO LIMESTONE
LCI LISTON CREEK LIMESTONE INTERFACE WITH KL
LC LISTON CREEK LIMESTON
(1) UPPERMOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
(2) 2nd MOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
MSI MISSISSINEWA SHALE WITH LC INTERFACE

LEGEND

▲ MW-18BR GROUP 1 MONITORING WELL
● MW-16BR GROUP 2 MONITORING WELL
WELL 21 INDIANA AMERICAN WELL

VOLATILE ORGANIC CHEMICAL CONCENTRATION EXCEEDS U.S. EPA MAXIMUM CONTAMINATION LEVEL (MCL)
1,1-DCA = 1,1-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
C-1,2-DCE = CIS-1,2-DICHLOROETHENE IN mg/L, MCL=0.07 mg/L
1,1,1-TCA = 1,1,1-TRICHLOROETHANE IN mg/L, MCL=0.2 mg/L
T-1,2-DCE = TRANS-1,2 DICHLOROETHENE IN mg/L, MCL=0.1 mg/L
TCE = TRICHLOROETHENE IN mg/L, MCL=0.005 mg/L
VC = VINYL CHLORIDE IN mg/L, MCL=0.002 mg/L
J = ESTIMATED VALUE
TOLUENE MCL = 1.0 mg/L
BENZENE MCL = 0.005 mg/L
ETHYLBENZENE MCL = 0.7 mg/L

figure 7.3

SUMMARY OF GROUNDWATER VOC DETECTIONS IN KOKOMO LIMESTONE FLOW ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE070 MAR 28/2007

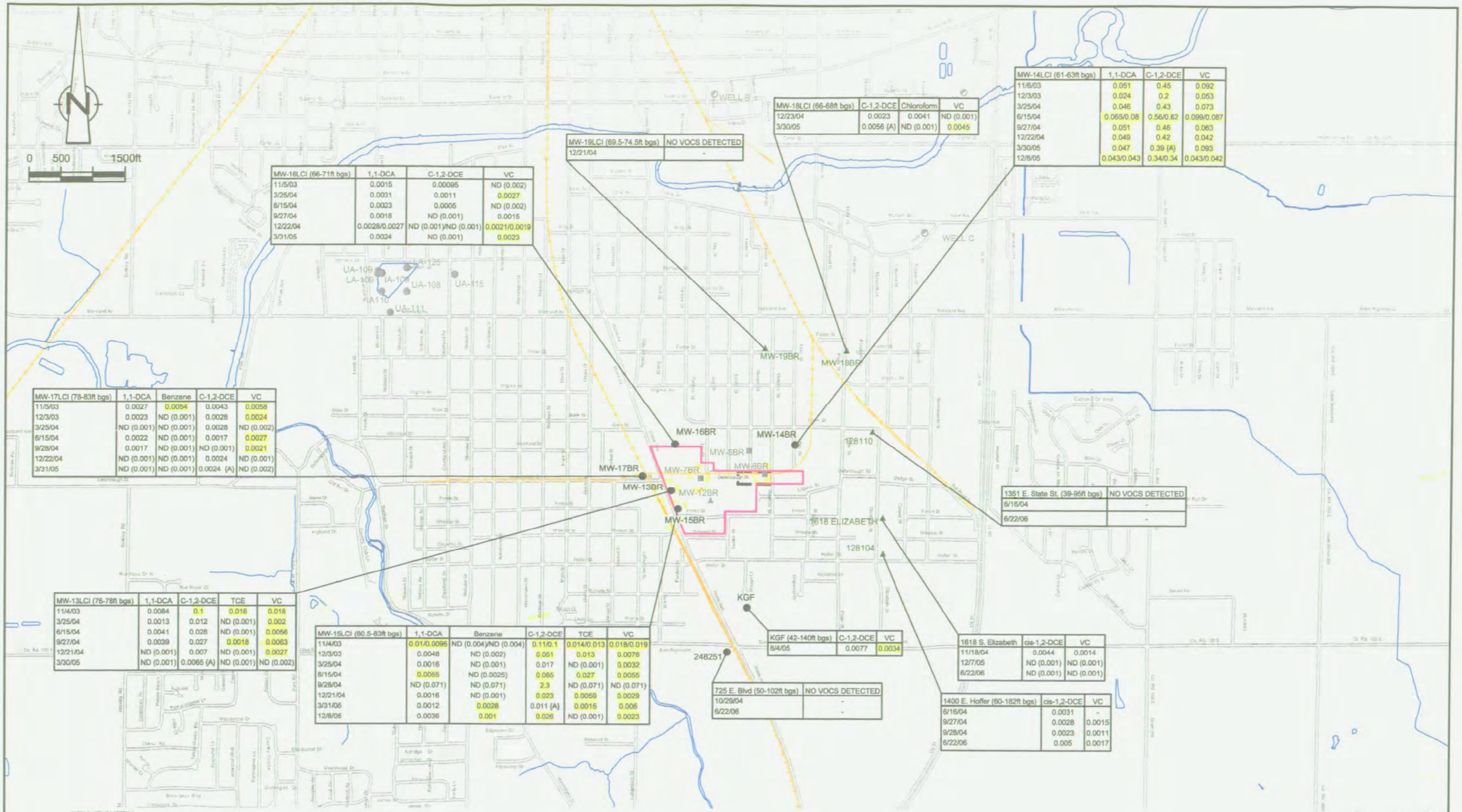


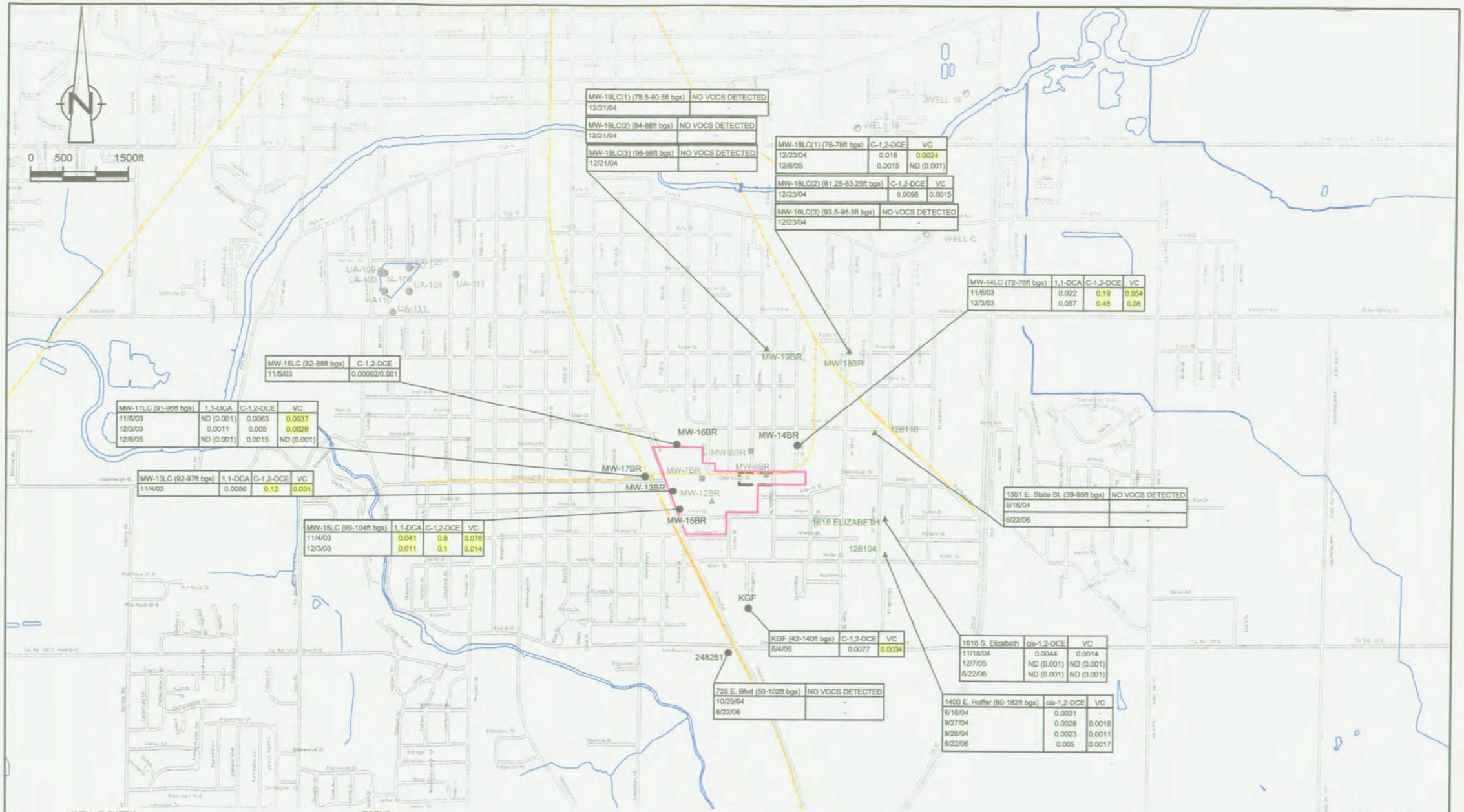
figure 7.4

SUMMARY OF GROUNDWATER VOC DETECTIONS IN LISTON CREEK INTERFACE FLOW ZONE

BEDROCK CHARACTERIZATION REPORT

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY

Kokomo, Indiana



WELL ID SUFFIX

- KL KOKOMO LIMESTONE
- (IJ)(G) (FG)(H) GAMMA PEAKS WITHIN THE KOKOMO LIMESTONE
- LCI LISTON CREEK LIMESTONE INTERFACE WITH KL
- LC LISTON CREEK LIMESTON
- (1) UPPERMOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
- (2) 2nd MOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
- MSI MISSISSINEWA SHALE WITH LC INTERFACE

LEGEND

- ▲ MW-6BR GROUP 1 MONITORING WELL
- ● MW-14BR GROUP 2 MONITORING WELL
- ◎ WELL 21 INDIANA AMERICAN WELL

VOLATILE ORGANIC CHEMICAL CONCENTRATION EXCEEDS U.S. EPA MAXIMUM CONTAMINATION LEVEL (MCL)
1,1-DCA = 1,1-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
C-1,2-DCE = CIS-1,2-DICHLOROETHENE IN mg/L, MCL=0.07 mg/L
1,1,1-TCA = 1,1,1-TRICHLOROETHANE IN mg/L, MCL=0.2 mg/L
T-1,2-DCE = TRANS-1,2 DICHLOROETHENE IN mg/L, MCL=0.1 mg/L
TCE = TRICHLOROETHENE IN mg/L, MCL=0.005 mg/L
VC = VINYL CHLORIDE IN mg/L, MCL=0.002 mg/L
J = ESTIMATED VALUE
TOLUENE MCL = 1.0 mg/L
BENZENE MCL = 0.005 mg/L
ETHYLBENZENE MCL = 0.7 mg/L

figure 7.5

SUMMARY OF GROUNDWATER VOC DETECTIONS IN LISTON CREEK FLOW ZONE

BEDROCK CHARACTERIZATION REPORT

DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION

PLANT 1 PROPERTY

Kokomo, Indiana

13477-31(029)GN-DE072 MAR 28/2007

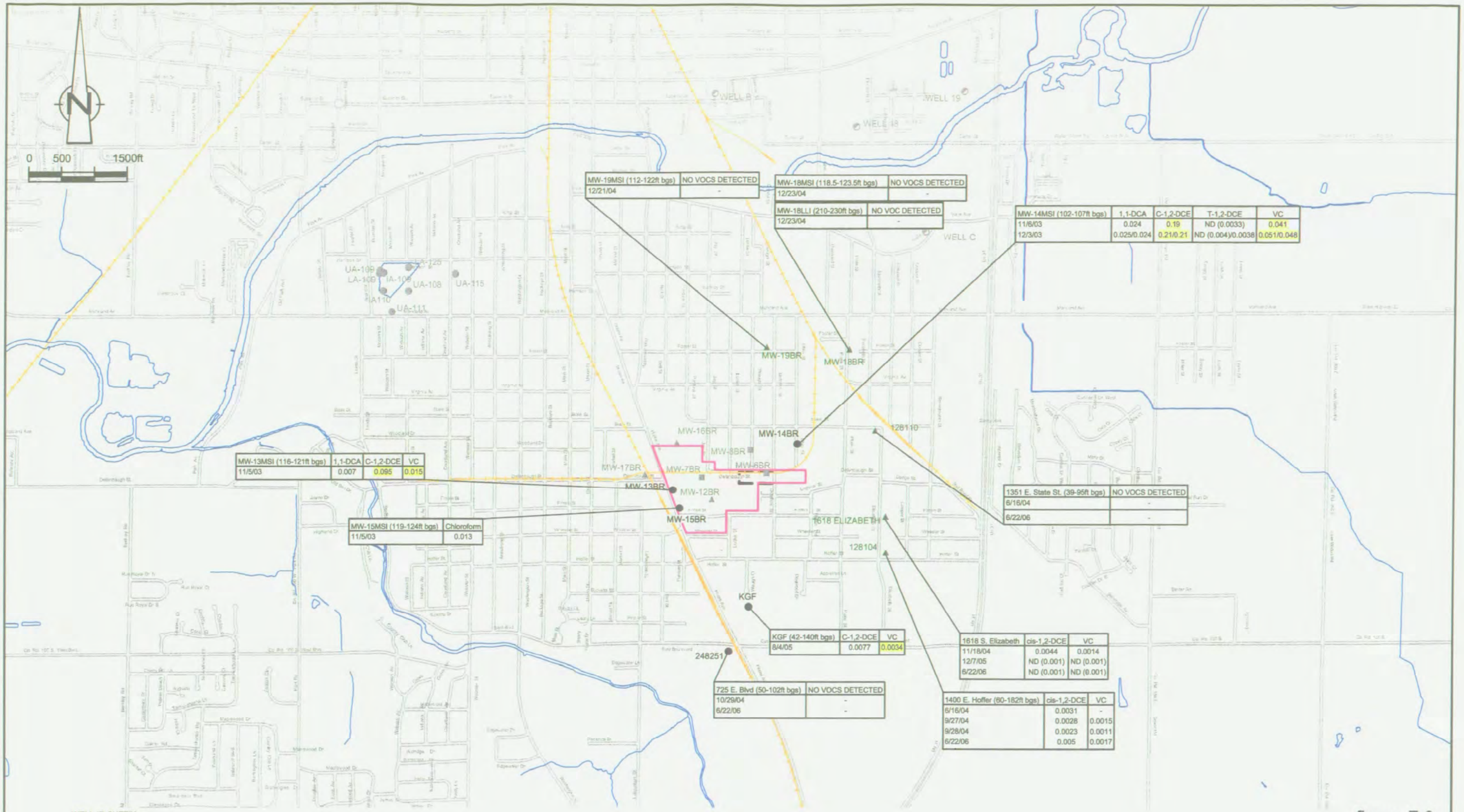


figure 7.6

SUMMARY OF GROUNDWATER VOC DETECTIONS IN MISSISSINEWA SHALE AND LOUISVILLE LIMESTONE FLOW ZONE

BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

WELL ID SUFFIX

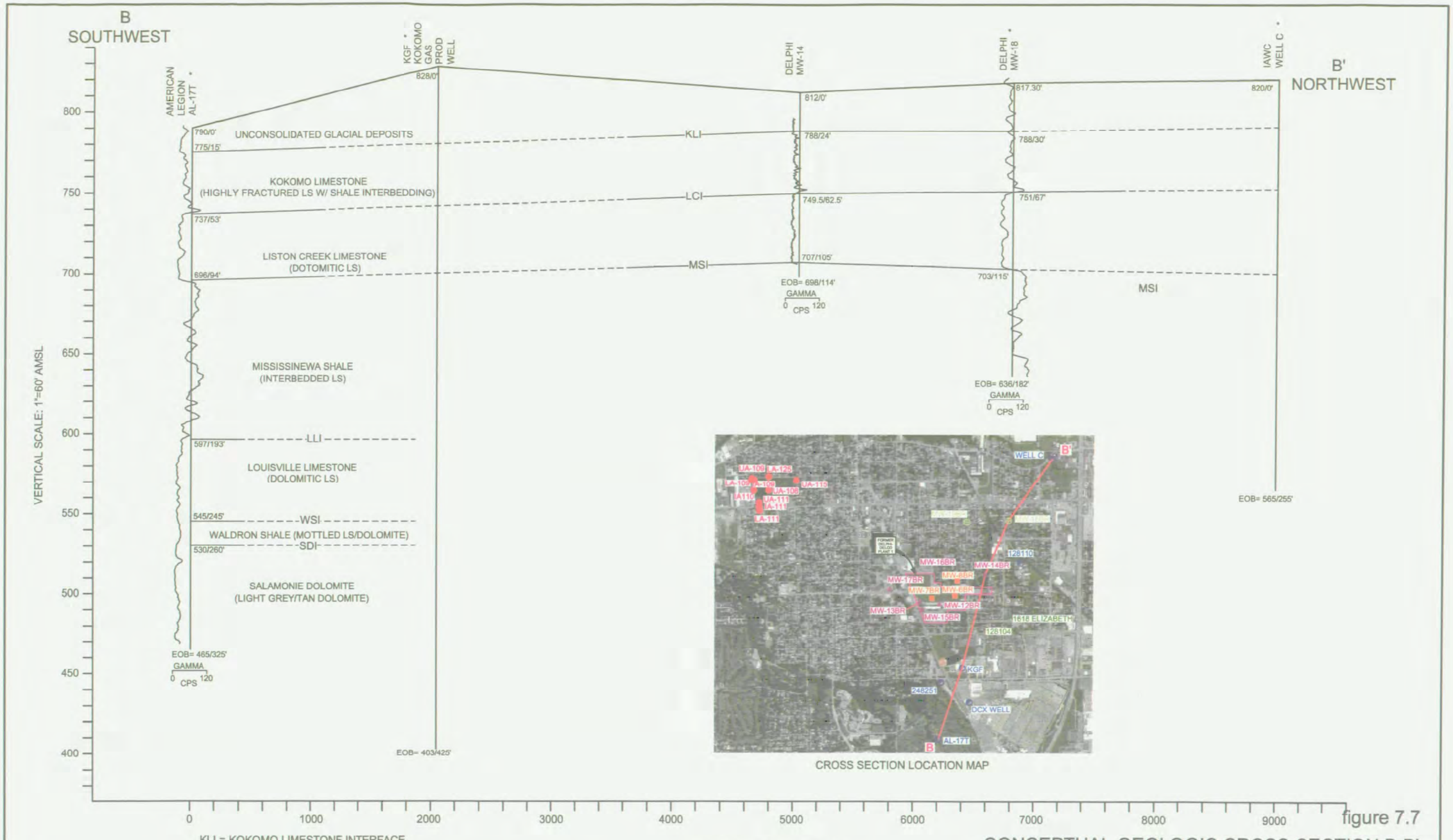
KL KOKOMO LIMESTONE
(IJ)(G) (FG)(H) GAMMA PEAKS WITHIN THE KOKOMO LIMESTONE
LCI LISTON CREEK LIMESTONE INTERFACE WITH KL
LC LISTON CREEK LIMESTON
(1) UPPERMOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
(2) 2nd MOST HYDRAULICALLY SIGNIFICANT FRACTURE IDENTIFIED WITHIN LISTON CREEK LS
MSI MISSISSINEWA SHALE WITH LC INTERFACE

LEGEND

▲ MW-18BR GROUP 1 MONITORING WELL
● MW-16BR GROUP 2 MONITORING WELL
WELL 21 INDIANA AMERICAN WELL

VOLATILE ORGANIC CHEMICAL CONCENTRATION EXCEEDS U.S. EPA MAXIMUM CONTAMINATION LEVEL (MCL)
1,1-DCA = 1,1-DICHLOROETHANE IN mg/L, MCL=0.005 mg/L
C-1,2-DCE = CIS-1,2-DICHLOROETHENE IN mg/L, MCL=0.07 mg/L
1,1,1-TCA = 1,1,1-TRICHLOROETHANE IN mg/L, MCL=0.2 mg/L
T-1,2-DCE = TRANS-1,2 DICHLOROETHENE IN mg/L, MCL=0.1 mg/L
TCE = TRICHLOROETHENE IN mg/L, MCL=0.005 mg/L
VC = VINYL CHLORIDE IN mg/L, MCL=0.002 mg/L
J = ESTIMATED VALUE
TOLUENE MCL = 1.0 mg/L
BENZENE MCL = 0.005 mg/L
ETHYLBENZENE MCL = 0.7 mg/L

13477-31(029)GN-DE073 MAR 28/2007



CROSS SECTION LOCATION MAP

KLI = KOKOMO LIMESTONE INTERFACE
LCI = LISTON CREEK LIMESTONE INTERFACE
MSI = MISSISSINEWA SHALE INTERFACE
LLI = LOUISVILLE LIMESTONE INTERFACE
WSI = WALDRON SHALE INTERFACE
SDI = SALAMONIE DOLAMITE INTERFACE
EOB = END OF BOREHOLE

* ESTIMATED ELEVATION

775/15' = FEET ABOVE MEAN SEA LEVEL/
FEET BELOW GROUND SURFACE

HORIZONTAL SCALE: 1"=800'
VERTICAL SCALE: 1"=60' AMSL

figure 7.7

CONCEPTUAL GEOLOGIC CROSS-SECTION B-B'
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE062 MAR 28/2007

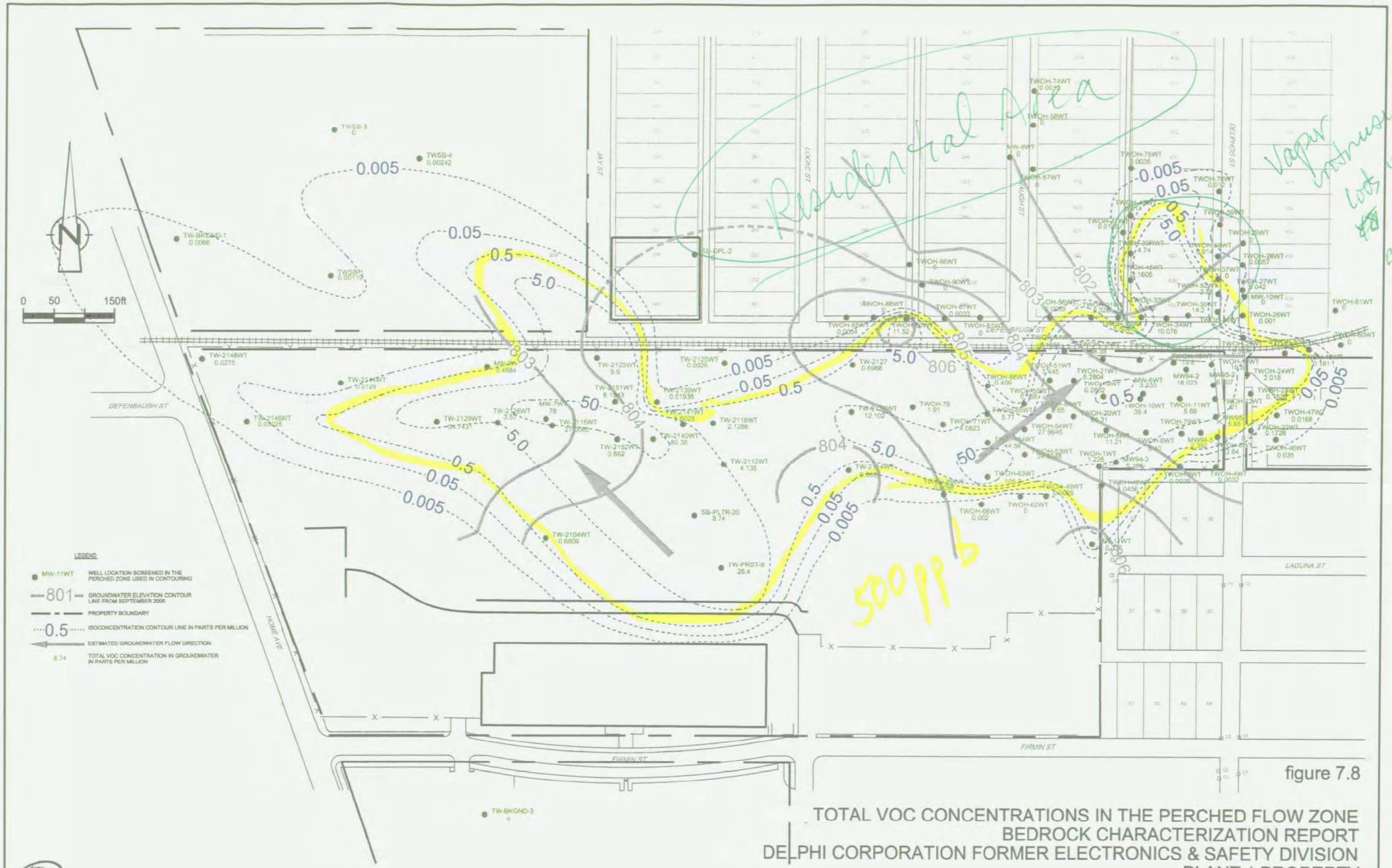


figure 7.8

TOTAL VOC CONCENTRATIONS IN THE PERCHED FLOW ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE069 MAR 28/2007

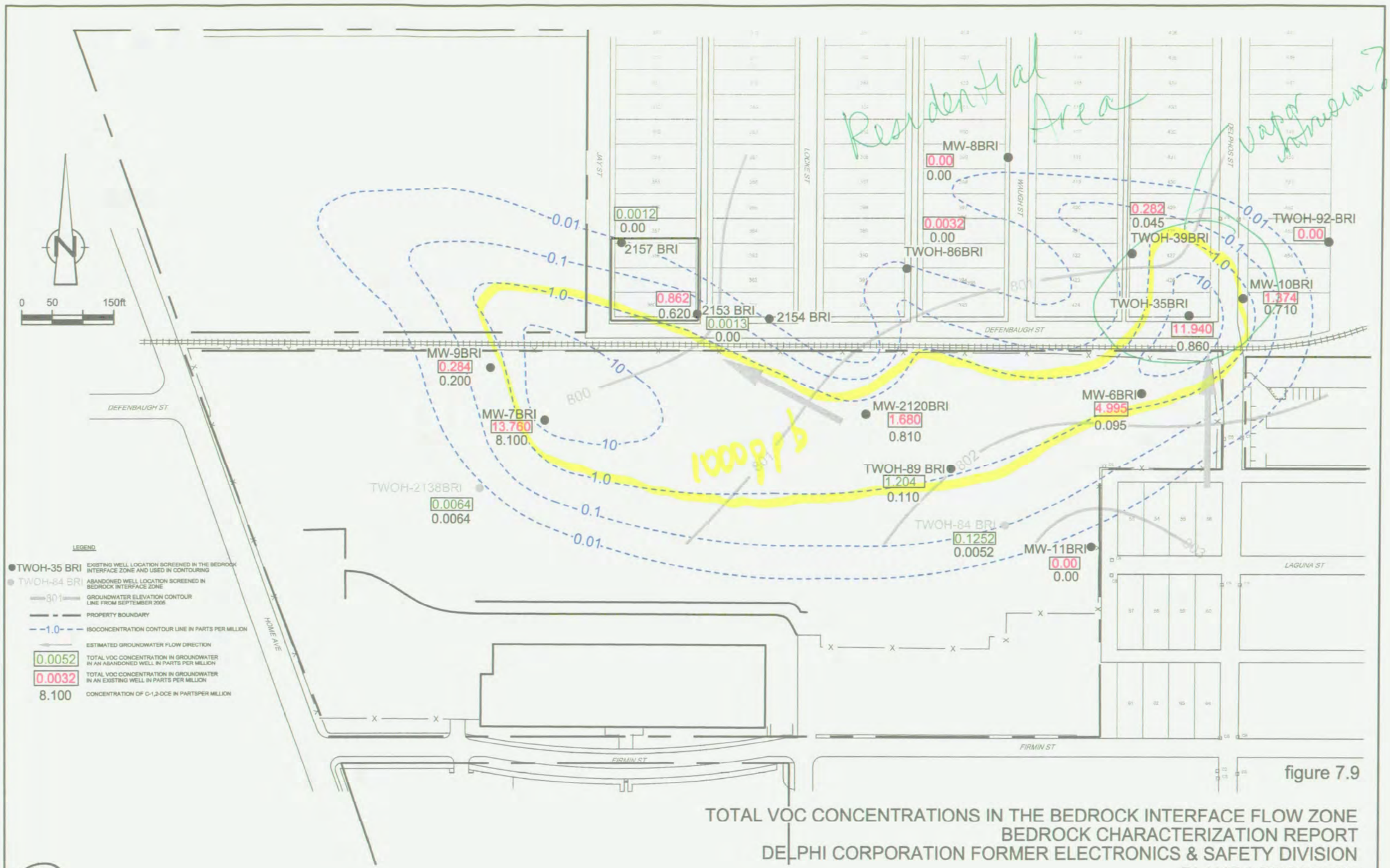
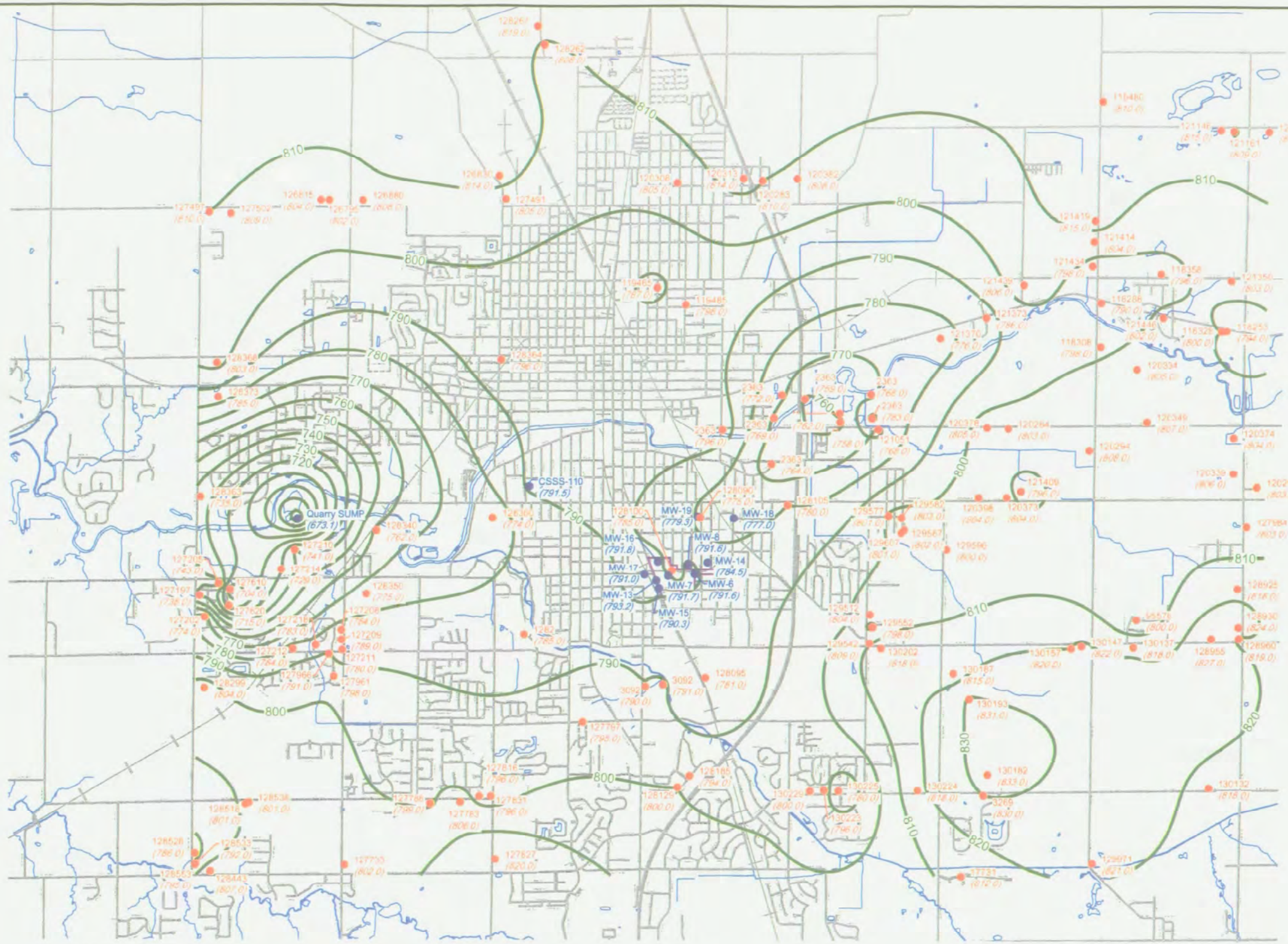


figure 7.9

TOTAL VOC CONCENTRATIONS IN THE BEDROCK INTERFACE FLOW ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE057 MAR 28/2007



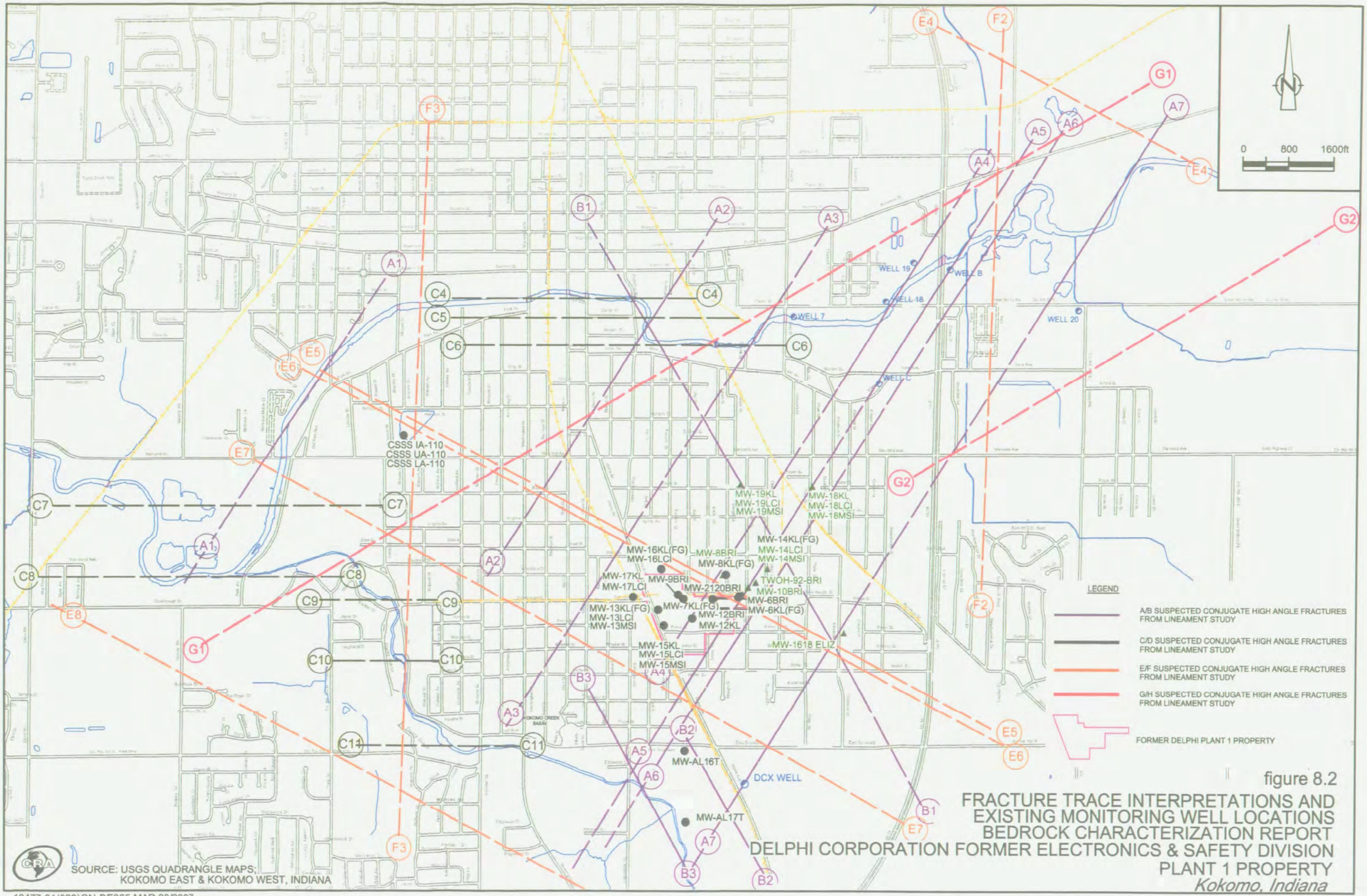
LEGEND

- MONITORING WELL WITH GROUNDWATER ELEVATION FROM PANTERRA (1999)
- MW-14 (784.5) MONITORING WELL WITH GROUNDWATER ELEVATION DURING APRIL 2006 HYDRAULIC STUDY
- 800 REGIONAL BEDROCK GROUNDWATER CONTOUR (FT. AMSL)
- SITE BOUNDARY

figure 8.1

REGIONAL BEDROCK GROUNDWATER ELEVATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI DELCO FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE074 MAR 28/2007



SOURCE: USGS QUADRANGLE MAPS;
KOKOMO EAST & KOKOMO WEST, INDIANA

figure 8.2

FRACTURE TRACE INTERPRETATIONS AND
EXISTING MONITORING WELL LOCATIONS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION
PLANT 1 PROPERTY
Kokomo, Indiana

13477-31(029)GN-DE065 MAR 28/2007

TABLES

TABLE 1.1

DERIVATION OF SITE-SPECIFIC STANDARDS (SSSs) FOR GROUNDWATER - MAINTENANCE WORKER DERMAL AND INHALATION EXPOSURE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

	CSF				RfD						Maintenance Worker			
											Carcinogen	Non-Carcinogen	Site-Specific	
Chemical of	dermal		inhalation		dermal		inhalation		DAevent	TF	RISK =1.0E-06	HI = 1	Groundwater Standards [1]	
Concern (COC)	1/(mg/kg-d)	Ref	1/(mg/kg-d)	Ref	(mg/kg-d)	Ref	(mg/kg-d)	Ref	(cm/event)	(L/m^3)	Adult (mg/L)	Adult (mg/L)	SSS_{gw} (mg/L)	($\mu g/L$)
VOCs														
1,1-Dichloroethane	--		--		1.00E-01	(3)	1.40E-01	(3)	3.13E-02	1.35E+01	NV	2.20E+02	2.20E+02	2.20E+05
1,1-Dichloroethene	--		--		5.00E-02	(2)	5.70E-02	(2)	5.51E-02	1.38E+01	NV	8.77E+01	8.77E+01	8.77E+04
Benzene	5.50E-02	(2)	2.70E-02	(2)	4.00E-03	(2)	8.60E-03	(2)	6.62E-02	1.52E+01	1.50E-01	1.23E+01	1.50E-01	1.50E+02
cis-1,2-Dichloroethene	--		--		1.00E-02	(4)	1.00E-02	(4)	3.57E-02	1.36E+01	NV	1.61E+01	1.61E+01	1.61E+04
Toluene	--		--		8.00E-02	(2)	1.40E+00	(2)	1.35E-01	1.40E+01	NV	3.88E+02	3.88E+02	3.88E+05
trans-1,2-Dichloroethene	--		--		2.00E-02	(2)	2.00E-02	(4)	3.57E-02	1.37E+01	NV	3.24E+01	3.24E+01	3.24E+04
Trichloroethene	4.00E-01	(4)	4.00E-01	(4)	3.00E-04	(4)	1.00E-02	(4)	6.00E-02	1.18E+01	9.43E-03	3.08E+00	9.43E-03	9.43E+00
Vinyl Chloride	7.20E-01	(2)	1.50E-02	(2)	3.00E-03	(2)	2.80E-02	(2)	2.47E-02	1.71E+01	9.39E-02	3.71E+01	9.39E-02	9.39E+01

Notes :

-- = Not Available

NV = No Value

NA = Not Applicable

(1) The selected SSS is the lower of the carcinogenic-based level and the non-carcinogenic-based level.

Toxicity Data References :

(2) Integrated Risk Information System Database (IRIS), 2006.

(3) Health Effects Assessment Summary Table (HEAST), July 1997.

(4) Region IX Preliminary Remediation Goals (R9-PRG) Table, October 2004. Provisional values supplied by NCEA.

Maintenance Worker Exposure Assumptions

SSS in ground water (mg/L)	SSS_{gw}	calculated	
Target Risk Level (unitless)	TR	1.0E-06	
Target Hazard Level (unitless)	THQ	1	
Cancer Slope Factor ($(mg/kg\text{-}day)^{-1}$)	CSF	chemical-specific	See Above
Reference Dose Factor (mg/kg-day)	RfD	chemical-specific	See Above
Event Frequency (event/day)	EV	1	USEPA, 2004
Exposure Frequency (days/year)	EF	10	Professional Judgement (A)
Exposure Duration (years)	ED	25	USEPA, 2002
Exposure Time (hrs/day) - dermal	ETd	4	Professional Judgement (B)
Exposure Time (hrs/day) - inhalation	ETi	8	Professional Judgement (C)
Inhalation Rate (m^3/hr)	INR	2.5	USEPA, 2002 (D)
Body Weight (kg)	BW	70	USEPA, 2002
Surface Area Exposed (cm^2)	SA	3,300	USEPA, 2002
Conversion Factor (L/cm^3)	CF	0.001	
Dermal Absorbed per Event (cm/event)	DAevent	chemical-specific	Refer to Table 2
Averaging Time - carc. (days)	ATc	25,550	USEPA, 1989
Averaging Time - noncarc. (days)	ATnc	9,125	USEPA, 1989
Transfer Factor (L/m^3)	TF	chemical-specific	Refer to Table 5

Exposure Equations

Carcinogenic Endpoints:

$$SSS_{gw} = \frac{TR \times BW \times ATc}{EF \times ED \times ((CSFd \times SA \times DAevent \times CF) + (CSFi \times INR \times ETi \times (TF)))}$$

Non-Carcinogenic Endpoints:

$$SSS_{gw} = \frac{THQ \times BW \times ATnc}{EF \times ED \times (((1/RfDd) \times SA \times DAevent \times CF) + ((1/RfDi) \times INR \times ETi \times (TF)))}$$

Notes:

(A) Professional Judgement; maintenance worker performing short-term duration maintenance activities.

(B) Professional Judgement; assumes half of worker's 8 hour day spent in contact with water during maintenance activities.

(C) Professional Judgement; assumes 8 hour work day.

(D) Based on average inhalation rate of 20 m^3/day.

Assumption References:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol. 1: Human Health Evaluation Manual, Part A OERR. EPA/540-1-89-002.

USEPA, 2002: USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December 2002.

USEPA, 2004: RAGs Volume 1, Human Health Evaluation Manual, Part E: Supplemental Guidance for Dermal Risk Assessment, EPA/540/R/99/005, July 2004.

TABLE 4.1
SUMMARY OF ROCK QUALITY DESIGNATIONS FROM BEDROCK BORINGS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

	GROUP 2 WELLS								GROUP 1 WELLS		
Well ID	MW-6	MW-7	MW-8	MW-12	MW-13	MW-15	MW-16	MW-17	MW-14	MW-18	MW-19
Installation Date	6/23/2000	6/22/2000	8/2/2000	1/15/2003	10/20/2003	10/21/2003	10/22/2003	10/23/2003	10/24/2003	11/18/2004	11/18/2004
Rock Elev. (ft. AMSL)	789.1	789.5	792.4	793.07	790.5	797.5	791.5	792	788.2	787.3	804.75
	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)	RQDs (%)
Elevation Interval (ft. AMSL)											
800' - 795'	NBCC	NBCC	NBCC	-	-	-	-	-	-	-	NBCC
795' - 790'	NBCC	NBCC	NBCC	-	-	8	-	-	-	NBCC	NBCC
790' - 785'	NBCC	NBCC	NBCC	10	-	0	4	27	-	NBCC	NBCC
785' - 780'	NBCC	NBCC	NBCC	10	0	0[1]	4[1]	13	-	NBCC	NBCC
780' - 775'	NBCC	NBCC	NBCC	39	0[1]	54	15	62	0	NBCC	NBCC
775' - 770'	NBCC	NBCC	NBCC	39[2]	48	50	51	0	65	NBCC	NBCC
770' - 765'	NBCC[2]	NBCC[2]	NBCC[2]	100	77	58	60	72	62[3]	NBCC	NBCC
765' - 760'	NBCC	NBCC	NBCC	-	71	89	79	76	73	NBCC[3]	NBCC
760' - 755'	-	-	-	-	50[2]	79[2]	82[2]	59[2]	33	NBCC	NBCC[3]
755' - 750'	-	-	-	-	90	85	74	89	80	NBCC	NBCC
750' - 745'	-	-	-	-	54	83	96	78	98[4]	NBCC[4]	NBCC[4]
745' - 740'	-	-	-	-	100	86	67	100	73	NBCC	NBCC
740' - 735'	-	-	-	-	60[4]	62[4]	96[4]	75[4]	87[5]	NBCC[5]	NBCC[5]
735' - 730'	-	-	-	-	100	82	96	97	100	NBCC[6]	NBCC[6]
730' - 725'	-	-	-	-	100	100	100	77	100	NBCC	NBCC
725' - 720'	-	-	-	-	100[5]	NBCC	100[5]	100	100	NBCC[7]	NBCC[7]
720' - 715'	-	-	-	-	100	NBCC	-	100[5]	89	NBCC	NBCC
715' - 710'	-	-	-	-	92	NBCC	-	89	86	NBCC	NBCC
710' - 705'	-	-	-	-	100	NBCC	-	89	100	NBCC	NBCC
705' - 700'	-	-	-	-	100	NBCC	-	100	100[8]	NBCC	NBCC
700' - 695'	-	-	-	-	100[8]	NBCC	-	100	-	NBCC[8]	NBCC[8]
695' - 690'	-	-	-	-	-	NBCC	-	100	-	NBCC	NBCC
690' - 685'	-	-	-	-	-	-	-	100[8]	-	NBCC	-

Notes:
ft. AMSL - Feet Above Mean Sea Level
RQDs - Rock Quality Designations, reported as a percent
NBCC - No Bedrock Core Samples Collected
- No RQD measurements collected
- 1, 2, 3, 4, 5, 6, 7, 8 superscripts denotes intervals where wells were screened in the following fractures; 1=KL(IJ)/(H), 2=KL(FG), 3=KL(EF), 4= LCI, 5=LC(1), 6=LC(2), 7=LC(3), 8=MSI

$$RQD = \frac{\text{Sum of lengths of rock cores} > 4 \text{ inches long} \times 100}{\text{Total length of core run}}$$

RQD Value	Bedrock Classification
< 25%	Very Poor
25 - 50%	Poor
50 - 75%	Fair
75 - 90%	Good
90 - 100%	Excellent

TABLE 5.1
SUMMARY OF BEDROCK FRACTURE TRANSMISSIVITY AND CONDUCTIVITY TESTS
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

		GROUP 2 WELLS									GROUP 1 WELLS				
Stratigraphic Column	Depth Interval (ft. AMSL)	MW-6	MW-7	MW-8	MW-12	MW-13	MW-15	MW-16	MW-17		Stratigraphic Column	Depth Interval (ft. AMSL)	MW-14	MW-18	MW-19
		Hydraulic Conductivities (cm/sec)[a]				Hydraulic Transmissivities (ft^2/Day)[b]				Average			Hydraulic Transmissivities (ft^2/Day)[b]	Heat Pulse (gpm)[c]	
	792' - 787'	-	-	-	-	-	131.30	-	-			792' - 787'	-	-	-
	788' - 783'	-	-	-	NHC	-	5.10	-	-			788' - 783'	-	-	-
	783' - 778'	-	-	-	NHC	22.40[1]	365.40[1]	436.8[1*]	-	241.53 [1]		783' - 778'	-	0.0	-
	779' - 774'	-	-	-	NHC	8.98	2.30	1.05	-			779' - 774'	0.02	0.0	-
Kokomo Limestone	775' - 770'	1.38E-02 [2]	-	2.16E-02 [2]	NHC	9.40	0.13	0.52	0.38		Kokomo Limestone	775' - 770'	3.30	0.2	-
	771' - 766'	-	8.26E-03 [2]	-	NHC	20.60	0.09	1.17	35.20			771' - 766'	30.00	0.2	0.0
	767' - 762'	-	-	-	NHC	0.01	0.05	0.67	4.60			767' - 762'	146.00[3]	0.2	0.0
	763' - 758'	-	-	-	NHC	41.40	3.69	12.10	0.48			763' - 758'	0.02	0.2 [3]	0.0 [3]
	759' - 754'	-	-	-	NHC	770.10[2]	227.80[2]	514.20[2]	241.90[2]	438.50 [2]		759' - 754'	0.00	0.2	0.0
	755' - 750'	-	-	-	NHC	78.50	3.60	6.26	23.10			755' - 750'	2.30	0.2	0.0
	751' - 746'	-	-	-	NHC	53.10	7.80	16.10	20.10			751' - 746'	496.90[4]	>1 [4]	0.05 [4]
	747' - 742'	-	-	-	NHC	0.01	0.00	0.00	52.33			747' - 742'	1.20	>1	0.05
	743' - 738'	-	-	-	NHC	210.70	0.00	0.00	234.80			743' - 738'	0.00	>1 [5]	0.05 [5]
	739' - 734'	-	-	-	NHC	802.40[4]	626.80[4]	456.60[4]	328.80[4]	553.65 [4]		739' - 734'	380.20[5]	>1	0.05
	735' - 730'	-	-	-	NHC	0.00	159.80	63.90	0.01			735' - 730'	0.38	>1 [6]	0.1 [6]
	730' - 725'	-	-	-	NHC	112.00	69.90	0.00	15.75			730' - 725'	0.00	0.05	0.1
	726' - 721'	-	-	-	NHC	221.80[5]	NHC	99.40[5]	242.70[5]	187.97 [5]		726' - 721'	26.90 [7*]	0.05 [7]	0.1 [7]
	722' - 717'	-	-	-	NHC	0.00	NHC	-	0.00			722' - 717'	0.00	0.05	0.1
Liston Creek Limestone	718' - 713'	-	-	-	NHC	1.37	NHC	-	0.00		Liston Creek Limestone	718' - 713'	0.00	0.05	0.1
	714' - 709'	-	-	-	NHC	0.01	NHC	-	0.00			714' - 709'	0.00	0.05	0.1
	710' - 705'	-	-	-	NHC	0.07	NHC	-	0.86			710' - 705'	0.00	0.05	0.1
	706' - 701'	-	-	-	NHC	0.00	NHC	-	0.00			706' - 701'	43.40[8]	0.05	0.05
	702' - 693'	-	-	-	NHC	0.00	NHC	-	0.00			702' - 693'	-	0.05	0.0 [8]
Mississinewa Shale	694' - 685'	-	-	-	NHC	0.01[8]	NHC	-	8.30		Mississinewa Shale	694' - 685'	-	0.0 [8]	0.0
	685' - 644'	-	-	-	NHC	-	-	-	19.8[8*]	9.91 [8]		685' - 644'	-	0.0	0.0

Notes:
ft^2/day - feet squared per day
ft. (bgs) - Feet below ground surface
NHC - No Hydraulic Conductivity tests conducted
1, 2, 3, 4, 5, 6, 7, 8 superscripts denotes intervals where wells were screened in the following fractures; 1=KL(IJ)/(H), 2=KL(FG), 3=KL(EF), 4= LCI, 5=LC(1), 6=LC(2), 7=LC(3), 8=MSI
[1*]- Result cooresponds to the KL(IJ)/(H) fracture (no well was set)
[7*]- Result cooresponds to the LC(3) fracture (no well was set)
[8*]- Result cooresponds to fracture at the Mississinewa Shale Interface (no well was set)

a - Hydraulic conductivity estimates obtained from slug test analysis conducted by CRA in December 2000
b - Hydraulic transmissivity values obtained from dual packer system slug testing conducted by CRA in October 2004
c - Heat Pulse flow meter values obtained from downhole geophysics conducted by CRA/Colog in November 2004

TABLE 6.1
BEDROCK MONITORING WELL CONSTRUCTION AND ELEVATION SUMMARY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Boring ID	Total Depth of Borehole (ft. bgs)	Well ID	Top of Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Installation Date (m/d/year)	Well Material	Well Diameter (inches)	Screened Elevation (ft. AMSL)	Screened Depth (ft. bgs)	Screen Length (ft.)	Slot Size	Northing (NAD83 IND EAST)	Easting (NAD83 IND EAST)	Unconsolidated Zone Thickness (ft.)	Top of Kokomo Limestone (ft. AMSL)	Kokomo Limestone Thickness (ft.)	Top of Liston Creek Limestone (ft. AMSL)	Liston Creek Limestone Thickness (ft.)	Top of Mississinewa Shale (ft. AMSL)	Mississinewa Shale Thickness (ft.)
SB-6	48.3	MW-6KL(FG)	816.09	813.6	6/23/2000	Steel	2	770.3-765.3	43 - 48	5.0	0.010	7465.39	7709.98	24.5	789.1	-	-	-	-	-
SB-7	48.0	MW-7KL(FG)	815.82	813.0	6/22/2000	Steel	2	770-765	43 - 48	5.0	0.010	7389.66	6715.36	23.5	789.5	-	-	-	-	-
SB-8	42.0	MW-8KL(FG)	808.54	808.9	8/2/2000	Steel	2	771.9-766.9	37 - 42	5.0	0.010	7822.98	7462.52	16.1	792.4	-	-	-	-	-
SB-12	45.0	MW-12KL(FG)	813.52	814.1	1/15/2003	PVC	2	774.07-769.07	40 - 45	5.0	0.010	7042.30	6871.76	21.0	793.1	-	-	-	-	-
SB-13	122.0	MW-13KL(H)	814.29	814.7	1/16/2003	PVC	2	771.3-766.3	43 - 48	5.0	0.010	7206.66	6272.37	24.5	790.5	53.5	737.0	41.5	695.5	> 2.5
		MW-13KL(G)	814.30	814.7	1/16/2003	PVC	2	761.1-756.1	53 - 58	5.0	0.010	7200.27	6275.14							
		MW-13LCI	814.45	814.8	10/20/2003	PVC	1	739-736.5	75.75 - 78.25	2.5	0.010	7200.56	6269.21							
		MW-13LC(1)	814.38	814.8	10/20/2003	PVC	1	712-718.5	93.75 - 96.25	2.5	0.010	7200.62	6269.22							
		MW-13MSI	814.30	814.8	10/20/2003	PVC	1	698.8-693.8	116 - 121	5.0	0.010	7200.80	6269.31							
SB-14	114.0	MW-14KL(EF)	811.86	812.3	1/24/2003	PVC	2	769.3-764.3	43 - 48	5.0	0.010	7916.19	8182.45	24.0	788.2	38.7	749.5	42.3	707.2	> 9.0
		MW-14LCI	812.08	812.2	10/24/2003	PVC	1	751.2-748.7	61 - 63.5	2.5	0.010	7921.96	8182.12							
		MW-14LC(1)	811.98	812.2	10/24/2003	PVC	1	739.5-737	72.75 - 75.25	2.5	0.010	7921.85	8182.00							
		MW-14MSI	811.78	812.2	10/24/2003	PVC	1	710-705	102 - 107	5.0	0.010	7921.80	8182.16							
SB-15	125.0	MW-15KL(H)	817.17	817.5	10/21/2003	PVC	1	781.8-779.3	35.75 - 38.25	2.5	0.010	6918.39	6373.16	20.0	797.5	62.0	735.5	41.0	694.5	> 2.0
		MW-15KL(FG)	817.11	817.5	10/21/2003	PVC	1	755.8-753.8	61.25 - 63.75	2.5	0.010	6918.62	6373.05							
		MW-15LCI	817.03	817.5	10/21/2003	PVC	1	737-734.5	79.75 - 82.25	2.5	0.010	6918.59	6373.03							
		MW-15LC(1)	816.96	817.5	10/21/2003	PVC	1	718.5-713.5	99 - 104	5.0	0.010	6918.43	6373.34							
		MW-15MSI	816.86	817.5	10/21/2003	PVC	1	698.3-693.5	119 - 124	5.0	0.010	6918.59	6373.41							
SB-16	88.5	MW-16KL(FG)	810.37	810.5	10/22/2003	PVC	1	760.8-758.3	49.7 - 52.2	2.5	0.010	7923.71	6324.21	19.0	791.5	51.1	740.4	-	-	-
		MW-16LCI	810.30	810.5	10/22/2003	PVC	1	742.8-740.3	67.7 - 70.2	2.5	0.010	7923.86	6324.24							
		MW-16LC(1)	810.24	810.5	10/22/2003	PVC	1	727-722	83.5 - 88.5	5.0	0.010	7923.98	6324.11							
SB-17	133.0	MW-17KL(FG)	816.94	817.3	10/23/2003	PVC	1	758.5-756	58.75 - 61.25	2.5	0.010	7429.61	5832.25	25.0	792.0	56.0	736.0	41.5	694.5	> 10.5
		MW-17LCI	816.88	817.3	10/23/2003	PVC	1	737.5-735	79.75 - 82.25	2.5	0.010	7429.85	5832.34							
		MW-17LC(1)	816.78	817.3	10/23/2003	PVC	1	724.5-722	92.75 - 95.25	2.5	0.010	7429.80	5832.26							
SB-18	233.0	MW-18 KL(EF)	816.92	817.3	11/18/2004	PVC	1	758.9-763.9	53-58	5.0	0.010	9364.94	8968.28	30.0	787.3	37.0	750.3	48.0	702.3	102.0
		MW-18 LCI	816.89	817.3	11/18/2004	PVC	1	748.9-750.9	66-68	2.0	0.010	9364.52	8968.11							
		MW-18 LC(1)	816.86	817.3	11/18/2004	PVC	1	738.9-740.9	76-78	2.0	0.010	9364.88	8968.02							
		MW-18 LC(2)	816.82	817.3	11/18/2004	PVC	1	733.6-736.6	81.25-83.25	2.0	0.010	9364.67	8967.80							
		MW-18 LC(3)	816.75	817.3	11/18/2004	PVC	1	721.3-723.3	93.5-95.5	2.0	0.010	9364.81	8967.81							
		MW-18 MSI	816.65	817.3	11/18/2004	PVC	1	693.2-698.2	118.5-123.5	5.0	0.010	9364.58	8968.31							
		MW-18 LLI	816.58	817.3	11/18/2004	PVC	1	586.6-606.6	210-230	20	0.010	9364.35	8968.81							
SB-19	179.0	MW-19 KL(EF)	817.37	817.8	11/18/2004	PVC	1	755.9-760.9	56.5-61.5	5.0	0.010	9402.32	7706.88	13.0	804.8	57.5	747.3	47.0	700.3	> 61.5
		MW-19 LCI	817.24	817.8	11/18/2004	PVC	1	745.7-747.7	69.5-71.5	2.0	0.010	9402.55	7706.65							
		MW-19 LC(1)	817.16	817.8	11/18/2004	PVC	1	736.7-738.7	78.5-80.5	2.0	0.010	9402.49	7706.71							
		MW-19 LC(2)	817.15	817.8	11/18/2004	PVC	1	731.2-733.2	84-86	2.0	0.010	9402.32	7707.02							
		MW-19 LC(3)	817.01	817.8	11/18/2004	PVC	1	719.0-721.0	96-98	2.0	0.010	9402.76	7706.83							
		MW-19 MSI	816.97	817.8	11/18/2004	PVC	1	695.0-700.0	112-122	10	0.010	9402.57	7706.97							
													Approximate Average:	**21.9**		**50.8**		**43.6**		**102.0***

Notes:

ft. (bgs) - Feet below ground surface
ft. AMSL - Feet above mean sea level
* - only one boring was extended through the Mississinewa Shale

TABLE 6.2
SELECT OFF-SITE RESIDENTIAL, COMMERCIAL OR INDUSTRIAL BEDROCK WELL CONSTRUCTION AND ELEVATION SUMMARY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Boring ID	Total Depth of Borehole (ft. bgs)	Well ID	WELL STATUS	Top of Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Installation Date (m/d/year)	Well Material	Well Diameter (inches)	Northing (NAD83 IND EAST)	Easting (NAD83 IND EAST)	Unconsolidated Zone Thickness (ft.)	Top of Kokomo Limestone (ft. AMSL)	Kokomo Limestone Thickness (ft.)	Top of Liston Creek Limestone (ft. AMSL)	Liston Creek Limestone Thickness (ft.)	Top of Mississinewa Shale (ft. AMSL)	Mississinewa Shale Thickness (ft.)
IAWC	202.0	Well B	Active	--	--	--	Open hole	12			40.6		28.0		40.0		62.0
Wellfield	255.0	Well C	Active	--	814.8	10/30/1950	Open hole	12			41.2						
	383.0	Well 7	Inactive	--	--	--	Open hole	12									
	300.0	Well 18	Active	--	--	--	Open hole	18			40.0						
	300.0	Well 19	Active	--	--	--	Open hole	15			60.0						
	325.0	Well 20	Active	--	--	11/1/1984	Open hole	15			45.0		15.0		53.0		97.0
	265.0	Well 21	Active	--	--	1984	Open hole	15			67.0						
DCX	140.0	1001 East Blvd.	Active	--	--	11/11/1964	Open hole	10			42.3						
D&D	102.0	725 East Blvd.	Active	--	--	5/21/1986	Open hole	5			50.0						
KGF	425.0	900 East Blvd.	Active	--	830.1	--	Open hole	6									
Jarrett	95.0	1351 E. State St.	Active	--	--	4/1/1975	Open hole	5			39.0						
Harrison	98.0	1618 Eliz.	Abandoned	817.16	--	--	Open hole	6									
Hoppes	182.0	1400 Hoffer	Active	--	--	5/13/1963	Open hole	5			60.0						
American	97.0	AL-16T	Inactive	--	--		Open hole	4									
Legion	322.0	AL-17T	Inactive	--	--	4/2/1986	Open hole	10			42.0						

Notes:

ft. (bgs) - Feet below ground surface
ft. AMSL - Feet above mean sea level
* - only one boring was extended through the Mississinewa Shale

TABLE 6.3
SUMMARY OF PPG DOWNHOLE CONDUCTIVITY RESULTS FOR
INDIANA AMERICAN WATER COMPANY WELLS #7, #18, AND C
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

WELL INFORMATION

Well ID	Depth of Surface Casing (ft. bgs)	Total Depth of Well (ft. bgs)	Open Hole Depth Interval (ft. bgs)
Well #7	28	383	28-355
Well #18	40	300	40-300
Well C	41	255	41-255

TEST RESULTS[1]

Well #7		Well #18		Well C	
Sample Interval/ depth (ft. bgs)	Relative Production Capacity	Sample Interval/ depth (ft. bgs)	Relative Production Capacity	Sample Interval/ depth (ft. bgs)	Relative Production Capacity
----	----	22-48	Good	----	----
----	----	27-53	Good	24-50	Good
----	----	39-65	Good	34-60	Good
47-70	Good	49-75	Good	44-70	Good
57-80	Good	65-91	Good	64-90	Good
77-100	Good	74-100	Negligible	84-110	Negligible
97-120	Good	94-120	Poor	104-130	Negligible
117-140	Good	114-140	Poor	124-150	Negligible
137-160	Good	134-160	Poor	144-170	Negligible
157-180	Negligible	154-180	Poor	164-190	Negligible
177-200	Negligible	174-200	Negligible	184-210	Negligible
197-220	Negligible	194-220	Negligible	197-223	Negligible
217-240	Negligible	214-240	Negligible		
237-260	Negligible	234-260	Negligible		
257-280	Negligible	254-280	Negligible		
280+	Poor	264-296	Negligible		
300+	Poor				
320+	Poor				
340+	Poor				

Notes:

1 - All data collected by Hydrosystems Management, Inc. Results based on post sampling groundwater recovery assessments conducted over 23-ft. intervals between 6/28/94 and 7/18/94 as reported in the Phase II Investigation Report for the PPG Industries Site - Kokomo, Indiana. Dated August 1996.

ft. bgs - feet below ground surface
ft. AMSL - Feet Above Mean Sea Level

TABLE 6.4
BEDROCK INTERFACE MONITORING WELL CONSTRUCTION AND ELEVATION SUMMARY
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Boring ID	Total Depth of Borehole (ft. bgs)	Well ID	Top of Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Installation Date (m/d/year)	Well Material	Well Diameter (inches)	Screened Elevation (ft. AMSL)	Screened Depth (ft. bgs)	Screen Length (ft.)	Slot Size	Northing (NAD83 IND EAST)	Easting (NAD83 IND EAST)	Unconsolidated Zone Thickness (ft.)	Top of Kokomo Limestone (ft. AMSL)
SBOH-35	20.5	TWOH-35BRI	810.87	811.1	11/29/2000	PVC	1	795.6-790.6	15.5 - 20.5	5.0	0.010	7554.56	7758.14	20.0	791.1
SBOH-39	18.5	TWOH-39BRI	809.93	810.2	12/6/2000	PVC	1	796.7-791.7	13.5 - 18.5	5.0	0.010	7655.87	7664.38	18.5	791.7
SBOH-86	20.8	TWOH-86BRI	811.00	811.3	11/30/2000	PVC	1	794-790.5	17.3-20.8	3.5	0.010	7631.58	7300.46	21.0	790.3
SBOH-89	22.3	TWOH-89BRI	816.12	813.8	3/24/2000	PVC	1	796.5-791.5	17.3-22.3	5.0	0.010	7292.48	7343.32	22.0	791.8
SBOH-92	22.0	TWOH-92BRI	809.93	810.2	6/6/2001	PVC	1	794.7-789.7	15.5 - 20.5	5.0	0.010	7675.12	7982.63	22.0	788.2
SB-6	24.4	MW-6BRI	815.67	813.7	6/21/2000	PVC	2	794.3-789.3	19.4-24.4	5.0	0.010	7431.83	7680.87	20.5	793.2
SB-7	25.5	MW-7BRI	815.91	813.8	6/21/2000	PVC	2	793.3-788.3	20.5-25.5	5.0	0.010	7389.66	6715.36	23.0	790.8
SB-8	16.1	MW-8BRI	808.58	808.2	8/2/2000	PVC	2	797.7-792.1	13.1-16.1	5.0	0.010	7816.45	7463.15	16.1	792.1
SB-9	20.0	MW-9BRI	815.44	813.3	12/4/2000	PVC	2	795.3-793.3	18.0-20.0	2.0	0.010	6442.87	7053.88	19.5	793.8
SB-10	22.0	MW-10BRI	810.71	810.1	12/5/2000	PVC	2	793.1-788.1	17.0-22.0	5.0	0.010	7582.87	7844.41	21.4	788.7
SB-11	24.3	MW-11BRI	816.62	814.6	12/6/2000	PVC	2	795.3-790.3	19.3-24.3	5.0	0.010	7177.82	7600.34	22.0	792.6
SB-15	124	MW-15BRI	817.25	817.54	10/21/2003	PVC	1	795.04-790.04	22.5-27.5	5.0	0.010	6918.586	6373.031	20.0	797.5
SB-2120	20.6	TW-2120BRI	813.27	813.5	12/1/2000	PVC	1	797.9-792.9	15.6-20.6	5.0	0.010	7067.40	7096.10	19.6	793.9
SB-2153	23.1	TW-2153BRI	812.64	812.9	4/6/2000	PVC	1	794.8-789.8	18.1-23.1	5.0	0.010	7556.73	6959.97	22.0	790.9
SB-2154	23.1	TW-2154BRI	814.50	812.9	4/7/2000	PVC	1	794.8-789.8	18.3-23.1	5.0	0.010	7549.46	7078.01	22.0	790.9
SB-2157	20.7	TW-2157BRI	813.70	811.8	4/7/2000	PVC	1	796.1-791.1	15.7-20.7	5.0	0.010	7673.92	6836.31	19.0	792.8
													Approximate Average:	**20.5**	

Notes:

ft. (bgs) - Feet below ground surface
ft. AMSL - Feet above mean sea level
* - only one boring was extended through the Mississinewa Shale

TABLE 7.1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK INTERFACE ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Interface Wells					Volatile Organic Compounds												
					Chloroform (mg/L)	*TCE (mg/L)*	*1,2-DCE (total) (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (total) (mg/L)*
Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
1 MW-6BRI	-	796.27-791.27	18 -23	06/27/00	ND (0.050)	ND (0.050)	0.17	0.17	ND (0.025)	ND (0.050)	ND (0.100)	ND (0.050)	ND (0.050)	1.0	ND (0.05)	ND (0.05)	0.069
	801.17			12/05/00	ND (0.33)	ND (0.33)	0.27	0.27	ND (0.17)	ND (0.33)	ND (0.67)	ND (0.33)	ND (0.33)	12.0	ND (0.33)	ND (0.33)	ND (0.33)
	802.68			03/09/01	ND (0.1)	ND (0.1)	0.19	0.19	ND (0.05)	ND (0.1)	ND (0.2)	ND (0.1)	ND (0.1)	2.8	ND (0.1)	ND (0.1)	ND (0.1)
	802.86			06/12/01	ND (0.001)	ND (0.001)	0.131	0.13	0.001	0.001	0.038	ND (0.001)	0.036	2.5	0.021	0.019	0.11
	802.42			12/01/01	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.071)	ND (0.071)	ND (0.14)	ND (0.29)	ND (0.14)	ND (0.14)	3.9	ND (0.14)	ND (0.14)	ND (0.14)
	802.14			06/29/02	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.071)	ND (0.071)	ND (0.14)	ND (0.29)	ND (0.14)	ND (0.14)	4.7	ND (0.14)	ND (0.14)	ND (0.14)
	800.74			12/02/02	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.10)	ND (0.20)	ND (0.40)	ND (0.20)	ND (0.20)	5.1	ND (0.20)	ND (0.20)	0.22
	801.98			06/02/03	ND (0.11)	ND (0.11)	0.096	0.096	ND (0.056)	ND (0.11)	ND (0.22)	ND (0.11)	ND (0.11)	3.0	ND (0.11)	ND (0.11)	ND (0.11)
	802.36			12/04/03	ND (0.100)	ND (0.100)	0.15	0.15	ND (0.050)	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)	3.1	ND (0.100)	ND (0.100)	ND (0.100)
	802.66			12/21/04	ND (0.33)	ND (0.33)	0.4	0.4	ND (0.33)	ND (0.33)	0.052	ND (0.33)	0.064	0.79	ND (0.33)	ND (0.33)	ND (0.33)
	802.66			12/21/04	ND (0.33)	ND (0.33)	0.47	0.47	ND (0.33)	ND (0.33)	0.092	ND (0.33)	0.078	1.10	ND (0.33)	ND (0.33)	ND (0.33)
	801.52			12/06/05	ND (0.083)	ND (0.083)	0.096	0.096	ND (0.083)	ND (0.083)	ND (0.083)	ND (0.083)	ND (0.083)	4.90	ND (0.083)	ND (0.083)	ND (0.170)
2 MW-7BRI	-	795.41-790.41	20 - 25	06/27/00	ND (0.170)	0.74	3.7	3.7	ND (0.083)	ND (0.17)	ND (0.330)	0.42	0.99	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
	799.59			12/04/00	ND (0.4)	1.8	10	10	ND (0.2)	ND (0.4)	ND (0.8)	0.47	1.9	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)
	801.07			03/08/01	ND (0.62)	3.6	17	17	ND (0.31)	ND (0.62)	ND (1.2)	ND (0.62)	2.1	ND (0.62)	ND (0.62)	ND (0.62)	ND (0.62)
	801.15			06/11/01	0.019	3.5	15.2	15	0.21	0.28	0.4	0.65	2.2	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	801.15			06/11/01	0.02	3.5	15.2	15	0.2	0.3	0.41	0.67	2.1	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	801.10			09/12/01	ND (0.83)	11	24	24	ND (0.42)	ND (0.83)	ND (1.7)	ND (0.83)	2.4	ND (0.83)	ND (0.83)	ND (0.83)	ND (0.83)
	801.04			12/02/01	ND (0.33)	4	8.6	8.6	ND (0.17)	ND (0.33)	ND (0.67)	ND (0.33)	1.4	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)
	801.89			03/12/02	ND (0.33)	4.1	10	10	ND (0.17)	ND (0.33)	ND (0.67)	0.58	1.7	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)
	800.64			06/28/02	ND (500)	6.9	15	15	ND (250)	ND (500)	ND (1,000)	ND (500)	1.7	ND (500)	ND (500)	ND (500)	ND (500)
	799.44			09/23/02	ND (0.330)	5	12.18	12	0.18	ND (0.330)	ND (0.670)	0.45	1.9	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	799.15			12/02/02	ND (0.400)	3.9	9.8	9.8	ND (0.200)	ND (0.400)	ND (0.400)	0.53	1.7	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)
	799.91			03/21/03	ND (0.200)	2	8.1	8.1	ND (0.100)	ND (0.200)	ND (0.400)	0.41	1.5	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)
	800.61			06/04/03	ND (0.250)	1.4	7.3	7.3	ND (0.120)	ND (0.250)	ND (0.500)	0.4	1.6	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)
	801.41			09/04/03	ND (0.330)	2.7	9.4	9.4	ND (0.170)	ND (0.330)	ND (0.330)	0.39	1.8	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	801.18			12/05/03	ND (0.330)	3.7	8	8	ND (0.170)	ND (0.330)	ND (0.330)	0.38	1.4	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	801.93			06/14/04	ND (0.500)	6.4	10	10	ND (0.250)	ND (0.500)	ND (1.0)	ND (0.500)	1.5	ND (0.500)	ND (0.500)	ND (0.500)	ND (0.500)
	801.43			12/21/04	ND (0.330)	5.1	9.7	9.7	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	1.5	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	800.00			12/06/05	ND (0.100)	3.3	8.1	8.1	ND (0.100)	0.13	0.25	0.38	1.6	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.200)
3 MW-8BRI	800.38	797.48-792.48	12 - 17	08/01/00	ND (0.001)	ND (0.001)	0.00085	0.00085	ND (0.0005)	ND (0.001)	0.019	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.08			12/04/00	ND (0.001)	ND (0.001)	0.001	0.001	ND (0.0005)	ND (0.001)	0.033	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.21			03/09/01	ND (0.001)	ND (0.001)	0.00081	0.00081	ND (0.0005)	ND (0.001)	0.0091	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.21			03/09/01	ND (0.001)	ND (0.001)	0.00076	0.00076	ND (0.0005)	ND (0.001)	0.0096	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.31			06/13/01	ND (0.001)	0.001	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.003	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	801.23			09/11/01	ND (0.001)	ND (0.001)	0.0013	0.0013	ND (0.0005)	ND (0.001)	0.013	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.26			12/01/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.76			03/12/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.16			06/28/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.07			09/24/02	ND (0.001)	ND (0.001)	0.00069	0.00069	ND (0.0005)	ND (0.001)	0.0065	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	798.73			12/03/02	ND (0.001)	ND (0.001)	0.00069	0.00069	ND (0.0005)	ND (0.001)	0.013	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.43			03/21/03	ND (0.001)	ND (0.001)	0.00083	0.00083	ND (0.0005)	ND (0.001)	0.012	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.02			06/03/03	ND (0.001)	ND (0.001)	0.0007	0.0007	ND (0.0005)	ND (0.001)	0.0087	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.82			09/04/03	ND (0.001)	ND (0.001)	0.00057	0.00057	ND (0.0005)	ND (0.001)	0.002	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.29			12/03/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	802.16			06/14/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.34			12/22/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)

TABLE 7.1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK INTERFACE ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Interface Wells					Volatile Organic Compounds												
					Chloroform (mg/L)	*TCE (mg/L)*	*1,2-DCE (total) (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (total) (mg/L)*
Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
4 MW-9BRI	799.52	795.54-793.54	18-20	12/06/00	ND (0.017)	0.032	0.242	0.23	0.012	ND (0.017)	ND (0.033)	ND (0.017)	0.019	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)
	800.99			12/01/01	ND (0.017)	0.049	0.0281	0.025	0.0031	0.0017	ND (0.033)	0.022	0.039	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)
	799.09			12/02/02	ND (0.0033)	0.051	0.102	0.094	0.008	ND (0.0017)	0.023	0.016	0.036	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)
	801.13			12/04/03	ND (0.010)	0.017	0.28	0.27	0.01	ND (0.010)	0.032	ND (0.010)	0.01	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
	802.50			12/21/04	ND (0.005)	0.032	0.1798	0.17	0.0098	ND (0.005)	0.028	0.009	0.033	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.010)
	799.94			12/06/05	ND (0.004)	0.022	0.207	0.2	0.007	ND (0.004)	0.043	ND (0.004)	0.012	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.008)
5 MW-10BRI	800.43	793.36-789.36	17-22	12/08/00	ND (0.036)	1.3	0.57	0.57	ND (0.018)	ND (0.036)	ND (0.071)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)
	800.43			12/08/00	ND (0.036)	1.3	0.56	0.56	ND (0.018)	ND (0.036)	ND (0.071)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.036)
	801.56			03/07/01	ND (0.067)	0.62	1.7	1.7	ND (0.033)	ND (0.067)	ND (0.130)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)
	801.58			06/12/01	ND (0.001)	0.32	1.84	1.8	0.04	0.003	0.006	ND (0.001)	0.028	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	801.36			09/11/01	ND (0.067)	0.45	1.9	1.9	ND (0.033)	ND (0.067)	ND (0.130)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)
	801.51			12/01/01	ND (0.062)	0.14	2.4	2.4	ND (0.031)	ND (0.062)	ND (0.12)	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)
	801.95			03/12/02	ND (0.050)	0.39	1.4	1.4	ND (0.025)	ND (0.050)	ND (0.100)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
	801.40			06/28/02	ND (0.050)	0.37	1.4	1.4	ND (0.025)	ND (0.050)	ND (0.100)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)
	800.60			09/23/02	ND (0.040)	0.6	1.3	1.3	ND (0.020)	ND (0.040)	ND (0.080)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	800.60			09/23/02	ND (0.040)	0.58	1.4	1.4	ND (0.020)	ND (0.040)	ND (0.080)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	800.21			12/03/02	ND (0.040)	0.62	1.1	1.1	ND (0.020)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	800.83			03/20/03	ND (0.004)	0.96	1.00	1.00	ND (0.002)	ND (0.004)	ND (0.008)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
	801.29			06/02/03	ND (0.033)	0.42	1.20	1.20	ND (0.017)	ND (0.033)	ND (0.067)	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)
	802.19			09/02/03	ND (0.040)	0.52	1.1	1.1	ND (0.020)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	801.69			12/04/03	ND (0.040)	0.44	1	1	ND (0.020)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	801.60			12/22/04	ND (0.020)	0.76	0.8	0.8	ND (0.020)	ND (0.020)	0.032	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.040)
	800.76			12/07/05	ND (0.012)	0.59	0.71	0.71	ND (0.012)	ND (0.012)	0.055	ND (0.012)	0.019	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.025)
6 MW-11BRI	-	797.32-792.32	17-22	12/06/00	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	0.001	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	803.97			12/01/01	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	802.69			12/02/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	0.001	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	804.13			12/04/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	804.13			12/04/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
7 MW-12BRI	800.35	793.91-788.91	20 - 25	03/22/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
8 TWOH-35BRI	800.67	785.37-790.37	17-20	12/08/00	ND (0.420)	1.6	11	11	ND (0.210)	ND (0.420)	1	ND (0.420)	ND (0.420)	0.73	ND (0.420)	ND (0.420)	ND (0.420)
	800.67			12/08/00	ND (0.330)	1.6	11	11	ND (0.170)	ND (0.330)	0.97	ND (0.330)	ND (0.330)	0.71	ND (0.330)	ND (0.330)	ND (0.330)
	801.87			03/06/01	ND (.250)	1.7	7.9	7.9	ND (120)	ND (0.250)	0.55	ND (0.250)	ND (0.250)	0.31	ND (0.250)	ND (0.250)	ND (0.250)
	801.87			06/12/01	ND (0.001)	3.9	11.2	11	0.02	0.019	0.92	ND (0.001)	0.066	0.200 J	0.004	0.001	ND (0.003)
	801.72			09/12/01	ND (0.200)	1.5	5.2	5.2	ND (0.100)	ND (0.200)	0.6	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)	ND (0.200)
	801.77			12/01/01	ND (0.5)	12	6.7	6.7	ND (0.25)	ND (0.5)	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	802.24			03/12/02	ND (0.330)	3.4	8.4	8.4	ND (0.170)	ND (0.330)	ND (0.670)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	801.67			06/27/02	ND (0.250)	4.0	8.04	7.9	0.14	ND (0.250)	0.61	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)
	801.02			09/24/02	ND(0.310)	4.3	9.9	9.9	ND (0.160)	ND(0.310)	0.81	ND(0.310)	ND(0.310)	ND(0.310)	ND(0.310)	ND(0.310)	ND(0.310)
	801.02			09/24/02	ND (0.250)	4.2	9.63	9.5	0.13	ND (0.250)	0.78	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)
	800.48			12/03/02	ND (0.400)	4.1	8.9	8.9	ND (0.200)	ND (0.400)	1	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)
	801.09			03/20/03	ND (0.400)	3.9	7.9	7.9	ND (0.200)	ND (0.400)	ND (0.800)	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)	ND (0.400)
	801.55			06/02/03	ND (0.250)	3.1	7.1	7.1	ND (0.120)	ND (0.250)	0.67	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)	ND (0.250)
	802.54			09/03/03	ND (0.330)	3.1	9.4	9.4	ND (0.170)	ND (0.330)	1.0	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	801.82			12/04/03	ND (0.140)	0.95	4.3	4.3	ND (0.071)	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.140)	ND (0.140)
	801.53			06/14/04	ND (0.330)	3.5	8.9	8.9	ND (0.330)	ND (0.330)	0.78	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)
	802.00			12/22/04	ND (0.330)	3	11	11	ND (0.330)	ND (0.330)	0.94	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.330)	ND (0.670)
	801.07			12/07/05	ND (0.170)	2.1	8.6	8.6	ND (0.170)	ND (0.170)	0.94	ND (0.170)	ND (0.170)	0.3	ND (0.170)	ND (0.170)	ND (0.170)

TABLE 7.1

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK INTERFACE ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Interface Wells					Volatile Organic Compounds												
					Chloroform (mg/L)	*TCE (mg/L)*	*1,2-DCE (total) (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (total) (mg/L)*
Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
9 TWOH-39BRI	800.43	795.43-791.43	14.5-18.5	12/08/00	ND (0.031)	0.086	0.43	0.43	ND (0.016)	ND (0.031)	0.97	ND (0.031)	ND (0.031)	0.076	ND (0.031)	ND (0.031)	ND (0.031)
	801.35			03/06/01	ND (0.020)	ND (0.020)	0.43	0.43	ND (0.010)	ND (0.020)	0.75	ND (0.020)	0.046	0.066	ND (0.020)	ND (0.020)	ND (0.020)
	801.35			06/13/01	ND (0.001)	0.2	2.245	2.2	0.045	0.003	ND (0.001)	ND (0.001)	0.037	0.026	ND (0.001)	ND (0.001)	ND (0.003)
	801.43			09/11/01	ND (0.001)	ND (0.001)	0.014	0.014	ND (0.0005)	ND (0.001)	0.033	ND (0.001)	0.0018	0.002	ND (0.001)	ND (0.001)	ND (0.001)
	800.73			12/01/01	ND (0.0025)	ND (0.0025)	0.043	0.043	ND (0.0012)	ND (0.0025)	0.043	ND (0.0025)	0.004	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
	800.67			03/12/02	ND (0.017)	ND (0.017)	0.22	0.22	ND (0.0083)	ND (0.017)	0.35	ND (0.017)	0.04	0.042	ND (0.017)	ND (0.017)	ND (0.017)
	801.33			06/28/02	ND (0.025)	ND (0.025)	0.35	0.35	ND (0.012)	ND (0.025)	0.64	ND (0.025)	0.053	0.099	ND (0.025)	ND (0.025)	ND (0.025)
	798.84			09/24/02	ND (0.020)	ND (0.020)	0.23	0.23	ND (0.010)	ND (0.020)	0.57	ND (0.020)	0.06	0.09	ND (0.020)	ND (0.020)	ND (0.020)
	800.01			12/03/02	ND (0.025)	ND (0.025)	0.33	0.33	ND (0.012)	ND (0.025)	0.72	ND (0.025)	0.056	0.1	ND (0.025)	ND (0.025)	ND (0.025)
	800.67			03/20/03	ND (0.02)	ND (0.02)	0.23	0.23	ND (0.01)	ND (0.02)	0.57	ND (0.02)	0.057	0.078	ND (0.02)	ND (0.02)	ND (0.02)
	799.41			06/03/03	ND (0.001)	ND (0.001)	0.23	0.23	ND (0.0005)	ND (0.001)	0.65	ND (0.001)	0.042	0.066	ND (0.001)	ND (0.001)	ND (0.001)
	800.41			09/03/03	ND (0.025)	ND (0.025)	0.25	0.25	ND (0.012)	ND (0.025)	0.63	ND (0.025)	0.054	0.099	ND (0.025)	ND (0.025)	ND (0.025)
	796.75			12/04/03	ND (0.020)	ND (0.020)	0.25	0.25	ND (0.010)	ND (0.020)	0.54	ND (0.020)	0.052	0.085	ND (0.020)	ND (0.020)	ND (0.020)
	797.42			6/15/2004	ND (0.020)	ND (0.020)	0.2	0.2	ND (0.010)	ND (0.020)	0.53	ND (0.020)	0.055	0.078	ND (0.020)	ND (0.020)	ND (0.020)
	801.33			12/22/2004	ND (0.012)	ND (0.012)	0.15	0.15	ND (0.012)	ND (0.012)	0.42	ND (0.012)	0.07	0.077	ND (0.012)	ND (0.012)	ND (0.025)
	800.72			12/7/2005	ND (0.0033)	0.0036	0.045	0.045	ND (0.0033)	ND (0.0033)	0.17	ND (0.0033)	0.027	0.037	ND (0.0033)	ND (0.0033)	ND (0.0067)
10 TWOH-86BRI	799.50	793.70-790.20	17.5-21	12/08/00	ND (0.001)	0.009	0.0059	0.0059	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.35			03/07/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	0.0042	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.07			06/14/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	801.25			09/12/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.20			12/01/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	802.10			03/13/02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	0.0033	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.40			06/27/02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	0.0028	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	799.70			09/24/02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	799.45			12/03/02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.08			03/20/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	800.97			06/03/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	803.50			09/03/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	802.94			12/04/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	801.92			12/22/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	0.0032	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
11 TWOH-92BRI	801.44	796.43-791.43	15.5-20.5	06/13/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)
	799.72			12/03/02	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
12 TW-2120BRI	798.17	794.27-792.27	17.5-19.5	12/08/00	ND (0.025)	0.72	0.526	0.51	0.016	ND (0.025)	ND (0.025)	ND (0.025)	0.27	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	802.56			12/01/01	ND (0.12)	3	0.49	0.49	ND (0.062)	ND (0.12)	ND (0.25)	ND (0.12)	0.12	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
	800.37			12/02/02	ND (0.067)	2.2	1.4	1.4	ND (0.033)	ND (0.067)	ND (0.067)	0.072	0.2	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)
	802.30			12/05/03	ND (0.100)	2.2	2.5	2.5	ND (0.050)	ND (0.100)	ND (0.100)	ND (0.100)	0.31	ND (0.100)	ND (0.100)	ND (0.100)	ND (0.100)
	799.06			12/22/04	ND (0.091)	2.4	2.8	2.8	ND (0.091)	ND (0.091)	0.11	ND (0.091)	0.33	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.180)
	800.55			12/07/05	ND (0.010)	0.52	0.64	0.61	0.03	0.01	0.036	0.042	0.24	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.020)
13 TW-2153BRI	-	793.58-789.58	16 - 21	04/06/00	ND (0.001)	0.0023	0.3932	0.39	0.0032	0.0051	0.072	ND (0.001)	0.0041	0.014	ND (0.001)	ND (0.001)	ND (0.001)
	799.43			12/05/00	ND (0.04)	ND (0.04)	0.73	0.73	ND (0.02)	ND (0.04)	0.17	ND (0.04)	0.08	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)
	801.00			03/08/01	ND (0.025)	ND (0.025)	0.63	0.63	ND (0.012)	ND (0.025)	0.13	ND (0.025)	0.074	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	801.13			06/12/01	ND (0.001)	0.003	9.24	9.2	0.04	0.007	0.22	ND (0.001)	0.093	0.016	ND (0.001)	ND (0.001)	ND (0.003)
	800.84			09/12/01	ND (0.033)	ND (0.033)	0.73	0.73	ND (0.017)	ND (0.033)	0.21	ND (0.033)	0.11	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)
	800.87			12/01/01	ND (0.04)	ND (0.04)	0.97	0.97	ND (0.02)	ND (0.04)	0.24	ND (0.04)	0.13	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)
	801.81			03/13/02	ND (0.025)	ND (0.025)	0.7	0.7	ND (0.012)	ND (0.025)	0.14	ND (0.025)	0.091	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	800.60			06/27/02	ND (0.040)	ND (0.040)	0.84	0.84	ND (0.020)	ND (0.040)	0.15	ND (0.040)	0.094	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	799.35			09/23/02	ND (0.033)	ND (0.033)	0.93	0.93	ND (0.017)	ND (0.033)	0.018	ND (0.033)	0.12	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)
	799.02			12/03/02	ND (0.030)	ND (0.030)	0.8	0.8	ND (0.015)	ND (0.030)	0.24	ND (0.030)	0.098	ND (0.030)	ND (0.030)	ND (0.030)	ND (0.030)
	799.75			03/20/03	ND (0.025)	ND (0.025)	0.7	0.7	ND (0.012)	ND (0.025)	0.18	ND (0.025)	0.077	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	799.75			03/20/03	ND (0.025)	ND (0.025)	0.7	0.7	ND (0.012)	ND (0.025)	0.18	ND (0.025)	0.079	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	800.52			06/03/03	ND (0.018)	ND (0.018)	0.55	0.55	ND (0.0091)	ND (0.018)	0.12	ND (0.018)	0.055	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.018)
	801.94			09/03/03	ND (0.025)	ND (0.025)	0.65	0.65	ND (0.012)	ND (0.025)	0.15	ND (0.025)	0.061	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	800.64			12/04/03	ND (0.025)	ND (0.025)	0.71	0.71	ND (0.012)	ND (0.025)	0.15	ND (0.025)	0.068	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	801.64			12/21/04	ND (0.025)	ND (0.025)	0.82	0.82	ND (0.012)	ND (0.025)	0.17	ND (0.025)	0.069	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)
	799.84			12/07/05	ND (0.010)	ND (0.010)	0.66	0.66	ND (0.010)	ND (0.010)	0.2	ND (0.010)	0.03	0.016	ND (0.010)	ND (0.010)	ND (0.020)
	799.84			12/07/05	ND (0.012)	ND (0.012)	0.62	0.62	ND (0.012)	ND (0.012)	0.2	ND (0.012)	0.027	0.015	ND (0.012)	ND (0.012)	ND (0.025)

Notes:

TCE - Trichloroethene, 1,2-DCE - 1,2-Dichloroethene, VC - Vinyl Chloride, 1,1,1-TCA - 1,1,1-Trichloroethane, 1,1-DCA - 1,1-Dichloroethane,
ft bgs - approximate feet below ground surface
ND - Not Detected (Reporting Limit In Parentheses)

TABLE 7.2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Groundwater Monitoring Wells					Volatile Organic Compounds												
					Chloroform (mg/L)	*TCE (mg/L)*	*total 1,2-DCE (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (mg/L)*	*BDCM (mg/L)*
Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
1. MW-6KL(FG)	787.17	770.3-765.3	43 - 48	07/18/00	ND (0.040)	ND (0.040)	0.830	0.830	ND (0.020)	ND (0.040)	ND (0.080)	ND (0.040)	0.100	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	788.84			12/05/00	ND (0.001)	ND (0.001)	0.0047	0.0047	ND (0.0005)	ND (0.001)	0.037	ND (0.001)	0.0064	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.69			03/08/01	ND (0.001)	ND (0.001)	0.0024	0.0024	ND (0.0005)	ND (0.001)	0.0036	ND (0.001)	0.0029	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.88			06/12/01	ND (0.001)	ND (0.001)	0.0020	0.0020	ND (0.001)	ND (0.001)	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.88			06/12/01	ND (0.001)	ND (0.001)	0.0030	0.0030	ND (0.001)	ND (0.001)	0.005	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.60			09/12/01	ND (0.002)	ND (0.002)	0.0062	0.0062	ND (0.001)	ND (0.002)	ND (0.004)	ND (0.002)	0.0049	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	791.74			12/01/01	ND (0.001)	ND (0.001)	0.0055	0.0055	ND (0.0008)	ND (0.001)	ND (0.0033)	ND (0.001)	0.0042	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	793.91			03/13/02	ND (0.002)	ND (0.002)	0.0042	0.0042	ND (0.001)	ND (0.002)	ND (0.004)	ND (0.002)	0.0031	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	793.91			03/13/02	ND (0.002)	ND (0.002)	0.0038	0.0038	ND (0.001)	ND (0.002)	ND (0.004)	ND (0.002)	0.0029	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	788.34			06/29/02	ND (0.0033)	ND (0.0033)	0.0030	0.0030	ND (0.0017)	ND (0.0033)	ND (0.0067)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)
	787.19			09/23/02	ND (0.001)	ND (0.001)	0.0047	0.0047	ND (0.0005)	ND (0.001)	0.0027	ND (0.001)	0.0038	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	788.49			12/02/02	ND (0.002)	ND (0.002)	0.0041	0.0041	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	0.0029	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	788.49			12/02/02	ND (0.0025)	ND (0.0025)	0.0039	0.0039	ND (0.0012)	ND (0.0025)	ND (0.0025)	ND (0.0025)	0.0029	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
	790.67			03/21/03	ND (0.040)	ND (0.040)	1.00	1.00	ND (0.020)	ND (0.040)	0.11	ND (0.040)	0.14	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.040)
	791.39			06/02/03	ND (0.14)	ND (0.14)	0.38	0.38	ND (0.0071)	ND (0.14)	0.05	ND (0.14)	0.051	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
	791.69			09/03/03	ND (0.0033)	ND (0.0033)	0.097	0.097	ND (0.0033)	ND (0.0033)	0.011	ND (0.0033)	0.014	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)
	795.21			12/04/03	ND (0.002)	ND (0.002)	0.0041	0.0041	ND (0.001)	ND (0.002)	ND (0.004)	ND (0.002)	0.0021	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	792.75			03/25/04	ND (0.005)	ND (0.005)	0.13	0.13	ND (0.0025)	ND (0.005)	0.032	ND (0.005)	0.018	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
	793.18			06/15/04	ND (0.005)	ND (0.005)	0.14	0.14	ND (0.0025)	ND (0.005)	0.036	ND (0.005)	0.018	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
	797.21			09/27/04	ND (0.0077)	ND (0.0077)	0.19	0.19	ND (0.0077)	ND (0.0077)	0.052	ND (0.0077)	0.018	ND (0.0077)	ND (0.0077)	ND (0.0077)	ND (0.0077)	ND (0.015)
	796.21			12/21/04	ND (0.005)	ND (0.005)	0.2	0.2	ND (0.005)	ND (0.005)	0.045	ND (0.005)	0.024	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.010)	ND (0.005)
	796.85			03/30/05	ND (0.0014)	ND (0.0014)	0.023	0.023	ND (0.0014)	ND (0.0014)	0.0061	ND (0.0014)	0.0041	ND (0.0014)	ND (0.0014)	ND (0.0014)	ND (0.0014)	ND (0.0014)
	797.50			03/30/05	ND (0.0014)	ND (0.0014)	0.039	0.039	ND (0.0014)	ND (0.0014)	0.011	ND (0.0014)	0.0068	ND (0.0014)	ND (0.0014)	ND (0.0014)	ND (0.0014)	ND (0.0014)
	798.14			12/06/05	ND (0.0033)	ND (0.0033)	0.2	0.2	ND (0.0033)	ND (0.0033)	0.047	ND (0.0033)	0.027	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0067)
2. MW-7KL(FG)	786.91	770-765	43 - 48	07/18/00	ND (0.002)	0.0037	0.039	0.039	ND (0.001)	ND (0.001)	0.016	ND (0.002)	0.0061	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
	788.90			12/04/00	ND (0.001)	0.0033	0.041	0.041	ND (0.0005)	ND (0.001)	0.022	ND (0.001)	0.0052	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.41			03/08/01	ND (0.001)	ND (0.001)	0.033	0.033	ND (0.0005)	ND (0.001)	0.015	ND (0.001)	0.0042	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.54			06/11/01	ND (0.001)	0.016	0.1	0.1	ND (0.001)	ND (0.001)	0.008	ND (0.001)	0.013	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.003)
	789.28			09/12/01	ND (0.022)	ND (0.022)	0.068	0.068	ND (0.011)	ND (0.022)	0.032	ND (0.022)	0.089	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)
	791.67			12/02/01	ND (0.001)	0.0041	0.039	0.039	ND (0.0005)	ND (0.001)	0.029	ND (0.001)	0.0063	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	793.51			03/12/02	ND (0.0012)	0.0023	0.026	0.026	ND (0.00062)	ND (0.0012)	0.0092	ND (0.0012)	0.0046	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)
	788.87			06/28/02	ND (0.001)	ND (0.001)	0.032	0.032	ND (0.0005)	ND (0.001)	0.019	ND (0.001)	0.0074	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	787.11			09/23/02	ND (0.0012)	ND (0.0012)	0.039	0.039	ND (0.00062)	ND (0.0012)	0.03	ND (0.0012)	0.0086	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)
	788.56			12/02/02	ND (0.001)	ND (0.001)	0.022	0.022	ND (0.0005)	ND (0.001)	0.036	ND (0.001)	0.0068	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	790.34			03/21/03	ND (0.0018)	ND (0.0018)	0.036	0.036	ND (0.00091)	ND (0.0018)	0.022	ND (0.0018)	0.0072	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.0018)	ND (0.0018)
	791.56			06/04/03	ND (0.0012)	ND (0.0012)	0.029	0.029	ND (0.00062)	ND (0.0012)	0.017	ND (0.0012)	0.0067	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)
	791.56			06/04/03	ND (0.001)	ND (0.001)	0.028	0.028	ND (0.0005)	ND (0.001)	0.017	ND (0.001)	0.006	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	792.16			09/03/03	ND (0.001)	ND (0.001)	0.032	0.032	ND (0.0005)	ND (0.001)	0.023	ND (0.001)	0.0089	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	794.49			12/04/03	ND (0.001)	ND (0.001)	0.024	0.024	ND (0.0005)	ND (0.001)	0.024	ND (0.001)	0.0076	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	794.59			03/25/04	ND (0.001)	ND (0.001)	0.023	0.023	ND (0.0005)	ND (0.001)	0.02	ND (0.001)	0.0068	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	795.48			06/14/04	ND (0.001)	ND (0.001)	0.030	0.030	ND (0.0005)	ND (0.001)	0.025	ND (0.001)	0.0089	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	788.55			09/27/04	ND (0.001)	ND (0.001)	0.029	0.029	ND (0.001)	ND (0.001)	0.026	ND (0.001)	0.0074	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
	793.16			12/21/04	ND (0.001)	ND (0.001)	0.023	0.023	ND (0.001)	ND (0.001)	0.023	ND (0.001)	0.0083	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
	790.08			03/30/05	ND (0.001)	ND (0.001)	0.02	0.02	ND (0.001)	ND (0.001)	0.027	ND (0.001)	0.007	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
	790.01			12/06/05	ND (0.001)	ND (0.001)	0.019	0.019	ND (0.001)	ND (0.001)	0.029	ND (0.001)	0.0082	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
3. MW-8KL(FG)	786.80	771.9-766.9	37 - 43	08/03/00	0.0016	ND (0.001)	0.00093	0.00093	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	788.91			12/04/00	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.74			03/09/01	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	790.02			06/13/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.003)
	788.74			09/11/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.71			12/01/01	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	793.81			03/12/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	788.90			06/28/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	787.14			09/24/02	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	788.44			12/03/02	ND (0.0067)	ND (0.0067)	0.18	0.18	ND (0.0033)	ND (0.0067)	0.042	ND (0.0067)	0.014	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)
	788.44			12/03/02	ND (0.0067)	ND (0.0067)	0.18	0.18	ND (0.0033)	ND (0.0067)	0.042	ND (0.0067)	0.014	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)
	-			01/16/03	ND (0.005)	ND (0.005)	0.053	0.053	ND (0.0012)	ND (0.0025)	0.006	ND (0.0025)	0.0049	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
	790.54			03/21/03	ND (0.001)	ND (0.001)	0.036	0.036	ND (0.0005)	ND (0.001)	0.0035	ND (0.001)	0.0031	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	790.54			03/21/03	ND (0.001)	ND (0.001)	0.035	0.035	ND (0.0005)	ND (0.001)	0.0029	ND (0.001)	0.0030	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.73			06/03/03	ND (0.001)	ND (0.001)	0.0018	0.0018	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	791.73			06/03/03	ND (0.001)	ND (0.001)	0.0017	0.0017	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	792.53			09/03/03	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	792.53			09/03/03	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	794.93			12/03/03	ND (0.001)	ND (0.001)	0.0034	0.0034	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	795.33			03/25/04	ND (0.001)	ND (0.001)	0.00055	0.00055	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	794.29			06/14/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	794.29			06/14/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.29			09/27/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
	789.29			09/27/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
	792.78			12/22/04	ND (0.005)	ND (0.005)	0.13	0.13	ND (0.005)	ND (0.005)	0.021	ND (0.005)	0.0058	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.010)	ND (0.005)
	792.78			12/22/04	ND (0.005)	ND (0.005)	0.13	0.13	ND (0.005)	ND (0.005)	0.02	ND (0.005)	0.0058	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.010)	ND (0.005)
	791.83			03/31/05	ND (0.001)	ND (0.001)	0.0013	0.0013	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
	789.90			12/07/05	ND (0.0017)	ND (0.0017)	0.09	0.09	ND (0.0017)	ND (0.0017)	0.027	ND (0.0017)	0.0058	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0033)
	789.90			12/07/05	ND (0.0017)	ND (0.0017)	0.089	0.089	ND (0.0017)	ND (0.0017)	0.025	ND (0.0017)	0.0057	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.0033)

See Notes on Page 3

TABLE 7.2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Groundwater Monitoring Wells					Volatile Organic Compounds													
					Chloroform (mg/L)	*TCE (mg/L)*	*total 1,2-DCE (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (mg/L)*	*BDCM (mg/L)*
	Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
2	MW-13KL(H)	790.82	771.3-766.3	43 - 48	03/22/03	0.0095	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0023
		792.01			06/04/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	0.0079	ND (0.001)	ND (0.001)	ND (0.001)
		792.64			09/02/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
3	MW-13KL(G)	790.83	761.1-756.1	53 - 58	03/22/03	ND (0.001)	ND (0.001)	0.038	0.038	ND (0.0005)	ND (0.001)	0.03	ND (0.001)	0.0032	ND (0.001)	0.0015	ND (0.001)	ND (0.001)	ND (0.001)
		791.82			06/04/03	ND (0.002)	ND (0.002)	0.056	0.056	ND (0.001)	ND (0.002)	0.042	ND (0.002)	0.0042	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
		792.55			09/02/03	ND (0.0025)	ND (0.0025)	0.063	0.063	ND (0.0012)	ND (0.0025)	0.052	ND (0.0025)	0.0054	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
4	MW-13LCI	791.50	739-736.5	75.75 - 78.25	11/04/03	ND (0.005)	ND (0.005)	0.12	0.12	ND (0.0025)	ND (0.005)	0.031	ND (0.005)	0.0086	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
5	MW-13LC(1)	791.43	712-718.5	93.75 - 96.25	11/04/03	ND (0.004)	0.016	0.1	0.1	ND (0.002)	ND (0.004)	0.018	ND (0.004)	0.0084	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
		794.15			03/25/04	ND (0.001)	ND (0.001)	0.012	0.012	ND (0.0005)	ND (0.001)	0.002	ND (0.001)	0.0013	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		794.85			06/15/04	ND (0.001)	ND (0.001)	0.028	0.028	ND (0.0005)	ND (0.001)	0.0056	ND (0.001)	0.0041	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		795.54			09/27/04	ND (0.001)	0.0018	0.027	0.027	ND (0.001)	ND (0.001)	0.0063	ND (0.001)	0.0039	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		792.01			12/21/04	ND (0.001)	ND (0.001)	0.007	0.007	ND (0.001)	ND (0.001)	0.0027	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		791.49			03/30/05	ND (0.001)	ND (0.001)	0.0065	0.0065	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
6	MW-13MSI	791.32	698.8-693.8	116 - 121	11/05/03	ND (0.0033)	ND (0.0033)	0.095	0.095	ND (0.0017)	ND (0.0033)	0.015	ND (0.0033)	0.007	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)	ND (0.0033)
7	MW-14KL(EF)	789.29	769.3-764.3	43 - 48	03/22/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		796.80			09/03/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		796.80			09/03/03	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
8	MW-14LCI	787.52	751.2-748.7	61 - 63.5	11/06/03	ND (0.017)	ND (0.017)	0.45	0.45	ND (0.008)	ND (0.017)	0.092	ND (0.017)	0.051	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)
		789.19			12/03/03	ND (0.020)	ND (0.020)	0.48	0.48	ND (0.010)	ND (0.020)	0.08	ND (0.020)	0.057	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)
		787.93			03/25/04	ND (0.012)	ND (0.012)	0.43	0.43	ND (0.062)	ND (0.012)	0.073	ND (0.012)	0.046	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)
		788.26			06/15/04	ND (0.020)	ND (0.020)	0.56	0.56	ND (0.010)	ND (0.020)	0.099	ND (0.020)	0.065	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)
		783.72			06/15/04	ND (0.020)	ND (0.020)	0.648	0.62	0.028	ND (0.020)	0.087	ND (0.020)	0.08	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)
		784.03			09/27/04	ND (0.014)	ND (0.014)	0.46	0.46	ND (0.014)	ND (0.014)	0.063	ND (0.014)	0.051	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.029)	ND (0.014)
		784.03			12/22/04	ND (0.017)	ND (0.017)	0.42	0.42	ND (0.017)	ND (0.017)	0.042	ND (0.017)	0.049	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.033)	ND (0.017)
		781.92			03/30/05	ND (0.017)	ND (0.017)	0.39	0.39	ND (0.017)	ND (0.017)	0.093	ND (0.017)	0.047	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.033)	ND (0.017)
		780.12			12/08/05	ND (0.012)	ND (0.012)	0.34	0.34	ND (0.012)	ND (0.012)	0.043	ND (0.012)	0.043	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.025)
		780.12			12/08/05	ND (0.012)	ND (0.012)	0.34	0.34	ND (0.012)	ND (0.012)	0.042	ND (0.012)	0.042	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.025)
9	MW-14LC(1)	786.37	739.5-737	72.75 - 75.25	11/06/03	ND (0.008)	ND (0.008)	0.19	0.19	ND (0.004)	ND (0.008)	0.054	ND (0.008)	0.022	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)
		786.43			12/03/03	ND (0.008)	ND (0.008)	0.2	0.2	ND (0.004)	ND (0.008)	0.053	ND (0.008)	0.024	ND (0.0008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)
10	MW-14MSI	786.29	710-705	102 - 107	11/06/03	ND (0.0067)	ND (0.0067)	0.19	0.19	ND (0.0033)	ND (0.0067)	0.041	ND (0.0067)	0.024	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)	ND (0.0067)
		786.81			12/03/03	ND (0.008)	ND (0.008)	0.21	0.21	ND (0.004)	ND (0.008)	0.051	ND (0.008)	0.025	ND (0.0008)	ND (0.008)	ND (0.008)	ND (0.008)	ND (0.008)
12	MW-15KL(H)	801.27	781.8-779.3	35.75 - 38.25	11/04/03	0.0044	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
13	MW-15KL(FG)	793.79	755.8-753.8	61.25 - 63.75	11/04/03	ND (0.004)	ND (0.004)	0.1	0.1	ND (0.002)	ND (0.004)	0.017	ND (0.004)	0.011	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
		793.02			12/03/03	ND (0.020)	ND (0.020)	0.4	0.4	ND (0.010)	ND (0.020)	0.069	ND (0.020)	0.023	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)
14	MW-15LCI	791.69	737-734.5	79.75 - 82.25	11/04/03	ND (0.004)	0.014	0.11	0.11	ND (0.002)	ND (0.004)	0.018	ND (0.004)	0.01	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
		791.69			11/04/03	ND (0.004)	0.013	0.1	0.1	ND (0.002)	ND (0.004)	0.019	ND (0.004)	0.0095	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
		792.71			12/03/03	ND (0.002)	0.013	0.051	0.051	ND (0.001)	ND (0.002)	0.0076	ND (0.002)	0.0048	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
		792.68			03/25/04	ND (0.001)	ND (0.001)	0.017	0.017	ND (0.0005)	ND (0.001)	0.0032	ND (0.001)	0.0016	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		791.61			06/15/04	ND (0.025)	0.027	0.0863	0.085	0.0013	ND (0.001)	0.0055	ND (0.025)	0.0055	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
		792.68			09/28/04	ND (0.071)	ND (0.071)	0.023	0.023	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.140)
		791.88			12/21/04	ND (0.001)	0.0029	0.023	0.023	ND (0.001)	ND (0.001)	0.0029	ND (0.001)	0.0016	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		791.81			03/31/05	ND (0.001)	0.0015	0.011	0.011	ND (0.001)	ND (0.001)	0.005	ND (0.001)	0.0012	0.0028	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		791.40			12/08/05	ND (0.001)	ND (0.001)	0.026	0.026	ND (0.001)	ND (0.001)	0.0023	ND (0.001)	0.0036	0.001	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
15	MW-15LC(1)	791.81	718.5-713.5	99 - 104	11/04/03	ND (0.022)	ND (0.022)	0.6	0.6	ND (0.011)	ND (0.022)	0.076	ND (0.022)	0.041	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)
		793.00			12/03/03	ND (0.004)	ND (0.004)	0.1	0.1	ND (0.004)	ND (0.004)	0.014	ND (0.004)	0.011	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)
16	MW-15MSI	791.86	698.3-693.5	119 - 124	11/05/03	0.013	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
17	MW-16KL(FG)	796.63	760.8-758.3	49.7 - 52.2	11/05/03	ND (0.001)	ND (0.001)	0.0091	0.0091	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
18	MW-16LCI	795.00	742.8-740.3	67.7 - 70.2	11/05/03	ND (0.001)	ND (0.001)	0.00095	0.00095	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	0.0015	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		792.94			03/25/04	ND (0.001)	ND (0.001)	0.0011	0.0011	ND (0.0005)	ND (0.001)	0.0027	ND (0.001)	0.0031	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		792.25			06/15/04	ND (0.001)	ND (0.001)	0.0005	0.0005	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	0.0023	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		784.37			09/27/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0015	ND (0.001)	0.0018	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		789.18			12/22/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0021	ND (0.001)	0.0028	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		789.18			12/22/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0019	ND (0.001)	0.0027	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		791.37			03/31/05	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0023	ND (0.001)	0.0024	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
19	MW-16LC(1)	795.15	727-722	83.5 - 88.5	11/05/03	ND (0.001)	ND (0.001)	0.00092	0.00092	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		795.15			11/05/03	ND (0.001)	ND (0.001)	0.001	0.001	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)

See Notes on Page 3

TABLE 7.2

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS - BEDROCK ZONE
BEDROCK CHARACTERIZATION REPORT
DELPHI CORPORATION FORMER ELECTRONICS & SAFETY DIVISION PLANT 1 PROPERTY
KOKOMO, INDIANA

Bedrock Groundwater Monitoring Wells					Volatile Organic Compounds													
					Chloroform (mg/L)	*TCE (mg/L)*	*total 1,2-DCE (mg/L)*	*Cis-1,2-DCE (mg/L)*	*Trans-1,2-DCE (mg/L)*	*1,1-DCE (mg/L)*	*VC (mg/L)*	*1,1,1-TCA (mg/L)*	*1,1-DCA (mg/L)*	*Benzene (mg/L)*	*Toluene (mg/L)*	*Ethylbenzene (mg/L)*	*Xylenes (mg/L)*	*BDCM (mg/L)*
	Well ID	*Water Elev.*	*Screen Ele.*	*Screen (ft bgs)*	*Sample Date*													
20	MW-17KL(FG)	793.04	758.5-756	58.75 - 61.25	11/05/03	ND (0.001)	ND (0.001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		793.04			12/03/03	ND (0.001)	ND (0.001)	0.00065	0.00065	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
21	MW-17LCI	791.26	737.5-735	79.75 - 82.25	11/05/03	ND (0.001)	ND (0.001)	0.0043	0.0043	ND (0.0005)	ND (0.001)	0.0058	ND (0.001)	0.0027	0.0054	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		794.59			12/03/03	ND (0.001)	ND (0.001)	0.0028	0.0028	ND (0.0005)	ND (0.001)	0.0024	ND (0.001)	0.0023	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		794.97			03/25/04	ND (0.001)	ND (0.001)	0.0028	0.0028	ND (0.0005)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		794.46			06/15/04	ND (0.001)	ND (0.001)	0.0017	0.0017	ND (0.0005)	ND (0.001)	0.0027	ND (0.001)	0.0022	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		795.28			09/28/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0021	ND (0.001)	0.0017	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		789.11			12/22/04	ND (0.001)	ND (0.001)	0.0024	0.0024	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		787.60			03/31/05	ND (0.001)	ND (0.001)	0.0024	0.0024	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
22	MW-17LC(1)	791.21	724.5-722	92.75 - 95.25	11/05/03	ND (0.001)	ND (0.001)	0.0063	0.0063	ND (0.0005)	ND (0.001)	0.0037	ND (0.001)	ND (0.0001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		-			12/03/03	ND (0.001)	ND (0.001)	0.005	0.005	ND (0.0005)	ND (0.001)	0.0029	ND (0.001)	0.0011	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
		-			12/08/05	ND (0.001)	ND (0.001)	0.0015	0.0015	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
23	MW-18KL(EF)	781.13	758.9-763.9	53-58	12/23/04	0.018	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	0.0026
24	MW-18 LCI	780.82	748.9-750.9	66-68	12/23/04	0.0041	ND (0.001)	0.0023	0.0023	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
		776.17			03/30/05	ND (0.001)	ND (0.001)	0.0056	0.0056	ND (0.001)	ND (0.001)	0.0045	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
25	MW-18 LC(1)	780.83	738.9-740.9	76-78	12/23/04	ND (0.002)	ND (0.002)	0.018	0.018	ND (0.002)	ND (0.002)	0.0024	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
		776.05			12/08/05	ND (0.001)	ND (0.001)	0.0015	0.0015	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
26	MW-18 LC(2)	780.61	733.6-736.6	81.25-83.25	12/23/04	ND (0.001)	ND (0.001)	0.0098	0.0098	ND (0.001)	ND (0.001)	0.0015	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
27	MW-18 LC(3)	777.66	721.3-723.3	93.5-95.5	12/23/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
28	MW-18 MSI	775.85	693.2-698.2	118.5-123.5	12/23/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
29	MW-18 LLI	742.75	586.6-606.6	210-230	12/23/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
30	MW-19KL(EF)	782.97	755.9-760.9	56.5-61.5	12/21/04	ND (0.050)	ND (0.050)	0.063	0.063	ND (0.050)	ND (0.050)	0.077	ND (0.050)	ND (0.050)	1.3	0.12	0.33	0.47	ND (0.050)
					03/30/05	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
31	MW-19 LCI	783.09	745.7-747.7	69.5-71.5	12/21/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
32	MW-19 LC(1)	783.62	736.7-738.7	78.5-80.5	12/21/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
33	MW-19 LC(2)	783.05	731.2-733.2	84-86	12/21/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
34	MW-19 LC(3)	781.81	719.0-721.0	96-98	12/21/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)
35	MW-19 MSI	781.79	695.0-700.0	112-122	12/21/04	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)

Notes:

TCE - Trichloroethene
1,2-DCE - 1,2-Dichloroethene
VC - Vinyl Chloride
1,1,1-TCA - 1,1,1-Trichloroethane
1,1-DCA - 1,1-Dichloroethane
BDCM - Bromodichloromethane
ft bgs - approximate feet below ground surface
ND - Not Detected (Reporting Limit In Parentheses)

See Notes on Page 3