951809

de maximis, inc.

450 Montbrook Lane
Knoxville, TN 37919
(865) 691-5052
(865) 691-6485 FAX
(865) 691-9835 ACCT. FAX

VIA ELECTRONIC DELIVERY

January 7, 2019

Karen Mason-Smith
Remedial Project Manager
U.S. EPA, Superfund Division
Mail Code SR-6J
77 W. Jackson Blvd.
Chicago, IL 60604

Re: Revised Final Remedial Investigation Report;
Gary Development Landfill Superfund Site

Dear Ms. Mason-Smith:

On behalf of the Gary Development Landfill Site PRP Group (Respondents), a revised final PDF version of the Remedial Investigation (RI) report (Volume 1 only) is attached (via ShareFile link) for United States Environmental Protection Agency (EPA) review and approval. The final RI report was revised in accordance with EPA's redline markup dated December 21, 2018. Hard copies of the document will be prepared after EPA approves the RI Report.

If you have any questions regarding this submittal, please contact Mr. Bennie Underwood or me at (865) 691-5052.

Sincerely,
de maximis, inc.

Michael H. Samples
Alternate Project Coordinator

MHS/jr

cc: (via email)
Leslie Blake, EPA
Stephanie Andrews, IDEM
Jeff Cahn, Esq., EPA
David Rieser, Esq., K&L Gates
B. Underwood, *de maximis, inc.*
Mark Raybuck, Parsons
GDL Site Technical Committee

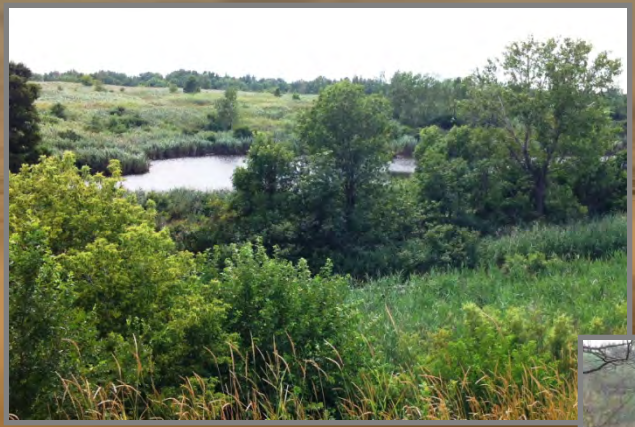
PARSONS

REMEDIAL INVESTIGATION REPORT FOR THE GARY DEVELOPMENT LANDFILL SUPERFUND SITE GARY, INDIANA

Prepared on behalf of the Gary Development Landfill PRP Group for:

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5



JANUARY 2019

Remedial Investigation Report

Gary Development Landfill Superfund Site
Gary, Indiana

Prepared for:

THE U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Prepared on behalf of:

THE GARY DEVELOPMENT LANDFILL PRP GROUP

Prepared by:

PARSONS

40 La Riviere Drive, Suite 350
Buffalo, New York 14202

JANUARY 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **I**

Introduction ..... **i**
Investigation Activities ..... **ii**
Site Characteristics ..... **ii**
Nature and Extent of Impacts ..... **iii**
Fate and Transport ..... **iii**
Human Health Risk Assessment ..... **iv**
Ecological Risk Assessment ..... **v**
Summary and Conclusions ..... **vi**

1.0 INTRODUCTION **1-1**

1.1 Purpose **1-1**
1.2 Site Setting **1-1**
1.3 Site Background **1-1**
1.3.1 Site Use History and Ownership *1-1*
1.3.2 Historical Data Summary *1-2*
1.3.3 Current Site Conditions *1-3*

2.0 INVESTIGATION ACTIVITIES **2-1**

2.1 Investigation Tasks **2-2**
2.1.1 Site Preparation *2-2*
2.1.2 Southern Wetland Investigation *2-3*
2.1.3 Northern Pond Investigation *2-4*
2.1.4 Groundwater Evaluation *2-4*
2.1.5 Landfill Evaluation *2-6*
2.1.6 Ecological Investigation (Biota/Habitat) *2-7*
2.2 Post Sampling Activities **2-7**
2.2.1 Survey Wells and Sampling Locations *2-7*
2.2.2 Investigative Waste Disposal and Materials Management *2-8*
2.3 Sample Analysis and Validation **2-8**
2.3.1 Sample Management *2-8*
2.3.2 Data Validation *2-8*
2.3.3 Database Management *2-9*

3.0 SITE CHARACTERISTICS **3-1**

3.1 Geology and Hydrogeology **3-1**
3.1.1 Geology *3-1*
3.1.2 Hydrogeology *3-2*

3.2 Ecological Evaluation 3-5
3.3 Demographics and Land Use 3-6

4.0 NATURE AND EXTENT OF IMPACTS 4-1

4.1 Introduction 4-1
4.2 Background Concentrations 4-1
4.2.1 Background Pond Surface Water and Sediments 4-1
4.2.2 Chicago Metropolitan Soils 4-2
4.2.3 Calumet Area Sediments 4-2
4.3 Sediment Results 4-2
4.3.1 Northern Pond 4-2
4.3.2 Southern Wetland 4-3
4.4 Surface Water Results 4-4
4.4.1 Northern Pond 4-4
4.4.2 Southern Wetland and Grand Calumet River 4-4
4.5 Groundwater 4-4
4.6 Surface Soil Results 4-5
4.7 Subsurface Soil Results 4-6
4.8 Soil Vapor Results 4-7
4.9 NAPL Delineation Summary 4-7

5.0 ENVIRONMENTAL FATE AND TRANSPORT 5-1

5.1 Persistence and Transport in Soils 5-2
5.2 Persistence and Transport in Northern Pond Sediments and Water 5-2
5.3 Persistence and Transport in Southern Wetland Sediment 5-3
5.4 Persistence and Transport in Groundwater 5-5
5.5 Persistence and Transport in Soil Vapor 5-6

6.0 RISK ASSESSMENT SUMMARY 6-1

6.1 Human Health Risk Assessment 6-3
6.1.1 Data Evaluation and Hazard Identification 6-3
6.1.2 Toxicity Assessment 6-4
6.1.3 Exposure Assessment 6-4
6.1.4 Risk Characterization 6-5
6.2 Ecological Risk Assessment 6-6
6.2.1 Environmental Setting 6-6
6.2.2 Data Evaluation and Hazard Identification 6-6
6.2.3 Toxicity Assessment 6-7
6.2.4 Exposure Assessment 6-7
6.2.5 Risk Characterization 6-8
6.2.6 SLERA Scientific/Management Decision Point 6-8

6.3 Risk Assessment Summary 6-9

7.0 SUMMARY AND CONCLUSIONS 7-1

8.0 REFERENCES 8-1

LIST OF FIGURES

Figure 1-1 Site Location Map
Figure 1-2 Site Plan
Figure 1-3 Surrounding Area Map
Figure 2-1 Scrap Metal Location Map
Figure 2-2 Sediment Sample Location Map
Figure 2-3 Surface Water Sample Location Map
Figure 2-4 Background Pond Sample Location Map
Figure 2-5 Geoprobe Location Map
Figure 2-6 Monitoring Well Location Map
Figure 2-7 Surface Soil Sample Location Map
Figure 2-8 Geotechnical Sample Location Map
Figure 2-9 Test Pit Location Map
Figure 2-10 NAPL Delineation Test Pits
Figure 2-11 Soil Boring Location Map
Figure 2-12 Soil Vapor Sample Location Map
Figure 2-13 Gas Vent Location Map
Figure 3-1 Geologic Cross-Sections AA' / BB'
Figure 3-2 Geologic Cross-Sections CC' / DD'
Figure 3-3 Fence Diagram AA' / BB'
Figure 3-4 Fence Diagram CC' / DD'
Figure 3-5 Waste Delineation
Figure 3-6 Shallow Groundwater Potentiometric Surface Map (December 2016)
Figure 3-7 Shallow Groundwater Potentiometric Surface Map (March 2017)
Figure 3-8 Shallow Groundwater Potentiometric Surface Map (July 2017)
Figure 3-9 Shallow Groundwater Potentiometric Surface Map (October 2017)
Figure 3-10 Deep Groundwater Potentiometric Surface Map (March 2017)
Figure 3-11 Deep Groundwater Potentiometric Surface Map (October 2017)
Figure 3-12 Hydrographs of Monitoring Wells
Figure 4-1 Benzo(a)anthracene in Sediment (September 2016 and November 2016)
Figure 4-2 Lead in Sediment (September 2016 and November 2016)
Figure 4-3 PCB Aroclor 1254 in Sediment (September 2016 and November 2016)
Figure 4-4 Zinc in Sediment (September 2016 and November 2016)
Figure 4-5 Chromium in Surface Water
Figure 4-6 Magnesium in Surface Water
Figure 4-7 Manganese in Surface Water
Figure 4-8 Naphthalene in Surface Water
Figure 4-9 VOCs in Groundwater, November 2016 – October 2017
Figure 4-10 SVOCs in Groundwater, November 2016 – October 2017
Figure 4-11 Metals in Groundwater, November 2016 – October 2017
Figure 4-12 Total Arsenic in Groundwater (July 2017)
Figure 4-13 Total Arsenic in Groundwater (October 2017)
Figure 4-14 Benzene in Groundwater (July 2017)

Figure 4-15 Benzene in Groundwater (October 2017)
Figure 4-16 1,4-dioxane in Groundwater (July 2017)
Figure 4-17 1,4-dioxane in Groundwater (October 2017)
Figure 4-18 Hexavalent Chromium in Groundwater (July 2017)
Figure 4-19 Hexavalent Chromium in Groundwater (October 2017)
Figure 4-20 Naphthalene in Groundwater (July 2017)
Figure 4-21 Naphthalene in Groundwater (October 2017)
Figure 4-22 Arsenic Concentration Over Time (0-20 µg/L)
Figure 4-23 Arsenic Concentration Over Time (>20 µg/L)
Figure 4-24 Hexavalent Chromium Concentration Over Time (0-2 µg/L)
Figure 4-25 Hexavalent Chromium Concentration Over Time (>2 µg/L)
Figure 4-26 Benzene Concentration Over Time (0-50 µg/L)
Figure 4-27 Benzene Concentration Over Time (> 50 µg/L)
Figure 4-28 Naphthalene Concentration Over Time (0-15 µg/L)
Figure 4-29 Naphthalene Concentration Over Time (>15 µg/L)
Figure 4-30 Benzo(a)pyrene in Surface Soil (August 2017)
Figure 4-31 Lead in Surface Soil (August 2016)
Figure 4-32 PCB Aroclor 1254 in Surface Soil (August 2016)
Figure 4-33 2-Methylnapthalene in Subsurface Soil (August 2016 to March 2017)
Figure 4-34 Benzo(a)pyrene in Subsurface Soil (August 2016 to March 2017)
Figure 4-35 Benzene in Subsurface Soils (August 2016 to March 2017)
Figure 4-36 Benzene in Soil Gas (September/December 2016)
Figure 4-37 Ethylbenzene in Soil Gas (September/December 2016)
Figure 4-38 Methane in Soil Gas (September/December 2016)
Figure 6-1 Human Health Conceptual Site Model – Current Conditions
Figure 6-2 Human Health Conceptual Site Model – Future Conditions. Presumptive Remedy: Landfill Cap Placement
Figure 6-3 Ecological Conceptual Site Model – Current Conditions
Figure 6-4 Ecological Conceptual Site Model – Future Conditions. Presumptive Remedy: Landfill Cap Placement

LIST OF TABLES

Table 2-1 RI Sampling and Analysis Summary
Table 2-2 Geoprobe and Soil Boring Construction Summary
Table 2-3 Geoprobe Groundwater Analytical Results, June/July 2016
Table 2-4 Monitoring Well Construction Summary
Table 3-1 Geotechnical Results, July 2016
Table 3-2 Geotechnical Testing Soil Classification Results, July 2016
Table 3-3 Vertical Hydraulic Gradients
Table 3-4 Hydraulic Conductivity from Slug Tests
Table 3-5 Groundwater Velocity by Area
Table 4-1 Sediment Sample Analytical Results, September to November 2016
Table 4-2 Surface Water Analytical Results, September 2016 to October 2017
Table 4-3 Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 – October 2017)
Table 4-4 Groundwater Analytical Results, Total Metals and Cyanide (November 2016 – October 2017)
Table 4-5 Groundwater Analytical Results, Volatile Organics (November 2016 – October 2017)
Table 4-6 Groundwater Analytical Results, Semivolatile Organics (November 2016 – October 2017)
Table 4-7 Surface Soil Analytical Results, August 2016
Table 4-8 Surface Soil, 2016 Asbestos Analytical Results
Table 4-9 Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017
Table 4-10 Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016
Table 4-11 Soil Vapor Analytical Results, September/December 2016
Table 4-12 Liquid Waste Sample Results
Table 6-1 Selection of Exposure Pathways
Table 6-2 Constituents of Concern for Each Receptor by Medium – Current Land Use – RME Scenario
Table 6-3 Constituents of Concern for Each Receptor by Medium – Future Land Use Under the Presumptive Remedy – RME Scenario
Table 6-4 Constituents of Ecological Concern for Key Receptors by Medium – Future Land Use Under the Presumptive Remedy

LIST OF APPENDICES

Appendix A Field Sampling Logs (Groundwater, Water Levels, Test Pits, Surface Water, Soil Vapor, Sediment)
Appendix B Building Inspection and Hazardous Materials Survey
Appendix C Water Well Inventory
Appendix D Soil Boring Logs and Monitoring Well Construction Diagrams
Appendix E Liquid Waste Delineation Report
Appendix F Ecological Evaluation
- Wetland Delineation
- Threatened and Endangered Species
- Habitat Evaluation

Appendix G Data Validation Reports
Appendix H Hydraulic Conductivity Test Analysis
Appendix I Land Use Memorandum
Appendix J Grand Calumet Historical Data
Appendix K BIOSCREEN Model Input and Output
Appendix L Human Health Risk Assessment
Appendix M Screening Level Ecological Risk Assessment
Appendix N Preliminary Remedial Action Objectives Memorandum

LIST OF ABBREVIATIONS AND ACRONYMS

Acronym	Definition / Description
3D	Three dimensional
ACM	Asbestos containing material
AMG	AMG Resources Corporation
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below ground surface
CARE	Citizens Advisory Committee for the Remediation of the Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
cm/sec	Centimeter(s) per second
COPC	Constituent of potential concern
COPEC	Constituent of potential ecological concern
CSM	Conceptual site model
CTE	Central tendency exposure
DDD	Dichlorodiphenyldichloroethane
DO	Dissolved oxygen
EDD	Electronic data deliverable
EDR	Environmental Data Resources
EPC	Exposure point concentration
ESII	Ecosystem Services Identification and Inventory (tool)
ESL	Ecological screening level
FSP	Field sampling plan
ft/ft	Foot/feet per foot
GDL Site	Gary Development Landfill Superfund Site (a.k.a., the Site)
GIS	Geographic information system
GPS	Global positioning system
HEAST	Health effects assessment summary table
HHRA	Human Health Risk Assessment
HQ	Hazard quotient
IDEM	Indiana Department of Environmental Management
IDW	Investigation derived waste
IEPA	Illinois Environmental Protection Agency

Acronym	Definition / Description
IISC	Indiana Invasive Species Council
IRIS	Integrated Risk Information System
IUR	Inhalation risk unit
µg/L	Microgram(s) per liter
mg/kg	Milligram(s) per kilogram
mm/hg	Millimeters of mercury
MSL	Mean sea level
NAPL	Non-aqueous phase liquid
ORP	Oxidation reduction potential
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PDF	Portable document format
PID	Photoionization detector
PPRTV	Provisional peer-reviewed toxicity value
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RfC	Reference concentration
RfD	Reference dose
RI	Remedial Investigation
RISC	(IDEM) Risk-Integrated System of Closure
RME	Reasonable maximum exposure
RSL	Regional screening level
SF	Slope factor
SLERA	Screening Level Ecological Risk Assessment
SVOC	Semivolatile organic compound
TRV	Toxicity reference value
UCL	Upper confidence limit
USACE	United States Army Corps of Engineers
USCS	United Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile organic compound

EXECUTIVE SUMMARY

Introduction

This report describes the Remedial Investigation (RI) conducted at the Gary Development Landfill (GDL) Superfund Site (Site), located at 479 N. Cline Avenue, Gary, Lake County, Indiana. The purpose of this RI is to evaluate the nature and extent of impacts, assess risks to human health and the environment, and to provide data for a subsequent evaluation of remedial alternatives. The streamlined approach of this RI (and subsequent feasibility study) relies on capping/containment as the preferred remediation strategy (use of presumptive remedy guidance for this RI approved by the United States Environmental Protection Agency [USEPA] in a letter dated August 21, 2015).

The Site is comprised of 62 acres, of which approximately 55 acres were used for solid and hazardous waste disposal. The surrounding area is heavily industrialized and includes numerous environmentally impacted sites. Seventeen sites within a 2-mile radius of the GDL Site have been identified as sources of hazardous substances. The GDL Site is bounded on the north and east by the Canadian National (CN) Railroad, to the east by the Indiana Tollway, and further east by the Gary/Chicago International Airport (airport), to the south by the Grand Calumet River (river), and to the west by AMG Resources Corporation (AMG), a metal recycling facility.

The landfill began as an aggregate borrow pit (sand quarry) during the early 1950s. An industrial/sanitary landfill was operated from 1974 to 1989. Dewatering activities created an inward groundwater gradient from the river toward the Site during this period and presumably during the borrow pit phase.

The Site was the subject of multiple investigations conducted by the USEPA and the Indiana Department of Environmental Management (IDEM) from 1990 to 2009. Multiple site inspections were conducted prior to 1990. These investigations included sampling of groundwater, surface water, and sediments, and extensive sampling within the river. These data were summarized and presented to USEPA in a report dated March 2014. The following conclusions were drawn from a review of these large data sets:

- The primary chemical groups detected in previous investigations were polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals. This was supported by the current RI information.
- Based on the large volume of historical data and the ongoing remediation by USEPA under a Great Lakes Legacy Act Project Agreement, additional assessment of the river is not warranted.
- Data from the river, which is impacted by these chemical groups both adjacent to and upstream of the Site, suggest that periodic flooding of the wetland from the river and the years of an induced inward hydraulic gradient are potentially responsible for the observed PAH, PCB, and metals impacts in the southern wetland. Although not stated in the Historical Data Technical Memorandum (Parsons 2014), landfill operations may be another potential source of these impacts.

Investigation Activities

RI fieldwork was conducted from April 2016 through October 2017. All field tasks in the February 2014 approved RI Work Plan were completed. Several additional tasks were required, including a “hot-spot” investigation within the landfill limits, a nonaqueous phase liquid (NAPL) delineation task (May 2017), and surface water sampling in the southern wetland and the river (October 2017). At the request of USEPA, 1,4-dioxane was added to the groundwater analyte list in July 2017, requiring additional sampling for this parameter in July and October 2017. All but soil vapor media samples were analyzed for a full suite of chemical groups, including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs, including PAHs and 1,4-dioxane), PCBs, pesticides, and inorganics. Soil vapor samples were analyzed for VOCs and methane only, per the RI Work Plan.

Other key tasks included an ecological and habitat evaluation, wetland delineation, geotechnical and hydrogeological testing, waste inspections of on-site buildings and debris, landfill waste delineation, and an off-site water well inventory. Finally, a focused human health risk assessment and a screening level ecological risk assessment (SLERA) were conducted. The streamlining of both risk assessments was agreed upon during the work plan phase, based on capping/containment as a remedy using the presumptive remedy guidance. This remedy eliminates or reduces risks by eliminating exposure pathways.

Site Characteristics

Investigation activities performed as part of the RI confirmed that the profile is comprised of surficial clay and landfill contents, underlain by sand, silt, and glacial till. In addition to the native materials, waste material was observed during the subsurface investigation. As expected, the landfill waste is thickest near the center of the former landfill and thins toward the edges. A waste delineation task, comprised of a series of test pits, defined the lateral extent of the landfill waste.

Based on water level gauging conducted during the RI, groundwater flow in the shallow zone is radially outward in all directions from the center of the landfill. Based on topography, regional groundwater flow direction (southerly), the Grand Calumet River functioning as a discharge area, and groundwater flow direction reported on the Gary Airport property, shallow flow is expected to turn southerly towards the river on both the east and west sides of the Site,

In the deeper zone, flow is southerly towards the river, which is consistent with regional hydrogeology reports.

The glacial till serves as a confining unit to both the upper sand and lower bedrock aquifers. Together, the sand aquifer and confining till in the area have a combined thickness of 90 to 110 feet above bedrock. Although regional groundwater flow is generally southerly toward the river, flow reversals are documented (northerly from the river toward the Site) during high water stages in the river.

An ecological evaluation was conducted, which included habitat assessments, species identification, wetland delineation, and a threatened and endangered species assessment. A 2.2-acre wetland dominated by an invasive species (Phragmites) was delineated adjacent to the river.

No state or federally endangered or threatened species were identified. Overall, habitat value was low, with nine invasive species recorded that covered 70 to 90% of the Site.

Nature and Extent of Impacts

Impacts from chemical constituents to various media were limited in both spatial extent and by chemical groups. Surface water, surficial soil, and subsurface soil were minimally affected relative to regulatory screening levels and regional background concentrations. In subsurface soil, benzene was detected above its screening level in a single boring (out of 15 total borings) in the northeast corner of the Site, and a single PAH was detected above the screening level in south-central and western soil borings.

Groundwater contained only a few chemical constituents above screening levels, including petroleum compounds in the northeastern corner and eastern side of the Site, certain metals (arsenic, hexavalent chromium) in several wells, and 1,4-dioxane in all monitoring wells. The potential offsite transport of benzene from the northeastern corner of the Site was modeled using BIOSCREEN (see Fate and Transport section below).

PAHs and PCBs were elevated in the northern pond and wetland sediments, with higher concentrations in the wetland adjacent to the river. These results are consistent with historical results. NAPL, comprised mainly of PAHs, PCBs, and a few metals, was identified in test pits near the river. However, during a detailed investigation, no NAPL was observed to the north as the toe of the landfill was approached.

Soil vapor and gas vent samples indicated the presence of only two constituents above criteria for the vapor intrusion pathway (benzene and ethylbenzene).

Fate and Transport

Shallow groundwater flows radially outward from the center of the landfill, and from north to south in the deeper zone. However, groundwater flow velocity, calculated from slug tests and the hydraulic gradients, is slow in both the shallow and deeper groundwater zones, ranging from 2.9 feet per year (ft/yr) in the shallow zone to 0.3 ft/yr in the deep zone. The glacial till acts as a confining layer to minimize or prevent downward migration. There was a distinct lack of most chemical constituents in surface water (northern pond, wetland, and the river), indicating minimal to no adverse impacts from groundwater discharge. Because of the presence of benzene in the northeastern corner of the Site, a BIOSCREEN one-dimensional solute transport model analysis was performed to estimate the potential transport of benzene. The model results indicated that based on conservative assumptions, benzene at or above the screening criteria (5 µg/L) may currently extend approximately 70 feet beyond the eastern property boundary. The extent at this concentration does not approach any receptors, including the nearest buildings to the northeast, nor the Grand Calumet River to the South.

Surface soil was relatively free of impacts from all chemical groups. Heavy vegetation over nearly the entire Site minimizes runoff from shallow soils. Subsurface soil (deeper than two feet below land surface) had minimal impacts and has limited transport potential. Partitioning to water infiltrating through the soils or to groundwater is limited by the nature of the chemicals, primarily their low solubilities.

The PCBs and PAHs in northern pond sediments have limited potential for migration because the pond is a closed system in a topographic low area. Although PCBs, PAHs, and certain metals are present in the southern wetland, insufficient information is available to determine the source of these constituents. Both the river and the landfill are potential sources. A review of historical and more recent river sediment data shows the presence of these constituents (especially PAHs and PCBs) at generally higher concentrations upstream of the Site relative to the wetland, and at comparable concentrations in samples collected adjacent to the Site.

The lack of impacts to surface water in the northern pond, wetland, and the river, suggest minimal partitioning from sediment to surface water. This is supported by the partitioning coefficients and other characteristics of these chemical groups, especially PAHs and PCBs.

Similar to the southern wetland sediment sample results, based on evidence from historical and RI data, the river is the source of the NAPL detected in test pits near the river. During the May 2017 delineation task, the extent of NAPL was clearly defined, and a distinct lack of NAPL was confirmed to the north, near the landfill toe of slope. However, aerial photographs indicate that there were landfill-related activities south of the toe of the slope, in the vicinity of where the NAPL was found. The source of the NAPL is not known, although both the river and landfill-related activities are potential sources.

A minimal number of VOCs (benzene, ethylbenzene) were detected above criteria in soil vapor samples. There is limited potential for VOCs in soil vapor to move into adjacent buildings due to the shallow depth to water in these areas, with a minimal vadose zone, and the distances to any occupied buildings (approximately 400 feet on the west and 850 feet to the northeast). Also, groundwater flow, although radially outward from the landfill, is expected to turn southerly toward the river on both the east and west sides of the Site, before approaching the buildings.

Human Health Risk Assessment

Assuming the presumptive remedy is in place to minimize and/or eliminate potential future exposures to soils and groundwater, there would be no identified receptors or exposure pathways with risks greater than USEPA's upper bound target of 1E-04 or hazard quotient (HQ) of 1 under a Central Tendency Exposure scenario. The only receptor/pathway with a risk greater than the Indiana point of departure of 1E-05 is hypothetical ingestion of PCBs in fish from the northern pond by a trespasser. However, fish were not identified in the pond during the RI, and a sustainable population is unlikely because of the closed nature of the pond and the generally anoxic conditions (based on low DO levels) and elevated pH measured in pond water.

Risks to river recreational users were evaluated for exposure to river sediments and surface water. Various constituents, particularly PAHs and PCBs, are present at similar or higher concentrations (relative to the southern wetland) in the nearby and upstream sediments of the river. Under the presumptive remedy approach, little effort was undertaken to characterize the wastes within the landfill, and landfill operations included documented discharges to the southern wetland. At this time, there is insufficient information to conclusively identify the source of the contamination, although both the river and landfill are potential sources.

Construction workers have elevated risks/hazards from potential exposure to constituents volatilizing from shallow groundwater and direct contact with the southern wetland sediments. Risk to future construction workers can be mitigated with engineering controls and appropriate health and safety practices for future intrusive construction activities.

The indoor air vapor intrusion pathway is currently incomplete. There are no occupied buildings on-site and building on a landfill cap in the future will be restricted through an environmental covenant or similar institutional control. The nearest buildings are commercial/industrial use approximately 400 feet to the west (recycling facility) and approximately 850 feet to the northeast (airport). However, groundwater is shallow, precluding a significant vadose zone, and groundwater flow is expected to turn to the south after leaving the property boundaries on both the east and the west sides of the Site.

Exposure to chemicals in on-site groundwater was not quantified because installation of water wells (except those used solely for monitoring purposes) can be prohibited via institutional controls. Currently, exposure to off-site groundwater via drinking water is incomplete. No drinking water wells were identified within a 1-mile radius during the off-site water well inventory task.

The conceptual site models (CSMs) presented in the work plan were updated based on information gathered during the RI and USEPA input on the Risk Assessment Approach Memorandum submitted in May 2017. The updated CSMs show that most pathways that are potentially complete under current conditions are eliminated based on use of the presumptive remedy guidance.

Ecological Risk Assessment

Most pathways for the various media are either incomplete or show lack of impacts due to the absence of chemical constituents (e.g., surface water). Bioaccumulation and uptake through the food chain are the primary pathways of exposure for ecological receptors and are limited to sediments from the northern pond and the southern wetland. PCBs and PAHs are the primary risk drivers in sediments, with metals in the southern wetland also contributing to the overall ecological risks. Further evaluation of the ecological risks for these two habitats may be necessary depending on the remedies being considered (or potential end-use) since the SLERA is based on conservative assumptions such as using maximum detected concentrations and conservative uptake factors to estimate exposure, which tends to result in an overestimation of ecological risk.

Various constituents, particularly PAHs and PCBs, are present at similar or higher concentrations (relative to the southern wetland) in the nearby and upstream sediments of the river. Under the presumptive remedy approach, little effort was undertaken to characterize the wastes within the landfill, and landfill operations included documented discharges to the southern wetland. At this time, there is insufficient information to conclusively identify the source of the contamination, although both the river and landfill are potential sources.

As with the human health risk assessment, the ecological CSMs presented in the work plan were updated during the RI and incorporated input from USEPA. The updated CSMs show that most pathways that are potentially complete under current conditions are eliminated based on use of the presumptive remedy guidance.

Summary and Conclusions

The Gary Development Landfill is in a highly industrialized area, with numerous sources of hazardous substances within a 2-mile radius, including the river.

The Site's profile is comprised primarily of surficial fill material, with geology defined by native sands and silts, and an underlying glacial till. The limits of landfill waste were defined through soil borings, monitoring well installation, and test pits.

Groundwater flow direction is radially outward in the shallow zone and southerly in the deeper zone, consistent with regional flow. Groundwater velocities ranged from 0.3 to 2.9 ft/yr, based on hydraulic conductivity testing and measured hydraulic gradients.

The nature and extent of impacts were defined both vertically and horizontally through an extensive drilling, test pit, and environmental sampling program. The glacial till underlying the Site serves as a confining unit that isolates the unconsolidated sands from the bedrock units below it.

Minimal chemical impacts were observed in surface soil, subsurface soil, and surface water. Soil borings installed within the landfill limits to evaluate potential hot-spots did not indicate the presence of NAPL or show impacts greater than perimeter borings, and thus did not meet criteria for hot-spot identification as defined in the guidance document, "Presumptive Remedy for CERCLA Municipal Landfill Sites" (USEPA 1993).

Large data sets from the river suggest that impacts observed in the southern wetland during the RI have their source in the river, which is the subject of ongoing remediation by USEPA under a Great Lakes Legacy Act Project Agreement. The landfill contents and its past activities are another potential source.

NAPL was detected in test pits near the river during the RI, but a detailed delineation task conducted in May 2017 indicated the lack of a source to the north. The river is therefore a potential source, based on historical flooding and the similarity of the chemical constituents. No source was apparent within the landfill during the RI, although the landfill contents and past activities could be a potential source of the impacts.

A limited number of VOCs in two soil vapor probes exceeded the screening criteria in soil vapor. Methane was also detected but does not have a screening criterion based on health impacts, and none of the detected results fell within the explosive range, which is defined as a concentration above the lower explosive limit and below the upper limit. There is minimal potential for VOCs or methane to migrate into adjacent buildings either to the west or east of the Site due to the shallow depth to groundwater, anticipated southerly flow after exiting the property boundaries, and the distance to the buildings.

The primary pathway for potential off-site impacts is limited to a small number of constituents detected in groundwater. Solute transport groundwater modeling results support the lack of off-site impacts to receptors. Groundwater velocity is less than 3 ft/yr, which would limit off-site migration.

For both human health and ecological risks, the assumptions are conservative, such that resultant risks are correspondingly over-estimated and potential pathways are eliminated or minimized under the presumptive remedy.

The results of the RI support capping/containment as an appropriate remedy. In addition to reducing human health and ecological risks through elimination of exposure pathways, the remedy would be expected to minimize infiltration, reduce the hydraulic gradient, further reducing groundwater velocities and the potential for off-site migration of chemical constituents.

1.0 INTRODUCTION

1.1 Purpose

This report describes the Remedial Investigation (RI) conducted at the Gary Development Landfill Superfund Site (Site) in Gary, Indiana. The purpose of this RI is to streamline evaluation of the nature and extent of impacts from the Site, assess risks to human health and the environment, and provide data for a subsequent evaluation of remedial alternatives. The RI report documents the fieldwork and other tasks conducted during the RI, which was completed in accordance with a work plan approved by the United States Environmental Protection Agency (USEPA).

In a letter dated August 21, 2015, the USEPA approved use of the presumptive remedy guidance, "Presumptive Remedy for CERCLA Municipal Landfill Sites" (USEPA 1993) for conducting the RI. The proposed approach for completion of the RI was consistent with the presumptive remedy approach for mixed waste landfill closures. This report also provides a focused human health risk assessment and a screening level ecological risk assessment (SLERA) based on use of the presumptive remedy guidance, and as agreed upon with USEPA following submission of a risk assessment approach document in June 2017.

1.2 Site Setting

GDL is located at 479 N. Cline Avenue, Gary, Lake County, Indiana, which can be found in the southwest corner of Section 35 in Township 37 North, Range 9 West, on the United States Geological Survey (USGS) Highland, Indiana Quadrangle Topographic Map (Figure 1-1). It lies south of Lake Michigan and approximately 500 feet west of western edge of the Gary/Chicago International Airport (airport). GDL is bounded to the north and east by the CN Railroad, to the east by the Indiana Tollway, to the south by the Grand Calumet River (the river), and to the west by AMG Resources Corporation (AMG), a metal recycling facility (Figure 1-2).

The area surrounding the Site is heavily industrialized and includes numerous environmentally impacted sites. A search of the adjacent properties within a 2-mile radius was completed using the USEPA Cleanups List (http://www2.epa.gov/cleanups). Seventeen sites were identified as sources of hazardous substances, consisting of Brownfield, RCRA[1], Superfund (NPL), emergency response, and other non-NPL sites. Figure 1-3 provides the locations of these sites.

1.3 Site Background

1.3.1 Site Use History and Ownership

GDL (CERCLIS[2] ID No. IND077005916) was a former solid waste landfill in an industrial area of Gary, Indiana.

[1] RCRA – Resource Conservation and Recovery Act
[2] CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System

The landfill began as an aggregate borrow pit during the early 1950s. The pit was approved for dewatering in 1973, and a landfill was constructed. In September 1974, prior to the promulgation of RCRA rules regarding management of hazardous waste disposal (October 1976), the State of Indiana approved the Site for operation primarily as a solid waste landfill. An industrial/sanitary landfill was operated at the Site from 1974 to 1989. During this period, dewatering of the pit presumably created an inward groundwater gradient from the river toward the Site.

Various waste types were reported to have been placed in the landfill, as listed in Section 2.2.2 of the March 2011 HRS Documentation Record (IDEM, 2011). These included APA separator bottoms, paint sludge, fly ash, Youngstown oil sludge, decanter tank tar sludge, lead waste/battery cases, and foundry sand.

Approximately 55 acres of the 62-acre GDL property (Figure 1-2) were used in the past for waste disposal. The Site is comprised of three parcels. The first parcel to the east contains 40 acres, the second parcel contains 5.9 acres, and the third parcel contains 15 acres. The City of Gary Redevelopment Commission purchased Parcels 1 and 2 in 2015. Parcel 3 is owned by James Nowacki, who filed for Chapter 13 bankruptcy protection on June 24, 2013.

1.3.2 Historical Data Summary

Multiple site inspections were conducted by various agencies (including the Indiana Department of Environmental Management [IDEM] and USEPA) prior to 1990. From 1990 to 2009, the Site was the subject of multiple investigations conducted by the USEPA and IDEM. These investigations included sampling of groundwater, surface water, and sediments. In addition, extensive sampling has been conducted within the river, including areas adjacent to, downstream, and upstream of the Site. Data from these reports was reviewed and incorporated into the RI project database.

Parsons prepared a Historical Data Summary Technical Memorandum in March 2014 (Parsons 2014). The historical data were presented to USEPA during a meeting held in their offices on April 22, 2014. The August 2014 Draft Data Summary Report (CDM Smith 2014) was also reviewed. This summary indicated that sampling was conducted within an approximate 2.5-mile-long stretch of the river that extends from the downstream terminus of the US Steel Sediment Project to Cline Avenue.

Prior to the RI process, the following conclusions had been drawn (Parsons 2014) from a thorough review of these historic data sets:

- The primary chemical groups detected in previous investigations were polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals. This was supported by the current RI information.
- Based on the large volume of historical data and the ongoing remediation by USEPA under a Great Lakes Legacy Act Project Agreement, additional assessment of the river was not warranted.

- The southern wetland area exhibits some impacts, particularly from PAHs and PCBs. The current RI data confirm the historic findings. Data from the river, which is impacted by these chemical groups both adjacent to and upstream of the Site, suggest that periodic flooding of the wetland from the river and the years of an induced inward hydraulic gradient are potentially responsible for the observed impacts. Although not stated in the Historical Data Technical Memorandum (Parsons 2014), landfill operations may be another potential source of these impacts.

1.3.3 Current Site Conditions

The Site currently includes one empty building, the landfill, a wetland area located on the southeastern portion of the Site, a former retention pond located north of the landfill, 18 gas vents (installed by a 3rd party prior to the RI), and monitoring wells and soil vapor probes (installed during the RI). The surface is predominantly covered with vegetation.

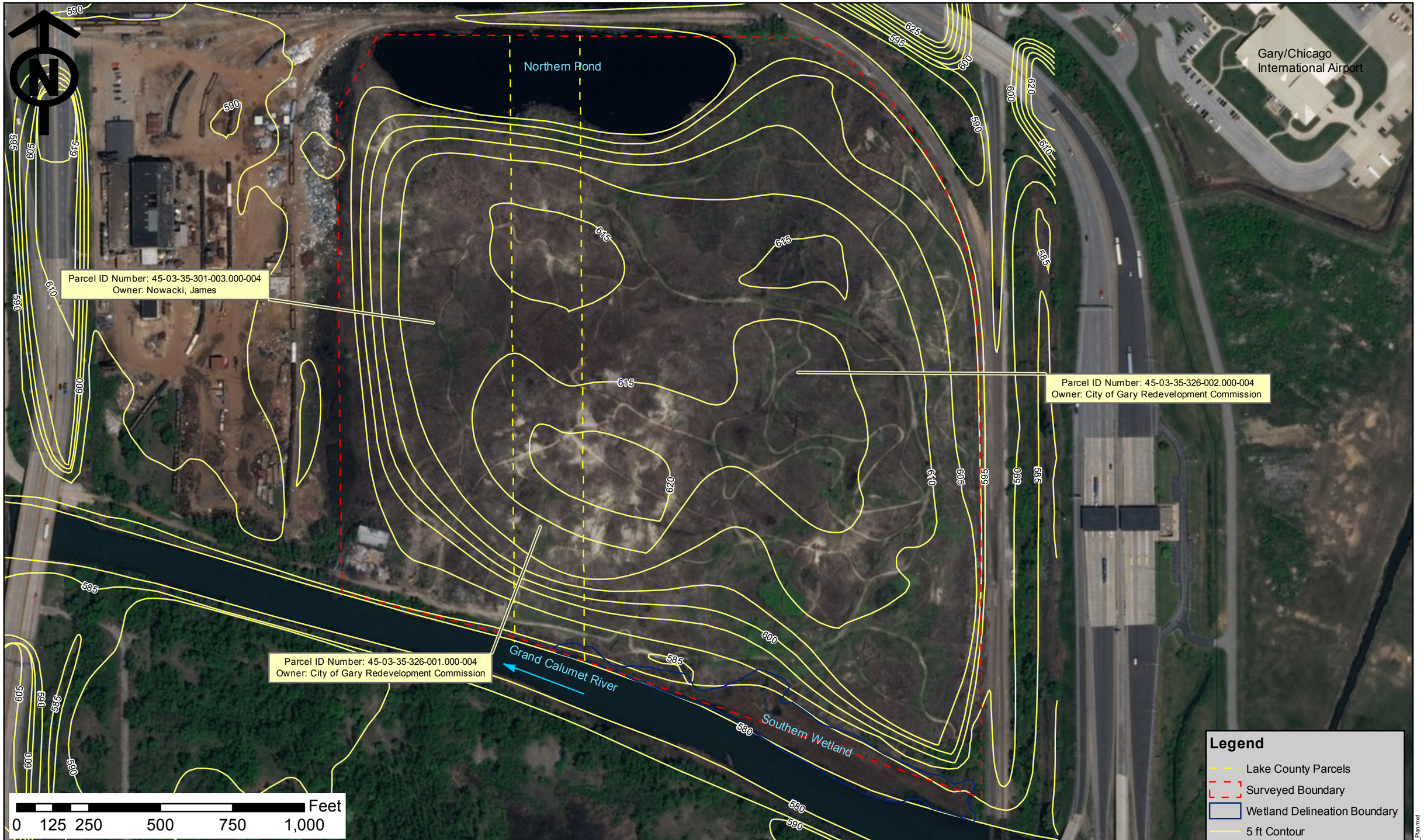
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 1-1
Site Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	12/29/2017	
Revision: 12/29/2017		Parsons Project No. 449595
File Name: Site_Location_.mxd		

D:\GIS\GaryLandfill\MXD\2017\Site_Location_.mxd



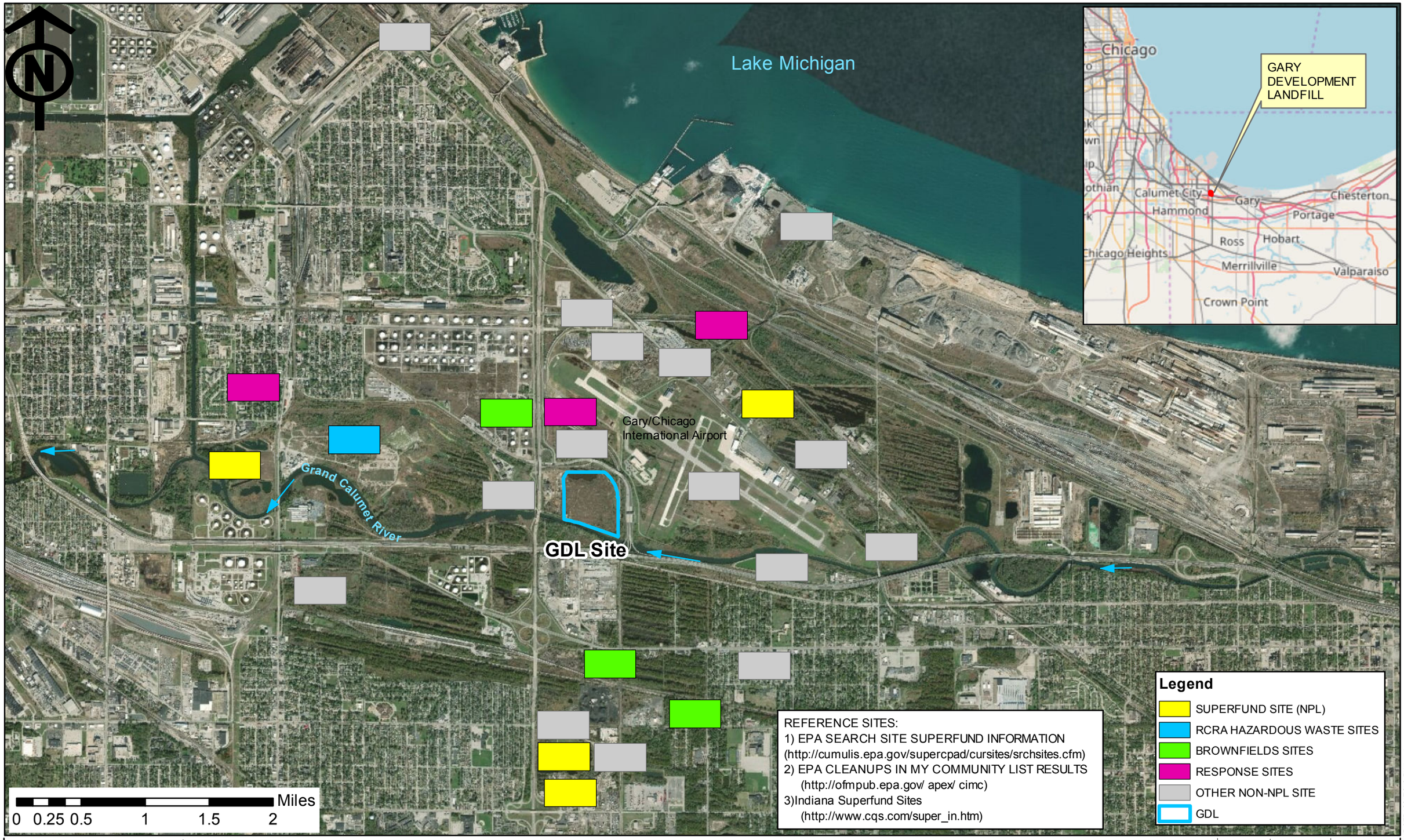
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 1-2
Site Plan
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/25/2018	
Revision: 6/25/2018		Parsons Project No.: 449595
File Name: Site_Plan.mxd		

D:\GIS\GaryLandfill\MXD\2017\Site_Plan.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 1-3
Surrounding Area Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: HAZ_SITE_LOCATIONS_FINAL.mxd		

D:\GIS\GaryLandfill\AGO\2017\HAZ_SITE_LOCATIONS_FINAL.mxd

2.0 INVESTIGATION ACTIVITIES

The RI activities were conducted between April 2016 and October 2017. The table below summarizes the status of investigation tasks outlined in the Work Plan and tasks that were added during the RI. Details are provided in Sections 2.1 and 2.2.

Task	Date Range
Off-site Water Well Inventory	April 2016
Existing On-site Well and Gas Vent Inventory	May 2016
Gas Vent Field Screening	May 2016
Habitat Evaluation/Wetland Delineation	May 2016
Scrap/Debris Evaluation	May 2016/Nov. 2016 (tanker sample)
Direct Push/Geoprobe	June – August 2016
Geotech Samples	July 2016
Landfill Soil Borings*	August 2016
Surface Soil Sampling	August 2016
Monitoring Wells	September – October 2016
Gas Vent/Soil Vapor Sampling	September 2016
Off-Site Pond Sampling	September 2016
Building Debris Evaluation	September 2016
Southern Wetland Sediment Sampling	September – October 2016
Northern Pond Sediment/Surface Water Sampling	October – November 2016
Hydraulic Conductivity Testing	December 2016
Gas Vent/Soil Vapor 2nd Event	December 2016
Waste Delineation/Test Pits	January – April 2017
NAPL Delineation Test Pits*	April – May 2017
Quarterly Groundwater Sampling	Nov 2016, Mar/July/Oct 2017
1,4-dioxane Analysis	July and October 2017
Water Level Gauging Events (seven)	Nov. 2016 – Oct. 2017
Surface Water Sampling in Wetland/River*	October 2017

*Task added during the RI, after Work Plan approval.

Samples for laboratory analysis were collected from various media. A complete summary of samples collected per media is provided in Table 2-1. Sampling and analysis conducted during the RI were performed in accordance with the project Field Sampling Plan and Quality Assurance Project Plan (QAPP).

2.1 Investigation Tasks

Throughout the investigation, sampling details and field measurements were recorded on digital field logs, including logs for sediment, surface water, low-flow groundwater sampling, soil vapor sampling, water levels, and test pits. The logs are presented in Appendix A.

2.1.1 Site Preparation

Access Agreements/Access Route

The USEPA facilitated on-site access via three administrative warrants, one for each parcel. The Gary Development Landfill PRP Group obtained a non-exclusive limited right of access with the adjacent AMG property for ingress/egress to the Site along the southern boundary near the river, where a road adjacent to the river is the primary access route. The access road entry is secured with a gate and proper signage.

On-Site Building Evaluation

The on-site buildings in the southwestern corner of the Site were inspected, with the intent to demolish and recycle them (see Appendix B for inspection report). Approximately 144 square feet of asbestos containing tiles were shipped to the Republic Services facility in Newton County, Indiana in January 2018, and a 5-gallon bucket of light ballasts potentially containing PCBs was shipped to Veolia Environmental Services in Port Washington, Wisconsin.

Brush Removal/Sampling Path Installation

Vegetation re-established quickly and significantly following the April 2016 brush fire, minimizing surface runoff, but limiting access. Paths to the existing gas vents and wells, sampling locations, and around the perimeter were created through brush removal or mowing. These paths were maintained throughout the investigation period, with the last clearing event performed in August 2017.

Scrap Metal and Debris Evaluation

Abandoned pieces of heavy equipment were identified through aerial photographs and observations made during site visits (Figure 2-1). Two tankers, a fully exposed excavator attachment, and a heating oil fuel tank are in the southwestern area of the Site. A second excavator is centrally located. There is a partially submerged excavator in the northern pond.

Underground Utility Location

Prior to subsurface intrusion, both public and private utility locating was performed. A public utility notification and marking request was made through Indiana 811. A private utility locating company searched for and marked the location of utilities near drilling and excavation locations. Utilities located on railroad property were marked by railroad personnel. Prior to the start of subsurface investigations, it was determined that all former utilities (electric, natural gas, telephone and water) were removed from the Site and service lines stubbed at the property line.

Access Control/Fencing

Fencing and gated access with signage were installed along the southern private access road to control vehicle access onto the Site. Perimeter fencing, in accordance with the work plan, was not installed along all property boundaries since there are natural barriers such as the river to the south, secured private property to the west (AMG), thick vegetation, and restrictions such as the tollway and railway lines. However, “No Trespassing” signs were posted at locations along the north and east boundaries where potential evidence of trespassing was observed.

Topographic Survey

Figure 1-2 depicts the site plan on a topographic map that is based on the 2013 LIDAR topography survey. As required in the work plan, the LIDAR survey was spot checked and found to be accurate when soil gas probes and monitoring wells were surveyed.

On-Site Well and Gas Vent Inventory

Field inspection of the surface was performed to identify the presence and location of historically referenced monitoring wells and gas vents. A brush fire consumed the vegetation in April 2016, making a thorough survey of the surface possible. A total of 18 gas vents were located, but no historical monitoring wells were identified. The locations of the gas vents were documented using a hand-held global positioning system (GPS) unit.

2.1.2 Southern Wetland Investigation

A formal wetland delineation and ecological assessment, covering the entire Site, was performed in May of 2016, and is discussed further in Section 3.

Sediment Sampling

Sediment samples were collected at 15 locations (SD07 through SD21) in the southern wetland (Figure 2-2) in September and October 2016. Two samples were collected from shallow depths at each location.

Flooding from the river and the former pit dewatering operations may have resulted in impacts to the Site. Therefore, two locations (SD20 and SD21) were sampled at multiple depths (to approximately 5 feet below the sediment/water interface or ground surface) to evaluate whether PCBs are present only in surface sediment samples or are present in a vertical profile. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, PCBs, metals, mercury, and cyanide.

Surface Water Sampling

In October 2017, three surface water samples (SW10, SW11, and SW12) were collected from the southern wetland, and three surface water samples (SW13, SW14, and SW15) were collected from the river (see Figure 2-3). Surface water samples were field monitored for pH, conductivity, dissolved oxygen (DO), turbidity, and oxidation-reduction potential (ORP). Each sample was submitted to the laboratory and analyzed for VOCs, SVOCs,

pesticides, PCBs, metals, mercury, cyanide, hardness, total suspended solids, and total organic carbon.

2.1.3 Northern Pond Investigation

Surface Water Sampling

Surface water was sampled at six locations in the northern pond (SW02 through SW07) at depths of approximately 0 to 2 feet below the water surface. Additional samples were collected at two locations (SW04D and SW05D) from the 8- to 12-foot range. Surface water samples were field monitored for pH, conductivity, DO, turbidity, and ORP. Each sample was analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide. Sample locations are depicted in Figure 2-3.

Sediment Sampling

Shallow sediment samples were collected from 10 locations (SD22 through SD31) in October and November 2016 (see Figure 2-2). One sample was collected from each location at 0 to 1 foot below the sediment/water interface, except SD30M, which was collected at 1 to 2 feet below the sediment/water interface. Each sample was analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide.

In addition to the surface water and sediment samples described above, two samples each of sediment and surface water (SD90/SW90 and SD91/SW91, respectively) were collected in September 2016 from the pond located east of the Site (see Figure 2-4) to evaluate current background conditions.

2.1.4 Groundwater Evaluation

Water Well Inventory

A detailed water well inventory was conducted by reviewing various databases using Environmental Data Resources (EDR) and other similar online resources (see Section 1.3.3). Fifteen wells were identified as being used/owned by the USGS (12 wells) or the airport for fire protection (three wells). No public water supply wells or potable water supply wells were identified within a 1-mile radius of the Site, and a City of Gary groundwater ordinance (No. 7930) prohibits installation of new potable water supply wells within city boundaries that withdraw water from the shallow unconfined aquifer. Results of the well inventory and copy of the ordinance are presented in Appendix C.

Direct-Push Investigation

Direct-push drilling technology (e.g., Geoprobe®) was used to advance borings at 19 locations (GP01 through GP21; see Figure 2-5) in June 2016. Ten of these locations were completed to multiple vertical depths (labeled A, B, and C, where C is the deepest of the three). Nine of these locations were completed to three depths (GP01, GP-03, GP-05, GP-08, GP-09, GP12, GP13, GP14and GP-20). One location (GP-11) was completed to two depths. The borings were used to collect groundwater samples, and to facilitate selection of monitoring well locations. Although many borings were advanced using direct-push technology such as Geoprobe®, other borings were completed with rotary auger due to

subsurface refusal or other subsurface conditions that limited the effectiveness of the direct-push techniques. Borings were terminated when the glacial till layer was encountered or when refusal was encountered at a shallower depth after two attempts. Details of the direct-push construction and installation are presented in in Table 2-2, and boring and construction logs are provided in Appendix D.

Groundwater samples were collected by installing 1-inch PVC risers attached to pre-packed well screens at the selected interval. Groundwater samples were field monitored for pH, conductivity, DO, turbidity, and ORP. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide. Analytical results are presented in Table 2-3.

Monitoring Well Installation

Sixteen groundwater monitoring wells (MW01S, MW02S, MW02D, MW03S, MW04S, MW05S, MW06S, MW06M, MW06D, MW07M, MW08S, MW08D, MW09S, MW11, MW12 and MW13) were installed on site in September and October 2016. Monitoring well locations are depicted in Figure 2-6. The monitoring wells were installed by a driller who is licensed by the State of Indiana under Indiana Code 25-39.

A hollow-stem auger method was used to install the monitoring wells. The well depths ranged from 25 to 40 feet below ground surface (bgs). Details of monitoring well construction and installation are presented in Table 2-4, and boring and construction logs are provided in Appendix D.

Four rounds of groundwater samples were collected for laboratory analysis from the entire monitoring well network in 2016 and 2017 (November 2016 and March, July, and October 2017). Groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide. In July 2017, at the request of USEPA, 1,4-dioxane was sampled in three monitoring wells (MW06S, MW06M and MW07M), and based on the results obtained, all 16 monitoring wells were sampled for 1,4-dioxane in October 2017.

Surface Soil Sampling

Surface soil samples (SS01 through SS16) were collected in August 2016 (Figure 2-7). Two samples were collected from each location, one at 0 to 0.5 feet bgs and a second at 0.5 to 2 feet. All surface soil samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide, and eight samples were analyzed for asbestos.

Soil Sampling (During Well Installation)

In September and October 2016, soil samples were collected from borings during drilling of monitoring wells MW01 through MW09. Samples were collected from the interval above the water table with the highest photoionization detector (PID) readings, or from the mid-point of the vadose zone interval. One to three soil samples were collected at varying depths. The soil samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide.

Five additional subsurface samples (GP02, GP04, GP10, GP17, and GP19; see Figure 2-5) were collected for geotechnical analyses (see Table 2-1 for list of analyses) to

characterize soil types located within the boundaries of the landfill. The samples were collected using a Shelby tube or comparable equipment. Results are presented in Section 3.

Hydrogeologic Evaluation (Groundwater Flow and Slug Tests)

Seven water level gauging events were conducted using the 16 monitoring wells, a staff gauge installed in the northern pond, and two measuring points on the Cline Avenue river bridge south of the Site. The gauging data were then used to prepare potentiometric surface maps and hydrographs (Section 3).

In-situ permeability testing (slug testing) was performed on seven monitoring wells (MW01S, MW02D, MW06S, MW06M, MW06D, MW07M and MW09S) to determine the hydraulic conductivity of the material (primarily sand) around the well. The wells were selected to provide the even coverage and spacing around the landfill perimeter. Slug tests were conducted using both the rising and falling head techniques.

2.1.5 Landfill Evaluation

Existing Landfill Cover Evaluation

Twelve hand borings (GT01 through GT12) were advanced in July 2016 to characterize soil types located within the former landfill footprint. Soil borings were advanced using Shelby tubes from ground surface through the surface soil until waste material was encountered. Boring locations are presented on Figure 2-8, and the geotechnical testing methods are shown on Table 2-1. Results are presented in Section 3.

Waste Boundary Evaluation

Prior to the RI, the limits of the landfill had been estimated through review of topographic maps, historical air photographs, and inspection. The total depth of the landfill (depth to glacial till) had been reported as 25 to 30 feet below the natural land surface (Palin 2010).

Based on observations made during the direct-push activities, landfill waste was encountered outside of these assumed limits. As a result, the locations of planned test pits were adjusted. In January 2017, 20 test pits (TP01 through TP07, TP09, and TP11 through TP22) were installed at approximately 200-foot intervals (Figure 2-9) around the Site. Each test pit began between 10 and 50 feet beyond the estimated limits of waste and was excavated toward the landfill until waste was encountered. Test pit depths were limited to five to six feet. Efforts were made to ensure that waste was not disturbed or removed from any pit during these activities. When waste was encountered, the limit of waste was marked with a surveyor's stake, recorded via GPS, and the test pit was backfilled with the soils that had been removed during excavation. Based on the results of these initial 20 test pits, additional delineation was required on the north, east and southeastern portions of the Site. This delineation was accomplished through the installation of 14 hand auger borings (Figure 2-9). Hand auger borings were selected due to topography or space limitations that prohibited the use of mechanical excavation.

During the waste boundary evaluation, non-aqueous phase liquid (NAPL) was observed in two test pits (TP21 and TP22) located approximately 15 to 20 feet north of the river. Following submittal and approval of a work plan, 19 test pits were advanced in May 2017 to delineate the extent of the NAPL (Figure 2-10). A complete report of the NAPL delineation results was provided to USEPA in June 2017 (Parsons 2017a), and a summary is provided in Section 4.9. The complete report is included as Appendix E.

Interior Landfill Investigation

Consistent with USEPA correspondence dated August 18, 2015, three landfill evaluation areas were identified for subsurface investigation. In August 2016, two soil borings were installed in each area using rotary drilling methods with hollow-stem augers. Samples were collected from soil borings SB01 through SB06 at depths ranging from 0 to 2 feet bgs through 83 feet bgs. The soil samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, mercury, and cyanide. These soil boring locations are depicted on Figure 2-11. Details of the soil boring installation are presented in in Table 2-2, and boring and construction logs are provided in Appendix D. Monitoring wells were installed in SB01 (MW11), SB03 (MW12), and SB05 (MW13).

Soil Vapor Investigation

In 2016, seven soil vapor samples (AS01 through AS07; Figure 2-12) and six gas vent samples (GV02, GV06, GV14 through GV17; Figure 2-13) were analyzed for VOCs by USEPA Method TO15.

Two types of soil vapor sampling were conducted: field screening and laboratory analysis. The field screening method was conducted in the field in May 2016 utilizing portable hand-held instruments. Later, soil vapor samples were collected for laboratory VOC analysis (USEPA Method TO-15) and methane via Summa® canisters in September and December 2016.

2.1.6 Ecological Investigation (Biota/Habitat)

An ecological investigation was conducted that included a survey of threatened and endangered species, wetland delineation, and habitat evaluation. Details of the survey are provided in Section 3.4 and Appendix F.

2.2 Post Sampling Activities

2.2.1 Survey Wells and Sampling Locations

A licensed land surveyor completed surveys of direct-push borings, monitoring wells, and the soil vapor probes, tying these locations to a reference location and to the state plane coordinate system. Surface water, sediment, existing gas vents, and shallow soil sample locations were documented using a hand-held GPS. The elevations of the newly installed wells were surveyed at the water level measuring point (notch) on the riser pipe. Surveyed elevations were referenced to mean sea level (MSL).

2.2.2 Investigative Waste Disposal and Materials Management

Investigation derived waste (IDW) generated during the RI field activities included the following:

- Drill cuttings
- Disposable material as Geoprobe® liners, personal protective equipment, and plastic sheeting
- Excess soil and sediments from sampling activities
- Monitoring well development, purge, and decontamination water

IDW was containerized in 55-gallon drums. Soil and water drums generated during installation of the on-site soil borings and monitoring wells were placed in a defined on-site storage area. The solid IDW materials in drums remains and will be placed under the new landfill cap during the remediation activities or will be transported and disposed of off-site at an approved facility.

Purge water from monitoring well development and sampling was disposed of off-site in two separate events, February 2017, and November 2017.

2.3 Sample Analysis and Validation

2.3.1 Sample Management

Laboratory analytical data are provided by the supporting laboratories in electronic formats, both portable document format (PDF) and electronic data deliverables (EDD). The PDF deliverable included sample results and all quality control (QC) results in standardized contract format. Both the PDF files and associated EDDs in Region 5 EQuIS™ file format were provided to USEPA.

Sample management procedures followed those described in the QAPP and Field Sampling Plan (FSP), provided in Appendix A and Appendix B, respectively, of the RI work plan.

2.3.2 Data Validation

Data generated from the 2016 and 2017 investigations were subjected to assessment of data quality and usability per the methods described in the QAPP. This assessment included 100% S3VEM validation of Level 4 chemical analytical data in accordance with USEPA National Functional Guidelines, except for screening samples. Data qualifiers consistent with USEPA guidelines were applied to results in the database. Data validation reports are provided in Appendix G.

2.3.3 Database Management

A relational database (EQuIS™) has been established to organize and store project information and data. Current and historical data are stored in the project database to enable efficient storage, updating, and retrieval of data, and the implementation of quality assurance (QA) procedures.

This report represents spatial data sets and analyses, data interpretation, decision support, and data presentation from the 2016 through 2017 RI activities. Geographic information system (GIS) data are currently stored in ESRI-compatible file formats.

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-1
Scrap Metal Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/31/2018	
Revision: 1/31/2018		Parsons Project No.: 449595
File Name: Scrap_Metal.mxd		

D:\GIS\GaryLandfill\MXD\2017\Scrap_Metal.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-2
Sediment Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/2/2018	
Revision: 2/2/2018		Parsons Project No. 449595
File Name: Sediment_samples.mxd		

D:\GIS\GaryLandfill\AOI\2017\Sediment_samples.mxd

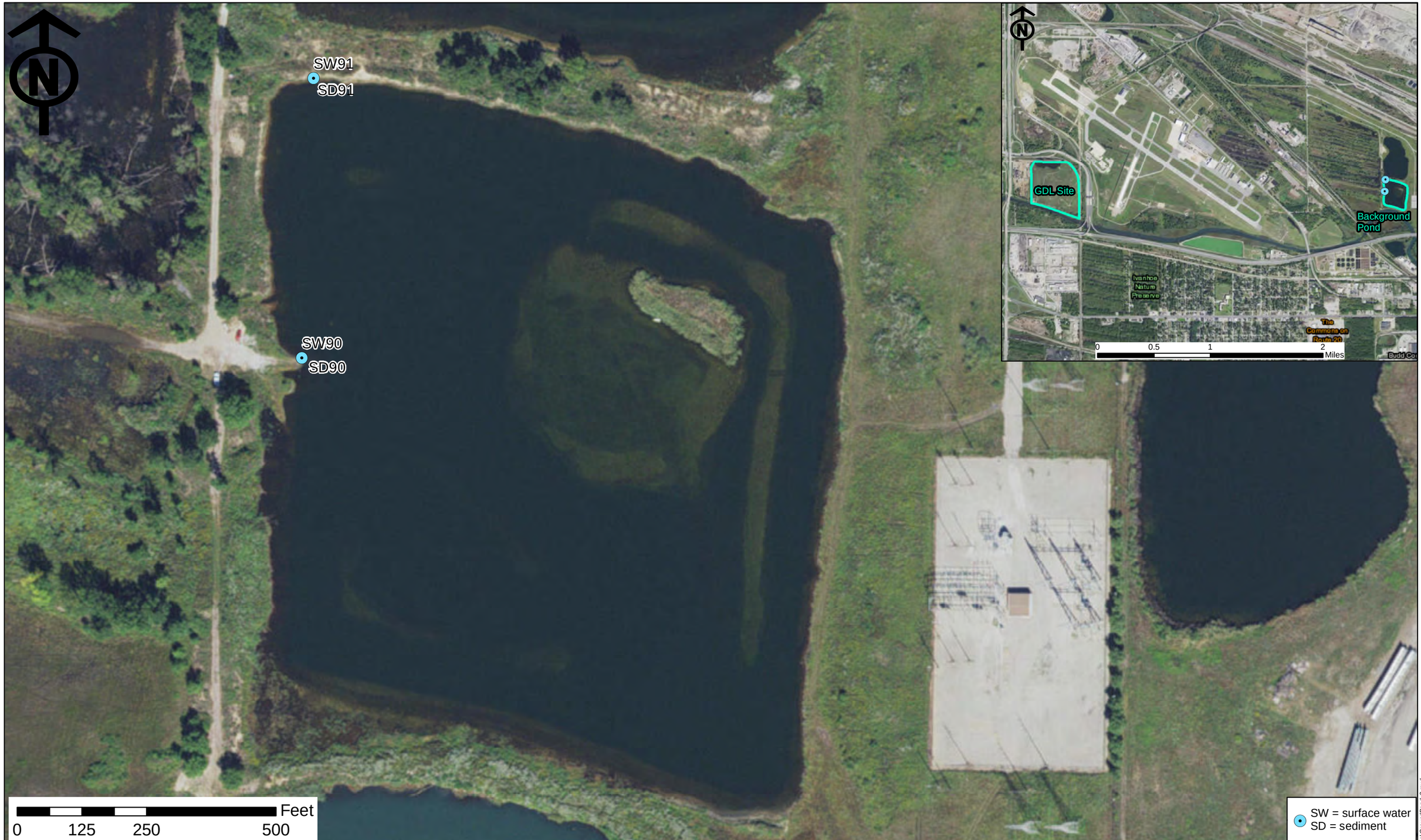
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-3
Surface Water Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/2/2018	
Revision: 2/2/2018		Parsons Project No. 449595
File Name: SW_samples_V2.mxd		

D:\GIS\GaryLandfill\MXD\2018\SW_samples_V2.mxd



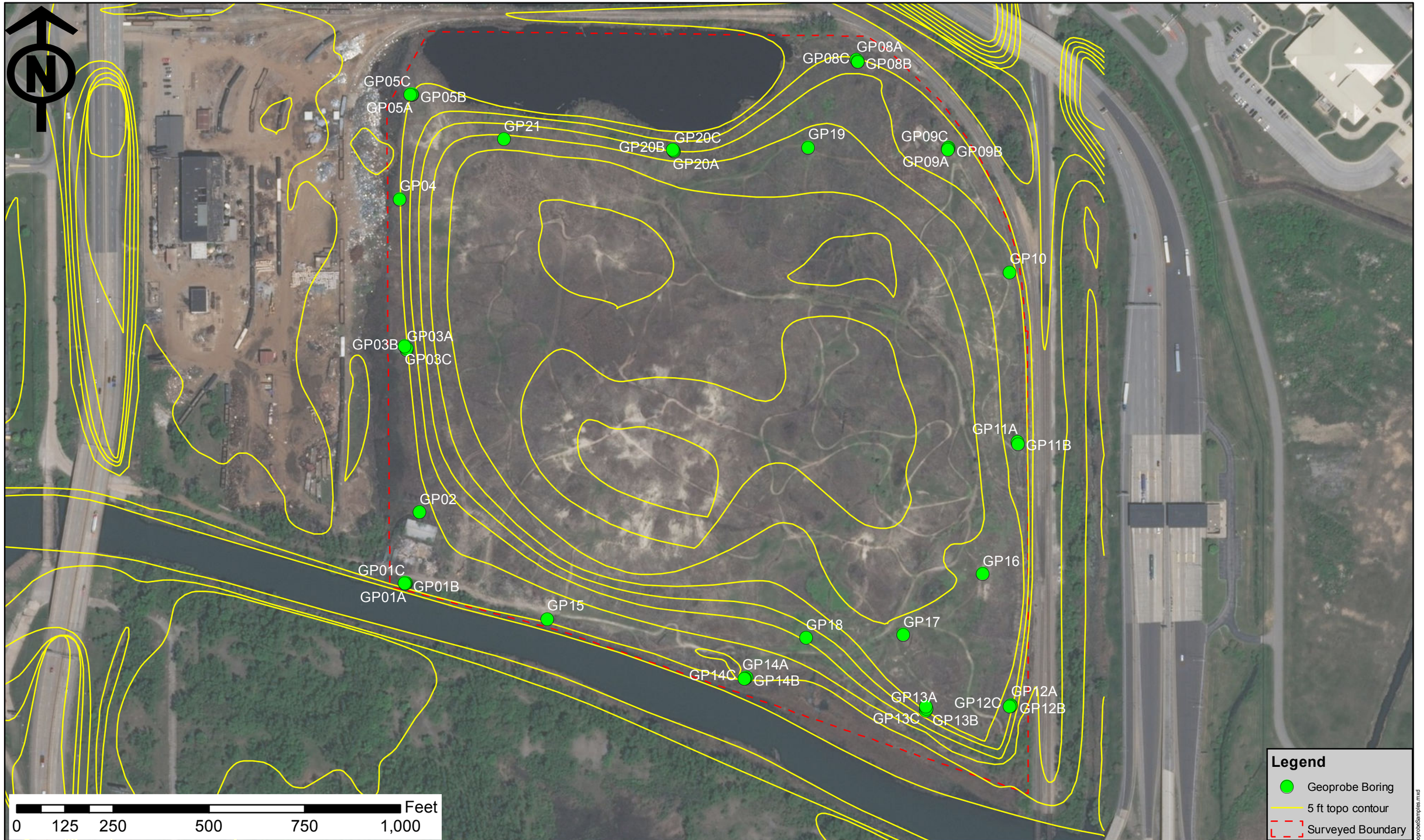
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-4
Background Pond Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	12/19/2017	
Revision: 12/19/2017		Parsons Project No. 449595
File Name: BackGroundPondv2.mxd		

D:\GIS\GaryLandfill\AGO\2017\BackGroundPondv2.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-5
Geoprobe Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No.: 449595
File Name: GeoprobeSamples.mxd		

D:\GIS\GaryLandfill\ACO\2017\GeoprobeSamples.mxd

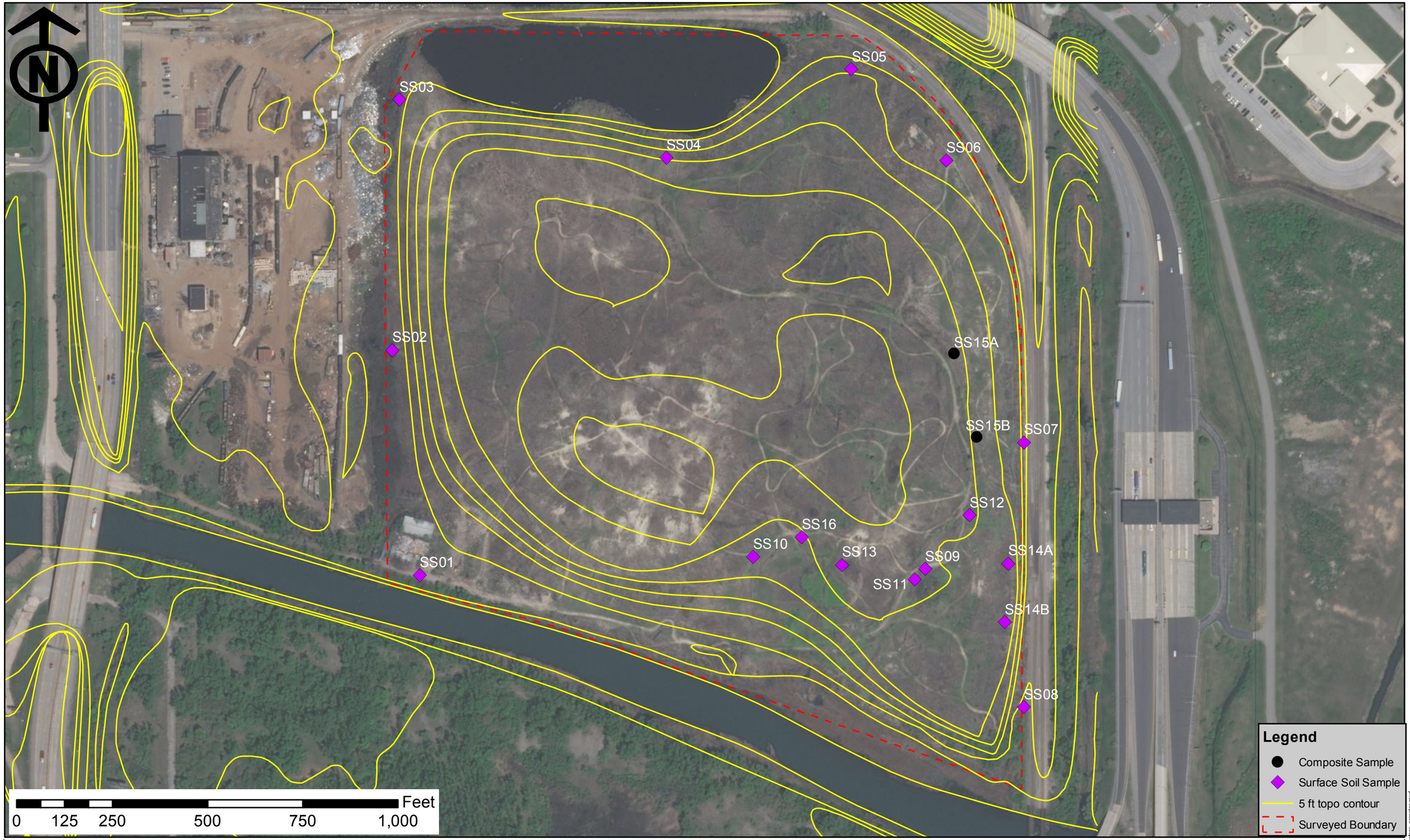
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-6
Monitoring Well Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: MW.mxd		

D:\GIS\GaryLandfill\AGO\2017\MW.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-7
Surface Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018	Figure No.:	Parsons Project No. 449595
File Name: surface_samples.mxd		

D:\GIS\GaryLandfill\AGO\2017\surface_samples.mxd

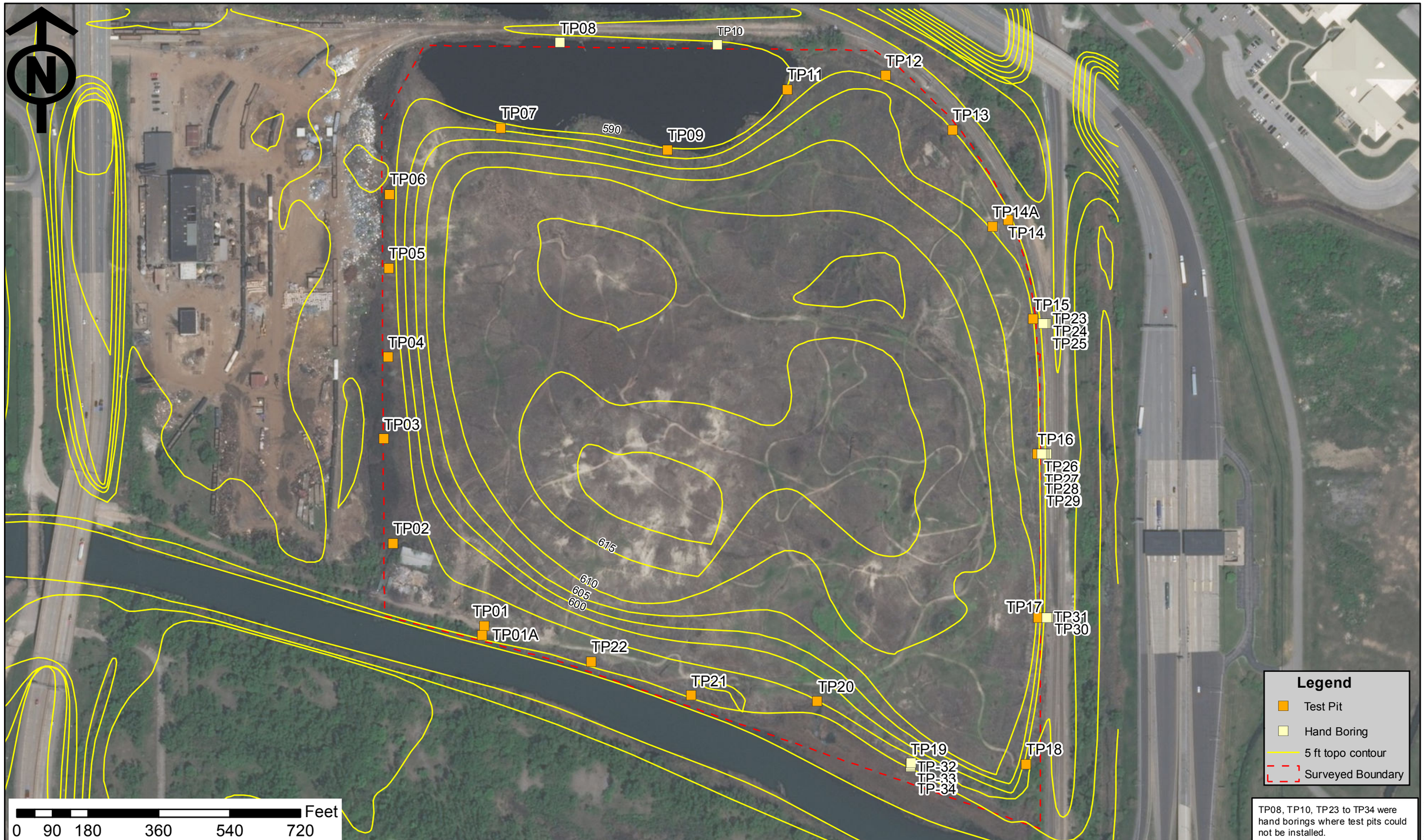
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-8
Geotechnical Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: Geotech_samples.mxd		

D:\GIS\Gary\Landfill\AGO\2017\Geotech_samples.mxd



TP08, TP10, TP23 to TP34 were hand borings where test pits could not be installed.

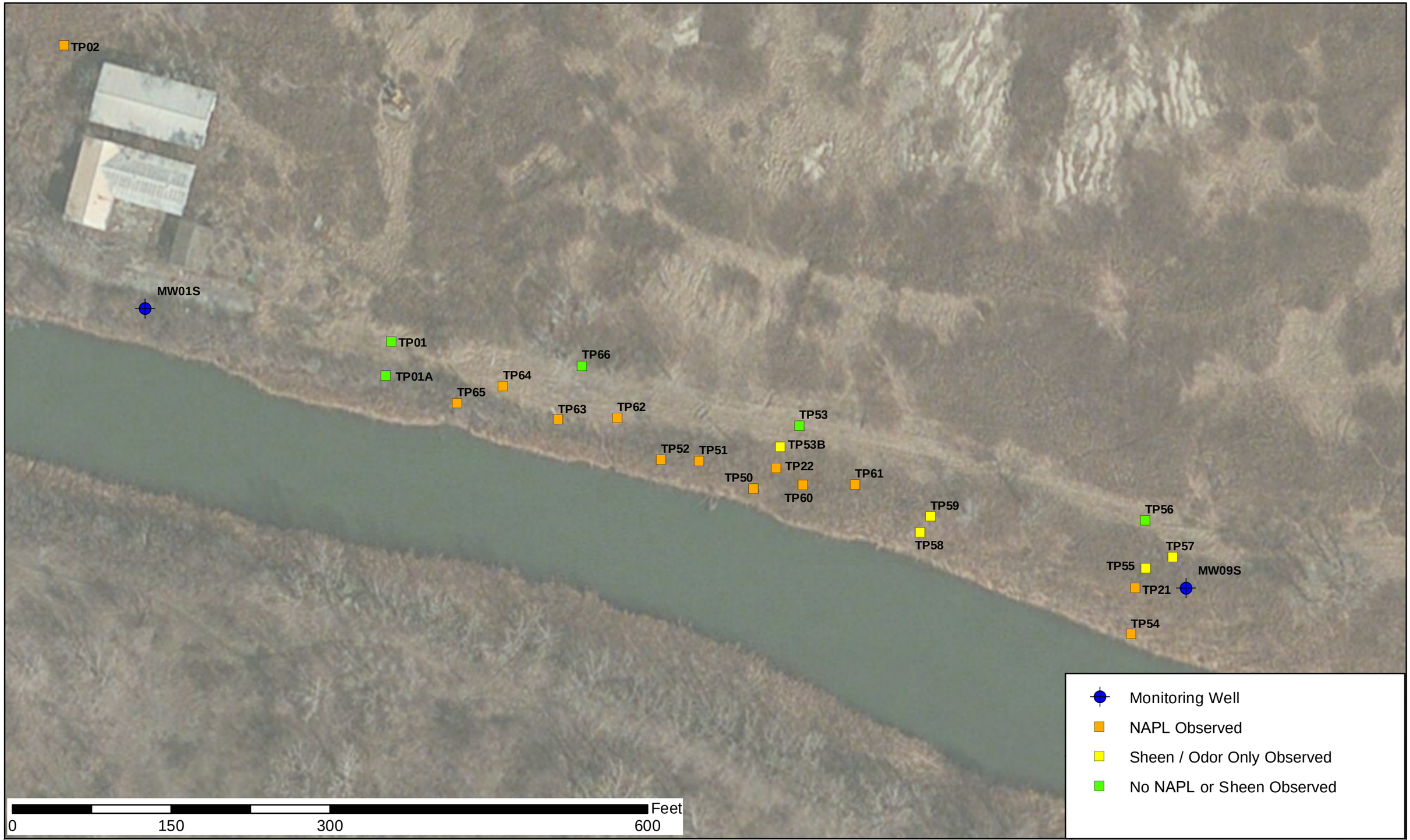
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-9
Test Pit Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: TestPitLocations.mxd		

D:\GIS\Gary_Landfill\AOI\2017\TestPitLocations.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-10
NAPL Delineation Test Pits
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/21/2017	
Revision: 6/21/2017		Parsons Project No. 449595
File Name: Pits_wells_Fig1.mxd		

D:\GIS\GaryLandfill\ACO\2017\Pits_wells_Fig1.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-11
Soil Boring Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No.: 449595
File Name: SoilBoringLocations.mxd		

D:\GIS\GaryLandfill\ACO\2017\SoilBoringLocations.mxd

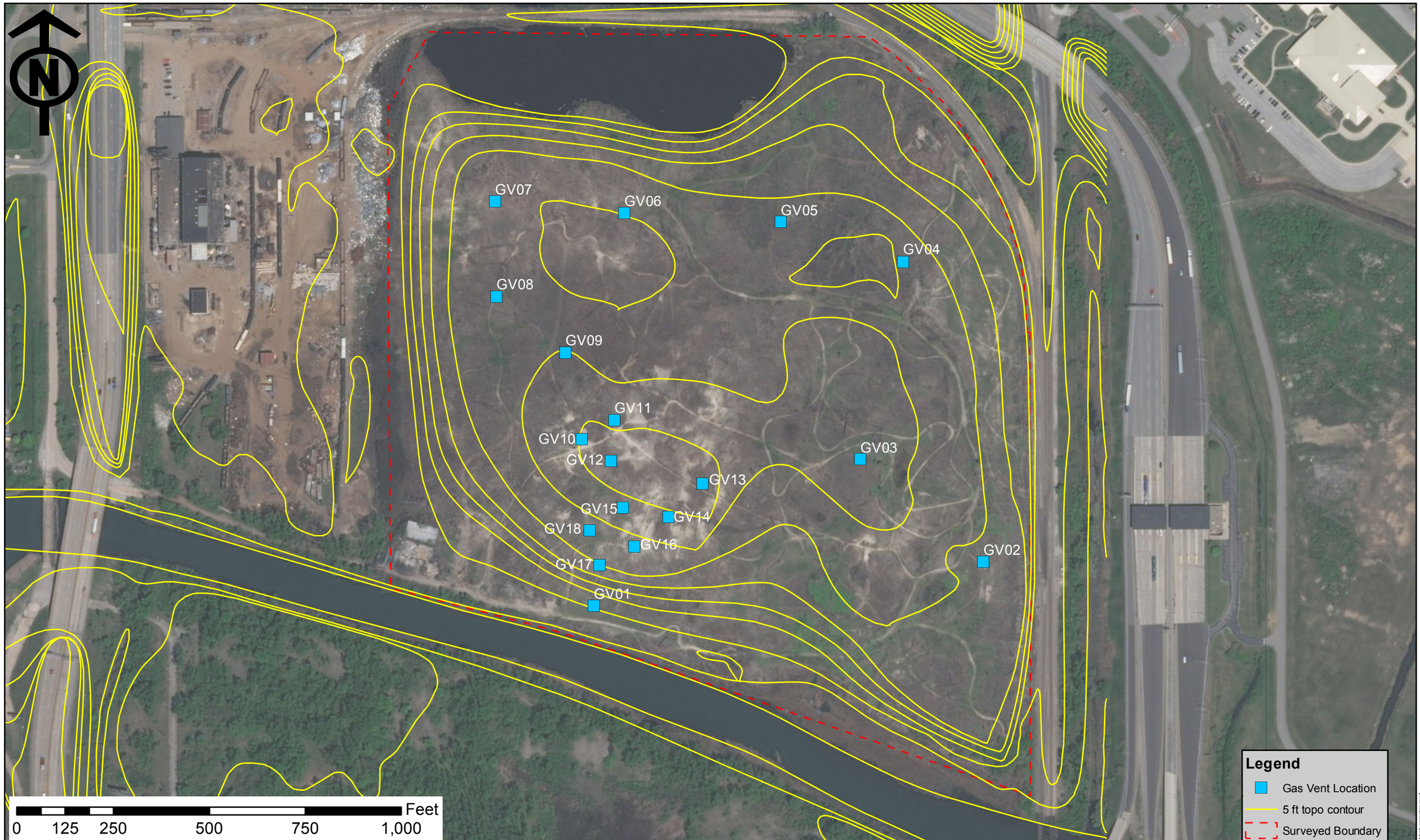
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-12
Soil Vapor Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No.: 449595
File Name: AirSamples.mxd		

D:\GIS\GaryLandfill\ACO\2017\AirSamples.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 2-13
Gas Vent Sample Location Map
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: GasVent_samples.mxd		

D:\GIS\GaryLandfill\AOC\2017\GasVent_samples.mxd

Table 2-1
RI Sampling and Analysis Summary

Samples Collected 2016-2017	Sample Depths (ft)	Matrix	VOC (8260B)	SVOC (8270D)	1,4-Dioxane (8270D-SIM)	PEST (8081B)	PCB AROCLORS (8082A)	METALS (6010C)	Cr VI (7199)	Mercury (7470A / 7471B)	Cyanide (9010C)	Hardness / TSS / TOC (SM5310C)	Distribution of Petroleum Fractions (D2887)	Asbestos (NIOSH 9002)	VOC (TO-15)	Methane
Southern Wetlands Investigation																
Sediment	0 - 1	SED	15	15		15	15	15		15	15					
Sediment	1 - 2	SED	14	14		14	14	14		14	14					
Sediment	2 - 5	SED					2									
Surface Water	0 - 1	SW	6	6		6	6	6		6	6	6				
Northern Pond Investigation																
Sediments	0 - 1	SED	10	10		10	10	10		10	10					
Sediments	1 - 2	SED	1	1		1	1	1		1	1					
Surface Water		SW	8	8		8	8	16		16	16					
Background Pond		SW	2	2		2	2	4		4	4					
Perimeter Groundwater Evaluation																
Direct Push		GW	39	39		39	39	39		39	39					
Monitoring Well		GW	51	51	16	51	51	102	51	102	102					
Monitoring Well		SOIL	18	18		18	18	18		18	18					
Surface Soil	0-0.5	SS	10	10		10	10	10		10	10					
Surface Soil	0.5-2	SS	10	10		10	10	10		10	10					
Surface Soil	0-2	SS	6	6		6	6	6		6	6			8		
Landfill Evaluation																
Soil Vapor		Air													13	13
Ambient Air		Air													2	
Monitoring Well		GW	12	12	3	12	12	24	12	24	24					
Soil Borings	multiple	SOIL	18	18		18	18	18		18	18					
Additional RI Tasks																
Water from Tanker		SW	1	1				1		1						
Surface Water Depression		SW	1	1		1	1	1		1	1					
Test Pit		LW	1	1		1	1	1					1			
Off-site Sediments	0-2	SED	2	2		2	2	2		2	2					
Total			**225**	**225**	**19**	**224**	**226**	**298**	**63**	**297**	**296**	**6**	**1**	**8**	**15**	**13**

Geotechnical Samples

Sample Location	Sample Depths (ft)	Matrix	Soil Class: (USCS): (D2487)	Moisture Content and Dry Density (D2216)	Bulk Density (D4292 / D2937)	Water Filled and Air Filled Porosity	Fraction Organic Carbon (D2974)	Specific Gravity	Atterburg Limits	Sheer Stress	Permeability
Perimeter Groundwater Evaluation											
Geotechnical	0 - 5	GT	5	5	5	5	5	5	5		
Landfill Evaluation											
Geotechnical	0 - 2	GT	12	12	12			12	12	12	12

Sample totals include both dissolved and total inorganics.

TABLE 2-2
GEOPROBE AND SOIL BORING CONSTRUCTION SUMMARY

Well Identification	Depth to Top of Screen [ft]	Depth to Bottom of Screen [ft]	Depth to Boring Bottom [ft]	Depth to Well Bottom [ft]	Depth to Clay [ft]
GP01A	5	10	41	14.0	-
GP01B	15	20	41	19.6	-
GP01C	36	41	44	34.5	40
GP02	20	25	28	29.4	24
GP03A	5	10	36	14.5	-
GP03B	15	20	36	18.2	-
GP03C	29	34	36	34.5	28
GP04	8	13	16	14.8	13
GP05A	5	10	28	14.8	-
GP05B	13.5	18.5	28	19.7	-
GP05C	20	25	28	29.6	25
GP08A	5	10	48	14.8	-
GP08B	15	20	48	24.7	-
GP08C	43	48	48	49.6	47
GP09A	5	10	52	14.8	-
GP09B	15	20	52	24.7	-
GP09C	44	49	52	49.5	49
GP10	35	40	60	44.5	55
GP11A	5	10	10	14	-
GP11B	15	20	20	19.8	-
GP11C	33	38	52	39.1	51
GP12A	5	10	52	14.0	-
GP12B	15	20	52	24.3	-
GP12C	39	44	52	43.6	51
GP13A	13	18	58	19.6	-
GP13B	24	29	58	29.0	-
GP13C	50	55	58	57.7	55
GP14A	9.8	14.8	32	14.8	-
GP14B	14.8	19.8	32	19.7	-
GP14C	27	32	32	34.5	31
GP15	27	32	32	34.5	31
GP16	52	57	58	58.5	57
GP17	63	68	68	69.1	65
GP18	35	40	44	44.3	40
GP19	48	53	58	54.5	54
GP20A	5	10	36	14.8	-
GP20B	15	20	36	19.8	-
GP20C	26	31	36	34.7	28
GP21	45	50	50	40.9	-
SB01	7.6	47.6	58	47.6	58
SB02	-	-	28	-	-
SB03	4.95	44.95	50.5	45.0	-
SB04	-	-	83	-	78
SB05	6	60	64	60.0	59
SB06	-	-	47.5	-	-

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP01A-160630		GP01B-160630		GP01C-160630		GP02-160630		GP03A-160713		GP03B-160713		GP03C-160713	
				Location	GP01A		GP01B		GP01C		GP02		GP03A		GP03B		GP03C	
				SDG	5001138031		5001138031		5001138031		5001138031		5001142591		5001142591		5001142591	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	6/30/2016		6/30/2016		6/30/2016		6/30/2016		7/13/2016		7/13/2016		7/13/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																		
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	UJ	100	U	1000	U	630		120		100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	30	U	4.9		2.8	J	1.1	J
SW6020	7440-38-2	ARSENIC	10	ug/l	5		**12**	J-	6.1		5.8	J	2.9		5.7		5.9	
SW6020	7440-39-3	BARIUM	2000	ug/l	110		300		**2500**		1700		920		1800	J	1200	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	UJ	1	U	10	U	1	U	1	U	1	U
SW6020	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.24	J	5	U	0.5	U	0.5	U	0.5	U
SW6020	7440-70-2	CALCIUM	NS	ug/l	84000		74000		260000		73000		76000		420000		78000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	4.1	J	4.4	J-	4.5	J	28	J	36		36		30	
SW6020	7440-48-4	COBALT	6.0	ug/l	0.33	J	0.44	J-	0.87	J	2.4	J	1.7		**21**		3.8	
SW6020	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	U	20	U	11		4.3		1.8	J
SW6020	7439-89-6	IRON	14000	ug/l	1100		2900	J-	1500		13000		8200		**1300000**		9200	
SW6020	7439-92-1	LEAD	15	ug/l	0.5	U	0.5	U	0.5	U	1.8	J	7.4		9.5	J	0.5	U
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	28000		69000		140000		850000		560000		1000000		570000	
SW6020	7439-96-5	MANGANESE	430	ug/l	430		190	J-	31		260		240		**6400**		200	
SW6020	7440-02-0	NICKEL	390	ug/l	3.2		5.2	J-	4.5		26		20		260		28	J
SW6020	7440-09-7	POTASSIUM	NS	ug/l	93000		230000		780000		14000000		2500000		9400000		8000000	
SW6020	7782-49-2	SELENIUM	50	ug/l	1.3	J	2.1	J	5		**72**		1	J	11		4.5	J
SW6020	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	5	U	0.14	J	0.5	U	0.097	J
SW6020	7440-23-5	SODIUM	NS	ug/l	250000		430000		2800000		16000000		3000000		11000000		9900000	
SW6020	7440-62-2	VANADIUM	86	ug/l	2.6	J	5	U	5	U	50	U	3.4	J	2.5	J	5.6	
SW6020	7440-66-6	ZINC	6000	ug/l	20	U	20	U	5.6	J	200	U	58		10	J	20	U
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.12	J	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.01	U	0.01	U	0.0041	J	0.0095	J	0.0073	J	0.011	J	0.01	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP01A-160630		GP01B-160630		GP01C-160630		GP02-160630		GP03A-160713		GP03B-160713		GP03C-160713	
				Location	GP01A		GP01B		GP01C		GP02		GP03A		GP03B		GP03C	
				SDG	5001138031		5001138031		5001138031		5001138031		5001142591		5001142591		5001142591	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	6/30/2016		6/30/2016		6/30/2016		6/30/2016		7/13/2016		7/13/2016		7/13/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																		
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.037	U	0.038	U	0.038	U	0.035	U	0.038	U	0.18	U	0.037	UJ
VOLATILES																		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	420		5	U	590		5	U
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U	8.8		5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	13		5	U	37		5	U
SW8260	67-64-1	ACETONE	14000	ug/l	5	U	5	U	5	U	1600		10		400		11	
SW8260	71-43-2	BENZENE	5	ug/l	0.5	U	0.5	U	0.5	U	4.3		**15**		**14**		**11**	
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	2	U	2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U	13		1.3		1	U
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	2.3		1	U	1	U
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	20	U	20	U	20	U	20	U	20	U
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	1	U	1	U	1	U	16		15		13		26	
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	18		24		19		2.3	
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	5	U	5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	1	U	1.1		1	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	5	U	4.6	J	5	U	140		180		160		220	
SW8260	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	55		7.4		110		74	
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260	95-47-6	XYLENE, O-	190	ug/l	NA		NA		NA		NA		NA		NA		NA	
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	NA		NA		NA		NA		NA		NA		NA	
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	1	U	1	U	1	U	58		39		42		5.3	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP01A-160630		GP01B-160630		GP01C-160630		GP02-160630		GP03A-160713		GP03B-160713		GP03C-160713	
				Location	GP01A		GP01B		GP01C		GP02		GP03A		GP03B		GP03C	
				SDG	5001138031		5001138031		5001138031		5001138031		5001142591		5001142591		5001142591	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	6/30/2016		6/30/2016		6/30/2016		6/30/2016		7/13/2016		7/13/2016		7/13/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																		
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	3.5	J	7.3	U	8	U
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.3	U	7.6	U	7.6	U	7.1	U	38	U	37	U	40	UJ
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.5	U	1.5	U	3		2.5	J	6.1	J	1.5	J
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	3.6	J
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	30		260		6.8	J
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.3	U	7.6	U	7.6	U	7.1	U	38	U	37	U	40	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.3	U	7.6	U	7.6	U	7.1	U	38	U	37	U	**18**	J
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	0.73	U	0.76	U	0.76	U	2.2		3.8	U	3.7	U	4	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.73	U	0.76	U	0.76	U	0.71	U	3.8	U	3.7	U	4	UJ
SW8270	120-12-7	ANTHRACENE	1800	ug/l	0.73	U	0.76	U	0.76	U	1.8		3.8	U	3.7	U	4	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.15	U	**0.37**		0.24	J	**0.34**	J	0.24	J
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.15	U	**0.28**		0.76	U	0.73	U	0.8	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.14	U	0.76	U	0.73	U	0.8	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	0.73	U	0.76	U	0.76	U	0.71	U	3.8	U	3.7	U	4	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.15	U	0.14	U	0.76	U	0.73	U	0.8	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	15	U	14	U	76	U	73	U	80	UJ
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.3	U	7.6	U	7.6	U	2.2	J	38	U	37	U	40	U
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	3.7	U	3.8	U	3.8	U	15		2.3	J	3.3	J	3.5	J
SW8270	218-01-9	CHRYSENE	250	ug/l	0.37	U	0.38	U	0.38	U	0.25	J	1.9	U	1.8	U	2	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	9.1		8	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.7	U	3.8	U	3.8	U	3.5	U	3.3	J	18	U	20	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	0.73	U	0.76	U	0.76	U	1.7		3.8	U	3.7	U	4	U
SW8270	86-73-7	FLUORENE	290	ug/l	0.73	U	0.76	U	0.76	U	2.1		3.8	U	1.7	J	1.6	J
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l	15	U	15	U	15	U	14	U	76	U	73	U	80	UJ
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.14	U	0.76	U	0.73	U	0.8	U
SW8270	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.5	U	1.4	U	7.6	U	7.3	U	8	U
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	0.73	U	0.76	U	0.76	U	**33**		**10**		**210**		**23**	J
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.73	U	0.76	U	0.76	U	0.71	U	3.8	U	3.7	U	4	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	0.73	U	0.76	U	0.76	U	4		3.8	U	2.2	J	2.2	J
SW8270	108-95-2	PHENOL	5800	ug/l	3.7	U	3.8	U	3.8	U	9.9		19	U	160		20	U
SW8270	129-00-0	PYRENE	120	ug/l	0.73	U	0.76	U	0.76	U	1.2		3.8	U	3.7	U	4	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP103C-160713		GP04-160714		GP05A-160713		GP05B-160713		GP05C-160713		GP08A-160708		GP08B-160708	
				Location	GP03C		GP04		GP05A		GP05B		GP05C		GP08A		GP08B	
				SDG	5001142591		5001143411		5001142591		5001142591		5001142591		5001141031		5001141031	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/13/2016		7/14/2016		7/13/2016		7/13/2016		7/13/2016		7/8/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																		
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	58	J	100	U	57	J	91	J	1100		150	
SW6020	7440-36-0	ANTIMONY	6	ug/l	1.1	J	3	U	3	U	2.3	J	1.8	J	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	5.6		2.4		4		8.2		5.8		2.6		2.6	
SW6020	7440-39-3	BARIUM	2000	ug/l	1200		530		400		1100		1900		390		170	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW6020	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.26	J	0.5	U	0.5	U	0.5	U	0.2	J	0.5	U
SW6020	7440-70-2	CALCIUM	NS	ug/l	75000		130000		280000		170000		98000		200000		110000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	29		13		9.5		22		17		30		36	
SW6020	7440-48-4	COBALT	6.0	ug/l	3.5		1.8		1.1		2.7		3.6		2.2		4.1	
SW6020	7440-50-8	COPPER	1300	ug/l	2.4		4		2	U	3.2		3		63		2	UJ
SW6020	7439-89-6	IRON	14000	ug/l	8700		**29000**		8400		**43000**		7600		11000		5500	
SW6020	7439-92-1	LEAD	15	ug/l	0.5	U	0.48	J	0.18	J	4.3		**23**		**47**		2.5	
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	540000		590000		330000		790000		850000		210000		200000	
SW6020	7439-96-5	MANGANESE	430	ug/l	190		330		290		**500**		300		400		230	
SW6020	7440-02-0	NICKEL	390	ug/l	27		14		7.1		36		27		19		140	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	7800000		1700000		1100000		4000000		5300000		52000		190000	
SW6020	7782-49-2	SELENIUM	50	ug/l	7.4		1.3	J	2.7		3.9		9.2		2.5	U	2.5	U
SW6020	7440-22-4	SILVER	94	ug/l	0.088	J	0.082	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	9600000		2700000		1300000		5700000		7400000		320000		1000000	
SW6020	7440-62-2	VANADIUM	86	ug/l	5.5		2.6	J	5	U	2.2	J	5	U	15		16	
SW6020	7440-66-6	ZINC	6000	ug/l	20	U	20	U	20	U	15	J	11	J	85		7.7	J
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.011		0.04		0.0094	J	0.061		0.049		0.018		0.013	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP103C-160713		GP04-160714		GP05A-160713		GP05B-160713		GP05C-160713		GP08A-160708		GP08B-160708	
				Location	GP03C		GP04		GP05A		GP05B		GP05C		GP08A		GP08B	
				SDG	5001142591		5001143411		5001142591		5001142591		5001142591		5001141031		5001141031	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/13/2016		7/14/2016		7/13/2016		7/13/2016		7/13/2016		7/8/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																		
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.038	U	0.37	U	0.038	U	0.19	U	0.18	U	0.041	U	0.038	U
VOLATILES																		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	5	U	12	J	5	U	5	U	5	U	5	U	5	U
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U	5	U	5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	8.9		5	U	8		2.5	J	5	U	5	U
SW8260	67-64-1	ACETONE	14000	ug/l	9.8		15		6.9		49		14		7		7.7	
SW8260	71-43-2	BENZENE	5	ug/l	**11**		**17**		**5.2**		3.1		2.8		**12**		**330**	
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	2	U	2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	1	U	13		8.4		1.2		1	U	1.6		**140**	
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	8.3	
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	20	U	20	U	20	U	20	U	20	U
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	26		12		21		7.3		5.1		4.8		14	
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	2.4		35		0.64		4		34		1.1		71	
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	5	U	5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	230		320		150		250		41		56		430	
SW8260	108-88-3	TOLUENE	1000	ug/l	73		45		0.51		7.8		19		0.5	U	5.2	
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260	95-47-6	XYLENE, O-	190	ug/l	NA		NA		NA		NA		NA		0.92		85	
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	NA		NA		NA		NA		NA		1.3		43	
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	5.3		98		2.4		15		60		NA		NA	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP103C-160713		GP04-160714		GP05A-160713		GP05B-160713		GP05C-160713		GP08A-160708		GP08B-160708	
				Location	GP03C		GP04		GP05A		GP05B		GP05C		GP08A		GP08B	
				SDG	5001142591		5001143411		5001142591		5001142591		5001142591		5001141031		5001141031	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/13/2016		7/14/2016		7/13/2016		7/13/2016		7/13/2016		7/8/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																		
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	0.31	J	9.2	
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	8.1	U	7.5	U	3.7		8.1	U	0.9	J	0.21	J	9.5	
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	41	U	13	J	7.5	U	55		7.3	U	7.9	U	15	
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	1.6	U	1.5	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.4	J	5.3	J	1.5	U	3	J	4		1.6	U	29	
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	3.5	J	3.6	J	1.5	U	11		7.1		1.6	U	1.5	U
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	8.1	U	140		9.5		150		33		1.6	U	2.3	
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	41	U	38	U	7.5	U	40	U	7.3	U	7.9	U	7.5	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	**16**	J	38	U	7.5	U	40	U	7.3	U	7.9	U	**17**	
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	4.1	U	3.8	U	0.34	J	4	U	1.1		0.79	U	1	
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	1.5	J	3.8	U	0.75	U	4	U	0.73	U	0.79	U	0.75	U
SW8270	120-12-7	ANTHRACENE	1800	ug/l	4.1	U	3.8	U	0.75	U	4	U	0.77		0.79	U	0.75	
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.81	UJ	0.75	U	0.15	U	**0.4**	J	**0.6**		0.16	U	0.15	U
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.81	U	0.75	U	0.15	U	0.81	U	**0.47**		0.16	U	0.15	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.81	U	0.75	U	0.15	U	0.81	U	0.58		0.16	U	0.15	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	4.1	U	3.8	U	0.75	U	4	U	0.73	U	0.79	U	0.75	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.81	U	0.75	U	0.15	U	0.81	U	0.35		0.16	U	0.15	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	81	U	75	U	15	U	81	U	15	U	16	U	15	U
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	1.6	U	1.5	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	41	U	**18**	J	7.5	U	40	U	4.7	J	7.9	U	**8.2**	
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	1.6	U	1.5	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	3.4	J	19	U	0.4	J	20	U	2.9	J	3.9	U	1.5	J
SW8270	218-01-9	CHRYSENE	250	ug/l	2	U	1.9	U	0.38	U	0.33	J	0.7		0.39	U	0.38	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	0.93	J	1.6	U	0.97	J
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	1.6	U	1.5	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	20	U	19	U	3.8	U	20	U	3.7	U	3.9	U	3.8	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	4.1	U	3.8	U	0.75	U	4	U	2.4		0.79	U	0.75	U
SW8270	86-73-7	FLUORENE	290	ug/l	1.4	J	3.8	U	0.28	J	4	U	1.4		0.79	U	1.3	
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l	81	U			15	U	81	U	15	U	16	U	15	U
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.81	U	0.75	U	0.15	U	0.81	U	0.21		0.16	U	0.15	U
SW8270	78-59-1	ISOPHORONE	780	ug/l	8.1	U	7.5	U	1.5	U	8.1	U	1.5	U	1.6	U	1.5	
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	**23**		**6.7**		**2.2**		**16**		**12**		0.3	J	**47**	
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	4.1	U	3.8	U	0.65	J	4	U	0.73	U	0.79	U	3.1	
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	2	J	1.4	J	0.75	U	4	U	4.6		0.79	U	1.9	
SW8270	108-95-2	PHENOL	5800	ug/l	20	U	2.7	J	0.75	J	5.1	J	3.7	U	3.9	U	2.2	J
SW8270	129-00-0	PYRENE	120	ug/l	4.1	U	3.8	U	0.75	U	4	U	2		0.79	U	0.75	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP08C-160708		GP09A-160707		GP09B-160707		GP09C-160708		GP10-160706		GP11B-160706		GP11C-160707	
				Location	GP08C		GP09A		GP09B		GP09C		GP10		GP11B		GP11C	
				SDG	5001141031		5001140261		5001140261		5001141031		5001139561		5001139561		5001140261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/8/2016		7/7/2016		7/7/2016		7/8/2016		7/6/2016		7/6/2016		7/7/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																		
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	1300		85	J	99	J	100	U	500	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	1.1	J	1.5	J	1.9	J	3	U	15	U
SW6020	7440-38-2	ARSENIC	10	ug/l	**35**		0.9	J	**15**		5		**11**		2.7		**17**	
SW6020	7440-39-3	BARIUM	2000	ug/l	830		200		44		190		1200		1100		370	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	5	U
SW6020	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2.5	U
SW6020	7440-70-2	CALCIUM	NS	ug/l	130000		190000		110000		37000		65000		74000		9200	
SW6020	7440-47-3	CHROMIUM	100	ug/l	8.2		7.2		**270**		34		34		35		96	
SW6020	7440-48-4	COBALT	6.0	ug/l	5		1.5		**6.1**		**16**		**12**		3.3		3	J
SW6020	7440-50-8	COPPER	1300	ug/l	2	U	3.1	J+	54		3.5	J+	2.7	J+	2	U	10	U
SW6020	7439-89-6	IRON	14000	ug/l	**15000**		2600		**83000**		13000		6600		2400		4700	
SW6020	7439-92-1	LEAD	15	ug/l	0.59		0.5	U	**44**		0.41	J	6.1		0.33	J	2.5	U
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	130000		150000		190000		95000		350000		220000		150000	
SW6020	7439-96-5	MANGANESE	430	ug/l	92		**680**		350		74		270		170		29	
SW6020	7440-02-0	NICKEL	390	ug/l	59		6.2		140		**850**		170		10		150	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	47000		51000		98000		100000		1200000		200000		5300000	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U	**57**		3.6		13	U
SW6020	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	990000		480000		610000		1200000		4200000		930000		9400000	
SW6020	7440-62-2	VANADIUM	86	ug/l	5	U	4.9	J	5.4		10		15		6.3		16	J
SW6020	7440-66-6	ZINC	6000	ug/l	7.1	J	5.5	J	29		8.4	J	18	J	6.6	J	100	U
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.0044	J	0.0099	J	0.0092	J	0.0058	J	0.016		0.0068	J	0.028	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP08C-160708		GP09A-160707		GP09B-160707		GP09C-160708		GP10-160706		GP11B-160706		GP11C-160707	
				Location	GP08C		GP09A		GP09B		GP09C		GP10		GP11B		GP11C	
				SDG	5001141031		5001140261		5001140261		5001141031		5001139561		5001139561		5001140261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/8/2016		7/7/2016		7/7/2016		7/8/2016		7/6/2016		7/6/2016		7/7/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																		
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.038	U	0.038	U	**0.29**	J	0.038	U	0.037	U	0.039	U	0.038	U
VOLATILES																		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	8.3		2	U	1	U	1	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	27		1	U	2	U	1	U	1	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	3		24		2	U	4.6		0.68	J	1	U	**51**	
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	5	U	23		230		23		29		5	U	40	
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	10	U	5	U	5	U	5	U	5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	45		88		19		200		5	U	5	U
SW8260	67-64-1	ACETONE	14000	ug/l	15		7.8		49		29		42		16		14	J
SW8260	71-43-2	BENZENE	5	ug/l	**16**		**760**		**3800**		**360**		**17**		**5.2**		**73**	J
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	4	U	2	U	0.62	J	2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	4.6		25		12		2		31		5.9		**260**	J
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	1	U	89		14		3.8		1	U	1	U	4	
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	40	U	20	U	20	U	20	U	20	U
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	15		3.7		17		43		13		2.7		5.4	
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	35		31		**1600**		240		130		0.4	J	12	J
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	**5.3**		10	U	5	U	5	U	5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	29		110		**5400**		**8800**		300		11		280	
SW8260	108-88-3	TOLUENE	1000	ug/l	42		260		26		170		170		0.51		500	J
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	**7.8**		2		1	U	0.81		0.5	U	0.5	U	0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	1.1		**4.3**		1	U	0.62		**2.4**		0.5	U	**3**	J
SW8260	95-47-6	XYLENE, O-	190	ug/l	22		NA		NA		57		NA		NA		NA	
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	48		NA		NA		**540**		NA		NA		NA	
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	NA		95		**2500**		NA		**500**		1.6		22	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP08C-160708		GP09A-160707		GP09B-160707		GP09C-160708		GP10-160706		GP11B-160706		GP11C-160707	
				Location	GP08C		GP09A		GP09B		GP09C		GP10		GP11B		GP11C	
				SDG	5001141031		5001140261		5001140261		5001141031		5001139561		5001139561		5001140261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/8/2016		7/7/2016		7/7/2016		7/8/2016		7/6/2016		7/6/2016		7/7/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																		
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.4	J	1.9		7.8	U	2.6		1.5	U	0.49	J	7.5	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	0.72	J	3.2		7.8	U	0.76	J	1.5	U	1.6		7.5	U
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	2.7	J	7.5	U	55		11		7.5	U	7.6	U	140	
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	1.5	U	1.5	U	7.8	U	1.6	U	1.5	U	1.5	U	7.5	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	4		12		**180**		25		2.9		0.84	J	7.5	U
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.1	J	1.5	U	7.8	U	1.7		8.6		1.5	U	130	
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	5.7		5.4		42		6.4		30		1.5	U	23	
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.4	U	7.5	U	39	U	18		7.5	U	7.6	U	37	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.4	U	**10**		39	U	7.8	U	7.5	U	**8.7**		37	U
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	0.58	J	5.9		5.6		0.83		2.1		0.83		3.7	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.74	U	0.75	U	3.9	U	0.78	U	0.75	U	0.76	U	3.7	U
SW8270	120-12-7	ANTHRACENE	1800	ug/l	0.52	J	1		3.9	U	0.78	U	4.1		0.79		3.7	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.17		**0.39**	J	0.16	U	**2.2**		**0.42**		**0.37**	J
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.78	U	0.16	U	**1.5**		**0.32**		0.75	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.78	U	0.16	U	2.5		0.4		0.75	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	0.74	U	0.75	U	3.9	U	0.78	U	0.36	J	0.76	U	3.7	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.78	U	0.16	U	1.1		0.2		0.75	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	78	U	16	U	15	UJ	15	UJ	75	U
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	1.5	U	1.5	U	7.8	U	1.6	U	1.5	U	1.5	U	7.5	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.4	U	7.5	U	**34**	J	2.1	J	**9.7**		**6.1**	J	37	U
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	7.8	U	0.48	J	1.5	U	0.66	J	7.5	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	1.7	J	12		9.2	J	3.3	J	7.8		5.5		1.9	J
SW8270	218-01-9	CHRYSENE	250	ug/l	0.37	U	0.11	J	0.3	J	0.39	U	2.2		0.42		1.9	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	0.32	J	7.2		7.8	U	1.6	U	1.2	J	0.39	J	7.5	U
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.6		7.8	U	1.4	J	1.5	U	1.5	U	7.5	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.7	U	3.7	U	19	U	3.9	U	3.8	U	0.65	J	19	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	0.74	U	1.2		3.9	U	0.78	U	8.2		1.3		3.7	U
SW8270	86-73-7	FLUORENE	290	ug/l	0.49	J	7.2		7		0.92		2.1		1.4		3.7	U
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l	15	U					16	U	15	U	15	U		
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	UJ	0.78	UJ	0.16	U	0.49		0.18		0.75	UJ
SW8270	78-59-1	ISOPHORONE	780	ug/l	1.5	U	23		16		4.7		1.5	U	1.5	U	7.5	U
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	**4.7**		**22**		**240**		**69**		**8.1**		**2**		3.7	U
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.99		1.8		3.9	U	0.78	U	0.75	U	0.81		3.7	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	0.8		0.75	U	22		2.1		10		1.4		3.7	U
SW8270	108-95-2	PHENOL	5800	ug/l	3.7	U	5.4		20		4.3		33		0.72	J	19	U
SW8270	129-00-0	PYRENE	120	ug/l	0.74	U	0.79		2	J	0.78	U	7.1		1.1		3.7	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP111C-160707		GP12B-160712		GP12C-160712		GP13A-160714		GP13B-160728		GP13C-160727		GP14A-160701	
				Location	GP11C		GP12B		GP12C		GP13A		GP13B		GP13C		GP14A	
				SDG	5001140261		5001141821		5001141821		5001143411		5001149991		5001149311		5001138551	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/7/2016		7/12/2016		7/12/2016		7/14/2016		7/28/2016		7/27/2016		7/1/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																		
SW6020	7429-90-5	ALUMINUM	20000	ug/l	500	U	100	U	140		550		76	J	500	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	15	U	3	U	3	U	3	U	1.2	J	15	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	**16**		2.2		**13**		6.9		9.9		**16**		0.69	J
SW6020	7440-39-3	BARIUM	2000	ug/l	350		79		250		480		260		**3100**		33	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	5	U	1	U	1	U	1	U	1	U	5	U	1	U
SW6020	7440-43-9	CADMIUM	5	ug/l	2.5	U	0.5	U	0.5	U	0.51		0.5	U	2.5	U	0.5	U
SW6020	7440-70-2	CALCIUM	NS	ug/l	8800		73000		8800		29000		42000		77000		41000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	90		8		64		34		34		20	J	2	J
SW6020	7440-48-4	COBALT	6.0	ug/l	2.6	J	1.9		2.7		0.42	J	1.8		3.7	J	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	10	U	2	U	9.4		1.8	J+	2.7		10	U	2	U
SW6020	7439-89-6	IRON	14000	ug/l	4400		1100		4200		3900		2800		4500		2500	
SW6020	7439-92-1	LEAD	15	ug/l	2.5	U	0.5	U	2.7		1.3		4		2.5	U	0.5	U
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	140000		270000		120000		290000		300000		140000		44000	
SW6020	7439-96-5	MANGANESE	430	ug/l	24		330		42		200		130		43		360	
SW6020	7440-02-0	NICKEL	390	ug/l	140		9		61		5.6		13		110		1.2	J
SW6020	7440-09-7	POTASSIUM	NS	ug/l	5100000		120000		10000000		1000000		1000000		13000000		18000	
SW6020	7782-49-2	SELENIUM	50	ug/l	13	U	2.5	U	8.8		1.8	J	2.5		13		2.5	U
SW6020	7440-22-4	SILVER	94	ug/l	2.5	U	0.5	U	0.094	J	0.14	J	0.5	U	2.5	U	0.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	9000000		630000		11000000		2300000		1800000		18000000		23000	
SW6020	7440-62-2	VANADIUM	86	ug/l	15	J	2.4	J	6.3		6.6		8.1		25	U	5	U
SW6020	7440-66-6	ZINC	6000	ug/l	100	U	20	U	25		7.2	J	14	J	26	J	20	U
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.032		0.0047	J	0.048		0.0072	J	0.016		0.037		0.0099	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP111C-160707		GP12B-160712		GP12C-160712		GP13A-160714		GP13B-160728		GP13C-160727		GP14A-160701	
				Location	GP11C		GP12B		GP12C		GP13A		GP13B		GP13C		GP14A	
				SDG	5001140261		5001141821		5001141821		5001143411		5001149991		5001149311		5001138551	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/7/2016		7/12/2016		7/12/2016		7/14/2016		7/28/2016		7/27/2016		7/1/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																		
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.037	U	0.038	U	0.037	U	0.19	U	0.038	U	0.036	U	0.038	U
VOLATILES																		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	1	U	1	U	1	U	5	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	1	U	1	U	1	U	1	U	5	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	**40**		1	U	6.8		2.6		**3600**		3.3		1	U
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	1	U	1	U	4.6	J	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	1	U	1	U	**13**		1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	38		5	U	80		5	U	2300		5	U	5	U
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	14		5	U	25	U	5	U	5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	840		23		2600		13		5	U
SW8260	67-64-1	ACETONE	14000	ug/l	24	J	16		170		7	J+	1500		180		6.8	
SW8260	71-43-2	BENZENE	5	ug/l	**47**	J	4.7		3		**270**		**250**		3.8		0.5	U
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	5	U	1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	10	U	2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	**130**	J	1.5		1	U	1	U	5	U	1	U	1	U
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	3.6		1.5		3.3		17		72		1	U	1	U
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	1	U	5	U	1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	1	U	1	U	26		1	U	1	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	5	U	1	UJ	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	20	U	20	U	100	U	20	U	20	U
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	4.8		11		8.1		20		20		1.8		1	U
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	5.3	J	2.5		22		39		290		0.95		0.5	U
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	**130**		5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	1	U	1.6		5	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	**320**		3.1		1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	260		33		750		260		**3600**		250		5	U
SW8260	108-88-3	TOLUENE	1000	ug/l	270	J	3		13		25		**2900**		6.2		0.5	U
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	35		1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	**1700**		3.5		0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	**2.2**	J	0.5	U	2		0.5	U	**250**		**3.3**		0.5	U
SW8260	95-47-6	XYLENE, O-	190	ug/l	NA		NA		NA		NA		NA		NA		NA	
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	NA		NA		NA		NA		NA		NA		NA	
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	11	J	7.1		69		170		**880**		3		1	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP111C-160707		GP12B-160712		GP12C-160712		GP13A-160714		GP13B-160728		GP13C-160727		GP14A-160701	
				Location	GP11C		GP12B		GP12C		GP13A		GP13B		GP13C		GP14A	
				SDG	5001140261		5001141821		5001141821		5001143411		5001149991		5001149311		5001138551	
				Sample Type	FIELD DUPLICATE		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/7/2016		7/12/2016		7/12/2016		7/14/2016		7/28/2016		7/27/2016		7/1/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																		
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	7.4	U	1.5	U	15	U	7.5	U	15	U	1.5	U	1.5	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	7.4	U	1.5	U	15	U	7.5	U	15	U	1.5	U	1.5	U
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	130		7.5	U	74	U	73	J+	110		7.5	U	7.5	U
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	7.4	U	1.5	U	15	U	7.5	U	15	U	1.5	U	1.5	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	7.4	U	0.65	J	15	U	3.1	J+	**44**		1.5	U	1.5	U
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	140		1.5	U	9.3	J	5.4	J+	72		1.7		1.5	U
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	26		1.3	J	65		11	J+	780	J-	2.2		2	
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	37	U	7.5	U	74	U	37	U	76	U	7.5	U	7.5	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	37	U	7.5	UJ	74	UJ	37	U	76	U	7.5	U	7.5	U
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	7.6	U	0.75	U	0.75	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	19		0.22	J	0.75	U
SW8270	120-12-7	ANTHRACENE	1800	ug/l	1.4	J	0.75	U	7.4	U	3.7	U	7.6	U	0.88		0.75	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.74	U	0.077	J	**0.48**	J	**0.61**	J+	**1.8**		0.15	U	0.15	U
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.74	U	0.15	U	1.5	U	0.75	U	1.5	U	0.15	UJ	0.15	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.74	U	0.15	U	1.5	U	0.75	U	1.1	J	0.15	U	0.15	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	7.6	U	0.75	U	0.75	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.74	U	0.15	U	1.5	U	0.75	U	0.83	J	0.15	U	0.15	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	74	U	11	J	190		75	U	150	U	15	UJ	11	J
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	7.4	U	1.5	U	15	U	6.5	J+	15	U	1.5	U	1.5	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	37	U	2.9	J	74	U	37	U	76	U	7.5	UJ	7.5	U
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	7.4	U	1.5	U	15	U	7.5	U	15	U	1.5	UJ	1.5	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	2.2	J	0.5	J	37	U	4.9	J+	44		3.8	U	3.8	U
SW8270	218-01-9	CHRYSENE	250	ug/l	1.9	U	0.053	J	3.7	U	0.39	J+	1.2	J	0.38	U	0.38	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	7.4	U	1.5	U	15	U	7.5	U	7.5	J	1.5	U	1.5	U
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	7.4	U	1.5	U	15	U	7.5	U	15	U	1.5	U	1.5	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	19	U	3.8	U	37	U	19	U	38	U	3.8	U	3.8	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	5.9	J	0.75	U	0.75	U
SW8270	86-73-7	FLUORENE	290	ug/l	3.7	U	0.75	U	7.4	U	1.2	J+	7.8		0.75	U	0.75	U
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l			15	U	150	U			150	U	15	U	15	U
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.74	UJ	0.15	U	1.5	U	0.75	U	1.5	U	0.15	U	0.15	U
SW8270	78-59-1	ISOPHORONE	780	ug/l	7.4	U	1.5	U	15	U	7.5	U	68		1.5	U	1.5	U
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	3.7	U	**3.4**		**4.9**	J	**17**	J+	**280**		0.53	J	0.75	U
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	7.6	U	0.75	U	0.75	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	3.7	U	0.75	U	7.4	U	3.6	J+	18		0.26	J	0.75	U
SW8270	108-95-2	PHENOL	5800	ug/l	19	U	3.5	J	13	J	3.8	J+	700		0.89	J	1.5	J
SW8270	129-00-0	PYRENE	120	ug/l	3.7	U	0.75	U	7.4	U	3.7	U	4.5	J	0.75	U	0.75	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP14B-160701		GP14C-160701		GP15-160630		GP16-160728		GP16INJ-160719		GP17-160714		GP17INJ-160708	
				Location	GP14B		GP14C		GP15		GP16		GP16		GP17		GP17	
				SDG	5001138551		5001138551		5001138031		5001149991		5001145471		5001143411		5001141151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/1/2016		7/1/2016		6/30/2016		7/28/2016		7/19/2016		7/14/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																		
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	56	J	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	15	U	1.9	J	2.8	J	3	U	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	**11**		**12**		**28**		**28**		1	U	1.2		1.1	J
SW6020	7440-39-3	BARIUM	2000	ug/l	160		170		**3000**		1800		36		310		230	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	0.83	J	1	U	1	U	1	U
SW6020	7440-43-9	CADMIUM	5	ug/l	2.5	U	0.5	U	0.65		0.31	J	0.5	U	0.5	U	0.5	U
SW6020	7440-70-2	CALCIUM	NS	ug/l	37000		37000		42000		16000		28000		60000		47000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	39		37		13		35		5	U	3	J	1.9	J
SW6020	7440-48-4	COBALT	6.0	ug/l	3.7	J	3.3		**14**		4.3		1	U	0.62	J	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	10	U	2	U	5.2	J	12		3.9		4.6		2.7	
SW6020	7439-89-6	IRON	14000	ug/l	7400		6900		5100		3800		42	J	110		65	J
SW6020	7439-92-1	LEAD	15	ug/l	2.5	U	0.18	J	2.5	U	7.3		0.5	U	3.1		0.5	U
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	80000		82000		250000		65000		12000		71000		25000	
SW6020	7439-96-5	MANGANESE	430	ug/l	51		48		20		28		7.2		30		2.7	J
SW6020	7440-02-0	NICKEL	390	ug/l	58		49		49		91		2	U	12		2.5	J
SW6020	7440-09-7	POTASSIUM	NS	ug/l	9900000		870000		5000000		500	U	1500		580000		1100	
SW6020	7782-49-2	SELENIUM	50	ug/l	33		**1200**		34		50		2.5	U	2.5	U	2.5	U
SW6020	7440-22-4	SILVER	94	ug/l	2.5	U	0.5	U	0.14	J	0.096	J	0.5	U	0.5	U	0.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	1800000		16000000		17000000		200	U	11000		880000		24000	
SW6020	7440-62-2	VANADIUM	86	ug/l	25	U	10		25	U	13		5	U	5	U	2.7	J
SW6020	7440-66-6	ZINC	6000	ug/l	100	U	5.9	J	13	J	16	J	20	U	44		6.1	J
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.2	U	0.2	UJ	0.2	U	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.013		0.023		0.014		0.077		0.01	U	0.0041	J	0.01	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP14B-160701		GP14C-160701		GP15-160630		GP16-160728		GP16INJ-160719		GP17-160714		GP17INJ-160708	
				Location	GP14B		GP14C		GP15		GP16		GP16		GP17		GP17	
				SDG	5001138551		5001138551		5001138031		5001149991		5001145471		5001143411		5001141151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/1/2016		7/1/2016		6/30/2016		7/28/2016		7/19/2016		7/14/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																		
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.038	U	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U	0.037	U
VOLATILES																		
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	0.56	J	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	5	U	5.3		5	U	1100		5	U	15		5	U
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	10	U	5	U	5	U	5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	150		5	U	5	U	5	U
SW8260	67-64-1	ACETONE	14000	ug/l	14		530		25		1300		5	U	31		5	U
SW8260	71-43-2	BENZENE	5	ug/l	2.3		0.5	U	0.5	U	2.5		0.5	U	0.5	U	0.5	U
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	2	U	3.5		1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	4	U	2	U	2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	2	U	13		1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	2	U	1.3		1	U	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	20	U	40	U	20	U	20	U	20	U
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	3		0.78	J	4.8		2	U	1	U	1	U	1	U
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	2.9		0.5	U	0.5	U	0.5	U
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	10	U	5	U	5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	160		200		120		790		5	U	37		5	U
SW8260	108-88-3	TOLUENE	1000	ug/l	0.34	J	0.5	U	0.5	U	11		0.5	U	0.94		0.5	U
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	2	U	1	U	1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.56		0.5	U	**2.7**		0.5	U	0.51		0.5	U
SW8260	95-47-6	XYLENE, O-	190	ug/l	NA		NA		NA		NA		NA		NA		0.5	U
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	NA		NA		NA		NA		NA		NA		1	U
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	1	U	1	U	1	U	12		1	U	1	U	NA	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP14B-160701		GP14C-160701		GP15-160630		GP16-160728		GP16INJ-160719		GP17-160714		GP17INJ-160708	
				Location	GP14B		GP14C		GP15		GP16		GP16		GP17		GP17	
				SDG	5001138551		5001138551		5001138031		5001149991		5001145471		5001143411		5001141151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/1/2016		7/1/2016		6/30/2016		7/28/2016		7/19/2016		7/14/2016		7/8/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																		
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	14		7.3	U	7.2	U	74	U	7.5	U	39	U	7.4	U
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	15		1.5	U	1.4	U	18		1.5	U	7.8	U	1.5	U
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.5	U	1.4	U	150		1.5	U	3.4	J	1.5	U
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.5	U	7.3	U	7.2	U	74	U	7.5	U	39	U	7.4	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.5	U	7.3	U	7.2	U	74	U	7.5	U	39	U	7.4	U
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	120-12-7	ANTHRACENE	1800	ug/l	3.4		4.2		0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.28		0.14	J	0.14	U	1.5	U	0.15	U	0.78	U	0.15	U
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.14	U	1.5	U	0.15	U	0.78	U	0.15	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.14	U	1.5	U	0.15	U	0.78	U	0.15	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.14	U	1.5	U	0.15	U	0.78	U	0.15	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	20		15	U	14	U	150	U	15	U	78	U	15	U
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.5	U	7.3	U	7.2	U	74	U	7.5	U	39	U	7.4	U
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	3.7	U	3.6	U	37	U	3.7	U	19	U	3.7	U
SW8270	218-01-9	CHRYSENE	250	ug/l	0.38	U	0.37	U	0.36	U	3.7	U	0.37	U	1.9	U	0.37	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	3.7	U	3.6	U	37	U	3.7	U	19	U	3.7	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	86-73-7	FLUORENE	290	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l	15	U	15	U	14	U	150	U	15	U			15	U
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	U	0.14	U	1.5	U	0.15	U	0.78	U	0.15	U
SW8270	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.4	U	15	U	1.5	U	7.8	U	1.5	U
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	0.75	U	0.73	U	1.7		7.4	U	0.75	U	3.9	U	0.74	U
SW8270	108-95-2	PHENOL	5800	ug/l	0.73	J	3.7	U	3.6	U	230		1.9	J	19	U	3.7	U
SW8270	129-00-0	PYRENE	120	ug/l	0.75	U	0.73	U	0.72	U	7.4	U	0.75	U	3.9	U	0.74	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP18-160705		GP19-160727		GP20A-160706		GP20B-160705		GP20C-160705		GP21-160804	
				Location	GP18		GP19		GP20A		GP20B		GP20C		GP21	
				SDG	5001138911		5001149311		5001139561		5001138911		5001138911		5001153151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/5/2016		7/27/2016		7/6/2016		7/5/2016		7/5/2016		8/4/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100		500	U	83	J	60	J	70	J	3200	
SW6020	7440-36-0	ANTIMONY	6	ug/l	1	J	15	U	3	U	**9.3**		3	U	5.7	J
SW6020	7440-38-2	ARSENIC	10	ug/l	6.6		**130**		1.7		**15**		10		**29**	
SW6020	7440-39-3	BARIUM	2000	ug/l	860		540		200		290		240		1700	
SW6020	7440-41-7	BERYLLIUM	4	ug/l	1	U	5	U	1	U	1	U	1	U	0.72	J+
SW6020	7440-43-9	CADMIUM	5	ug/l	0.5	U	2.5	U	0.5	U	0.31	J	0.5	U	0.71	J
SW6020	7440-70-2	CALCIUM	NS	ug/l	8400		35000		72000		25000		9700		5500000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	**110**		**150**		12		**120**		54		**240**	
SW6020	7440-48-4	COBALT	6.0	ug/l	3.6		**25**		1.7		**14**		**9.9**		**9.8**	
SW6020	7440-50-8	COPPER	1300	ug/l	5.7		10	U	2	UJ	1.7	J	1.6	J	35	
SW6020	7439-89-6	IRON	14000	ug/l	3400		**22000**		4200		710		1200		**1000000**	
SW6020	7439-92-1	LEAD	15	ug/l	3.3		5		5.6		0.72		0.33	J	**24**	
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	180000		130000		190000		71000		58000		1600000	
SW6020	7439-96-5	MANGANESE	430	ug/l	48		140		**850**		96		67		**110000**	
SW6020	7440-02-0	NICKEL	390	ug/l	85		**1100**		10		130		130		160	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	6300000		1500000		57000		650000		770000		22000000	
SW6020	7782-49-2	SELENIUM	50	ug/l	4.3		5.6	J	1.7	J	1.7	J	1.6	J	**70**	
SW6020	7440-22-4	SILVER	94	ug/l	0.5	U	2.5	U	0.5	U	0.5	U	0.5	U	1	U
SW6020	7440-23-5	SODIUM	NS	ug/l	9700000		5100000		790000		5100000		5100000		25000000	
SW6020	7440-62-2	VANADIUM	86	ug/l	16		25	U	10		13		9.2		30	
SW6020	7440-66-6	ZINC	6000	ug/l	14	J	62	J	15	J	8.6	J	5.5	J	2300	
SW7470	7439-97-6	MERCURY	2	ug/l	0.2	U	0.2	U	0.5		0.2	U	0.2	U	0.2	U
SW9014	57-12-5	CYANIDE	200	mg/l	0.027		0.047		0.01	U	0.023		0.026		0.0035	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP18-160705		GP19-160727		GP20A-160706		GP20B-160705		GP20C-160705		GP21-160804	
				Location	GP18		GP19		GP20A		GP20B		GP20C		GP21	
				SDG	5001138911		5001149311		5001139561		5001138911		5001138911		5001153151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/5/2016		7/27/2016		7/6/2016		7/5/2016		7/5/2016		8/4/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081	319-85-7	BETA BHC	0.25	ug/l	0.036	U	0.038	U	0.038	U	0.038	U	0.038	U	1.4	U
VOLATILES																
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	200	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	55000	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-34-3	1,1-DICHLOROETHANE	28	ug/l	2.5		1	U	1	U	1	U	1	U	1	U
SW8260	75-35-4	1,1-DICHLOROETHENE	7	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U	5	U	170	
SW8260	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
SW8260	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U	5	U	33	
SW8260	67-64-1	ACETONE	14000	ug/l	12		40		5.2		10		11		690	
SW8260	71-43-2	BENZENE	5	ug/l	**10**		**30**		2.9		5		**7.1**		**9.6**	
SW8260	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	6.2		2	U	2	U
SW8260	108-90-7	CHLOROBENZENE	100	ug/l	4.4		2.7		2.6		1	U	1	U	1	U
SW8260	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	74-87-3	CHLOROMETHANE	190	ug/l	1	U	1	U	1	U	1	U	1	U	6.2	
SW8260	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	UJ	1	U	1	U	1	U	1	U
SW8260	141-78-6	ETHYL ACETATE	140	ug/l	20	U	20	U	20	U	20	U	20	U	**290**	
SW8260	60-29-7	ETHYL ETHER	3900	ug/l	5.7		6.9		2.1		81		27		1	U
SW8260	100-41-4	ETHYLBENZENE	700	ug/l	8.1		55		0.18	J	24		25		0.75	
SW8260	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
SW8260	100-42-5	STYRENE	100	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	109-99-9	TETRAHYDROFURAN	3400	ug/l	480		3100		29		90		120		53	J
SW8260	108-88-3	TOLUENE	1000	ug/l	16		130		0.44	J	10		6.4		2.3	
SW8260	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260	79-01-6	TRICHLOROETHENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260	75-01-4	VINYL CHLORIDE	2	ug/l	1.6		1.4		0.5	U	1.4		0.68		0.5	U
SW8260	95-47-6	XYLENE, O-	190	ug/l	NA		NA		NA		NA		NA		0.59	
SW8260	XYLMP	XYLENES, M & P-	190	ug/l	NA		NA		NA		NA		NA		0.86	J
SW8260	XYLENES	XYLENES, TOTAL	190	ug/l	9.2		**200**		2		39		51		NA	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 2-3
Geoprobe Groundwater Analytical Results, June/July 2016

				Sample ID	GP18-160705		GP19-160727		GP20A-160706		GP20B-160705		GP20C-160705		GP21-160804	
				Location	GP18		GP19		GP20A		GP20B		GP20C		GP21	
				SDG	5001138911		5001149311		5001139561		5001138911		5001138911		5001153151	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	7/5/2016		7/27/2016		7/6/2016		7/5/2016		7/5/2016		8/4/2016	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	7.8	U	7.9	U	1.5	U	1.6	U	1.6	U	140	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	7.8	U	9		3		1.8		0.5	J	140	U
SW8270	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	24	J	190		7.6	U	15		19		690	U
SW8270	91-58-7	2-CHLORONAPHTHALENE	750	ug/l	7.8	U	7.9	U	1.5	U	1.7		1.6	U	140	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	7.8	U	19		1.6		0.91	J	6.1		140	U
SW8270	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	23		180		1.5	U	7.9		20		650	
SW8270	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	13		35		1.5	U	12		21		140	U
SW8270	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	39	U	40	U	7.6	U	7.9	U	7.8	U	690	U
SW8270	106-47-8	4-CHLOROANILINE	3.7	ug/l	39	U	40	U	7.6	U	7.9	U	7.8	U	690	UJ
SW8270	83-32-9	ACENAPHTHENE	530	ug/l	3.9	U	4	U	0.24	J	0.79	U	0.51	J	69	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/l	3.9	U	4	U	0.28	J	0.79	U	0.78	U	69	U
SW8270	120-12-7	ANTHRACENE	1800	ug/l	3.9	U	4	U	0.75	J	0.79	U	0.78	U	69	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.78	U	0.79	U	0.15	U	0.16	U	0.09	J	14	U
SW8270	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.78	U	0.79	UJ	0.15	U	0.16	U	0.16	U	14	U
SW8270	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.78	U	0.79	U	0.15	U	0.16	U	0.16	U	14	U
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/l	3.9	U	4	U	0.76	U	0.79	U	0.78	U	69	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.78	U	0.79	U	0.15	U	0.16	U	0.16	U	14	U
SW8270	65-85-0	BENZOIC ACID	75000	ug/l	78	U	79	UJ	15	UJ	16	U	16	U	5500	
SW8270	108-60-1	BIS(2-CHLOROISOPROPYL) ETHER	710	ug/l	7.8	U	7.9	U	1.5	U	1.6	U	1.6	U	140	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	39	U	**9**	J	1.4	J	5.3	J	1.5	J	690	U
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	7.8	U	7.9	UJ	1.5	U	1.6	U	1.6	U	140	U
SW8270	86-74-8	CARBAZOLE	NS	ug/l	5	J	3.9	J	3.8	U	0.32	J	1.7	J	350	U
SW8270	218-01-9	CHRYSENE	250	ug/l	1.9	U	2	U	0.38	U	0.39	U	0.1	J	35	U
SW8270	132-64-9	DIBENZOFURAN	7.9	ug/l	7.8	U	7.9	U	1.5	U	1.6	U	1.6	U	140	U
SW8270	84-66-2	DIETHYL PHTHALATE	15000	ug/l	7.8	U	7.9	U	1.5	U	1.6	U	1.6	U	140	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	19	U	20	U	3.8	U	3.9	U	3.9	U	350	U
SW8270	206-44-0	FLUORANTHENE	800	ug/l	3.9	U	4	U	0.76	U	0.79	U	0.78	U	69	U
SW8270	86-73-7	FLUORENE	290	ug/l	0.96	J	1.7	J	0.76	U	0.79	U	0.68	J	69	U
SW8270	77-47-4	HEXACHLOROCYCLOPENTADIENE	50	ug/l	78	UJ	79	U	15	U	16	UJ	16	UJ	1400	U
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.78	U	0.79	U	0.15	U	0.16	U	0.16	U	14	U
SW8270	78-59-1	ISOPHORONE	780	ug/l	7.8	U	7.9	U	1.5	U	1.6	U	1.6	U	140	U
SW8270	91-20-3	NAPHTHALENE	1.7	ug/l	**5.9**		**20**		**14**		**3.5**		**10**		69	U
SW8270	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	3.9	U	4.1		0.49	J	0.79	U	0.78	U	69	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/l	1.4	J	3.6	J	0.76	U	0.35	J	1.6		69	U
SW8270	108-95-2	PHENOL	5800	ug/l	19	U	8.5	J	2.1	J	3.9	U	18		350	U
SW8270	129-00-0	PYRENE	120	ug/l	3.9	U	4	U	0.76	U	0.79	U	0.48	J	69	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels
Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

TABLE 2-4
MONITORING WELL CONSTRUCTION SUMMARY

Well Identification	Depth to Top of Screen [ft]	Depth to Bottom of Screen [ft]	Depth to Boring Bottom [ft]	Depth to Well Bottom [ft]	Depth to Clay [ft]
MW01S	5	15	15	15	-
MW02S	4	14	35	14	34.5
MW02D	24.5	34.5	35	34.5	34.5
MW03S	7	17	17	17	-
MW04S	2	12	44	12	43
MW05S	4	14	14	14	-
MW06S	14	24	50	24	48
MW06M	26	36	50	39	48
MW06D	38	48	50	48	48
MW07M	30	40	40	40	-
MW08S	22	32	51.5	32	51.5
MW08D	41.5	51.5	51.5	51.5	51.5
MW09S	5	15	15	15	-
MW11	7.6	47.6	58	47.6	58
MW12	4.95	44.95	50.5	45.0	-
MW13	6	60	64	60.0	59

3.0 SITE CHARACTERISTICS

The evaluation of site characteristics is essential to understanding constituents of concern and fate and transport mechanisms (Section 5.0) and in assessing risk (Section 6.0). These characteristics include geology and hydrogeology, hydrodynamics, ecology, and demographics and land use, which are discussed below.

Data from the following site characterization studies were used to evaluate site characteristics:

- Direct-push/Geoprobe® soil borings
- Soil/monitoring well borings
- Geotechnical sampling and testing
- Test pit excavation
- Ecological evaluation

3.1 Geology and Hydrogeology

The potential pathways for migration of chemical constituents are directly related to the hydrogeologic conditions underlying the Site. These conditions include the presence and lateral extent of low-permeability zones and the horizontal and vertical hydraulic conductivities of the underlying groundwater zones.

To support the characterization of Site profile, geology and hydrogeology, Parsons developed four cross sections (Figures 3-1 and 3-2) and two fence diagrams (Figures 3-3 and 3-4). Cross sections A-A' and B-B' are oriented north-south and west-east, respectively. Cross sections C-C' and D-D' are oriented southwest-northeast and northwest-southeast, respectively. These sections were derived from a three-dimensional (3D) data-driven model, which was developed and cross-checked using the subsurface soil and geological data collected during the RI (from borings and test pits).

3.1.1 Geology

Regional Geology

The Site lies within the Lake Michigan Border physiographic division of the Northern Lake and Moraine Region of Indiana. This region is characterized by the presence of beach ridges, dunes, moraines, numerous lakes and peat bogs. The landscape surrounding the Site has been altered by industrial and urban development.

In the Site area, Rosenshein (1962) identified the presence of two distinct unconsolidated lithologies. The uppermost unit was determined to be eolian and glaciolacustrine sand and gravel, and the lower unit is a clay till.

Brown and Thompson (2005) noted the presence of unconsolidated deposit, underlain by carbonate bedrock. Soil boring logs from immediately east of the Site (ATEC Associates 1981) demonstrate that sand and gravel deposits extend from the surface to an average depth of approximately 25 to 40 feet. Deeper boring logs describe the occurrence of soft

silty clay transitioning to gray, hard silty clay till. At this location, the till is approximately 50 feet thick, where it contacts the upper bedrock surface.

Site Geology

Consistent with the regional geology and based on direct-push drilling, monitoring well, soil boring, and test pit data collected during the RI, the Site profile is comprised of surficial clay and landfill contents, underlain by geology defined as sand, silt, and glacial till.

The surficial soil varies from 1 to 5 feet thick and consists of root material, silty clay and/or sand.

Soil boring logs demonstrate that sand and gravel deposits extend from the surface to an average depth of approximately 13 to 78 feet.

Fill was encountered throughout the Site, except at the southern boundary of the landfill adjacent to the river. The fill varies from 3 to 75 feet thick and consists of landfill waste material and general refuse in a matrix of silty sand and/or sandy silt, except for a few locations with silty clay. As expected, the landfill waste is thickest near the center of the landfill and thins toward the edges (see Figures 3-3 and 3-4). The landfill waste varies from 3 to 75 feet thick. The waste was observed to include brick, cinders, concrete, concrete blocks, tires, rubber items, plastic, rusted metal, wooden cross ties, and scrap metal. The estimated waste volume, based on information collected during the RI, and using calculations within the 3D model, is 2.6E06 cubic yards.

A total of 20 test pits and 14 shallow soil borings were excavated to delineate the limits of the landfill waste material. The test pit methodology and a summary of the waste extent was presented in Section 2.1.5, and the waste boundary delineation is shown on Figure 3-5.

Geotechnical Soil Samples

In July 2016, 17 subsurface soil samples (GT01 through GT12, GP02, GP04, GP10, GP17, and GP19) were collected for geotechnical analyses to characterize soil types located within the boundaries of the landfill. Laboratory test results are summarized in Table 3-1 and 3-2. The tests included soil classification (grain size analysis, Atterberg Limits) per the Unified Soil Classification System (USCS), moisture content, in-place density, specific gravity, and fraction organic content.

3.1.2 Hydrogeology

Regional Hydrogeology

The Site is within the Lake Michigan Basin water management area. The uppermost eolian and glaciolacustrine deposits form the surficial water table, the Calumet aquifer. Although surface water in the river continuously flows east to west, the hydraulic gradient of the river relative to the water table determines whether surface water recharges the aquifer, or base flow from the aquifer discharges as surface water. Although regional groundwater flow is generally southerly toward the river, flow reversals are documented (from the river towards the streambanks) during high water stages (USGS 2002).

The uppermost eolian and glaciolacustrine deposits form the surficial Calumet aquifer, which extends as much as 10 miles inland from the shore of Lake Michigan. Soil borings adjacent to the Site show the shallow sand unit extends to a depth of 40 feet where it is in contact with the upper surface of the lower till. Since 1985, water levels have fluctuated between 582 and 584 feet above MSL. The till serves as a confining unit to both the upper sand and lower bedrock. Together, the sand and confining till have a combined thickness of 90 to 110 feet above bedrock. Beneath the unconsolidated deposits, bedrock consists of various carbonate lithologies up to 250 feet thick.

Local Hydrogeology

Based on multiple water level gauging events conducted during the RI (see water level database in the field sampling logs, Appendix A), the groundwater flow direction was evaluated by constructing a series of groundwater contour maps. Flow in the shallow zone is shown on maps developed from the December 2016 and March, July, and October 2017 gauging data (Figures 3-6 through 3-9). The groundwater flow direction for the deep zone is shown in the maps developed from the March and October 2017 gauging data (Figures 3-10 and 3-11).

As seen on the maps, flow in the shallow zone is radially outward in all directions from the center of the landfill, with presumed discharge to both the northern pond and the river. Based on topography, regional groundwater flow direction (southerly), the river functioning as a discharge area, and the southeasterly groundwater flow direction reported on the Gary Airport property (AECOM 2017), shallow flow is expected to turn southerly towards the river adjacent to both the east and west sides of the Site.

In the deeper zone, flow is southerly across the Site toward the river, which is consistent with regional hydrogeologic reports.

Based on the hydrographs presented in Figure 3-12, including approximately one year of data, the water levels fluctuations were generally small (less than 3.5 feet). The highest levels were identified during the May 2017 gauging event.

Hydraulic Gradient

Horizontal: Horizontal gradient was calculated based on the potentiometric surface maps developed from four gauging events: December 2016 and March, July, and October 2017. An average gradient was also calculated based on the zone (shallow or deep) and whether the gradient was near the north, south, east or west sections of the Site. Based on those calculations, the average horizontal gradient in the shallow zone is 0.017 feet per foot (ft/ft), and 0.003 ft/ft, in the deep zone.

Groundwater Zone	Horizontal Gradient (ft/ft)			
	Southward	Eastward	Northward	Westward
Shallow	0.014	0.011	0.013	0.028
Deep	0.003	-	-	-

Vertical: Vertical gradients for monitoring well groups MW02, MW06, and MW08 were calculated corresponding to five gauging events: November and December 2016 and March, July, and October 2017 (Table 3-3). Vertical gradients for direct push well groups GP01, GP09, GP11, and GP13 were calculated for three gauging events: November 2016, and March and October 2017. Vertical gradients for direct push well groups GP03, GP05, GP08, and GP20 were calculated for two gauging events: November 2016, and March 2017. Vertical gradients for direct push well group GP12 were calculated for the November 2016 and October 2017 gauging events. The vertical gradient for direct push well group GP14 was calculated for the March 2017 gauging event. A positive vertical gradient indicates potential for downward flow, and a negative vertical gradient indicates upward flow potential.

Monitoring data for the cluster wells demonstrate that the predominant vertical gradients were generally downward except for the GP05 cluster (November 2016) and MW06 cluster (December 2016 and March, July, and October 2017).

Hydraulic Conductivity Testing

To determine hydraulic conductivity, two slug tests were performed on each of seven monitoring wells, one for the “falling” cycle and one for the “rising” cycle. Water levels were measured with pressure transducers, which record data automatically at programmed intervals.

On November 30, 2016, and December 1, 2017, in situ hydraulic conductivity tests (falling and rising head slug tests) were performed in accordance with American Society for Testing and Materials (ASTM) Test Method D 4044-91 on monitoring wells MW01S, MW02D, MW06D, MW06M, MW06S, MW07M, and MW09S. The slug test data were collected using a pressure transducer (In-Situ Level Troll 700) and a RuggedReader® datalogger.

The raw data were analyzed using a standard mathematical solution (Bouwer and Rice 1976) to calculate the hydraulic conductivity from the rising and falling slug test data. The test wells were evaluated as unconfined.

The slug test results are summarized in Table 3-4. As presented in this table, the hydraulic conductivity values ranged from 2.29×10^{-4} centimeters per second (cm/sec) to 3.35×10^{-6} cm/sec, with a geometric mean of 1.99×10^{-5} cm/sec. The hydraulic conductivities values are consistent with unconsolidated very fine sand (10^{-4} and 10^{-5}) and some clay layers (10^{-5} and 10^{-6}). All wells selected for the slug tests were screened in sand.

The output files showing the water level versus time data, variables, analytical methods, and calculated hydraulic conductivities are presented in Appendix H.

Velocity

Velocity calculations were developed assuming an aquifer porosity of 0.20 (20%), typical of sands, and using the calculated horizontal gradients and hydraulic conductivity. The calculated groundwater velocity ranged from approximately 0.0009 ft/day (deep zone) to

0.0079 ft/day (shallow zone), or approximately 0.3 ft/year (deep) to 2.9 ft/year (shallow). The velocity results are summarized in Table 3-5.

Hydrodynamics

The GDL Site lies south of Lake Michigan, adjacent to the river, about 500 feet west of the airport's western edge. It includes the former landfill area, a wetland in the southeastern portion of the Site, and a former retention pond located near the northern boundary.

Figure 1-2 presents the site topography developed based on the 2013 LiDAR topographic survey and checked by the 2016 ground survey. Elevations range from approximately 580 feet above MSL to 625 feet above MSL. The surface water flow follows the existing topography, but runoff is greatly limited by heavy vegetation covering most of the Site.

3.2 Ecological Evaluation

An ecological evaluation conducted in May 2016 included documentation of major habitats, delineation of the identified wetland, and observations of plant and wildlife species. Additional observations were made throughout the course of the investigation work over multiple seasons. A literature search was also conducted to determine the potential presence of state and federally listed threatened and endangered species within a one-half-mile radius from the property boundary. Locations of invasive species, such as Common Reed (*Phragmites australis*), were also documented. In addition, the Ecosystem Services Identification and Inventory (ESII) Tool was used to rate the value of the identified habitats and serve as a baseline for current conditions.

Three major habitats were identified during the ecological evaluation conducted in May 2016. These include a 4.8-acre, closed-system former retention pond located in the northern portion of the property, a 2.2-acre wetland along the northern bank of the river in the southeastern portion of the Site, and the former disturbed landfill area, which is approximately 55 acres. The main landfill area and the southern wetland are dominated by the invasive Common Reed species.

The wetland-upland boundary was delineated and mapped based on the criteria outlined in the 1987 USACE[3] Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region (Version 2.0) (January 2012). Since the area is dominated by Common Reed, the wetland is classified as a palustrine, emergent, *Phragmites australis*, seasonally flooded/saturated (PEM5F) wetland. Very few other plant species were observed within the wetland. The wetland boundary is shown on Figures 2-2 and 2 3.

No state or federally endangered species were documented based on literature review and site observations. Nine invasive plant species, including eight species noted as being highly invasive (Indiana Invasive Species Council [IISC] 2013), were observed, with Common Reed noted as comprising 70 to 90% of the total vegetation.

[3] USACE – United States Army Corps of Engineers

A total of 48 functions and values were rated by the ESII Tool along a gradient ranging from low to high. For the Site, 36 of the 48 rated functions/values were rated low to fair.

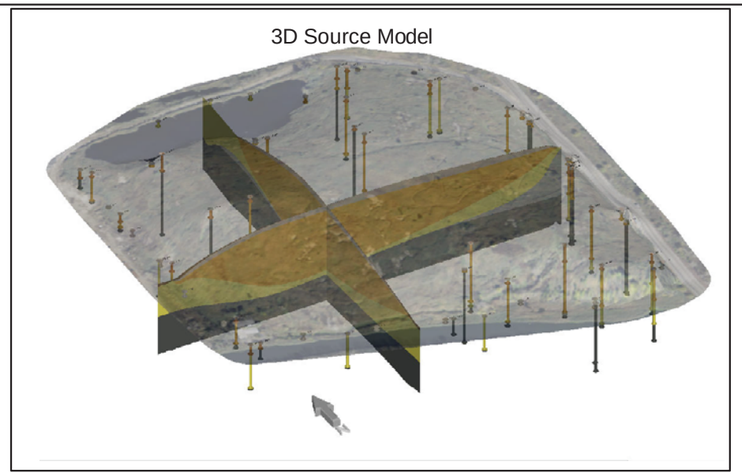
The detailed Ecological Evaluation, including the wetland delineation information, habitat assessment, and threatened and endangered species evaluation, is provided in Appendix F.

3.3 Demographics and Land Use

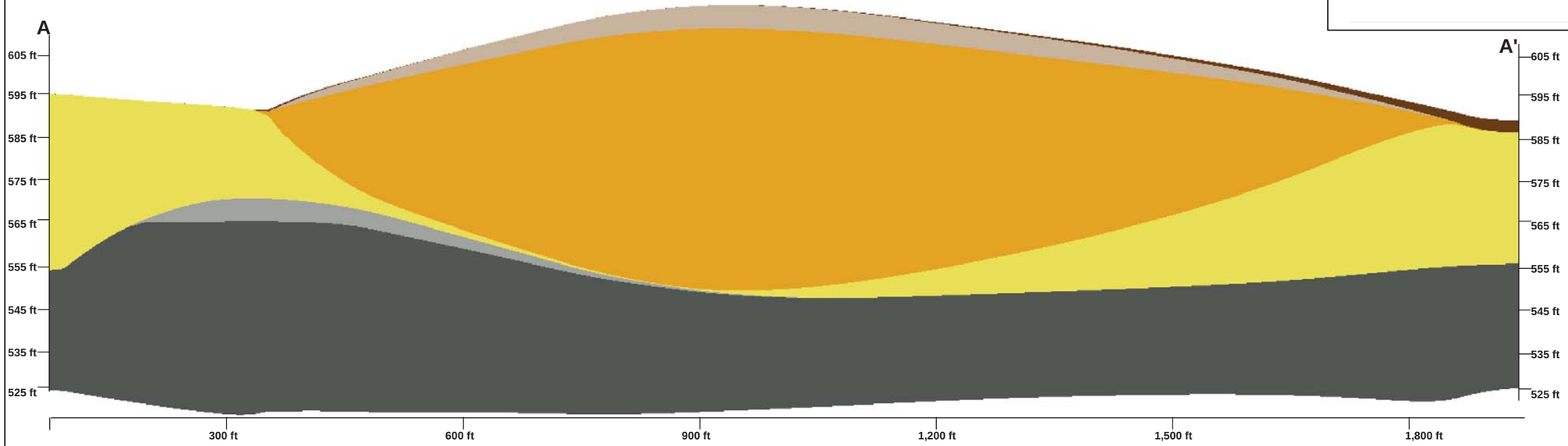
As presented in Section 1, the surrounding area is heavily industrialized and includes numerous environmentally impacted sites

A water well survey was completed that included private, municipal, and industrial water wells within a 1-mile radius (Appendix C). No private drinking water wells were identified within that radius of the Site. The closest water well is 1,350 feet to the south, across the river. The river is impacted by upstream sources and is subject to ongoing remediation.

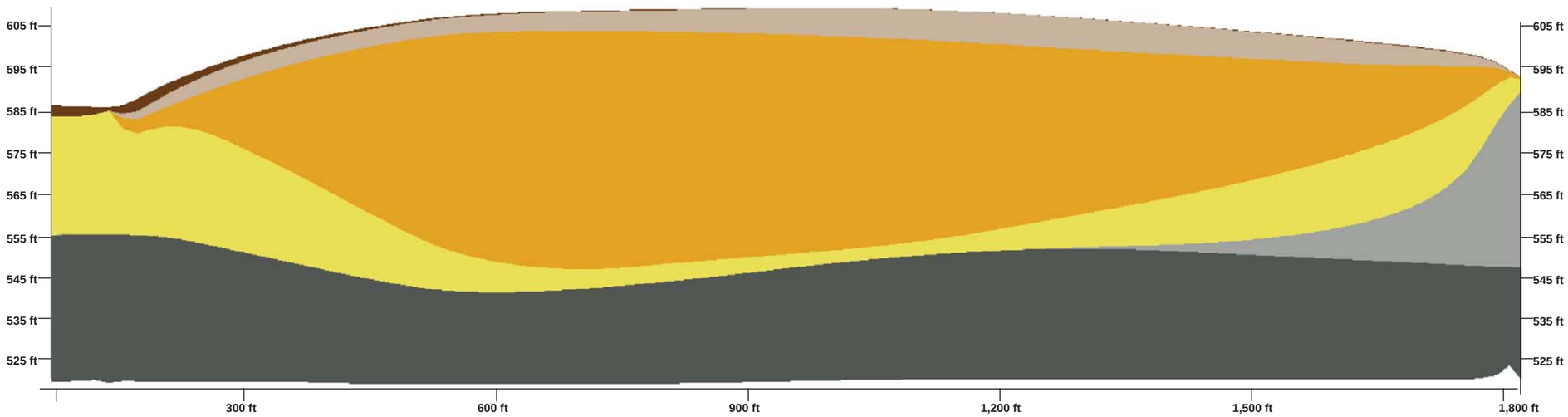
Appendix I presents a land use memorandum, which includes an evaluation of past, current and anticipated future land uses, groundwater use determinations, and other applicable information.



Cross Section A-A'



Cross Section B-B'



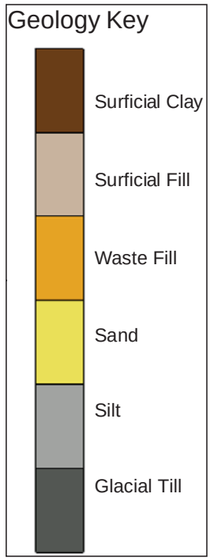


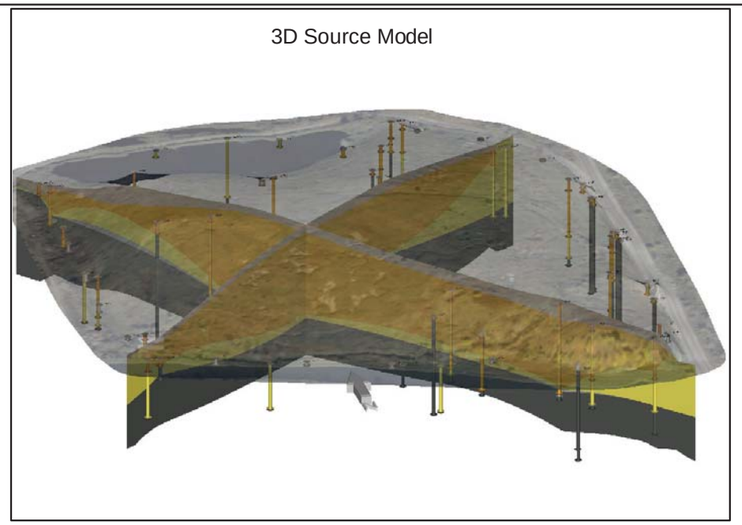
FIGURE 3-1

FENCE DIAGRAM/CROSS SECTION

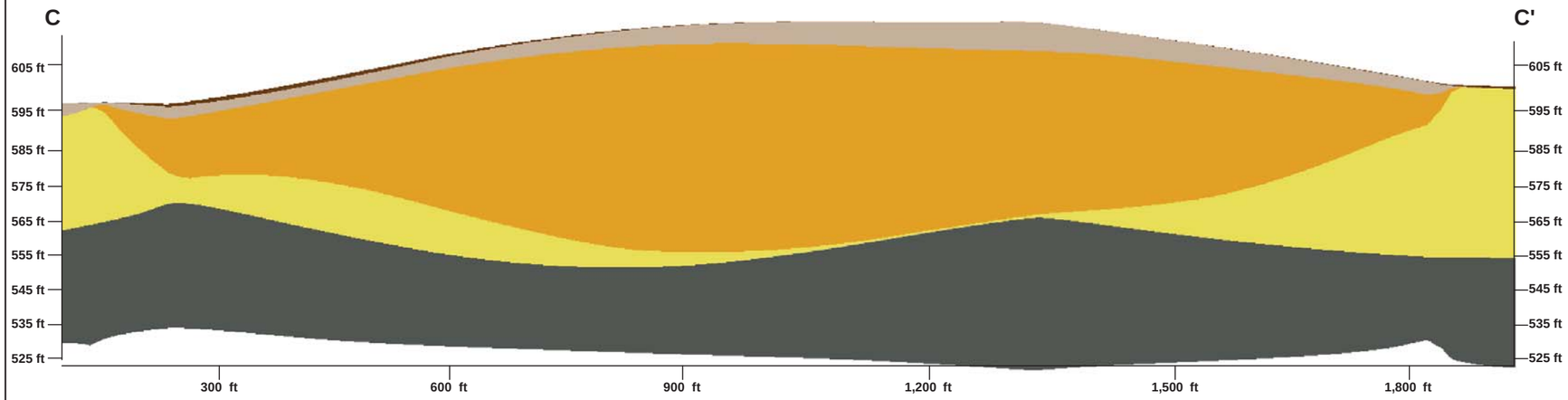
PARSONS
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

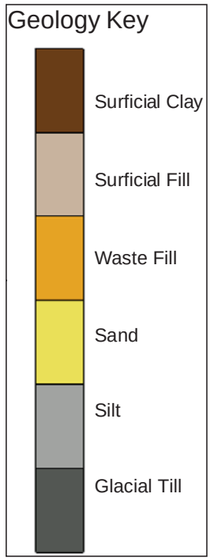
449595	DATE: 6/22/2018	DWN: CO	CHKD:	

Path: D:\GIS\Gary\Landfill\MXD\2017\Cross Section_A_B.mxd



Cross Section C-C'





Cross Section D-D'

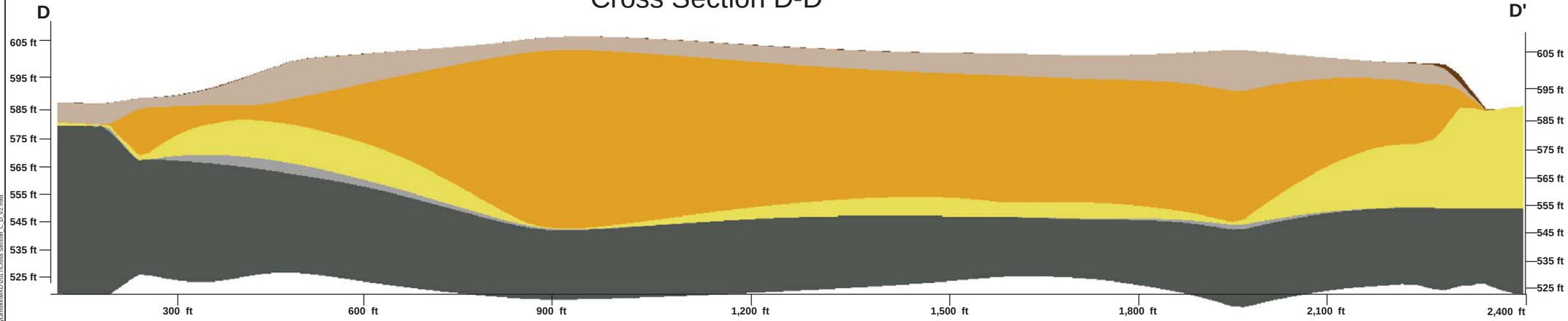


FIGURE 3-2

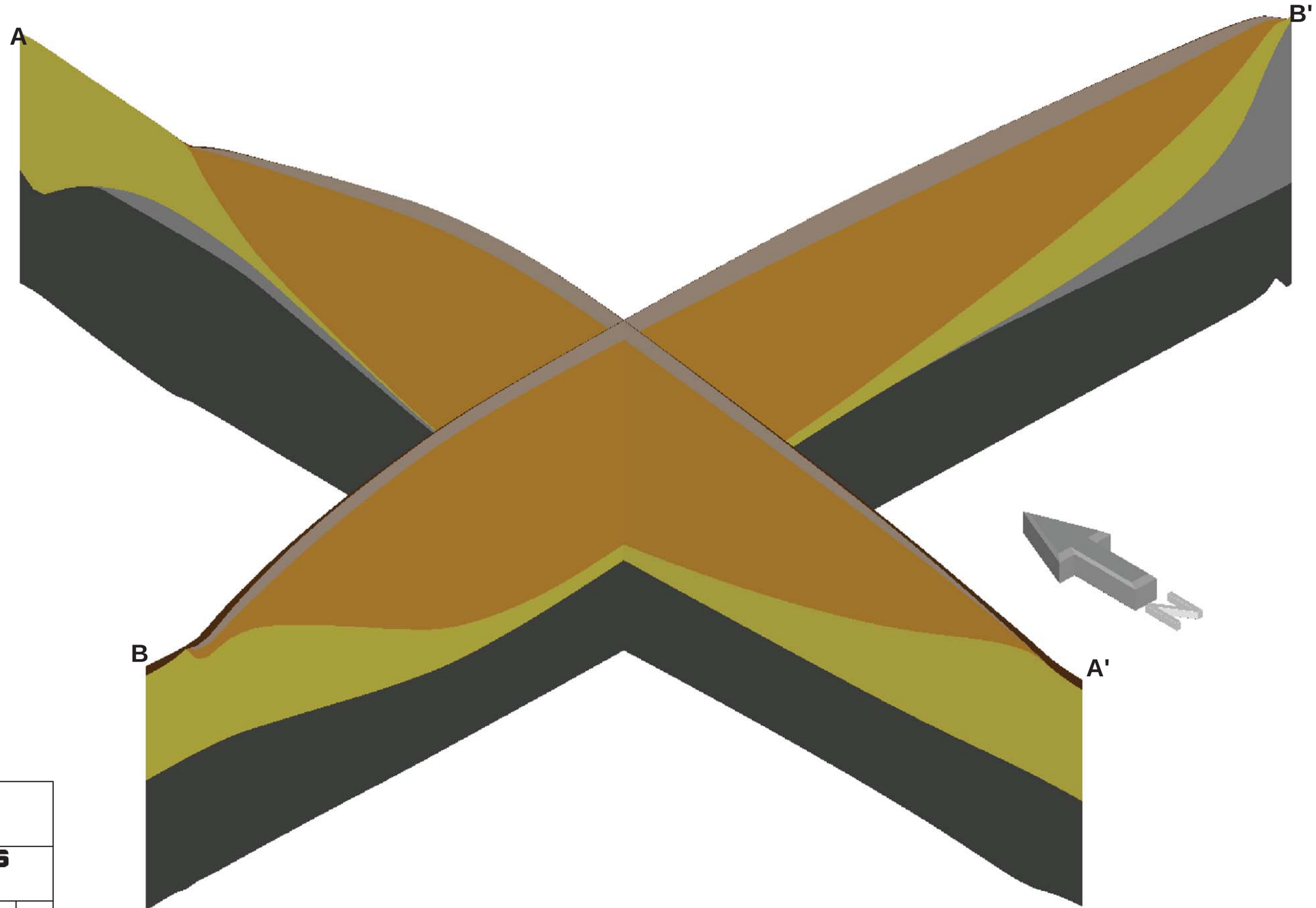
FENCE DIAGRAM/CROSS SECTION

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

PROJECT #:	DATE:	DWN:	CHKD:
449595	6/22/2018	CO	

Path: D:\GIS\Gary\Landfill\MXD\2017\Cross Section_C-D_V2.mxd



Geology Key

- Surficial Clay
- Surficial Fill
- Waste Fill
- Sand
- Silt
- Glacial Till

FIGURE 3-3

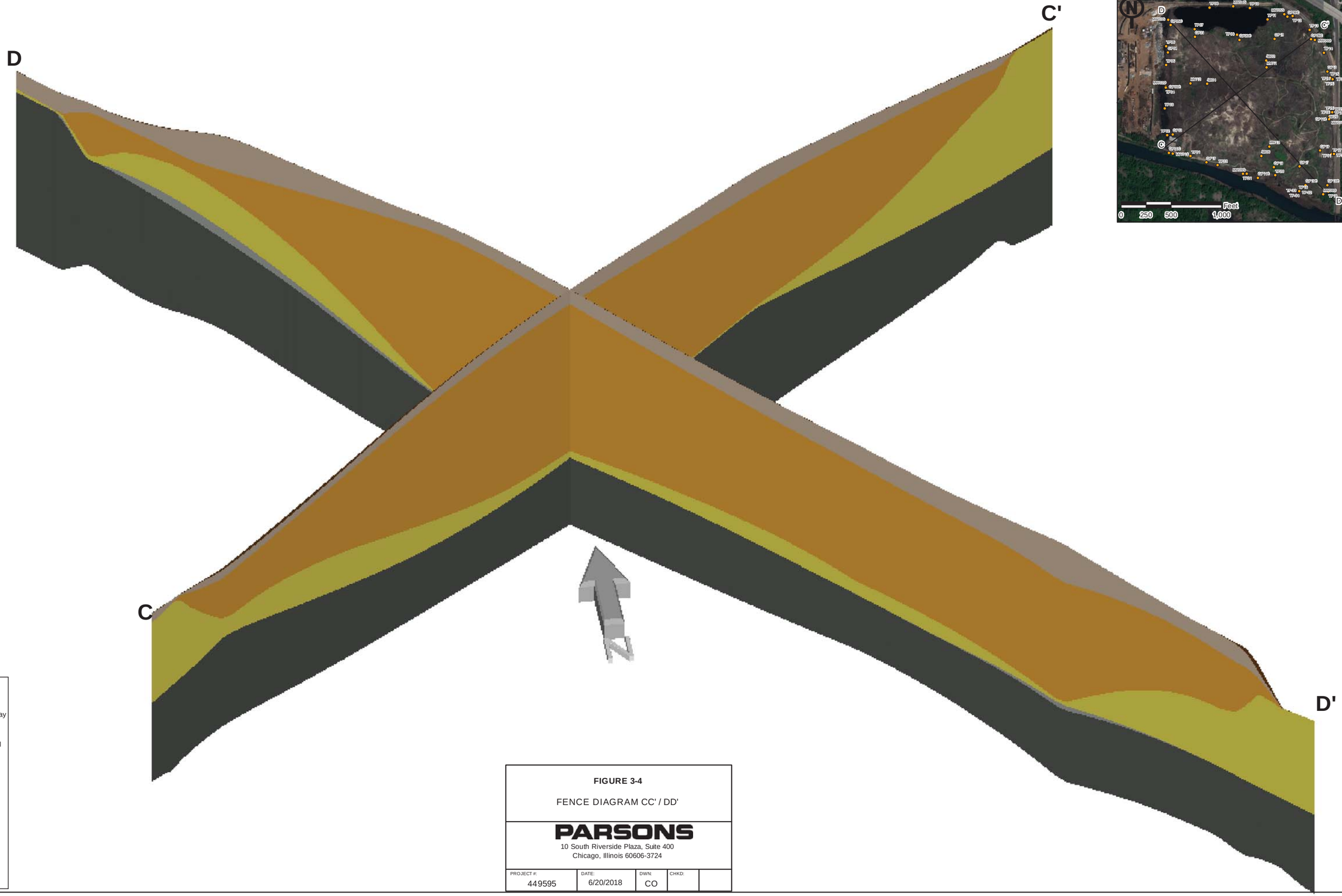
FENCE DIAGRAM AA' / BB'

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

PROJECT #:	DATE:	DWN:	CHKD:
449595	6/20/2018	CO	

Path: D:\GIS\Gary\Landfill\MXD\2017\N_S_E_W_sections.mxd



Geology Key

- Surficial Clay
- Surficial Fill
- Waste Fill
- Sand
- Silt
- Glacial Till

FIGURE 3-4

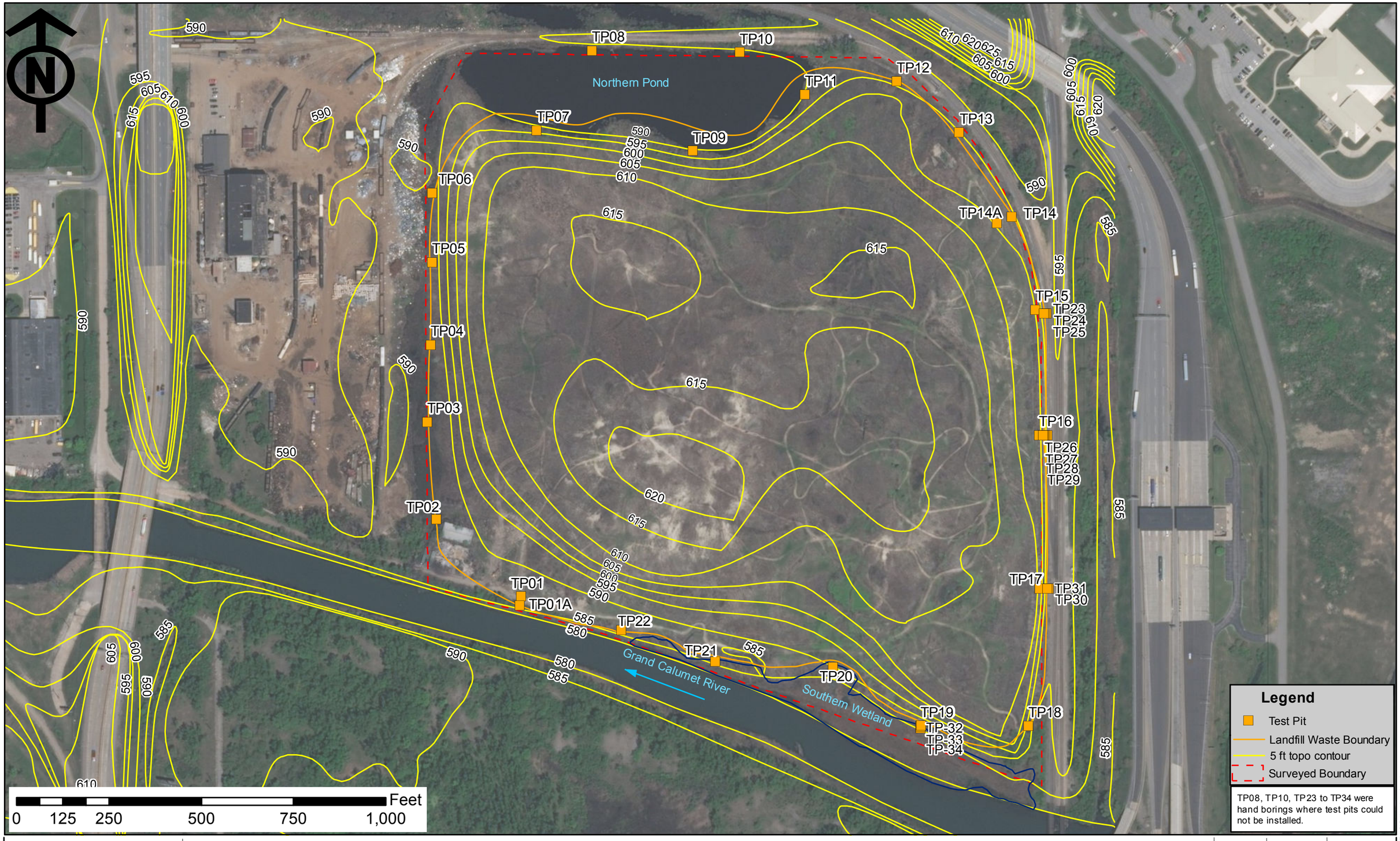
FENCE DIAGRAM CC' / DD'

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

PROJECT #:	DATE:	DWN:	CHKD:
449595	6/20/2018	CO	

Path: D:\GIS\Gary\Landfill\MXD\2017\SW_NE_NW_SE_sections.mxd



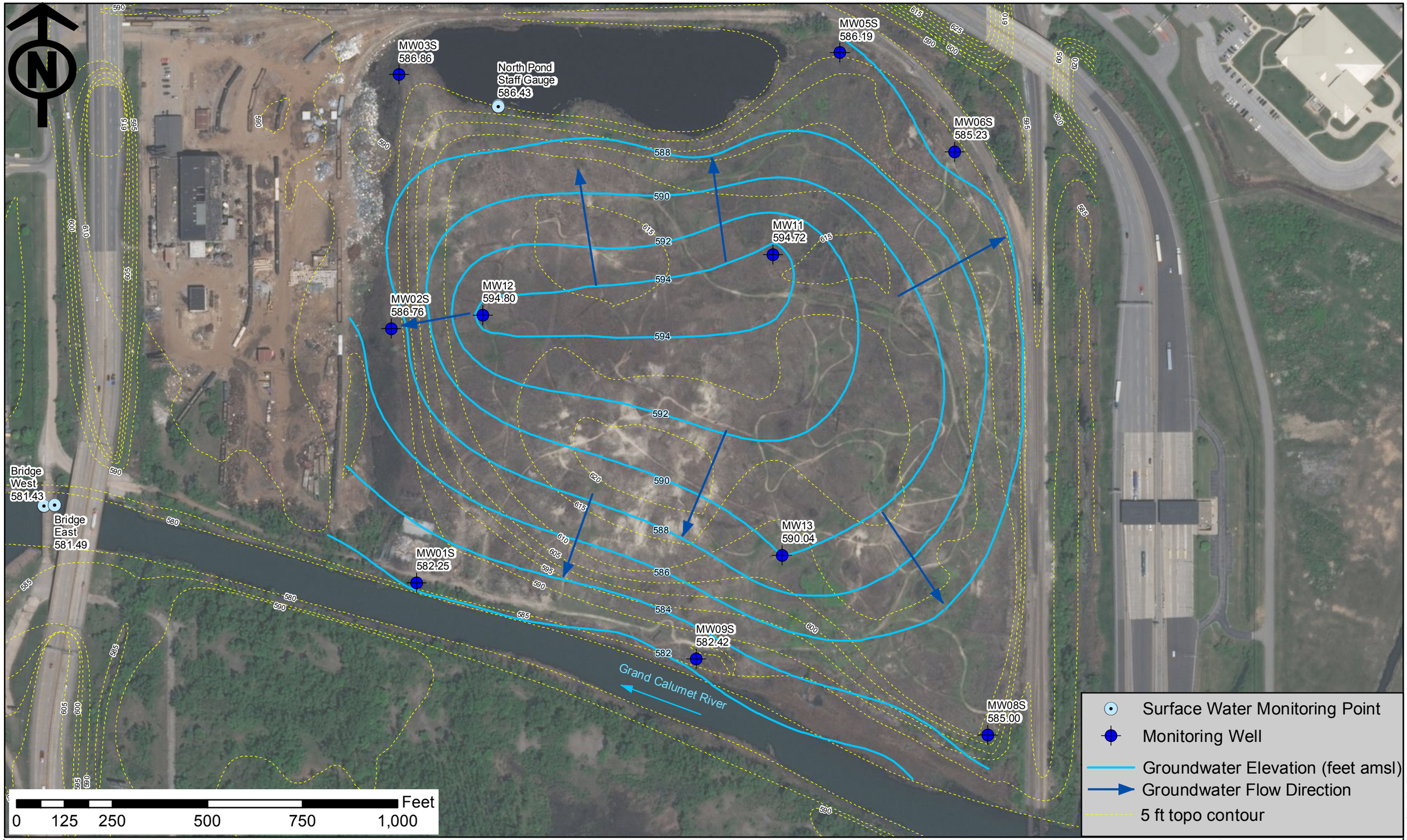
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-5
Waste Delineation
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: TestPitDelineation_v2.mxd		

D:\GIS\Gary\Landfill\AOI\2017\TestPitDelineation_v2.mxd



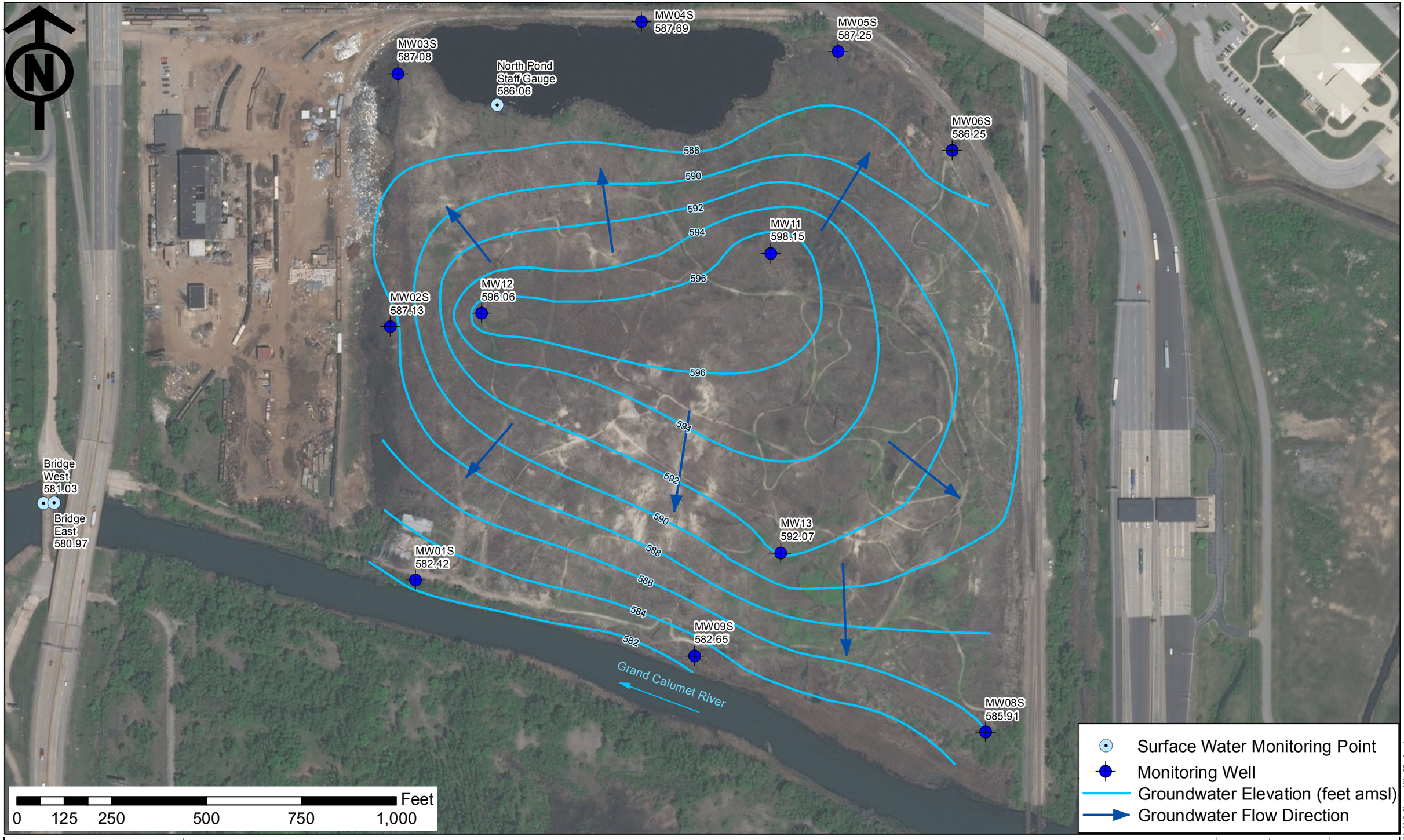
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-6
Shallow Groundwater Potentiometric Surface Map (December 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	6/22/2018	
Revision: 6/22/2018		Parsons Project No. 449595
File Name: 12_2016_Shallow_MW_GP_v1.mxd		

D:\GIS\Gary\Landfill\MXD\2017\12_2016_Shallow_MW_GP_v1.mxd



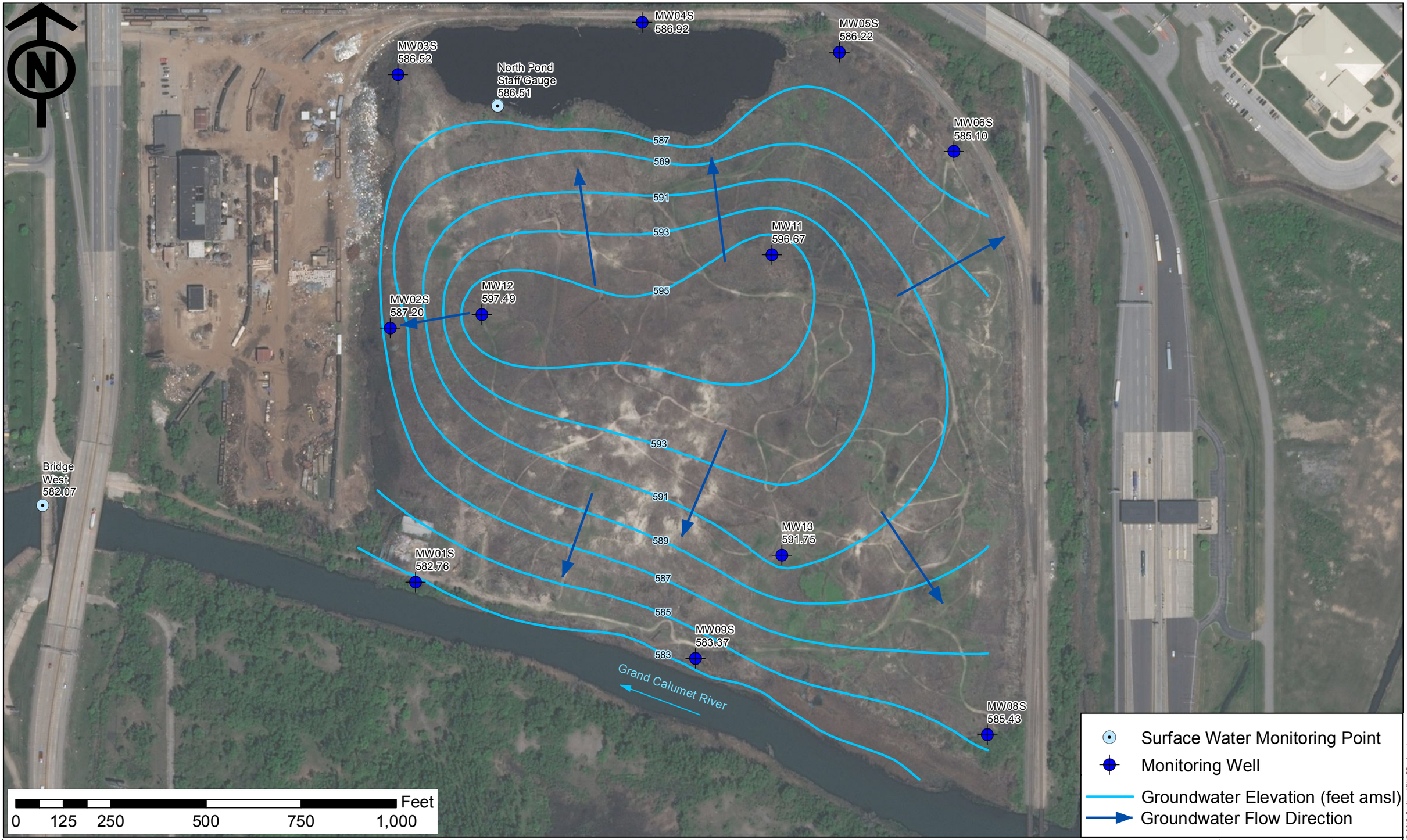
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-7
Shallow Groundwater Potentiometric Surface Map (March 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/5/2018	
Revision: 2/5/2018		Parsons Project No. 448411.04000
File Name: 03_2017_Shallow_MW_GP_v6.mxd		

D:\GIS\GaryLandfill\MXD\2017\03_2017_Shallow_MW_GP_v6.mxd



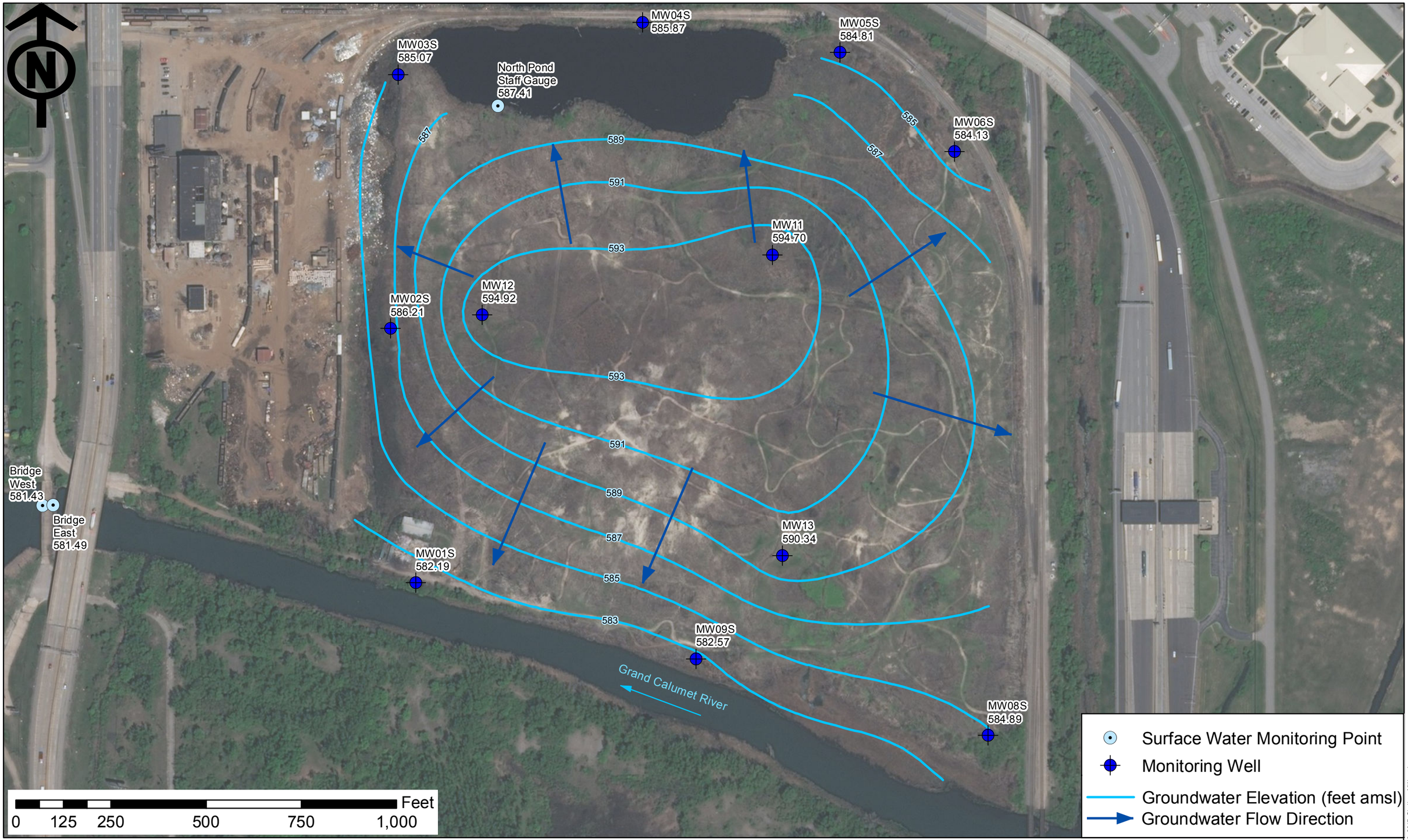
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-8
Shallow Groundwater Potentiometric Surface Map (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/5/2018	
Revision: 2/5/2018		Parsons Project No. 449595
File Name: 07_2017_Shallow_MW_GP_v1.mxd		

D:\GIS\GaryLandfill\MXD\2017\07_2017_Shallow_MW_GP_v1.mxd



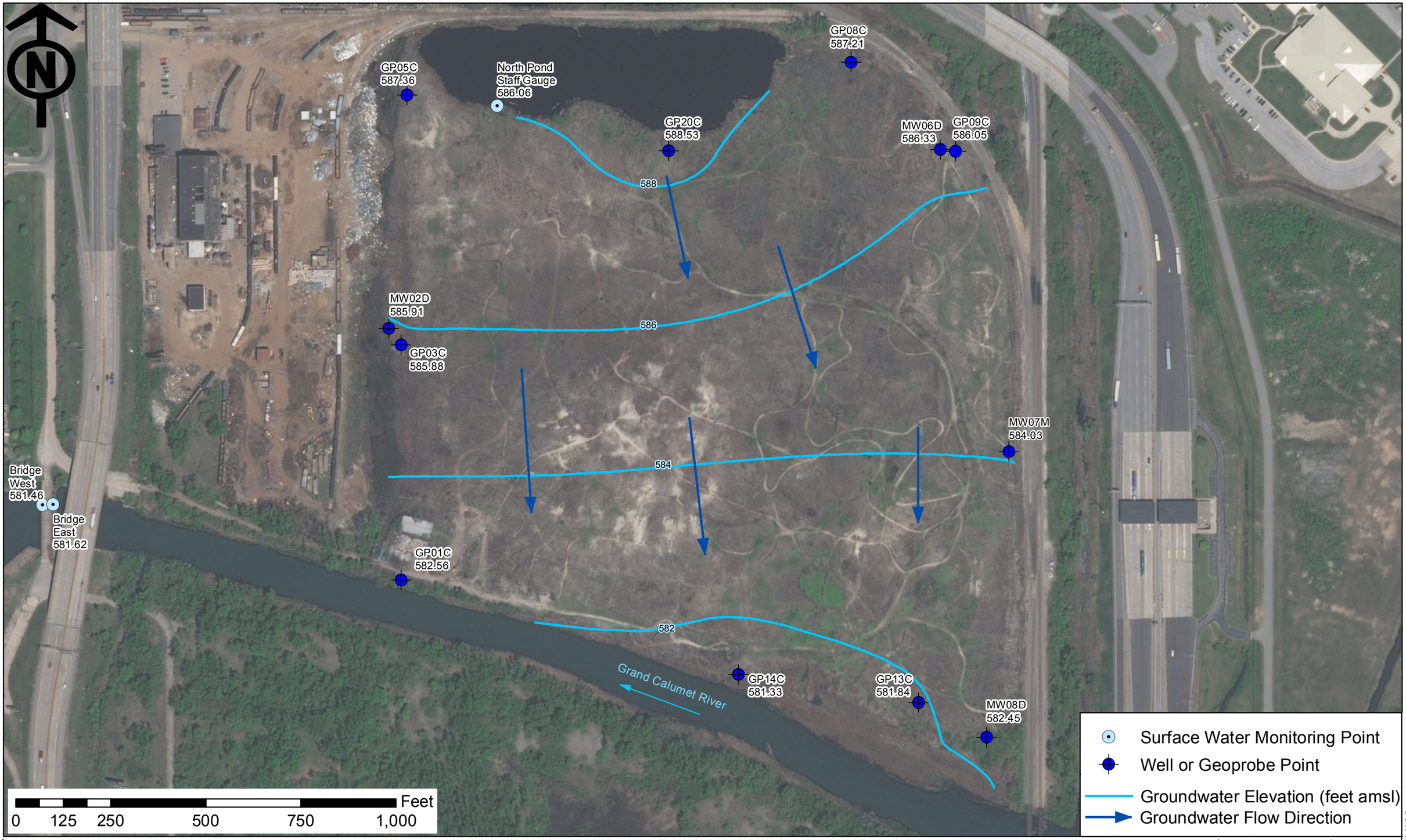
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-9
Shallow Groundwater Potentiometric Surface Map (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/5/2018	
Revision: 2/5/2018		Parsons Project No. 449595
File Name: 10_2017_Shallow_MW.mxd		

D:\GIS\GaryLandfill\MXD\20171\0_2017_Shallow_MW.mxd



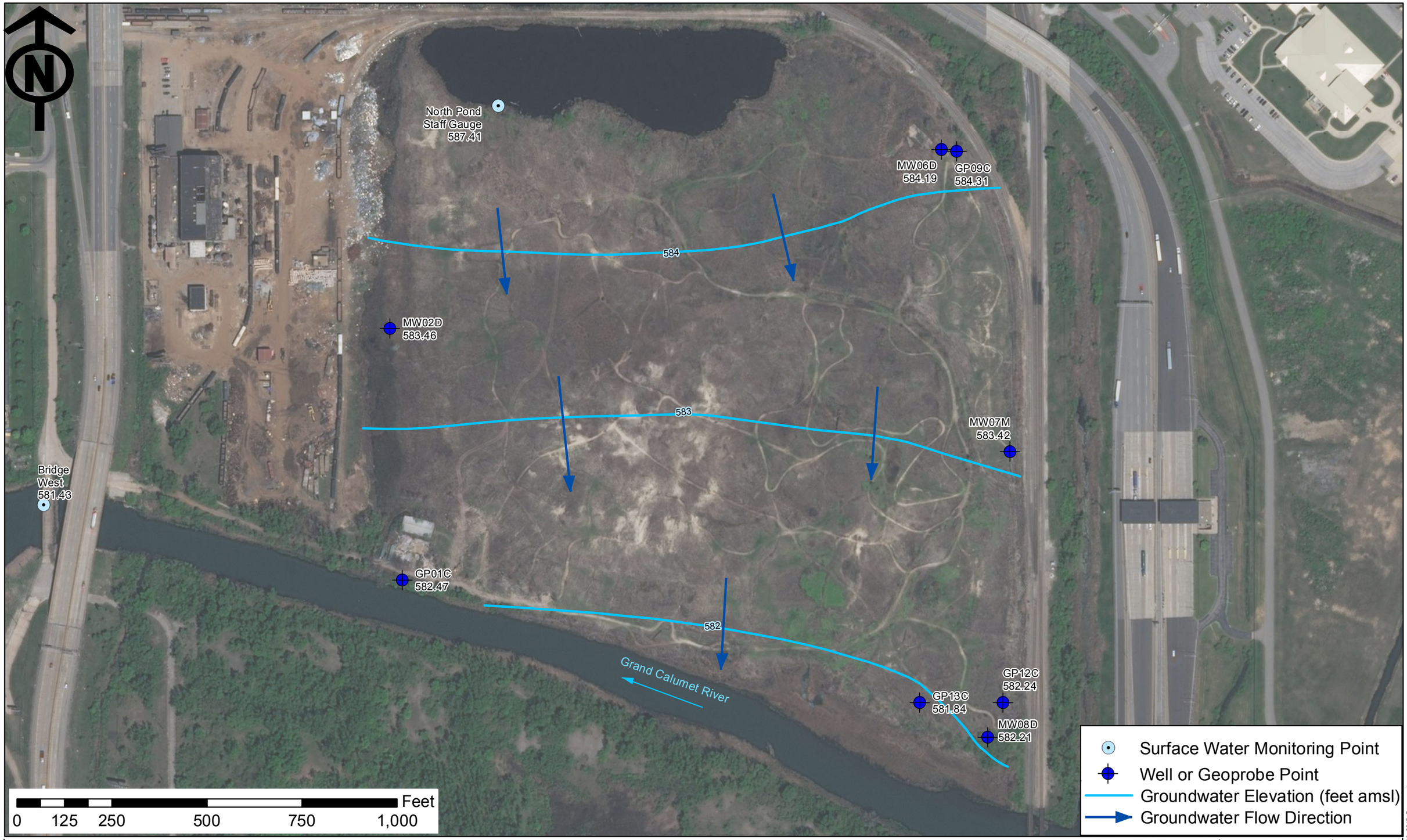
PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-10
Deep Groundwater Potentiometric Surface Map (March 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/5/2018	
Revision: 2/5/2018		Parsons Project No. 449595
File Name: 03_2017_Deep.mxd		

D:\GIS\GaryLandfill\MXD\201703_2017_Deep.mxd



PARSONS

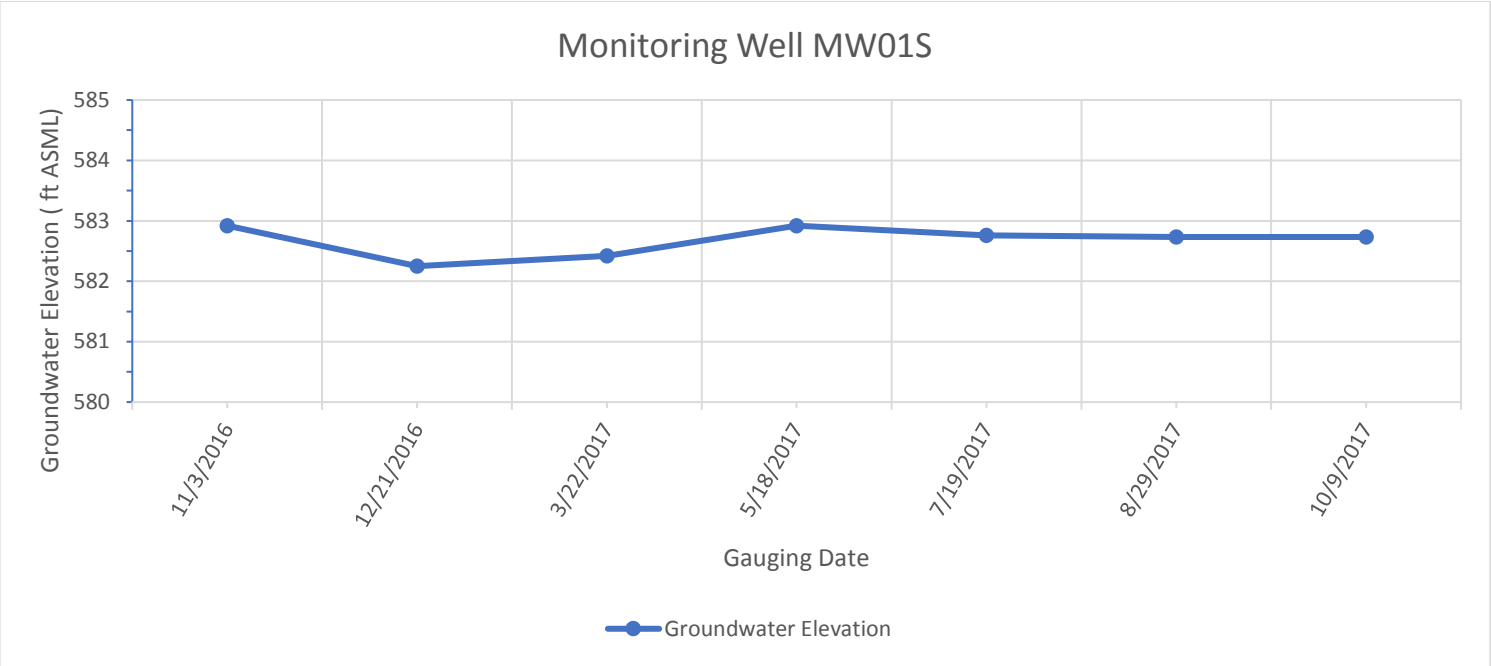
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 3-11
Deep Groundwater Potentiometric Surface Map (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/5/2018	
Revision: 2/5/2018		Parsons Project No. 449595
File Name: 10_2017_Deep.mxd		

D:\GIS\GaryLandfill\MXD\2017\10_2017_Deep.mxd

FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



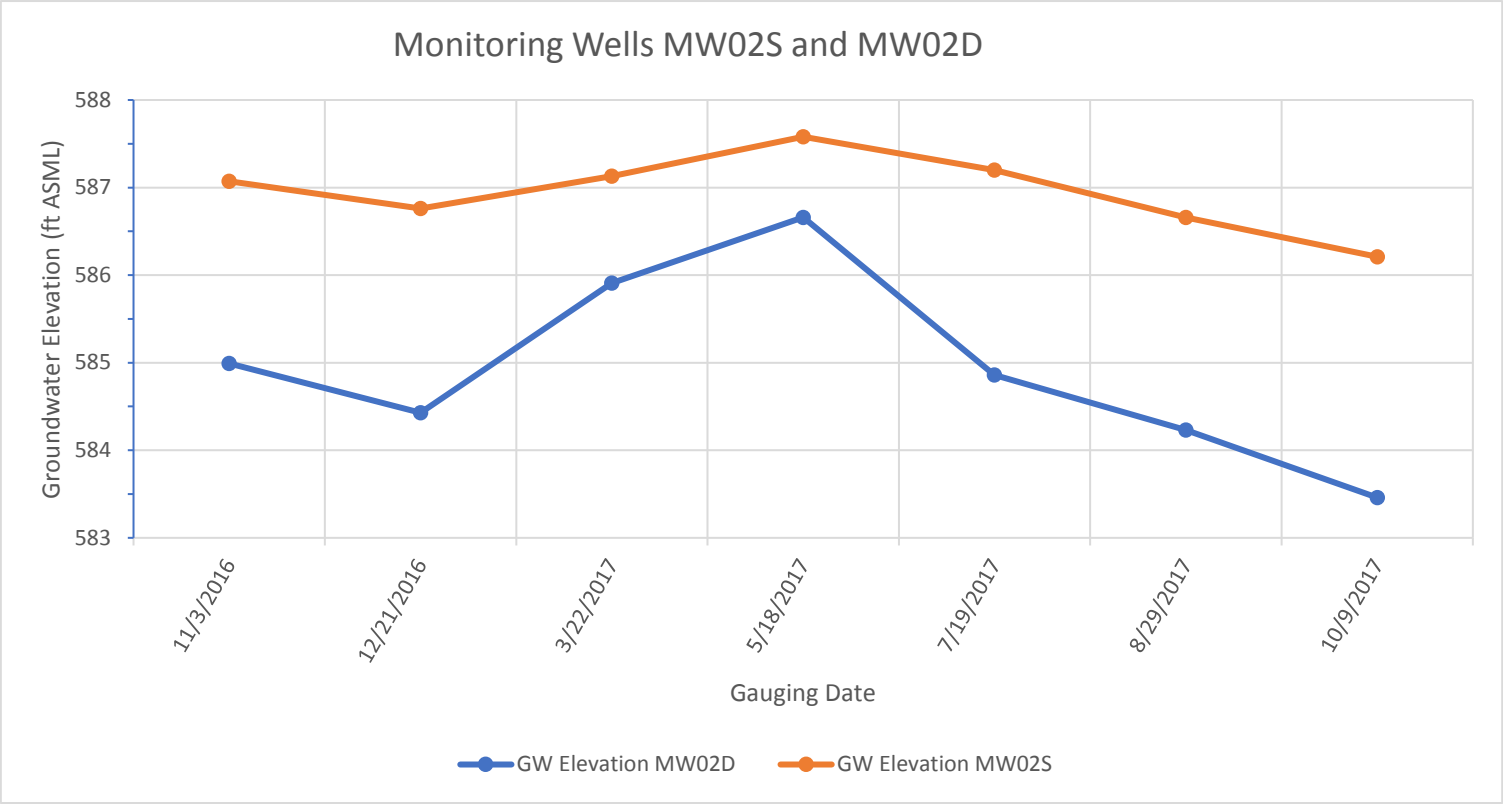
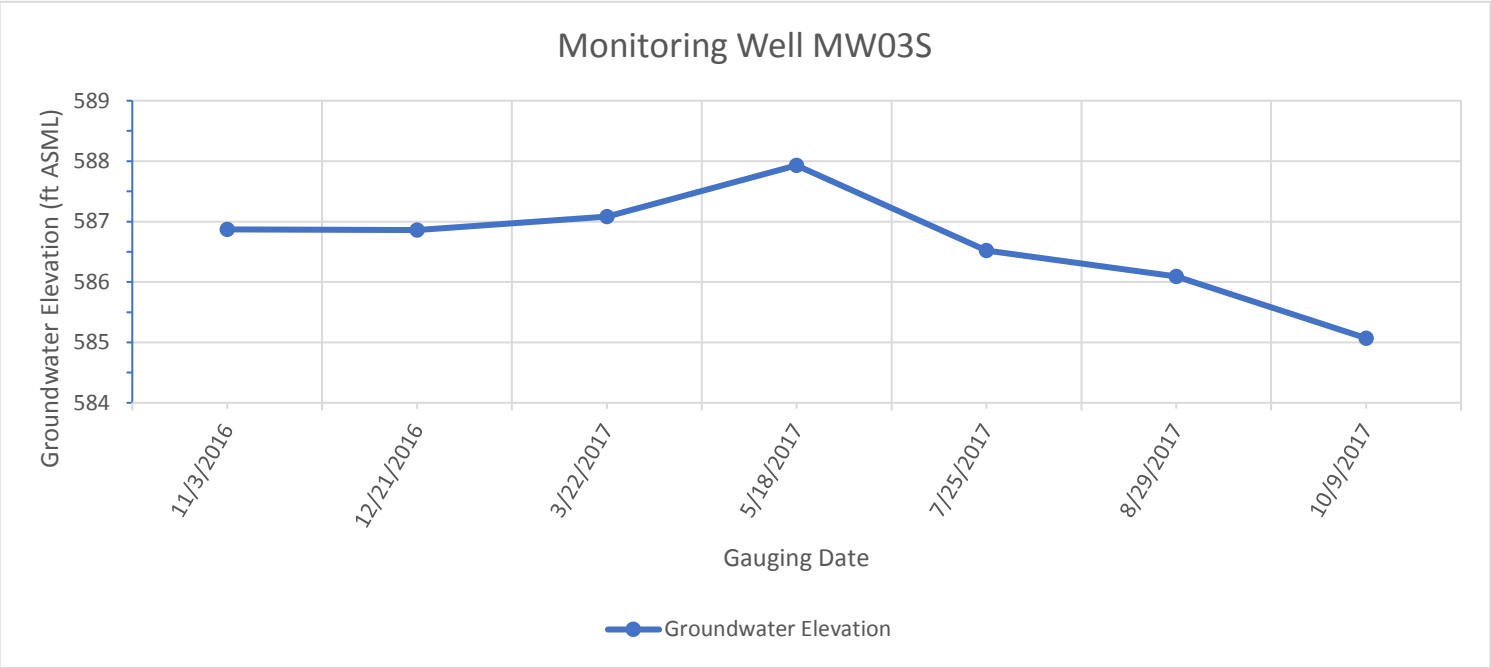


FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



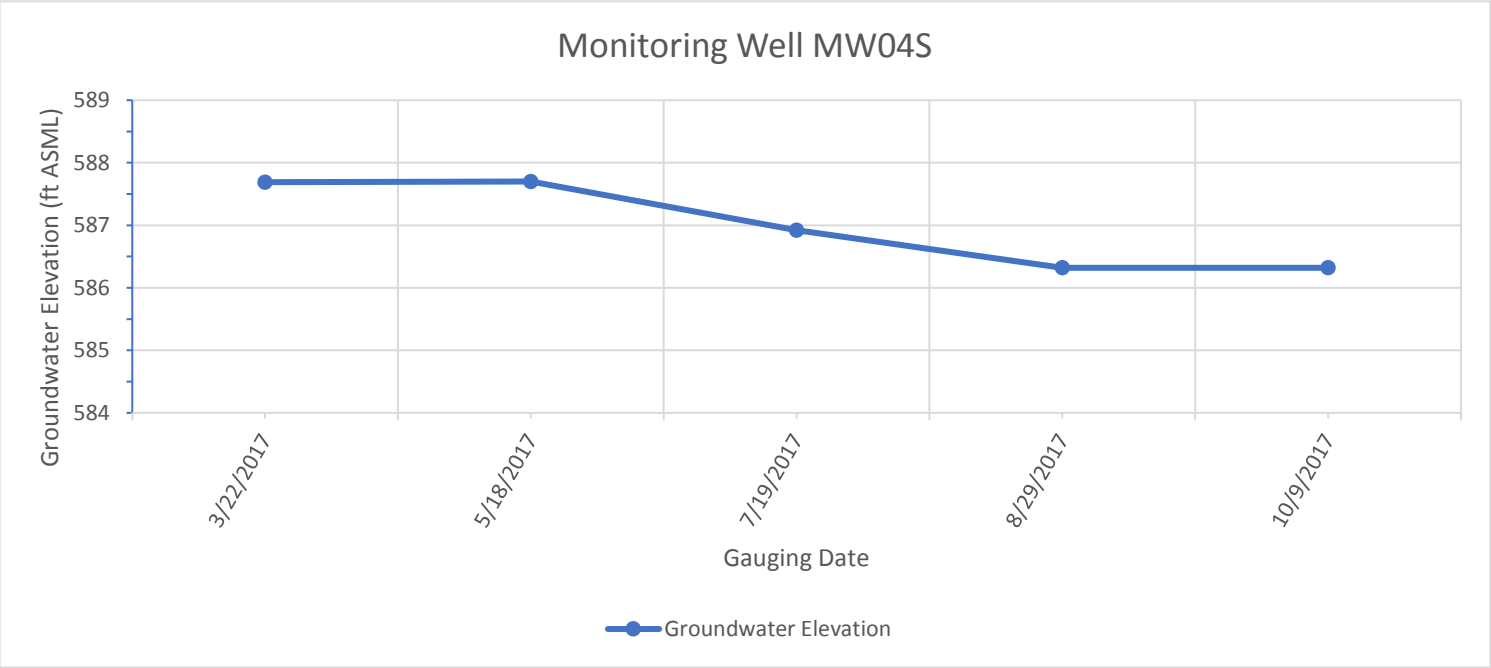
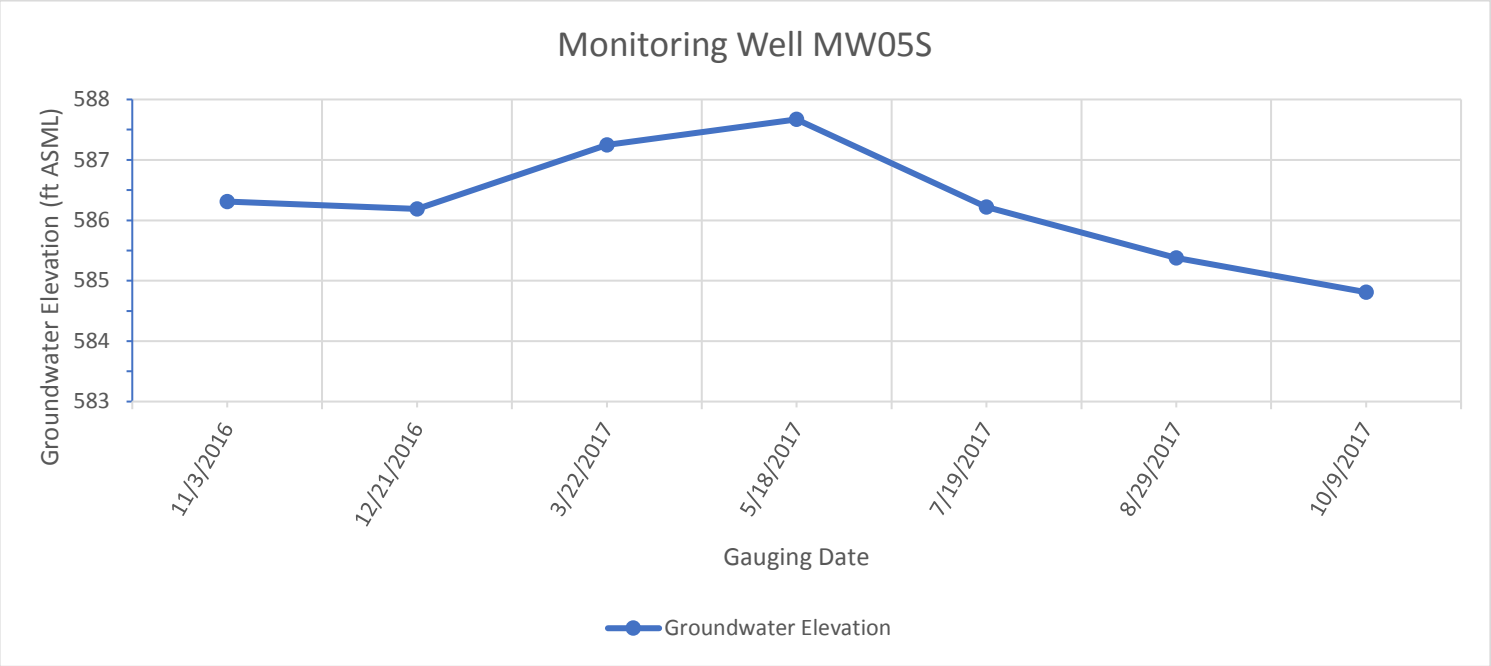


FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



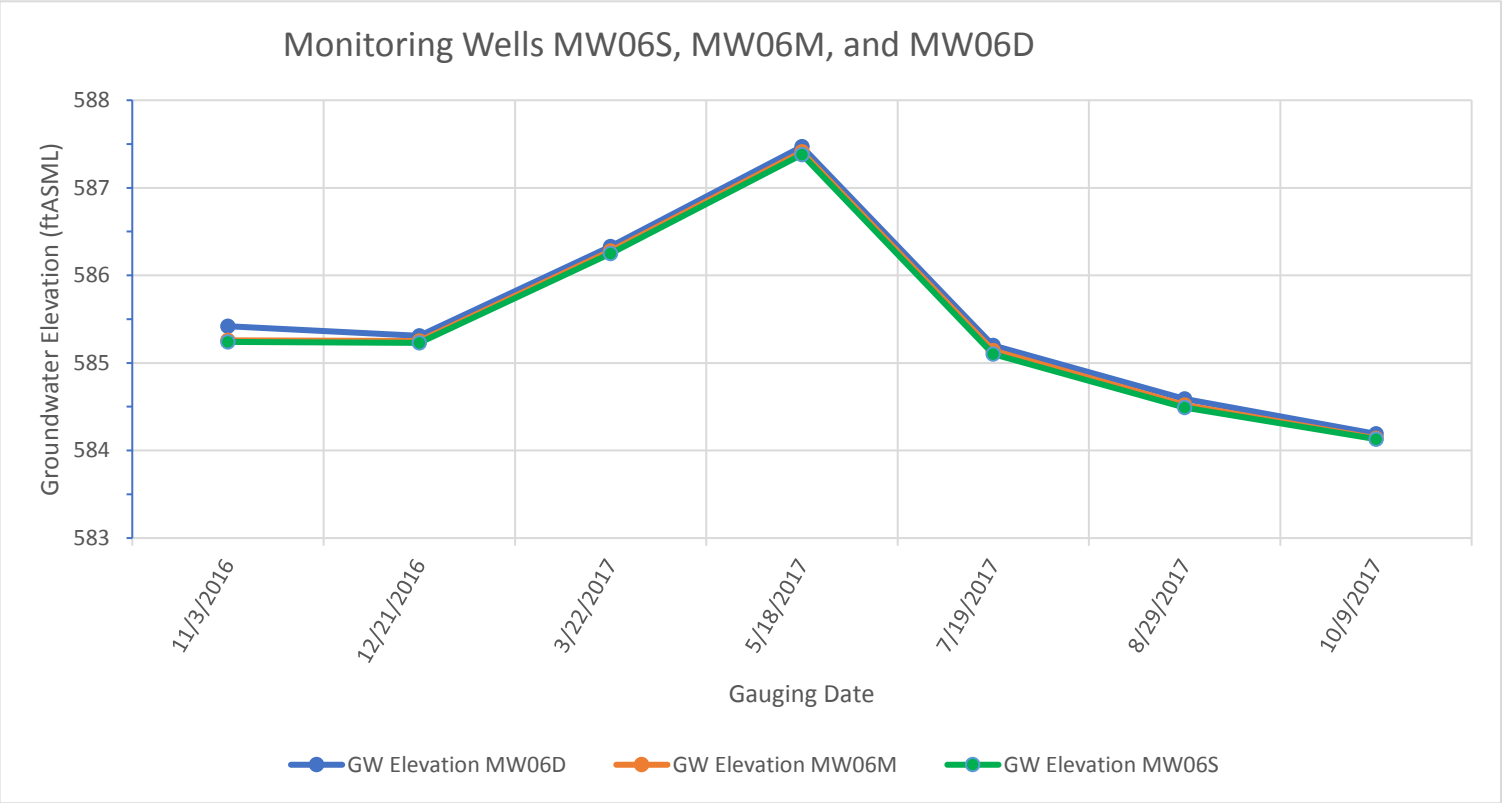
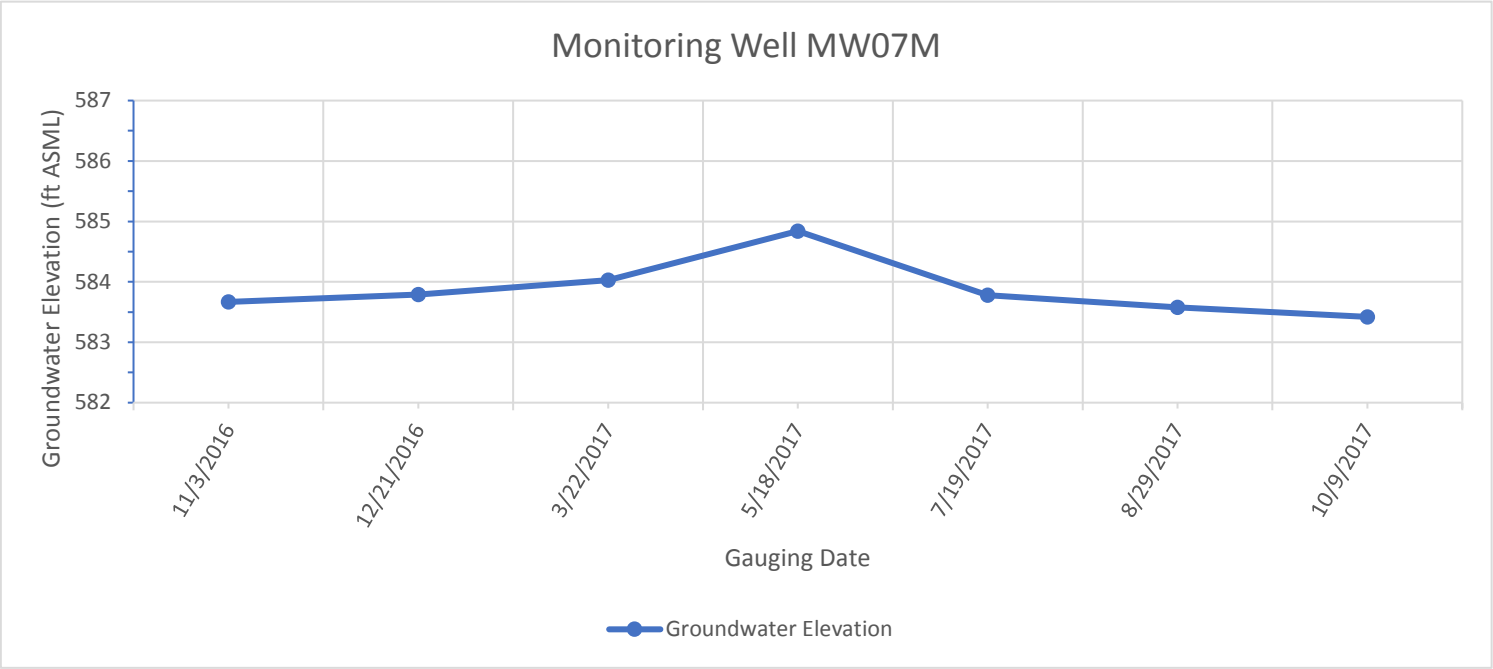


FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



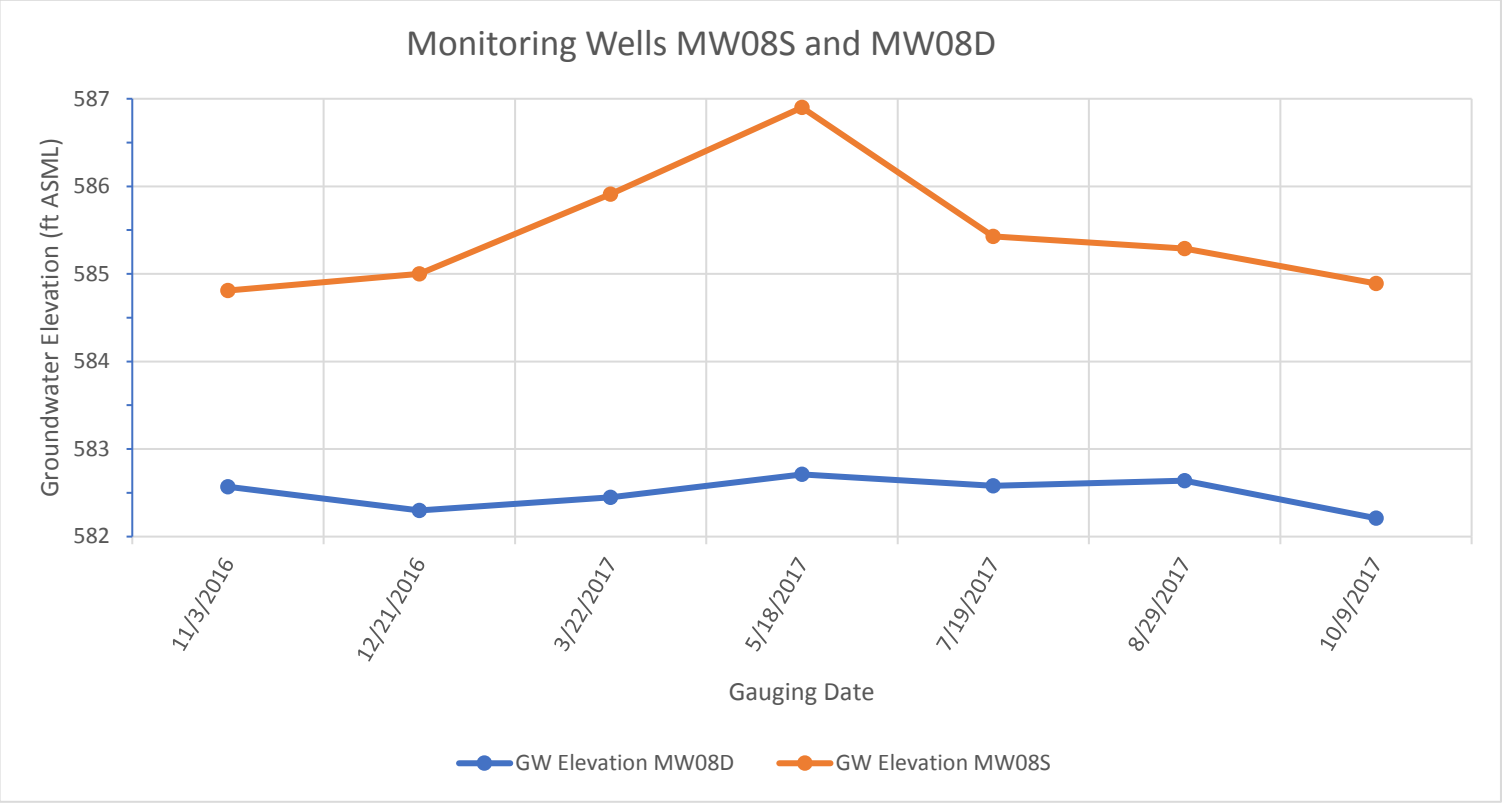
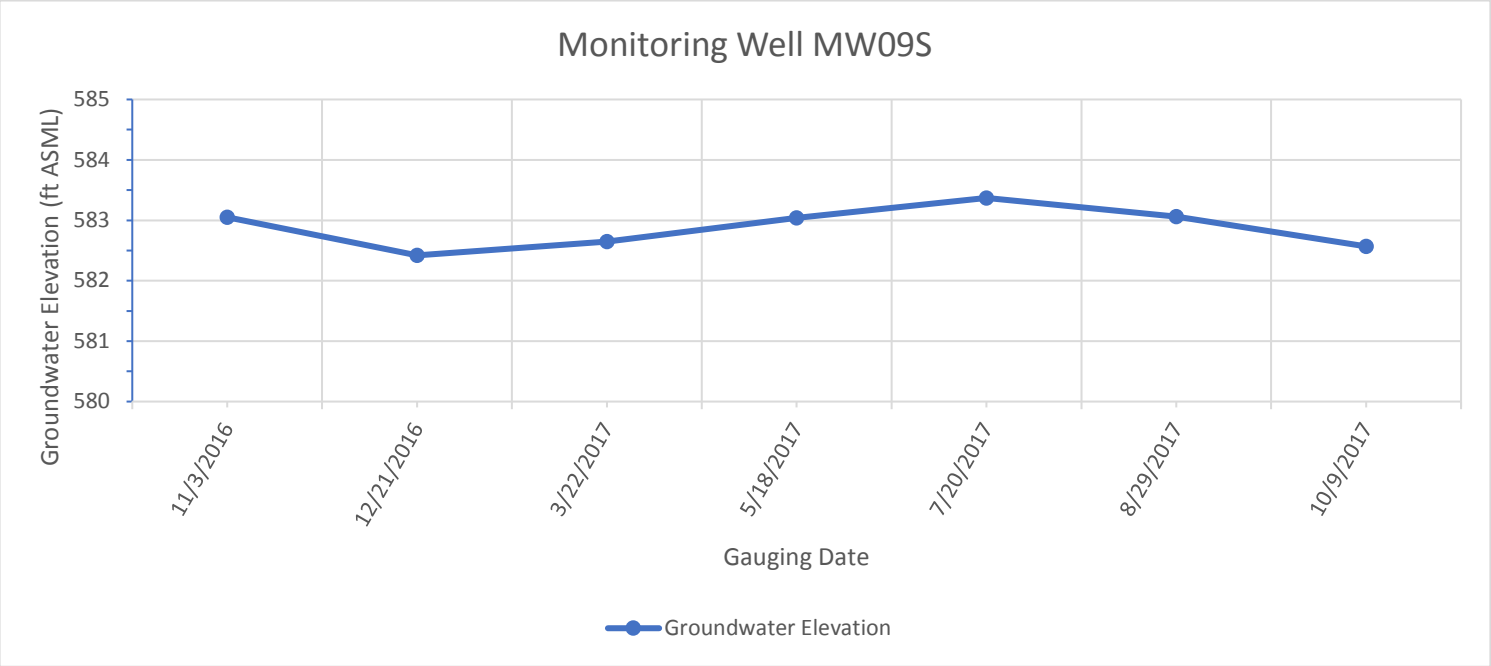


FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



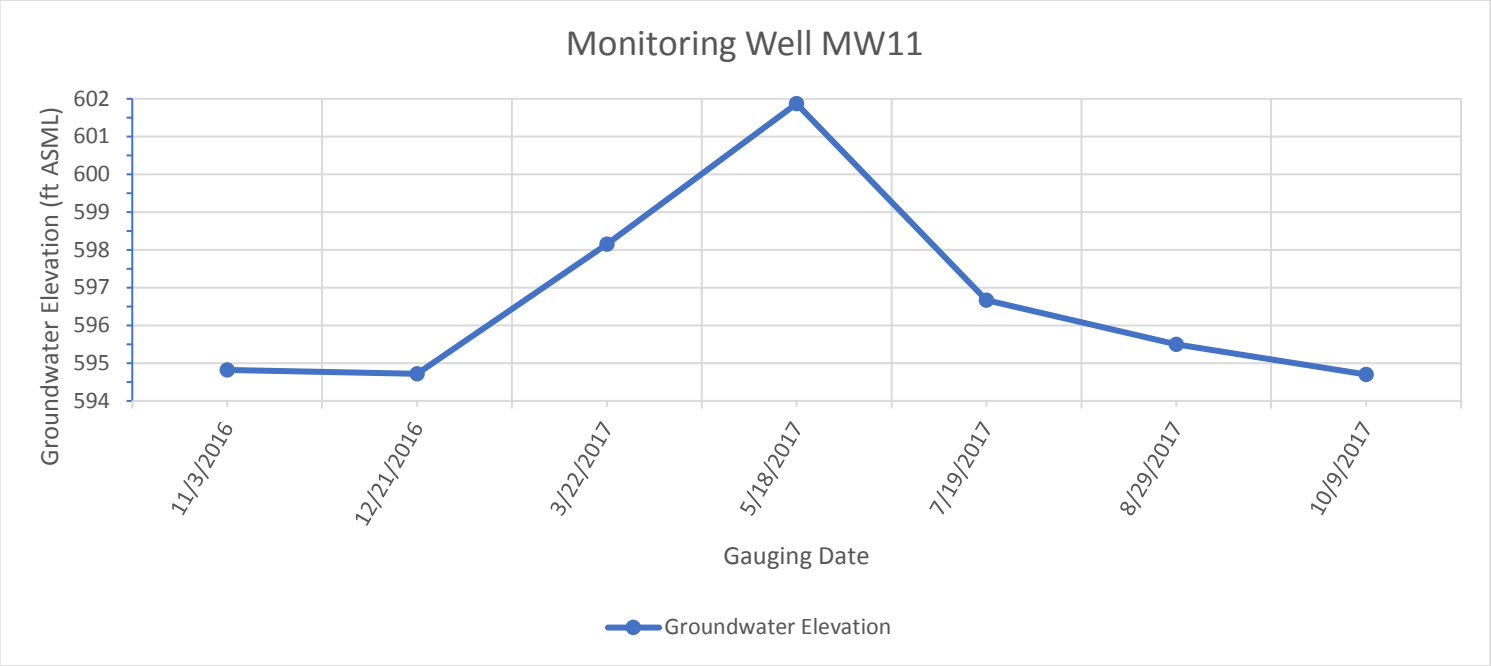
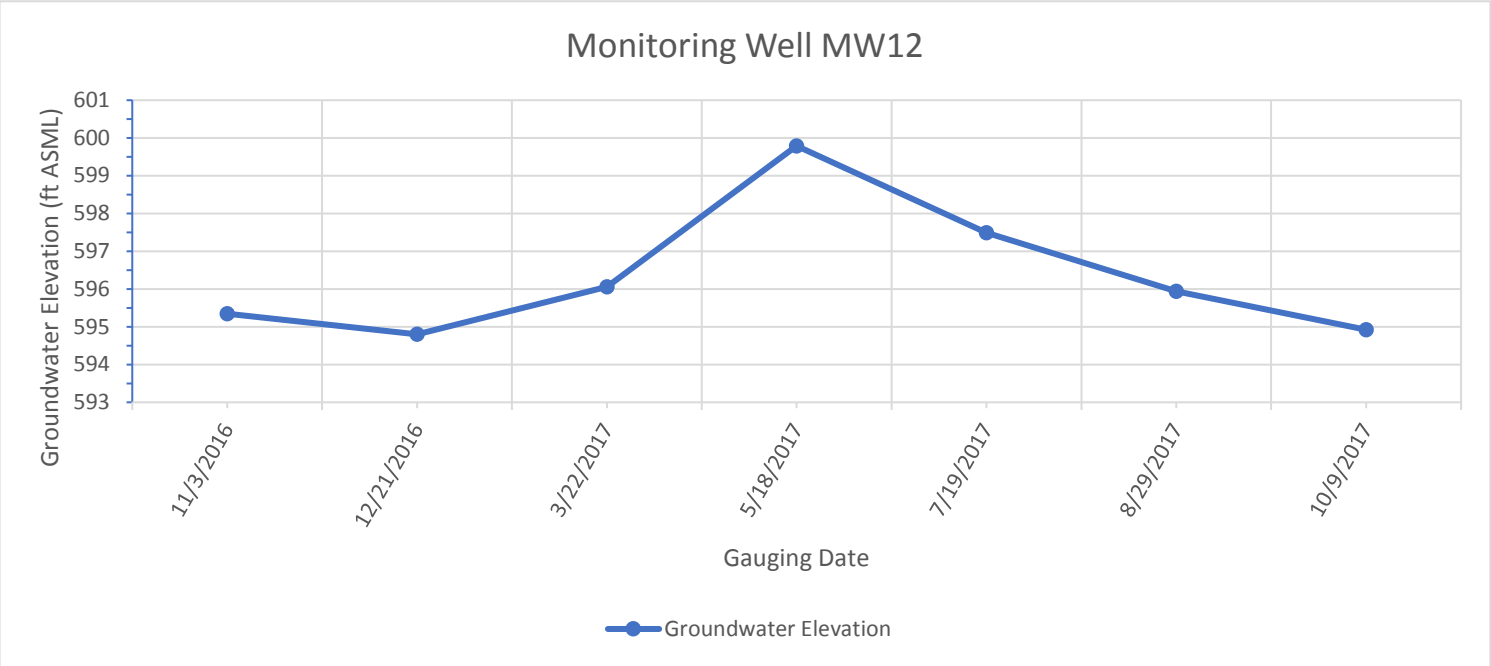


FIGURE 3-12
HYDROGRAPHS OF MONITORING WELLS



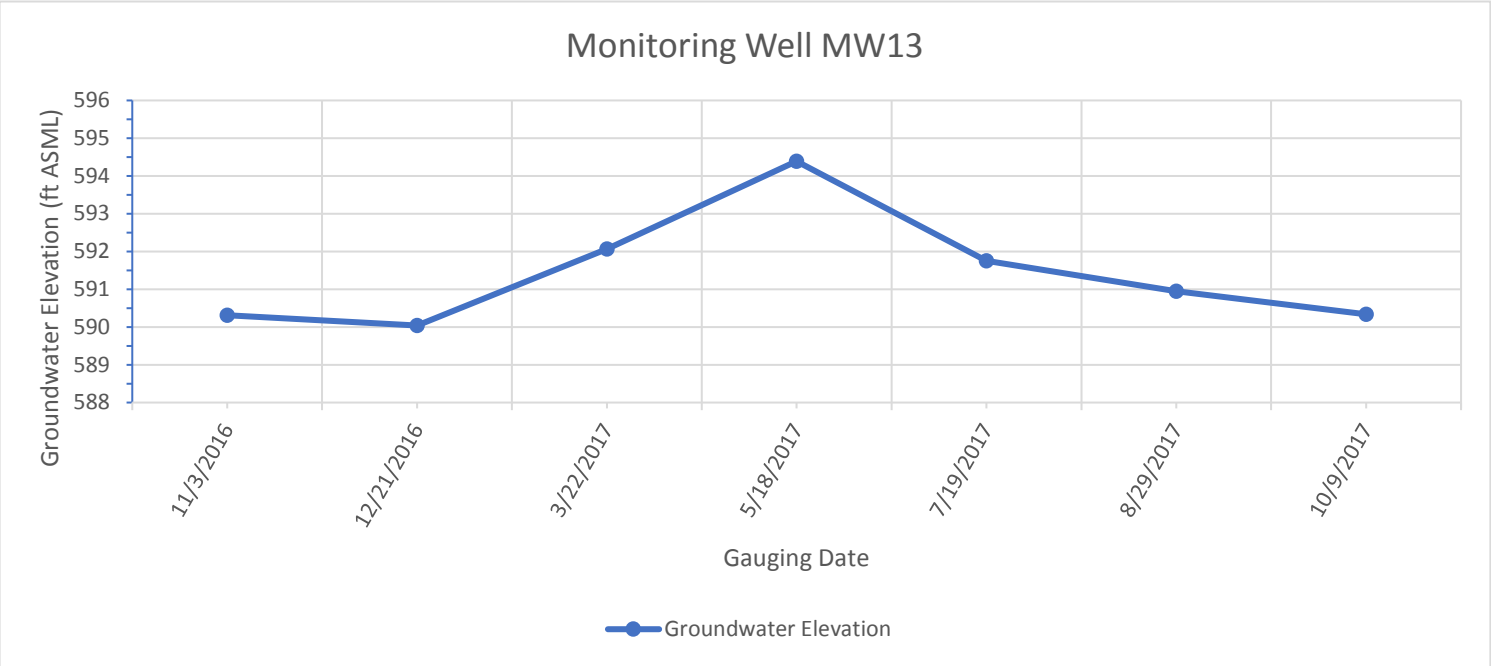


Table 3-1
2016 Geotechnical Testing Results

			Sample ID	GP02-160714	GP04-160713	GP10-160713	GP17-160713	GP19-160713	GT01-160714	GT02-160714	GT03-160714	GT04-160715
			Location	GP02	GP04	GP10	GP17	GP19	GT01	GT02	GT03	GT04
			SDG	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1
			Sample Type	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR
			Date Sampled	7/14/2016	7/13/2016	7/13/2016	7/13/2016	7/13/2016	7/14/2016	7/14/2016	7/14/2016	7/15/2016
			Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Method	Test	CAS No	Units									
Unified Soil Classification System (USCS)				SP	CL	GM		GM	SW-SC	SM	SM	SM
D2216	Moisture Content	MOIST_CONT	%	31.6	24.8	20.3	11.1	146.7	34.4	12.1	39.2	10.9
D2487	Group Name	GN	none	0	0	0		0	0	0	0	0
D2487	Group Symbol	GS	none	0	0	0		0	0	0	0	0
D2937	In Place Density	DENSITY_IP	g/cc	1.17	1.38	1.06	1.07	0.327	0.994	0.837	1.04	1.39
D2974	Fractional Organic Carbon	FOC	%	2.6	1.4	6.8	7.2	34.9				
D422	Clay	GS-CLAY	%	0.1	46.9	3.1	21.9	5.2	3.3	6	2.9	2.7
D422	Coarse Sand	GS-SANDC	%	32.9	0	9.2	9	11.4	19.3	10.9	19.6	11.8
D422	Fine Sane	GS-SANDF	%	8.9	3.8	9.5	11.1	13.8	25.5	39.3	16.4	37
D422	Gravel	GS-GRAVEL	%	49.1	0	59.6	27	49.6	29.4	16.1	16.1	23.2
D422	Hydrometer Reading 1	GS-HYD1PP	%	0.2	19.7	1.2	11.5	0.2	0.06	7.6	18	3.8
D422	Hydrometer Reading 2	GS-HYD2PP	%	0.5	4.1	2.8	3.6	7.9	2.3	8.1	4.9	2.4
D422	Hydrometer Reading 3	GS-HYD3PP	%	0	11	3.6	4.3	2	2.3	2.3	6.6	1.2
D422	Hydrometer Reading 4	GS-HYD4PP	%	0	6.8	2.1	3	1	0.8	2.3	2.5	1.2
D422	Hydrometer Reading 5	GS-HYD5PP	%	0.5	6.9	2.9	3.6	2	0.8	1.2	2.5	1.2
D422	Hydrometer Reading 6	GS-HYD6PP	%	0.5	12.3	2.9	6.1	3	2.3	2.9	2.5	2.4
D422	Hydrometer Reading 7	GS-HYD7PP	%	0	9.6	0.7	5.4	1	1.5	2.3	0	0.2
D422	Medium Sand	GS-SANDM	%	7.7	0.8	6	5	6.9	16.3	6.2	10.6	15.4
D422	Sand	GS-SAND	%	49.5	4.6	24.7	25.1	32.1	61.1	56.4	46.6	64.2
D422	Sieve Size #10	SIEVE10	%	32.9	0	9.2	9	11.4	19.3	10.9	19.6	11.8
D422	Sieve Size #100	SIEVE100	%	0.9	0.4	1	1.4	2	2.4	5.8	2	7.2
D422	Sieve Size #20	SIEVE20	%	4.1	0.3	2.6	2.5	3.2	5.9	2.8	4.6	7.4
D422	Sieve Size #200	SIEVE200	%	3	1	3.5	3	4	3.3	18.9	6.4	7
D422	Sieve Size #4	SIEVE4	%	34.9	0	10.1	8.4	15.7	11.5	9.5	12.1	8.3
D422	Sieve Size #40	SIEVE40	%	3.6	0.5	3.4	2.5	3.7	10.4	3.4	6	8
D422	Sieve Size #60	SIEVE60	%	3.3	1.6	3.3	4	4.6	14.5	6.2	5.1	10.4
D422	Sieve Size #80	SIEVE80	%	1.7	0.8	1.7	2.7	3.2	5.3	8.4	2.9	12.4
D422	Sieve size 0.375 inch	SIEVE0.375IN	%	14.2	0	33.3	18.6	33.9	17.9	6.6	4	14.9
D422	Sieve size 0.75 inch	SIEVE0.75IN	%	0	0	16.2	0	0	0	0	0	0
D422	Sieve size 1 inch	SIEVE1IN	%	0	0	0	0	0	0	0	0	0
D422	Sieve size 1.5 inch	SIEVE1.5IN	%	0	0	0	0	0	0	0	0	0
D422	Sieve size 2 inch	SIEVE2IN	%	0	0	0	0	0	0	0	0	0
D422	Sieve size 3 inch	SIEVE3IN	%	0	0	0	0	0	0	0	0	0
D422	Silt	GS-SILT	%	1.3	48.5	12.7	26	13.1	6.2	21.5	34.4	9.9
D4318	Liquid Limit	LIQLIM	none	0	37	0		0	28	28	0	0
D4318	Plasticity Index	PLASIND	none	0	16	0		0	11	5	0	0
D4318	Plasticity Limit	PLASLIM	none	0	21	0		0	17	23	0	0
D854	Specifc Gravity	SG	none	3.34	2.75	2.42	2.57	2.66	2.7	2.56	2.53	2.7
D854	Specific Gravity at 20 deg Celsius	SG_20C	none	3.34	2.75	2.42	2.57	2.66	2.7	2.56	2.53	2.7
CALC	Water-Filled Porosity		none	0.370	0.342	0.215	0.119	0.480	0.342	0.101	0.408	0.152
CALC	Air-Filled Porosity		none	0.280	0.156	0.347	0.465	0.397	0.290	0.572	0.181	0.334
CALC	Total Porosity		none	0.650	0.498	0.562	0.584	0.877	0.632	0.673	0.589	0.485

Note: Soil samples are not undisturbed samples; therefore, the bulk dry densities and water contents are questionable, especially the water contents of GPP02, GP10, GP19, GT01, GT03, GT07, and GT08. Hence, the calculated porosities are not representative of in situ conditions.

Table 3-1
2016 Geotechnical Testing Results

			Sample ID	GT05-160715	GT06-160714	GT07-160714	GT08-160714	GT09-160714	GT10-160714	GT11-160714	GT12-160715
			Location	GT05	GT06	GT07	GT08	GT09	GT10	GT11	GT12
			SDG	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1	J114541-1
			Sample Type	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR
			Date Sampled	7/15/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/14/2016	7/15/2016
			Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Method	Test	CAS No	Units								
Unified Soil Classification System (USCS)				SC-SM	CL	GC	SM	SC-SM	CL	CL	SM
D2216	Moisture Content	MOIST_CONT	%	11.4	17.5	30.9	60.9	13.5	12.1	13.9	13.9
D2487	Group Name	GN	none	0	0	0	0	0	0	0	0
D2487	Group Symbol	GS	none	0	0	0	0	0	0	0	0
D2937	In Place Density	DENSITY_IP	g/cc	1.43	1.09	0.691	0.498	0.988	1.13	1.28	1.19
D2974	Fractional Organic Carbon	FOC	%								
D422	Clay	GS-CLAY	%	17.9	32.9	22.9	13.1	8.6	33.3	27.6	1.9
D422	Coarse Sand	GS-SANDC	%	1.1	0.2	8.4	8.5	7.3	1.4	1	12.1
D422	Fine Sane	GS-SANDF	%	51.4	11.1	12.2	28.5	43.5	10.3	17.1	46.3
D422	Gravel	GS-GRAVEL	%	8.4	2.1	26.3	23	16.9	0.7	0.5	15.9
D422	Hydrometer Reading 1	GS-HYD1PP	%	10.6	35.1	8.1	0	0.7	41.7	36.2	8.2
D422	Hydrometer Reading 2	GS-HYD2PP	%	1.9	4.2	4.5	6.8	9.1	1.3	2.3	2.2
D422	Hydrometer Reading 3	GS-HYD3PP	%	2.4	5.7	5.7	5.4	2.8	3.6	4.7	0
D422	Hydrometer Reading 4	GS-HYD4PP	%	1.2	3.6	2.9	2.8	1.4	1.3	3.5	0.5
D422	Hydrometer Reading 5	GS-HYD5PP	%	2.5	3.5	4	2	2.8	3.6	3.5	0
D422	Hydrometer Reading 6	GS-HYD6PP	%	2.4	7.1	6.2	5.4	2.8	6.8	7.5	2.2
D422	Hydrometer Reading 7	GS-HYD7PP	%	4.9	6.4	5.7	2.7	2.8	7.3	7	0.1
D422	Medium Sand	GS-SANDM	%	2.6	1.6	5	10.1	7	2.8	3.6	12.9
D422	Sand	GS-SAND	%	55.1	12.9	25.6	47.1	57.8	14.5	21.7	71.3
D422	Sieve Size #10	SIEVE10	%	1.1	0.2	8.4	8.5	7.3	1.4	1	12.1
D422	Sieve Size #100	SIEVE100	%	11.2	1.4	1.7	4.1	7	1	3.1	11.4
D422	Sieve Size #20	SIEVE20	%	0.9	0.4	1.8	4.9	3.3	1.1	1.3	6.3
D422	Sieve Size #200	SIEVE200	%	21.8	2.9	3.9	11.7	19.2	5.5	5	17.8
D422	Sieve Size #4	SIEVE4	%	1.9	0.3	8.8	10.1	8.2	0.7	0.5	8.3
D422	Sieve Size #40	SIEVE40	%	1.7	1.2	3.2	5.2	3.7	1.7	2.3	6.6
D422	Sieve Size #60	SIEVE60	%	6.1	3.9	3.9	6.6	7.3	2.4	4.6	7
D422	Sieve Size #80	SIEVE80	%	12.3	2.9	2.7	6.1	10	1.4	4.4	10.1
D422	Sieve size 0.375 inch	SIEVE0.375IN	%	6.5	1.8	17.5	12.9	8.7	0	0	7.6
D422	Sieve size 0.75 inch	SIEVE0.75IN	%	0	0	0	0	0	0	0	0
D422	Sieve size 1 inch	SIEVE1IN	%	0	0	0	0	0	0	0	0
D422	Sieve size 1.5 inch	SIEVE1.5IN	%	0	0	0	0	0	0	0	0
D422	Sieve size 2 inch	SIEVE2IN	%	0	0	0	0	0	0	0	0
D422	Sieve size 3 inch	SIEVE3IN	%	0	0	0	0	0	0	0	0
D422	Silt	GS-SILT	%	18.6	52.1	25.2	16.8	16.8	51.5	50.2	10.9
D4318	Liquid Limit	LIQLIM	none	20	39	34	36	22	29	36	28
D4318	Plasticity Index	PLASIND	none	4	20	13	7	7	10	16	4
D4318	Plasticity Limit	PLASLIM	none	16	18	21	29	15	19	20	23
D854	Specifc Gravity	SG	none	2.74	2.69	2.45	2.54	2.52	2.72	2.51	2.57
D854	Specific Gravity at 20 deg Celsius	SG_20C	none	2.74	2.69	2.45	2.54	2.52	2.72	2.51	2.57
CALC	Water-Filled Porosity		none	0.163	0.191	0.214	0.303	0.133	0.137	0.178	0.165
CALC	Air-Filled Porosity		none	0.315	0.404	0.504	0.501	0.475	0.448	0.312	0.372
CALC	Total Porosity		none	0.478	0.595	0.718	0.804	0.608	0.585	0.490	0.537

Note: Soil samples are not undisturbed samples; therefore, the bulk dry densities and water contents are questionable, especially the water contents of GPP02, GP10, GP19, GT01, GT03, GT07, and GT08. Hence, the calculated porosities are not representative of in situ conditions.

Table 3-2
2016 Geotechnical Results - Soil Classification

Sample ID	Location	SDG	Sample Type	Date Sampled	Matrix	Method	Test	Group Name	Symbol
GP02-160714	GP02	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	PG-SAND-W-GRAVEL	SP
GP04-160713	GP04	J114541-1	REGULAR	7/13/2016	SOIL	D2487	Classification of Soils	LEAN-CLAY	CL
GP10-160713	GP10	J114541-1	REGULAR	7/13/2016	SOIL	D2487	Classification of Soils	SI-GRAVEL-W-SAND	GM
GP17-160713	GP17	J114541-1	REGULAR	7/13/2016	SOIL	D2487	Classification of Soils	NA	NA
GP19-160713	GP19	J114541-1	REGULAR	7/13/2016	SOIL	D2487	Classification of Soils	SI-GRAVEL-W-SAND	GM
GT01-160714	GT01	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	WG-SAND-W-CLAY-	SW-SC
GT02-160714	GT02	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	SI-SAND-GRAVEL	SM
GT03-160714	GT03	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	SI-SAND-GRAVEL	SM
GT04-160715	GT04	J114541-1	REGULAR	7/15/2016	SOIL	D2487	Classification of Soils	SI-SAND-GRAVEL	SM
GT05-160715	GT05	J114541-1	REGULAR	7/15/2016	SOIL	D2487	Classification of Soils	SI-CL-SAND	SC-SM
GT06-160714	GT06	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	LEAN-CLAY-W-SAND	CL
GT07-160714	GT07	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	CL-GRAVEL-W-SAND	GC
GT08-160714	GT08	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	SI-SAND-GRAVEL	SM
GT09-160714	GT09	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	SI-CL-SAND-W-GRAVEL	SC-SM
GT10-160714	GT10	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	LEAN-CLAY-W-SAND	CL
GT11-160714	GT11	J114541-1	REGULAR	7/14/2016	SOIL	D2487	Classification of Soils	LEAN-CLAY-W-SAND	CL
GT12-160715	GT12	J114541-1	REGULAR	7/15/2016	SOIL	D2487	Classification of Soils	SI-SAND-GRAVEL	SM

Sample GP17-1160713 had insufficient sample size to perform the soil classification test.

TABLE 3-3
VERTICAL HYDRAULIC GRADIENTS

Well Cluster	Elevation of Screen - Middle	Groundwater Elevation November 2016	Vertical Gradient November 2016	Groundwater Elevation December 2016	Vertical Gradient December 2016	Groundwater Elevation March 2017	Vertical Gradient March 2017	Groundwater Elevation Jujy 2017	Vertical Gradient July 2017	Groundwater Elevation October 2017	Vertical Gradient October 2017
	(ft MSL)[1]	(ft MSL)[1]	(ft/ft)	(ft MSL)[1]	(ft/ft)	(ft MSL)[1]	(ft/ft)	(ft MSL)[1]	(ft/ft)	(ft MSL)[1]	(ft/ft)
MW02S	581.45	587.07	0.101	586.76	0.113	587.13	0.059	587.20	0.063	586.21	0.134
MW02D	560.91	584.99		584.43		585.91		585.91		583.46	
MW06S	581.58	586.15	0.034	585.23	-0.003	586.25	-0.003	585.10	-0.050	584.13	-0.002
MW06M	555.28	585.26		585.25		586.28		585.14		584.19	
MW06D	556.85	585.42		585.31		586.33		586.33		584.14	
MW08S	579.84	583.21	0.032	585.00	0.134	585.91	0.172	585.430	0.148	585.91	0.172
MW08D	559.70	582.57		582.30		582.45		582.450		582.45	
GP01A	584.48	582.95	0.074	-	-	582.64	0.002	-	-	582.73	0.014
GP01B	572.19	582.98		-	-	582.74		-	-	582.78	
GP01C	550.46	581.36		-	-	582.56		-	-	582.47	
GP03A	585.32	588.60	0.124	-	-	588.17	0.082	-	-	-	-
GP03B	572.11	586.93		-	-	587.11		-	-	-	
GP03C	557.48	585.16		-	-	585.88		-	-	-	
GP05A	588.45	587.36	-0.284	-	-	587.50	0.009	-	-	-	-
GP05B	571.62	587.42		-	-	587.37		-	-	-	
GP05C	572.67	591.84		-	-	587.36		-	-	-	
GP08A	585.61	588.88	0.043	-	-	-	0.228	-	-	-	-
GP08B	557.67	587.67		-	-	590.37		-	-	-	
GP08C	600.01	-		-	-	600.01		-	-	-	
GP09A	594.32	592.37	0.712	-	-	594.16	0.190	-	-	591.27	0.163
GP09B	584.18	585.15				586.18		-	-	-	
GP09C	551.60	-		-	-	586.05		-	-	584.31	
GP11A	595.63	-	-	-	-	593.70	0.712	-	-	593.43	0.943
GP11B	586.66	585.30		-	-	587.31		-	-	584.97	
GP11C	-	-		-	-	-		-	-	-	
GP12A	600.68	593.48	0.329	-	-	-	-	-	-	593.60	0.337
GP12B	590.46	586.17		-	-	-		-	-	585.99	
GP12C	566.93	582.38		-	-	-		-	-	582.24	
GP13A	594.45	593.48	0.301	-	-	594.99	0.357	-	-	593.91	0.327
GP13B	582.21	586.17		-	-	588.55		-	-	587.28	
GP13C	557.59	582.38		-	-	581.84		-	-	581.84	
GP14A	576.78	-	-	-	-	582.68	0.069	-	-	-	-
GP14B	568.73	-		-	-	582.58		-	-	-	
GP14C	557.08	-		-	-	581.33		-	-	-	
GP20A	591.54	588.83	0.040	-	-	589.34	0.428	-	-	-	-
GP20B	577.95	588.42		-	-	591.90		-	-	-	
GP20C	570.08	587.97		-	-	588.53		-	-	-	

[1] ft MSL - feet above mean sea level

(-0.012) - A negative value indicates upward flow of groundwater (flow from deep to shallow screened interval)

TABLE 3-4
HYDRAULIC CONDUCTIVITY FROM SLUG TESTS

ID		Hydraulic Conductivity (cm/sec)	Hydraulic Conductivity (ft/day)	Screened Zone Geology
MW01S	Falling Test	1.66E-05	4.71E-02	Sand
MW01S	Rising Test	2.96E-05	8.39E-02	Sand
MW02D	Falling Test	1.38E-05	3.91E-02	Sand
MW02D	Rising Test	5.70E-06	1.62E-02	Sand
MW06D	Falling Test	2.29E-04	6.49E-01	Sand
MW06D	Rising Test	1.53E-05	4.34E-02	Sand
MW06M	Falling Test	9.93E-05	2.81E-01	Sand
MW06M	Rising Test	6.88E-05	1.95E-01	Sand
MW06S	Falling Test	1.24E-05	3.51E-02	Sand
MW06S	Rising Test	6.75E-06	1.91E-02	Sand
MW07M	Falling Test	3.35E-06	9.50E-03	Sand
MW07M	Rising Test	3.94E-05	1.12E-01	Sand
MW09S	Falling Test	5.88E-06	1.67E-02	Sand
MW09S	Rising Test	2.46E-05	6.97E-02	Sand
	Geomean	**1.99E-05**	**5.63E-02**	

TABLE 3-5
GROUNDWATER VELOCITY BY AREA

Groundwater Zone	Area	Gradient ft/ft	Velocity (K = 0.563 ft/day) ft/day	Velocity (K = 0.563 ft/day) ft/year
Shallow	West	0.028	0.0079	2.89
	North	0.013	0.0037	1.34
	East	0.011	0.0031	1.13
	South	0.014	0.0040	1.47
Deep	All	0.003	0.0009	0.33

Notes:

Geomean Average Hydraulic Conductivity (K) of 1.99×10^{-5} cm/sec (5.63×10^{-2} ft/day) was used

Porosity used was 0.20 (20%)

Average Gradients from Horizonal Gradient Calculation were used

For each area, horizontal gradient was calculated from highest to lowest groundwater elevation contour lines.

4.0 NATURE AND EXTENT OF IMPACTS

4.1 Introduction

This section presents the results of environmental sampling conducted as part of the RI from April 2016 through October 2017. Evaluation of the waste boundary is presented in Section 2.1.5. A Liquid Waste Delineation Report, detailing the results of a May 2017 investigation, is included as Appendix E, and is summarized in Section 4.9.

All media samples, except soil vapor, were analyzed for the following constituent groups: VOCs, SVOCS, inorganics, pesticides, and PCBs. The soil vapor samples were analyzed only for VOCs via EPA Method TO-15 and methane. 1,4-dioxane was added to the groundwater samples collected in July (three wells only) and October 2017 (all wells).

The following criteria were used for comparison to sample results in various media:

- Soil: 2017 IDEM Direct Contact Soil Exposure for Industrial/Commercial Properties
- Groundwater: IDEM Tap Water screening levels
- Surface water: IDEM Tap Water screening levels
- Sediment: USEPA Region 5, RCRA Ecological Screening Levels (ESLs), August 23, 2003
- Soil Gas: 2017 IDEM Risk-Integrated System of Closure (RISC) Indoor Air Commercial/Industrial

For each media, the key chemical constituents were plotted on maps and compared to screening criteria. All detected constituents were compared to criteria and summarized in tables. Data validation reports are provided in Appendix G.

4.2 Background Concentrations

4.2.1 Background Pond Surface Water and Sediments

A Background Pond Evaluation Memorandum was submitted to USEPA on April 8, 2016. The memorandum proposed the selection of a background pond location for comparison to on-site surface water and sediment samples. USEPA approved the pond location and its use in a letter dated April 25, 2016. The background pond is in the Pine Station Nature Preserve, approximately 2.5 miles east of the Site. Two sediment samples (SD90 and SD91) and two surface water samples (SW90 and SW91) were collected from the pond. Results for these background samples and on-site samples are shown on Figures 4-1 through 4-4 (sediment) and Figures 4-5 through 4-8 (surface water). Results are compared to criteria in Tables 4-1 (sediment) and 4-2 (surface water).

Findings of the September 2016 background pond sampling event are:

- There were either no detections in the surface water samples (SW90 and SW91), or the results were below the 2017 IDEM RISC GW Tap Residential screening criteria.

- Sediment sample SD90 (0 to 2 feet) exceeded the USEPA Region 5 RCRA ESLs for two metals (chromium, zinc), cyanide, and a single VOC (acetone). Sample SD91 (0 to 2 feet) exceeded the criteria for VOCs (acetone). Acetone, however, is a common artifact of the sample preparation procedure in the laboratory.

4.2.2 Chicago Metropolitan Soils

Background soil concentrations for metropolitan areas were developed by the Illinois Environmental Protection Agency (IEPA 2007). These values were reviewed during the evaluation of soil results and were used in more detail within the risk assessment (see Section 6).

4.2.3 Calumet Area Sediments

Numerous investigations have been performed within the river, including locations adjacent to and upstream of the Site. The historical data were summarized in the Historical Data Technical Memorandum (Parsons 2014). Appendix J contains excerpts from the more recent river data, including data and maps.

Piwoni and others (2006) conducted a study of background sediments from wetland in the Calumet area. Background values were established for metals, PAHs, pesticides, and PCBs and included in the Calumet Area Ecotoxicity Roundtable technical review. As with the soil background values, these values were considered during this evaluation, and used in more detail within the risk assessment (see Section 6).

4.3 Sediment Results

Sediment samples were collected in October and November 2016 in two primary areas: the northern pond and the southern wetland. Results for both areas were compared to the 2003 USEPA RCRA ESLs. Analytical results for selected constituents were plotted on maps, compared to these criteria (ESLs), and are shown on Figures 4-1 through 4-4. Results for all detected constituents compared to criteria are shown on Table 4-1.

4.3.1 Northern Pond

Sediment samples SD22 through SD31 were collected from the northern pond at a depth of 0 to 1 foot below the sediment/water interface, except for SD30M, which was collected at 1 to 2 feet. The following are findings from the northern pond sediment sampling:

- The primary constituents detected above criteria were limited to PAHs, PCBs, and a small number of metals.
- Several metals detected in the upper foot exceeded the RCRA ESL in all samples (except for SD25) but were within the regional background for the Calumet area sediments (Calumet Area Ecotoxicity Roundtable).
- PAHs exceeded the criteria in eight of the 10 sediment sample locations (less than criteria at SD25 and SD27), but were within the Calumet area background concentrations, except in SD30M. Sediment sample SD30M (1 to 2 feet), in the southwest section of the pond, exceeded the criteria for several PAHs

(2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, and pyrene) at higher concentrations than other locations.

- PCBs exceeding the criteria (mainly Aroclor 1248) were found in six out of 10 sediment sample locations, primarily the northeastern section of the pond (except SD30). PCB concentrations in only two of the pond sediment samples (SD27S and SD30M) were greater than three times the regional background.

4.3.2 Southern Wetland

Sediment samples SD07 through SD21 were collected from the southern wetland at a depth of 0 to 1 foot and 1 to 2 feet at each location, except for SD20 and SD21, which were collected at 0 to 1 foot, 1 to 2 feet, and 2 to 5 feet. Sediment samples SD20 (2 to 5 feet) and SD21 (2 to 5 feet) were collected for PCB analyses only. The following are findings from the southern wetland sediment sampling:

- PAH concentrations greater than the screening criteria were found at 11 of the 15 locations in the shallow samples (0 to 1 foot), and at all locations in the deeper samples (1 to 2 feet). PAH concentrations were higher at depths from 1 to 2 feet versus 0 to 1 foot in most of these samples.
- Sediment sample SD13M (1 to 2 feet), located in the eastern third of the wetland, exceeded the screening criteria for several PAHs (acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, and pyrene) at higher concentrations than other samples.
- All samples exhibited two or more metal concentrations above the respective criteria. Concentrations of several metals (antimony, chromium, and zinc) exceeded three times the regional background in the upper foot. Metals concentrations were higher at depths from 1 to 2 feet versus 0 to 1 feet.
- At least one PCB Aroclor (1248, 1254, or 1260) was detected above the criteria in 12 out of 15 shallow sample locations (SD8S, SD15S, and SD19S were less than criteria) and in 13 out of 15 deep sample locations (SD09M and SD11M were less than criteria). Concentrations were generally comparable or higher at depths from 1 to 2 feet versus 0 to 1 feet. Higher concentrations were detected in the southeastern corner of the Site (upstream).
- Although PCBs above screening criteria were detected in samples SD20 and SD21 at 2 to 5 feet, the concentrations were lower relative to the shallow samples. At SD21, the 2 to 5-foot sample was more than an order of magnitude lower than either 0 to 1 or 1 to 2-foot sample.
- Five samples (SD16S, SD17S/SD17M, and SD18S/SD18M), located along the river in the eastern half of the wetland, exceeded the screening criteria for pesticides (dieldrin or p,p'-dichlorodiphenyldichloroethane [DDD]).

4.4 Surface Water Results

Surface water samples were collected from the northern pond (SW02 through SW07) in October and November 2016. In October 2017, supplemental samples were collected from the southern wetland (SW10 through SW12) and from the river (SW13 through SW15). Results were compared to the 2017 IDEM RISC GW Tap Residential Screening Levels (criteria). Analytical results for selected constituents were plotted on maps and compared to these criteria in Figures 4-5 through 4-8. Results for all detected constituents compared to criteria are shown on Table 4-2.

4.4.1 Northern Pond

Findings from the 2016 sampling of the northern pond are as follows:

- Except for SW03 (0 to 1 foot), located in the northeastern section of the pond, the surface water sample results were less than the criteria for VOCs, SVOCs, metals, cyanide, PCBs, and pesticides.
- Naphthalene (a PAH) in SW03 was the only constituent that exceeded the criterion but was detected at 3.7 µg/L (J+ qualifier), an estimated concentration (biased high) of approximately two times the criterion.

4.4.2 Southern Wetland and Grand Calumet River

Surface water samples SW10 through SW12 were collected in the southern wetland from a depth of approximately 0 to 1 foot. Samples SW13 through SW15 were collected from the river at the same depth. Findings from the October 2017 sampling event are as follows:

- Overall, no impacts were indicated in the surface water results. Except for sample SW10, the surface water samples were below criteria for all parameters analyzed.
- Concentrations of dissolved and total manganese and benzo(a)pyrene (0.3 µg/L vs. the screening level of 0.2 µg/L) were greater than the criteria in sample SW10 (Table 4-2) collected from the far eastern side of the southern wetland.

4.5 Groundwater

Groundwater samples were collected from the direct push (Geoprobe®) locations in June through August 2016, for initial screening, to facilitate selection of monitoring well locations (see Table 2-3 for results). Quarterly samples were collected from the monitoring wells in November 2016 and in March, July, and October 2017. Groundwater results were compared to the 2017 IDEM RISC GW Tap Residential Screening Levels (criteria). Analytical results for selected VOCs (benzene, vinyl chloride), SVOCs (naphthalene and 1,4-dioxane), and metals (total arsenic and hexavalent chromium), displaying all four quarterly sampling events, are shown on Figure 4-9 through 4-11, respectively. Analytical results for selected individual constituents were plotted on maps and compared to criteria for the July and October 2017 events, and are shown on Figures 4-12 through 4-21. Results for all detected constituents compared to criteria are shown on Tables 4-3 through 4-6 (monitoring wells). To evaluate any effects of seasonal conditions, concentrations

versus time for arsenic, hexavalent chromium, benzene, and naphthalene were plotted, and are shown in Figures 4-19 through 4-26.

Findings of the 2016-2017 monitoring well sampling events are as follows:

- Several VOCs that are known as petroleum constituents (benzene, toluene, ethylbenzene and xylenes) were observed at concentrations greater than criteria in the northeastern corner and eastern sides of the Site during each sampling event (see Table 4-5), with higher concentrations in MW06S (see Figure 4-15 for benzene). Although typically associated with petroleum products, these constituents may also be associated with hazardous waste within the landfill. Benzene was also observed above the criteria in several wells on the west and south sides of the Site, but at concentrations lower than those observed in wells on the eastern and northeastern side of the Site. The vinyl chloride concentration was greater than the criterion (by two to seven times) during all sampling events in the deeper well, MW06D.
- Several metals (arsenic, barium, cobalt, iron, manganese, and chromium hexavalent) were detected at concentrations greater than criteria, predominantly in the samples collected from then western and northeastern sections of the Site during the October 2017 sampling event.
- 1,4 dioxane was detected above its criterion by one to two orders of magnitude in samples collected in July 2017 from MW06S, MW06D, and MW06M and in all wells in October 2017 (Figure 4-17).
- PAHs: naphthalene was present above its criterion in most wells by less than one order of magnitude, with higher concentrations in MW06S (northeast) and MW08S (southeast). 2-methylnaphthalene was present above the criterion by less than one order of magnitude in each quarterly event in well MW06S, and in MW06M in November 2016 and March 2017.
- In general, groundwater concentrations were relatively stable throughout the monitoring period, spanning approximately one year (November 2016 through October 2017) (Figures 4-22 through 4-29).

4.6 Surface Soil Results

Surface soil results (SS01 through SS16) were compared to the 2017 IDEM Direct Contact Commercial/Industrial Soil criteria. Analytical results for selected constituents were plotted on maps, compared to criteria, and are shown on Figures 4-30 through 4-32. Results for all detected constituents compared to criteria are shown on Table 4-8.

Findings of the surface soil sampling are as follows:

- Surface soils were not impacted by the chemical constituents analyzed, with the exceptions noted below.
- SS13 (southeastern section of the Site) exceeded the criteria for two metals: arsenic at 40 mg/kg, slightly greater than the 30 mg/kg criterion) and lead at 5,400 mg/kg, criterion of 800 mg/kg). SS14 (a composite sample from the eastern side

of the Site and east of SS13) exceeded the criterion for a single PAH (benzo(a)pyrene), with an estimated concentration biased high (qualified J+) of 5,400 µg/kg, compared to the criterion of 2,900 µg/kg.

- Twelve samples (SS01 through SS12; see Figure 2-10) were collected and analyzed for asbestos-containing materials (ACMs). The samples were non-detect for asbestos. Results of the asbestos samples are presented in Table 4-9.

4.7 Subsurface Soil Results

Subsurface soil samples (SB01 through SB06 and MW01 through MW09) results were also compared to the 2017 IDEM Direct Contact Commercial / Industrial Soil criteria. Analytical results for selected constituents were plotted on maps and are shown on Figures 4-33 through 4-35. Results for all detected constituents compared to criteria are shown on Table 4-10 and 4-11.

Findings of the subsurface soil sampling are as follows:

- Metals:
  - Arsenic was detected at 31 mg/kg, slightly greater than its criterion of 30 mg/kg in one sample (MW05S, northeast)
  - Iron was detected in two samples above the criterion: SB02D in the northeast at 490,000 mg/kg relative to the 100,000 mg/kg criterion and SB05M in the south-central area at 260,000 mg/kg;
  - Lead was detected in three samples above the criterion of 800 mg/kg: SB05M at 820 mg/kg, SB06S (south) at 2,400 mg/kg, and SB06M at 890 mg/kg.
- PCBs were detected at concentrations greater than the criteria in three samples (two locations):
  - Aroclor 1248 in SB02S (northeast) at 9,800 µg/kg, slightly above the 9,500 µg/kg criterion;
  - Aroclor 1248 in SB05S (south-central) at 16,000 µg/kg; and
  - In SB05M, Aroclor 1242 at 14,000 µg/kg, relative to the 9,500 criterion, and Aroclor 1248 at 10,000 µg/kg, slightly above the criterion.
- PAHs: PAHs were present at concentrations greater than criteria in six samples: SB03D, SB04S, SB05M, SB06S/M, MW09S (see Figures 4-33 and 4-34). Concentrations ranged from 4,200 µg/kg (benzo(a)pyrene) in SB06S to 44,000 µg/kg (benzo(b)fluoranthene) in SB06M and were typically less than one order of magnitude below the respective criteria.
- Benzene (70,000 µg/kg), toluene (790,000 µg/kg), ethylbenzene (1,000,000 µg/kg), and o-xylene (720,000 µg/kg) were present at concentrations less than one order of magnitude greater than their respective criteria in a single soil sample (MW06D, northeastern corner, Figure 4-35).

- No NAPL was found in SB01 through SB06, installed as part of the interior landfill investigation to investigate potential hot-spots. Also, results from these borings did not indicate higher soil concentrations than soil boring samples collected during drilling of monitoring wells.

4.8 Soil Vapor Results

The results from soil vapor probes AS01 through AS07 and selected gas vents (GV02, GV06, GV14 through GV17) were compared to the 2017 IDEM RISC Indoor Air Commercial / Industrial with an attenuation factor of 0.01, in accordance with the IDEM March 2012 Remediation Closure Guide. Analytical results for selected constituents were plotted on maps, compared to criteria, and are shown on Figures 4-36 through 4-38. Results for all detected constituents compared to criteria are shown on Table 4-12.

Findings of the soil vapor sampling are as follows:

- Only five of the 39 parameters analyzed exceeded the screening criteria, at a limited number of sample locations. Only two soil vapor probes (AS02, western side, and AS05, northeast) had detections above criteria. The remaining detections were in gas vents, which were installed within the landfill prior to the RI.
- Benzene and ethylbenzene were present above the screening criteria in six samples, four of which are gas vents (AS02, AS05, and GV14 through GV17). Higher concentrations of benzene were present in samples located in the northeastern and southern portions of the Site.
- Xylene exceeded the criteria in two of the gas vent samples located in the southern section of the Site (GV14 and GV17) but did not exceed criteria in any of the soil vapor samples.
- 1,2,4-trimethylbenzene was present above the screening criteria in five samples, one soil vapor sample and four gas vents (AS05 and GV14 through GV17).
- 1,4-dichlorobenzene was present above criteria in four gas vent samples (GV14 through GV17), but not in the soil vapor probes.
- Methane, which does not have a criterion, was detected at all sampling locations. The lower concentrations were primarily in the southeastern and northeastern corners of the Site (see Figure 4-38). The lower explosive limit of methane is 5 percent by volume and the upper explosive limit is 14 percent by volume (Airgas, Inc. 2018). None of the concentrations observed fell within the explosive range (above the lower explosive limit but below the upper explosive limit). Locations with concentrations above the LEL, however, represent a potential concern, which will be addressed as part of the feasibility study.

4.9 NAPL Delineation Summary

A report detailing the results of this work was submitted to USEPA in June 2017 (Parsons 2017a). The report is included as Appendix E. Results are summarized below.

- NAPL was initially observed in two test pits (TP21 and TP22) located approximately 15 to 20 feet north of the river. Nineteen test pits were advanced in May 2017 to delineate the extent of the NAPL (Figure 2-10).
- The NAPL observed in TP21 and TP22 was physically delineated in all directions.
- Absence of NAPL was confirmed to the north, east, and west. The absence of NAPL in test pits installed north of TP21 and TP22 indicate that the river may be a source; however, aerial photographic evidence indicates that landfill-related activities occurred in this area and may also be a source of the NAPL observed.
- One sample of the NAPL observed in TP52, located near the river, was collected and analyzed for VOCs, SVOCs, organochloride pesticides, PCBs, metals, and boiling-range distribution of petroleum fractions. The NAPL sample was found to be comprised primarily of PAHs (acenaphthene, benzo(b)fluoranthene, fluoranthene, fluorene, phenanthrene and pyrene), PCB Aroclors 1248 and 1260, and several metals.
- The chemical composition of the sample from TP52 is similar to the composition of numerous sediment samples collected in 2012 and 2014 from the river, adjacent to and upstream of the Site.

PARSONS

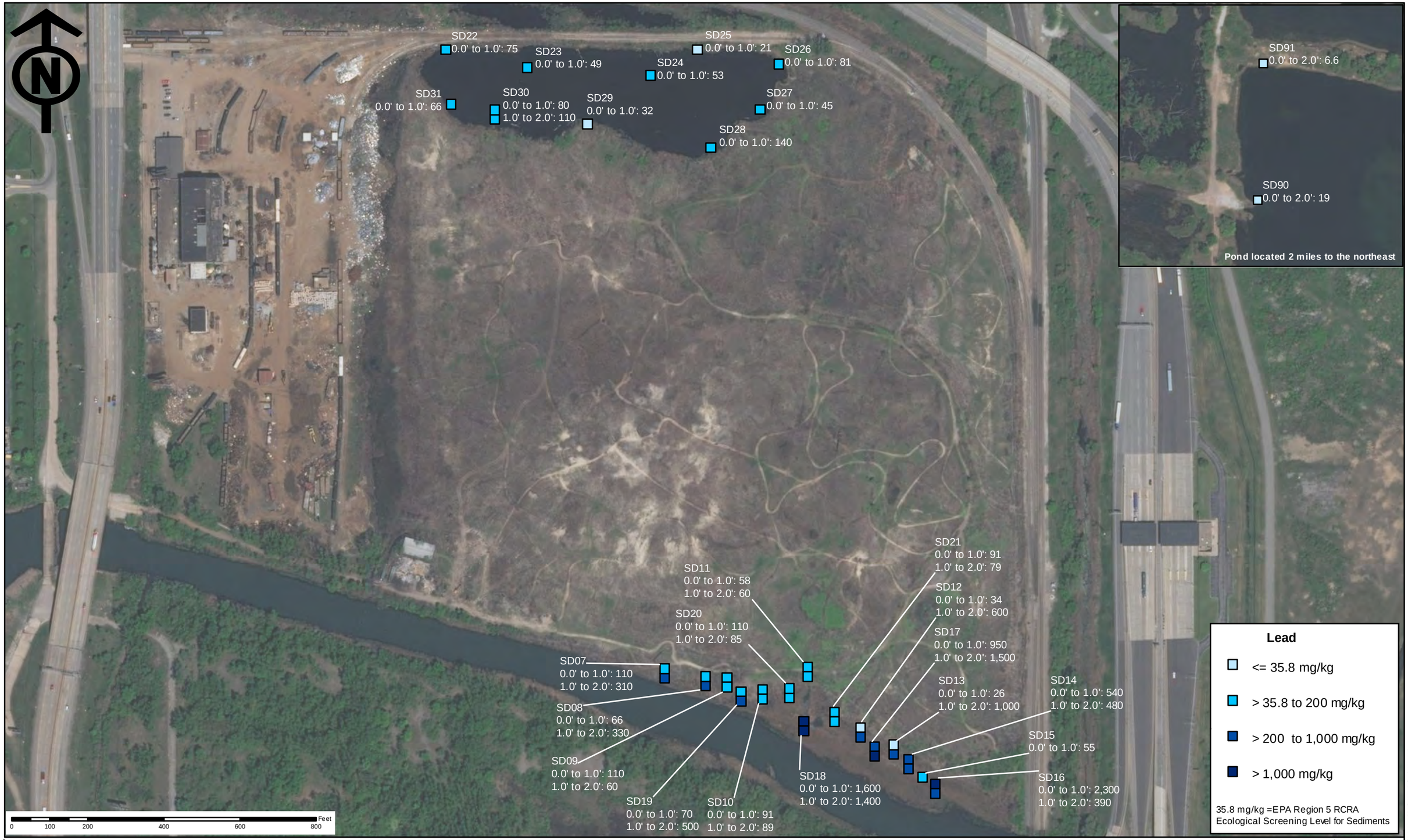
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-1
Benzo(a)anthracene in Sediment (September 2016 to November 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018		Parsons Project No. 449595
File Name: Sediment_Soil_BaA_v2.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\Sediment_Soil_BaA_v2.mxd



PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-2
Lead in Sediment (September 2016 to November 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

Note: At SD07S, 0 to 1 ft, duplicate value is 110 µg/kg.

C. Oneal	10/29/2018	
Revision: 10/29/2018		Parsons Project No. 449595
File Name: Sediment_Soil_Pb_v2.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Sediment_Soil_Pb_v2.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-3
PCB Aroclor 1248 (September 2016 to November 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

Note: At SD07S, 0 to 1 ft, duplicate value is 850 J µg/kg.

C. Oneal	10/29/2018	
Revision: 10/29/2018		Parsons Project No. 449595
File Name: Sediment_Soil_PCB_v1248.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\Sediment_Soil_PCB_v1248.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-4
Zinc in Sediment (September 2016 to November 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

Note: At SD07S, 0 to 1 ft, duplicate value is 400 µg/kg.

C. Oneal	10/29/2018	
Revision: 10/29/2018		Parsons Project No. 449595
File Name: Sediment_Soil_Zn_v2.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Sediment_Soil_Zn_v2.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-5
Total Chromium in Surface Water
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/29/2018	
Revision: 10/29/2018		Parsons Project No. 449595
File Name: Cr_SurfaceWater.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Cr_SurfaceWater.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-6
Total Magnesium in Surface Water
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018		Parsons Project No. 449595
File Name: Mg_SurfaceWater.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Mg_SurfaceWater.mxd

PARSONS

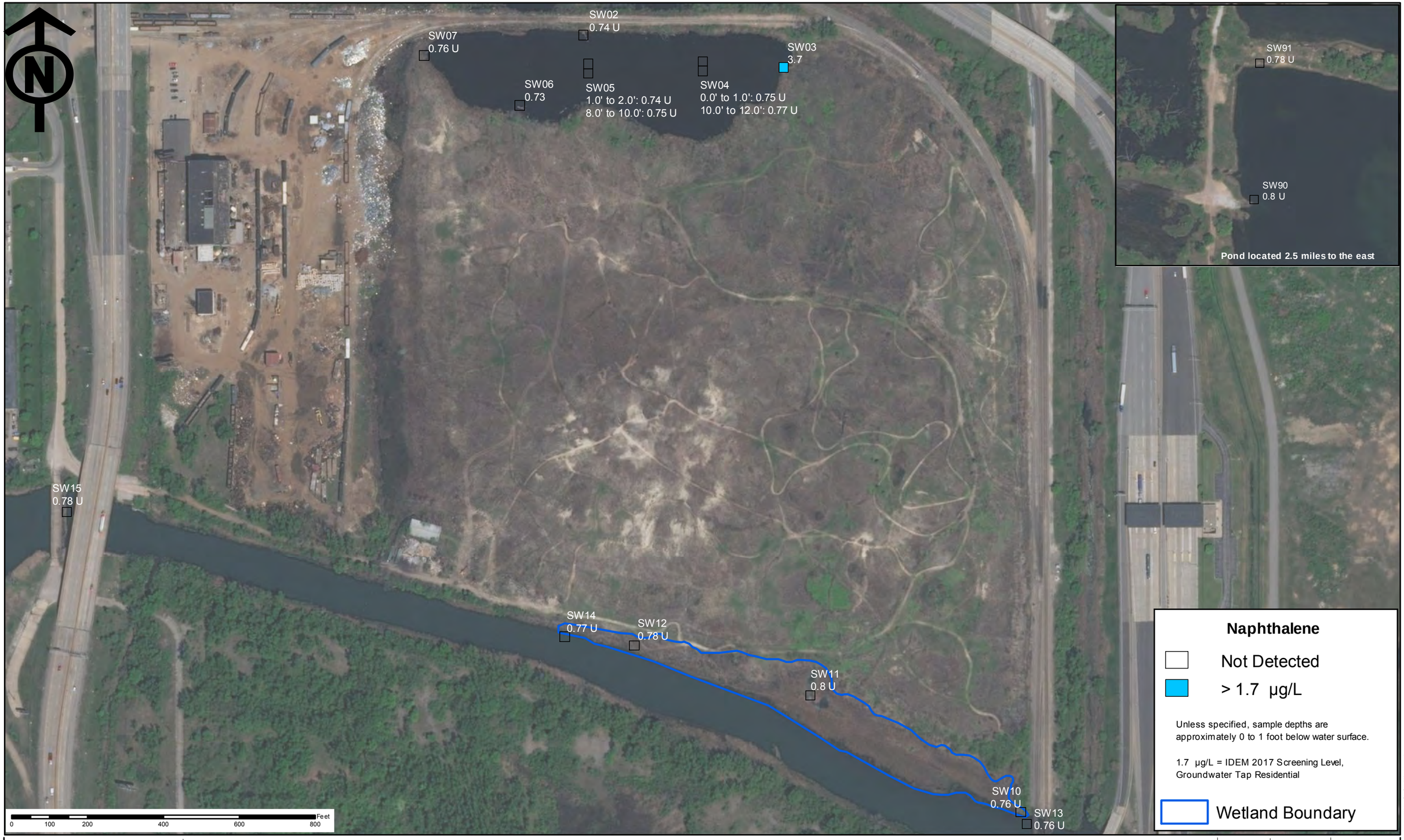
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-7
Total Manganese in Surface Water
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018		Parsons Project No. 449595
File Name: Mn_SurfaceWater.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Mn_SurfaceWater.mxd



PARSONS

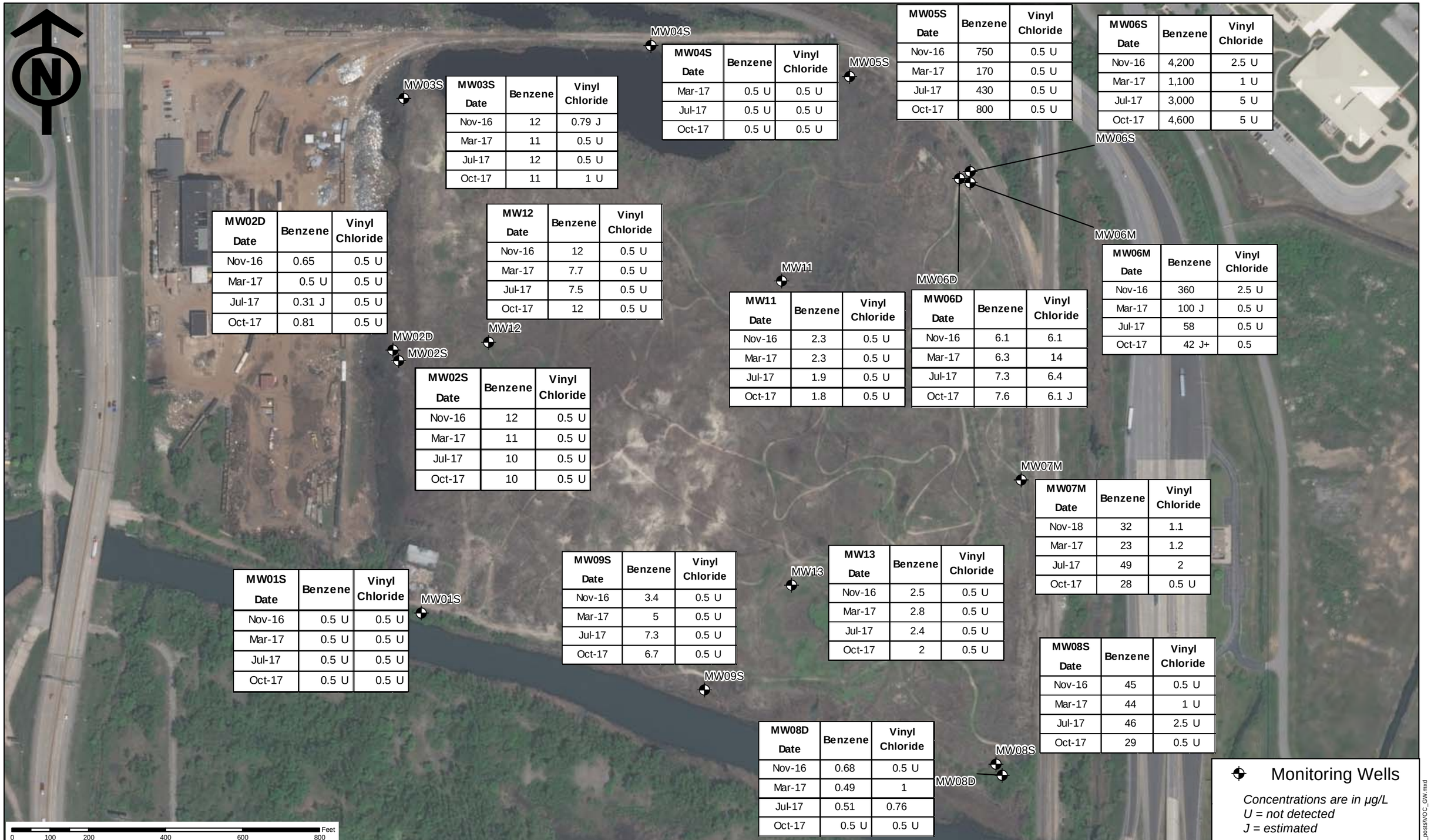
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-8
Naphthalene in Surface Water
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018		Parsons Project No. 449595
File Name: Nap_SurfaceWater.mxd		

D:\GIS\Gary\Landfill\MXD\2017\data_posts\Nap_SurfaceWater.mxd



MW03S Date	Benzene	Vinyl Chloride
Nov-16	12	0.79 J
Mar-17	11	0.5 U
Jul-17	12	0.5 U
Oct-17	11	1 U

MW04S Date	Benzene	Vinyl Chloride
Mar-17	0.5 U	0.5 U
Jul-17	0.5 U	0.5 U
Oct-17	0.5 U	0.5 U

MW05S Date	Benzene	Vinyl Chloride
Nov-16	750	0.5 U
Mar-17	170	0.5 U
Jul-17	430	0.5 U
Oct-17	800	0.5 U

MW06S Date	Benzene	Vinyl Chloride
Nov-16	4,200	2.5 U
Mar-17	1,100	1 U
Jul-17	3,000	5 U
Oct-17	4,600	5 U

MW06M Date	Benzene	Vinyl Chloride
Nov-16	360	2.5 U
Mar-17	100 J	0.5 U
Jul-17	58	0.5 U
Oct-17	42 J+	0.5

MW02D Date	Benzene	Vinyl Chloride
Nov-16	0.65	0.5 U
Mar-17	0.5 U	0.5 U
Jul-17	0.31 J	0.5 U
Oct-17	0.81	0.5 U

MW12 Date	Benzene	Vinyl Chloride
Nov-16	12	0.5 U
Mar-17	7.7	0.5 U
Jul-17	7.5	0.5 U
Oct-17	12	0.5 U

MW11 Date	Benzene	Vinyl Chloride
Nov-16	2.3	0.5 U
Mar-17	2.3	0.5 U
Jul-17	1.9	0.5 U
Oct-17	1.8	0.5 U

MW06D Date	Benzene	Vinyl Chloride
Nov-16	6.1	6.1
Mar-17	6.3	14
Jul-17	7.3	6.4
Oct-17	7.6	6.1 J

MW02S Date	Benzene	Vinyl Chloride
Nov-16	12	0.5 U
Mar-17	11	0.5 U
Jul-17	10	0.5 U
Oct-17	10	0.5 U

MW07M Date	Benzene	Vinyl Chloride
Nov-18	32	1.1
Mar-17	23	1.2
Jul-17	49	2
Oct-17	28	0.5 U

MW01S Date	Benzene	Vinyl Chloride
Nov-16	0.5 U	0.5 U
Mar-17	0.5 U	0.5 U
Jul-17	0.5 U	0.5 U
Oct-17	0.5 U	0.5 U

MW09S Date	Benzene	Vinyl Chloride
Nov-16	3.4	0.5 U
Mar-17	5	0.5 U
Jul-17	7.3	0.5 U
Oct-17	6.7	0.5 U

MW13 Date	Benzene	Vinyl Chloride
Nov-16	2.5	0.5 U
Mar-17	2.8	0.5 U
Jul-17	2.4	0.5 U
Oct-17	2	0.5 U

MW08S Date	Benzene	Vinyl Chloride
Nov-16	45	0.5 U
Mar-17	44	1 U
Jul-17	46	2.5 U
Oct-17	29	0.5 U

MW08D Date	Benzene	Vinyl Chloride
Nov-16	0.68	0.5 U
Mar-17	0.49	1
Jul-17	0.51	0.76
Oct-17	0.5 U	0.5 U

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

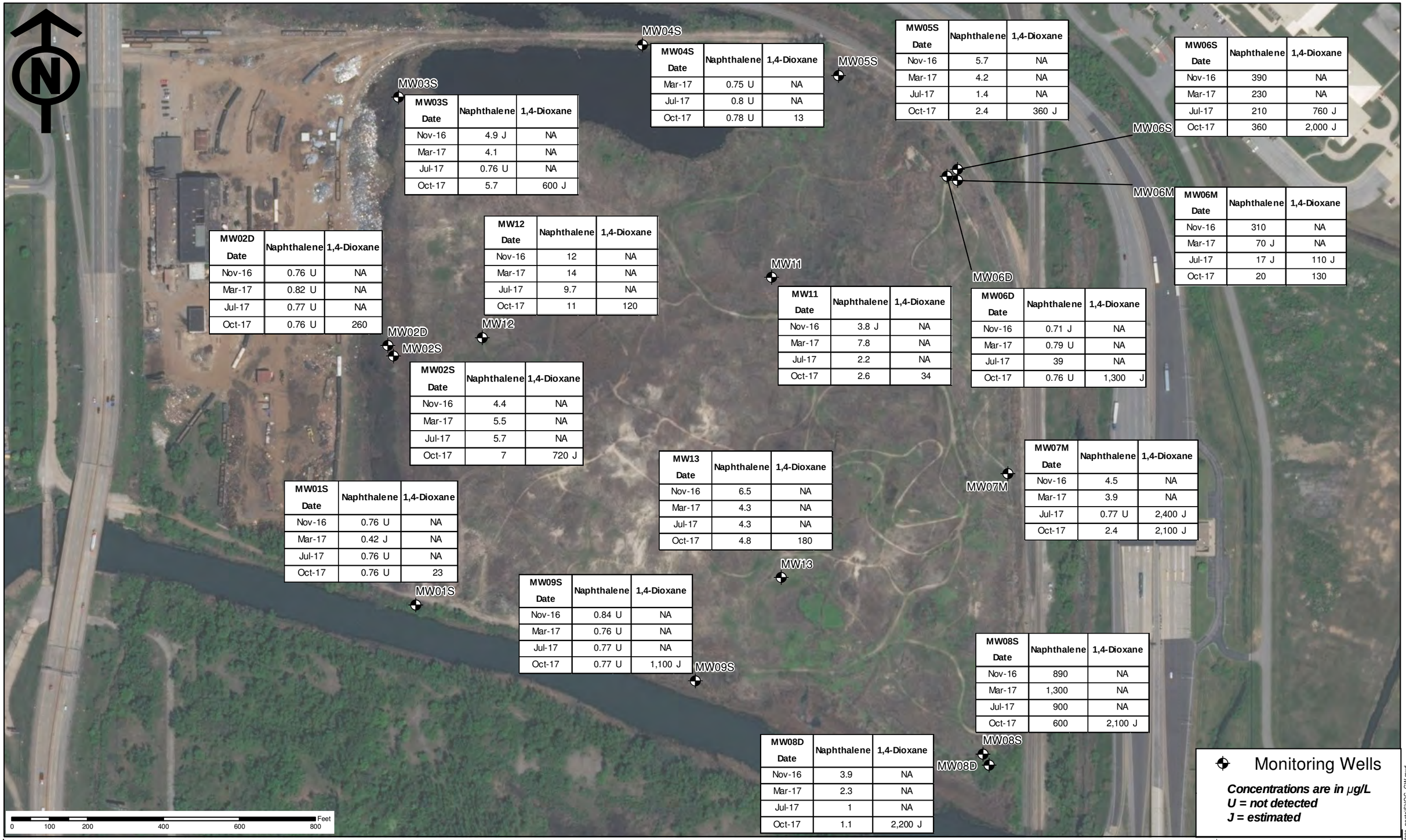
Figure 4-9
VOCs in Groundwater, November 2016 – October 2017
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

Note: At MW06M, the duplicate benzene result for Mar-17 was 100 µg/L.

C. Oneal	10/29/2018	
Revision: 10/29/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: VOC_GW.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\VOC_GW.mxd



MW04S Date	Naphthalene	1,4-Dioxane
Mar-17	0.75 U	NA
Jul-17	0.8 U	NA
Oct-17	0.78 U	13

MW05S Date	Naphthalene	1,4-Dioxane
Nov-16	5.7	NA
Mar-17	4.2	NA
Jul-17	1.4	NA
Oct-17	2.4	360 J

MW06S Date	Naphthalene	1,4-Dioxane
Nov-16	390	NA
Mar-17	230	NA
Jul-17	210	760 J
Oct-17	360	2,000 J

MW03S Date	Naphthalene	1,4-Dioxane
Nov-16	4.9 J	NA
Mar-17	4.1	NA
Jul-17	0.76 U	NA
Oct-17	5.7	600 J

MW06M Date	Naphthalene	1,4-Dioxane
Nov-16	310	NA
Mar-17	70 J	NA
Jul-17	17 J	110 J
Oct-17	20	130

MW02D Date	Naphthalene	1,4-Dioxane
Nov-16	0.76 U	NA
Mar-17	0.82 U	NA
Jul-17	0.77 U	NA
Oct-17	0.76 U	260

MW12 Date	Naphthalene	1,4-Dioxane
Nov-16	12	NA
Mar-17	14	NA
Jul-17	9.7	NA
Oct-17	11	120

MW11 Date	Naphthalene	1,4-Dioxane
Nov-16	3.8 J	NA
Mar-17	7.8	NA
Jul-17	2.2	NA
Oct-17	2.6	34

MW06D Date	Naphthalene	1,4-Dioxane
Nov-16	0.71 J	NA
Mar-17	0.79 U	NA
Jul-17	39	NA
Oct-17	0.76 U	1,300 J

MW02S Date	Naphthalene	1,4-Dioxane
Nov-16	4.4	NA
Mar-17	5.5	NA
Jul-17	5.7	NA
Oct-17	7	720 J

MW13 Date	Naphthalene	1,4-Dioxane
Nov-16	6.5	NA
Mar-17	4.3	NA
Jul-17	4.3	NA
Oct-17	4.8	180

MW07M Date	Naphthalene	1,4-Dioxane
Nov-16	4.5	NA
Mar-17	3.9	NA
Jul-17	0.77 U	2,400 J
Oct-17	2.4	2,100 J

MW01S Date	Naphthalene	1,4-Dioxane
Nov-16	0.76 U	NA
Mar-17	0.42 J	NA
Jul-17	0.76 U	NA
Oct-17	0.76 U	23

MW09S Date	Naphthalene	1,4-Dioxane
Nov-16	0.84 U	NA
Mar-17	0.76 U	NA
Jul-17	0.77 U	NA
Oct-17	0.77 U	1,100 J

MW08S Date	Naphthalene	1,4-Dioxane
Nov-16	890	NA
Mar-17	1,300	NA
Jul-17	900	NA
Oct-17	600	2,100 J

MW08D Date	Naphthalene	1,4-Dioxane
Nov-16	3.9	NA
Mar-17	2.3	NA
Jul-17	1	NA
Oct-17	1.1	2,200 J

PARSONS
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

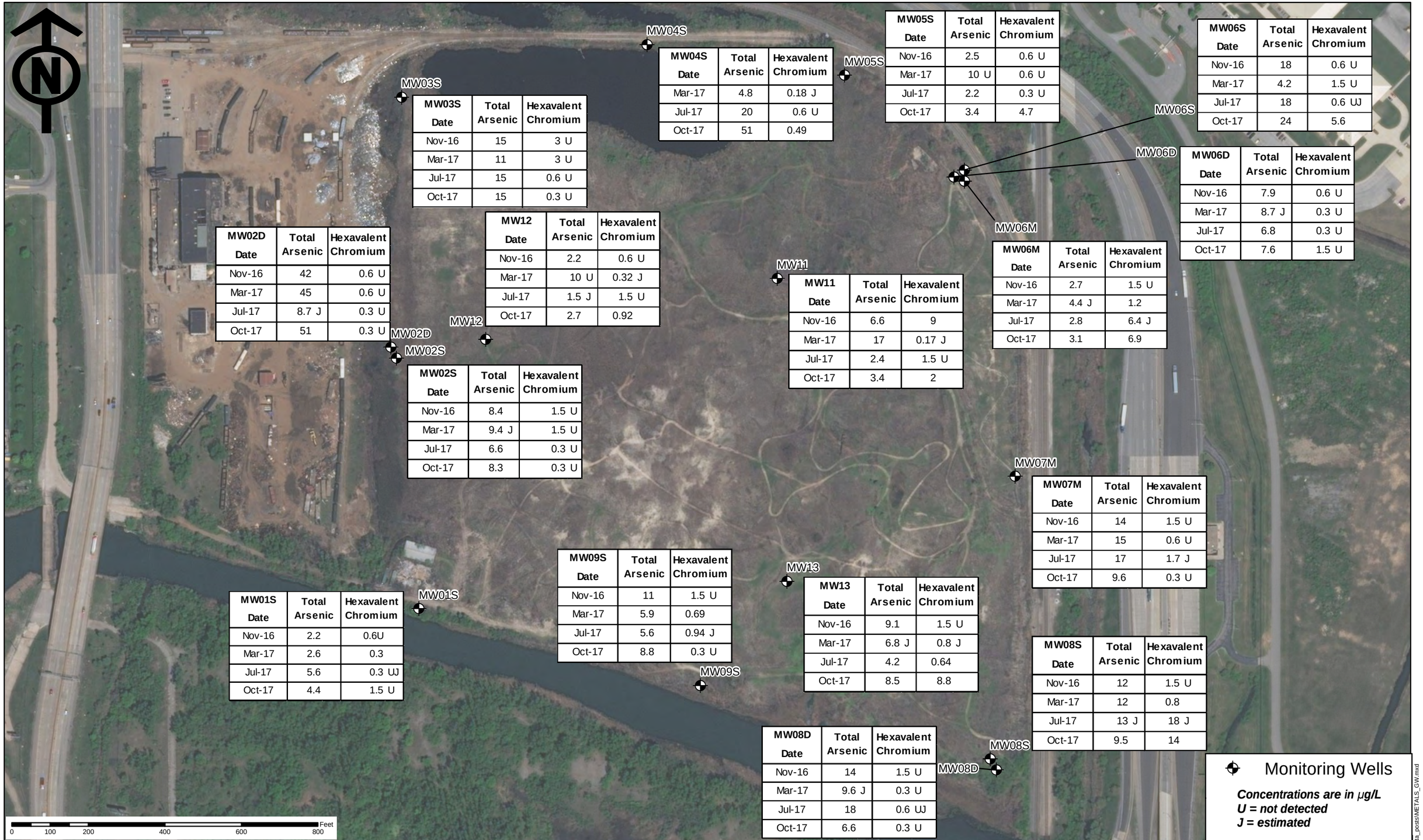
Figure 4-10
SVOCs in Groundwater, November 2016 – October 2017
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

Note: At MW06D, the duplicate 1,4-dioxane result for Oct-17 was 1,300 J µg/L.
At MW06M, the duplicate naphthalene result for Mar-17 was 70 J µg/L.

C. Oneal	10/29/2018	
Revision: 10/29/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: SVOC_GW.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SVOC_GW.mxd



MW04S Date	Total Arsenic	Hexavalent Chromium
Mar-17	4.8	0.18 J
Jul-17	20	0.6 U
Oct-17	51	0.49

MW05S Date	Total Arsenic	Hexavalent Chromium
Nov-16	2.5	0.6 U
Mar-17	10 U	0.6 U
Jul-17	2.2	0.3 U
Oct-17	3.4	4.7

MW06S Date	Total Arsenic	Hexavalent Chromium
Nov-16	18	0.6 U
Mar-17	4.2	1.5 U
Jul-17	18	0.6 UJ
Oct-17	24	5.6

MW06D Date	Total Arsenic	Hexavalent Chromium
Nov-16	7.9	0.6 U
Mar-17	8.7 J	0.3 U
Jul-17	6.8	0.3 U
Oct-17	7.6	1.5 U

MW03S Date	Total Arsenic	Hexavalent Chromium
Nov-16	15	3 U
Mar-17	11	3 U
Jul-17	15	0.6 U
Oct-17	15	0.3 U

MW02D Date	Total Arsenic	Hexavalent Chromium
Nov-16	42	0.6 U
Mar-17	45	0.6 U
Jul-17	8.7 J	0.3 U
Oct-17	51	0.3 U

MW12 Date	Total Arsenic	Hexavalent Chromium
Nov-16	2.2	0.6 U
Mar-17	10 U	0.32 J
Jul-17	1.5 J	1.5 U
Oct-17	2.7	0.92

MW11 Date	Total Arsenic	Hexavalent Chromium
Nov-16	6.6	9
Mar-17	17	0.17 J
Jul-17	2.4	1.5 U
Oct-17	3.4	2

MW06M Date	Total Arsenic	Hexavalent Chromium
Nov-16	2.7	1.5 U
Mar-17	4.4 J	1.2
Jul-17	2.8	6.4 J
Oct-17	3.1	6.9

MW02S Date	Total Arsenic	Hexavalent Chromium
Nov-16	8.4	1.5 U
Mar-17	9.4 J	1.5 U
Jul-17	6.6	0.3 U
Oct-17	8.3	0.3 U

MW07M Date	Total Arsenic	Hexavalent Chromium
Nov-16	14	1.5 U
Mar-17	15	0.6 U
Jul-17	17	1.7 J
Oct-17	9.6	0.3 U

MW01S Date	Total Arsenic	Hexavalent Chromium
Nov-16	2.2	0.6U
Mar-17	2.6	0.3
Jul-17	5.6	0.3 UJ
Oct-17	4.4	1.5 U

MW09S Date	Total Arsenic	Hexavalent Chromium
Nov-16	11	1.5 U
Mar-17	5.9	0.69
Jul-17	5.6	0.94 J
Oct-17	8.8	0.3 U

MW13 Date	Total Arsenic	Hexavalent Chromium
Nov-16	9.1	1.5 U
Mar-17	6.8 J	0.8 J
Jul-17	4.2	0.64
Oct-17	8.5	8.8

MW08S Date	Total Arsenic	Hexavalent Chromium
Nov-16	12	1.5 U
Mar-17	12	0.8
Jul-17	13 J	18 J
Oct-17	9.5	14

MW08D Date	Total Arsenic	Hexavalent Chromium
Nov-16	14	1.5 U
Mar-17	9.6 J	0.3 U
Jul-17	18	0.6 UJ
Oct-17	6.6	0.3 U

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-11
Metals in Groundwater, November 2016 – October 2017
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018	Figure No.:	Parsons Project No.: 448411.04000

File Name: METALS_GW.mxd

D:\GIS\GaryLandfill\MXD\2017\data_posts\METALS_GW.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-12
Total Arsenic in Groundwater (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/25/2018	
Revision: 1/25/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: As_data_post_072017.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\As_data_post_072017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-13
Total Arsenic in Groundwater (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: As_data_post_102017.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_post\As_data_post_102017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-14
Benzene in Groundwater (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: Benzene_data_post_07_2017.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\benzene_data_post_07_2017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-15
Benzene in Groundwater (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

The higher concentration of the original or field duplicate was plotted.

C. Oneal	10/26/2018	
Revision: 10/26/2018	Figure No.:	Parsons Project No.: 448411.04000
File Name: Benzene_data_post_10_2017.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\benzene_data_post_10_2017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-16
1,4-dioxane in Groundwater (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/25/2018	
Revision: 1/25/2018	Figure No.:	Parsons Project No.: 449595
File Name: 14dioxane_data_post_marker_v1.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\14dioxane_data_post_marker_v1.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-17
1,4-dioxane in Groundwater (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/26/2018	
Revision: 1/26/2018	Figure No.:	Parsons Project No.: 449595
File Name: 14dioxane_data_post_OCT_2017.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\14dioxane_data_post_OCT_2017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-18
Hexavalent Chromium in Groundwater (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/25/2018	
Revision: 1/25/2018	Figure No.:	Parsons Project No.: 449595
File Name: Hex_Cr_data_post_marker_v1.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Hex_Cr_data_post_marker_v1.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-19
Hexavalent Chromium in Groundwater (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/26/2018	
Revision: 1/26/2018	Figure No.:	Parsons Project No.: 449595
File Name: Hex_Cr_data_post_OCT_2017.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Hex_Cr_data_post_OCT_2017.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-20
Napthalene in Groundwater (July 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/25/2018	
Revision: 1/25/2018	Figure No.:	Parsons Project No.: 449595
File Name: Napthalene_data_post_marker_v1.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_post\Napthalene_data_post_marker_v1.mxd

PARSONS

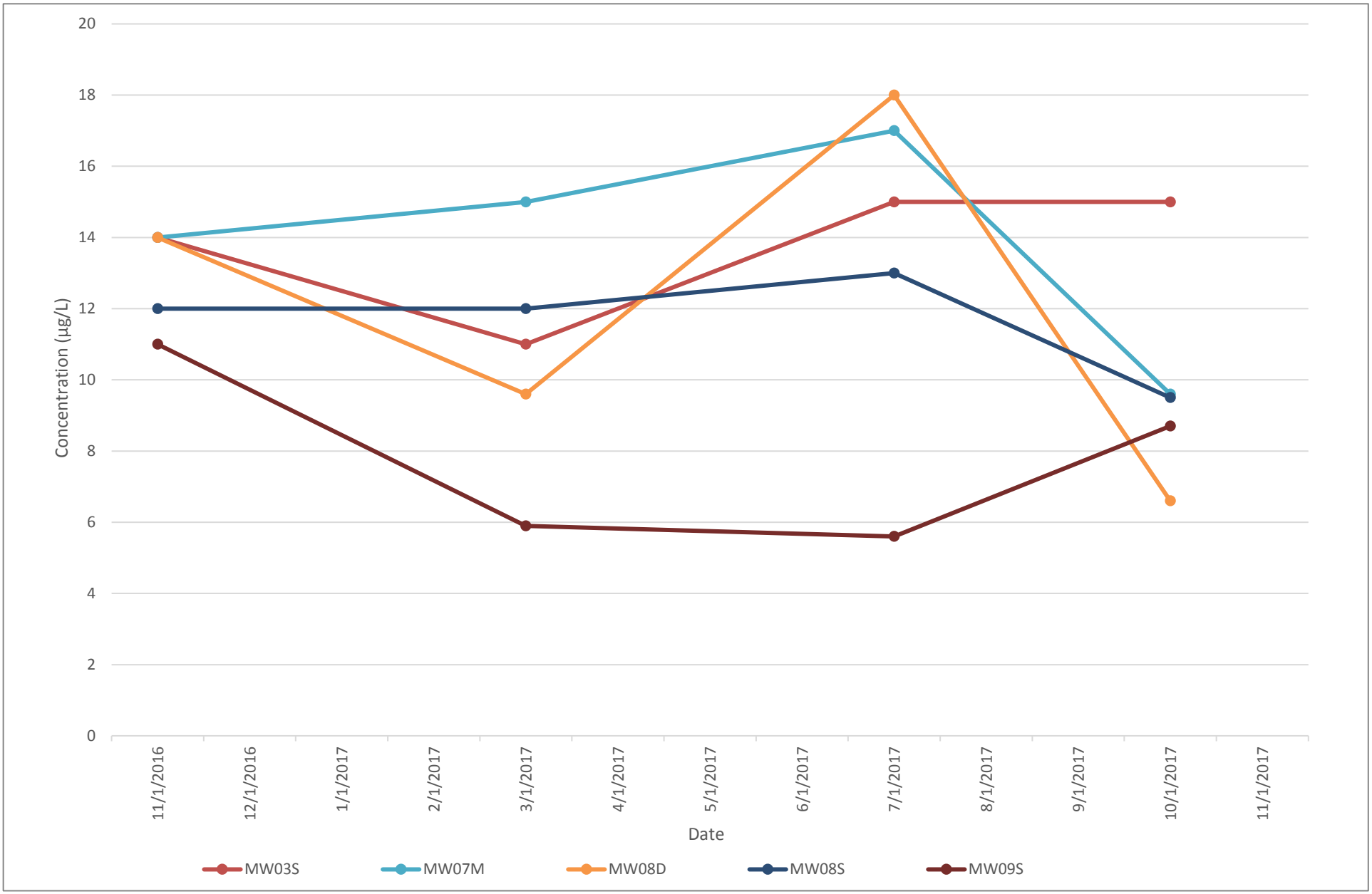
10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-21
Napthalene in Groundwater (October 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	1/25/2018	
Revision: 1/25/2018	Figure No.:	Parsons Project No.: 449595
File Name: Napthalene_data_post_marker_v2.mxd		

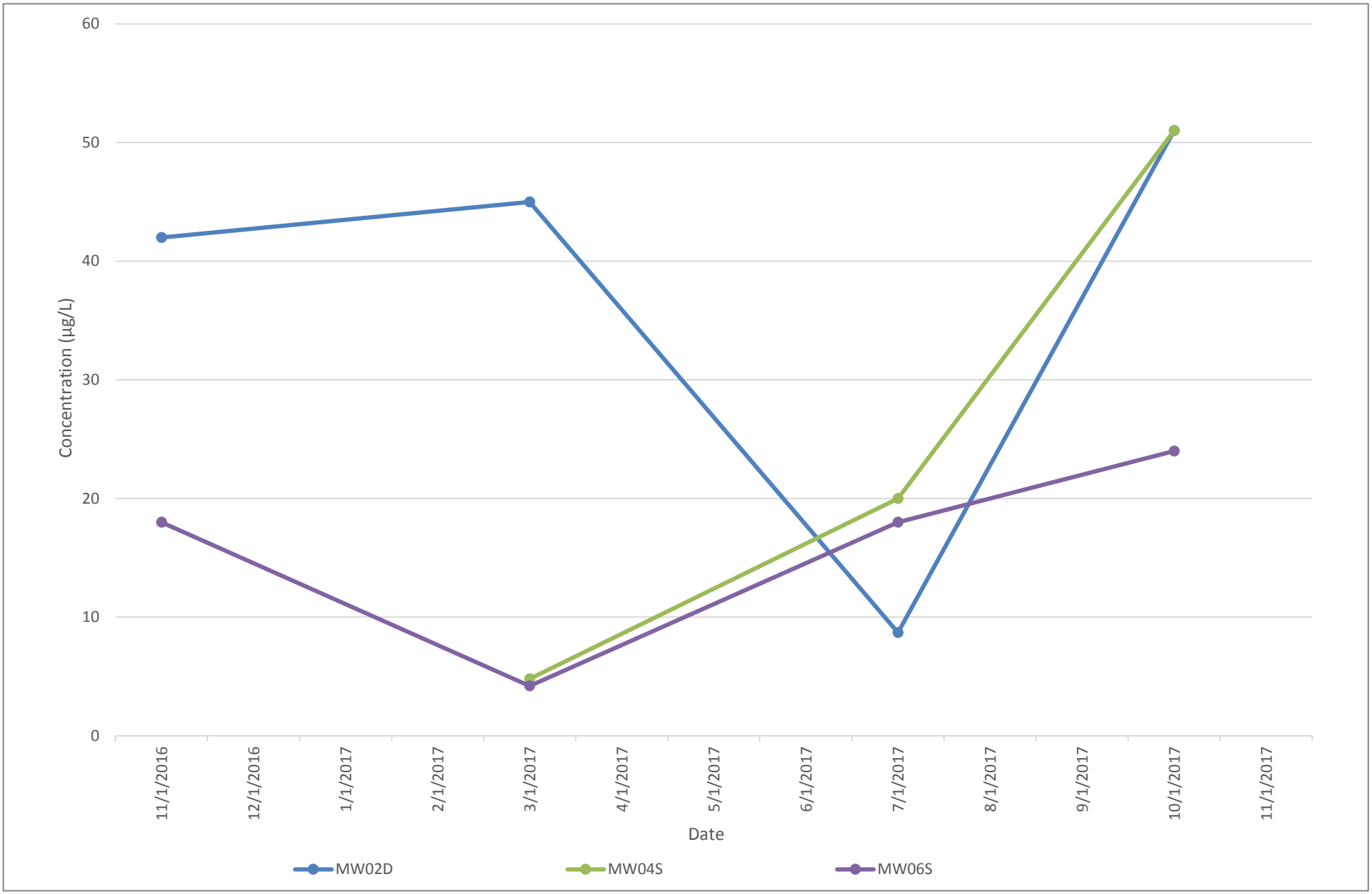
D:\GIS\GaryLandfill\MXD\2017data_post\Napthalene_data_post_marker_v2.mxd

FIGURE 4-22
TOTAL ARSENIC CONCENTRATION OVER TIME (0-20 µg/L)



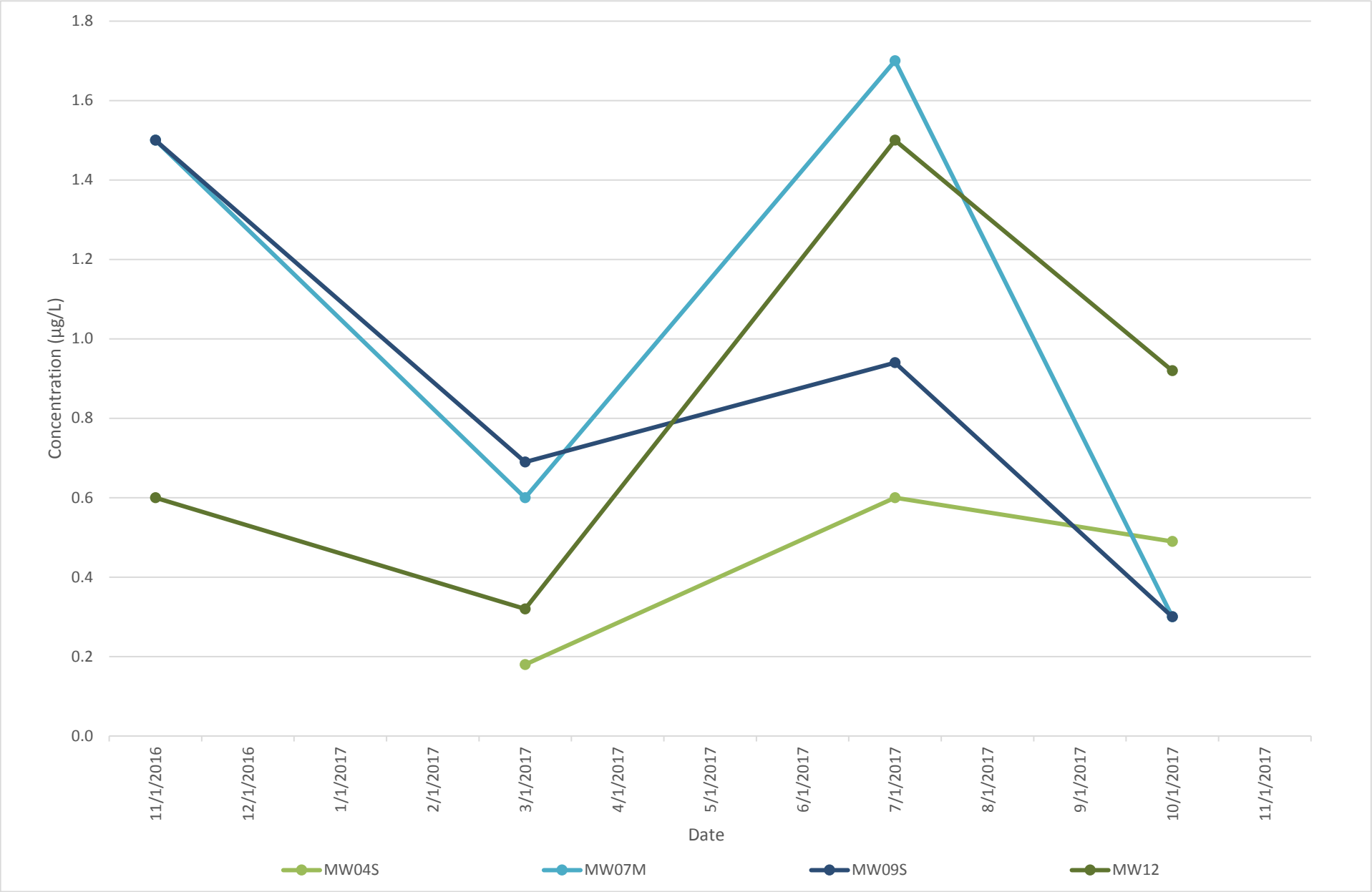
Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-23
TOTAL ARSENIC CONCENTRATION OVER TIME (>20 µg/L)



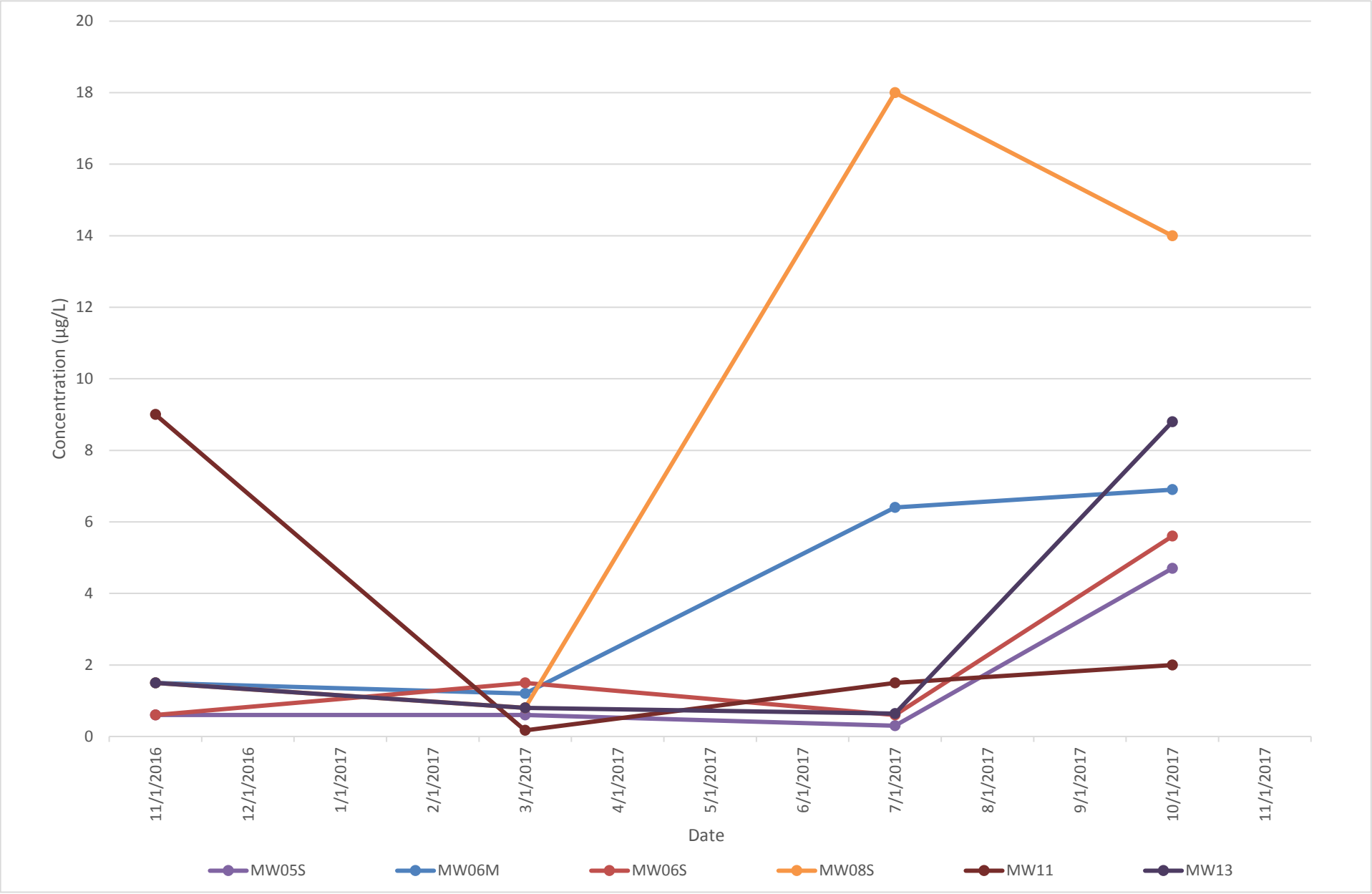
Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-24
HEXAVALENT CHROMIUM CONCENTRATION OVER TIME (0-2 µg/L)



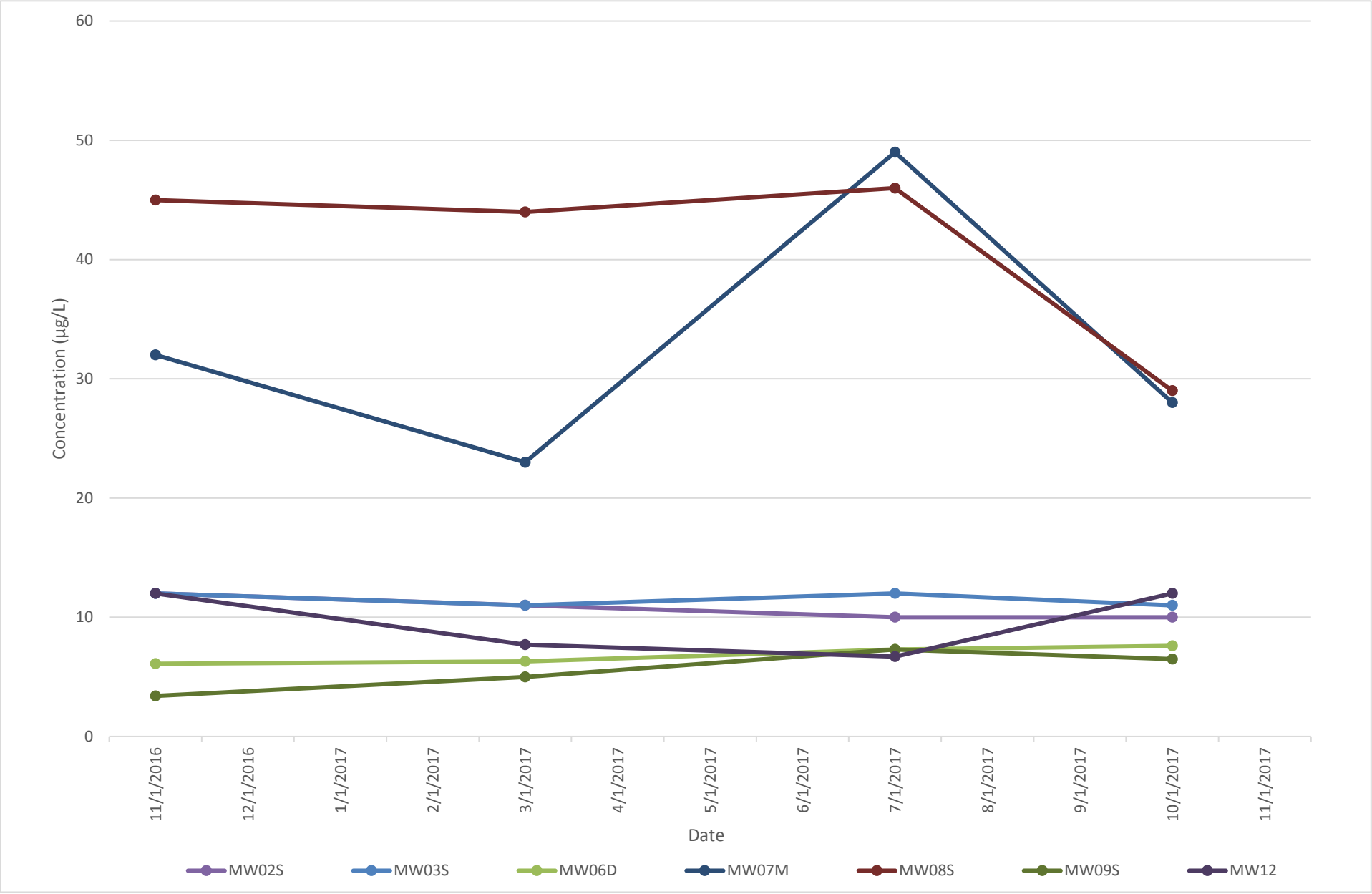
Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-25
HEXAVALENT CHROMIUM CONCENTRATION OVER TIME (>2 µg/L)



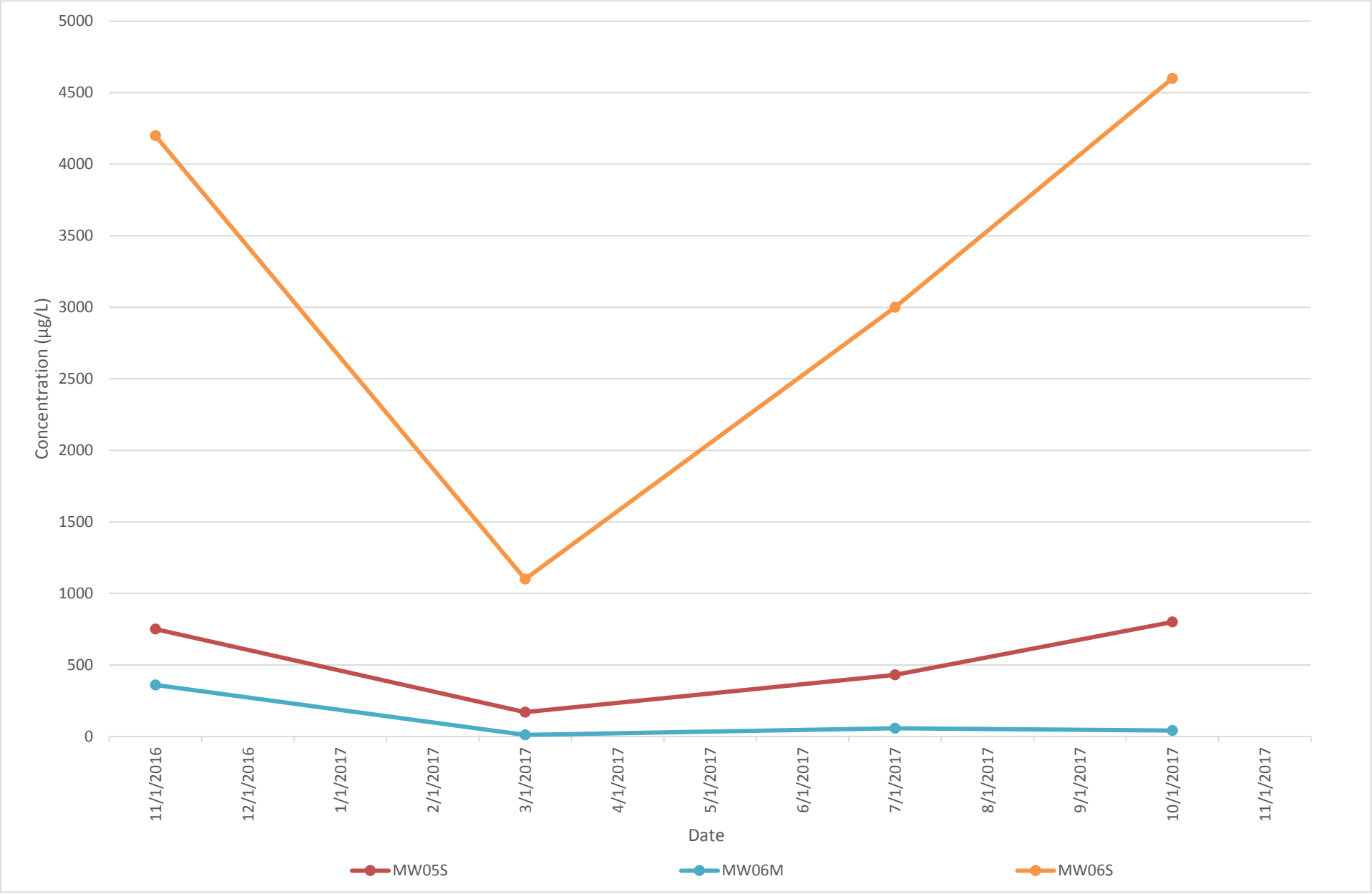
Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-26
BENZENE CONCENTRATION OVER TIME (0-50 µg/L)



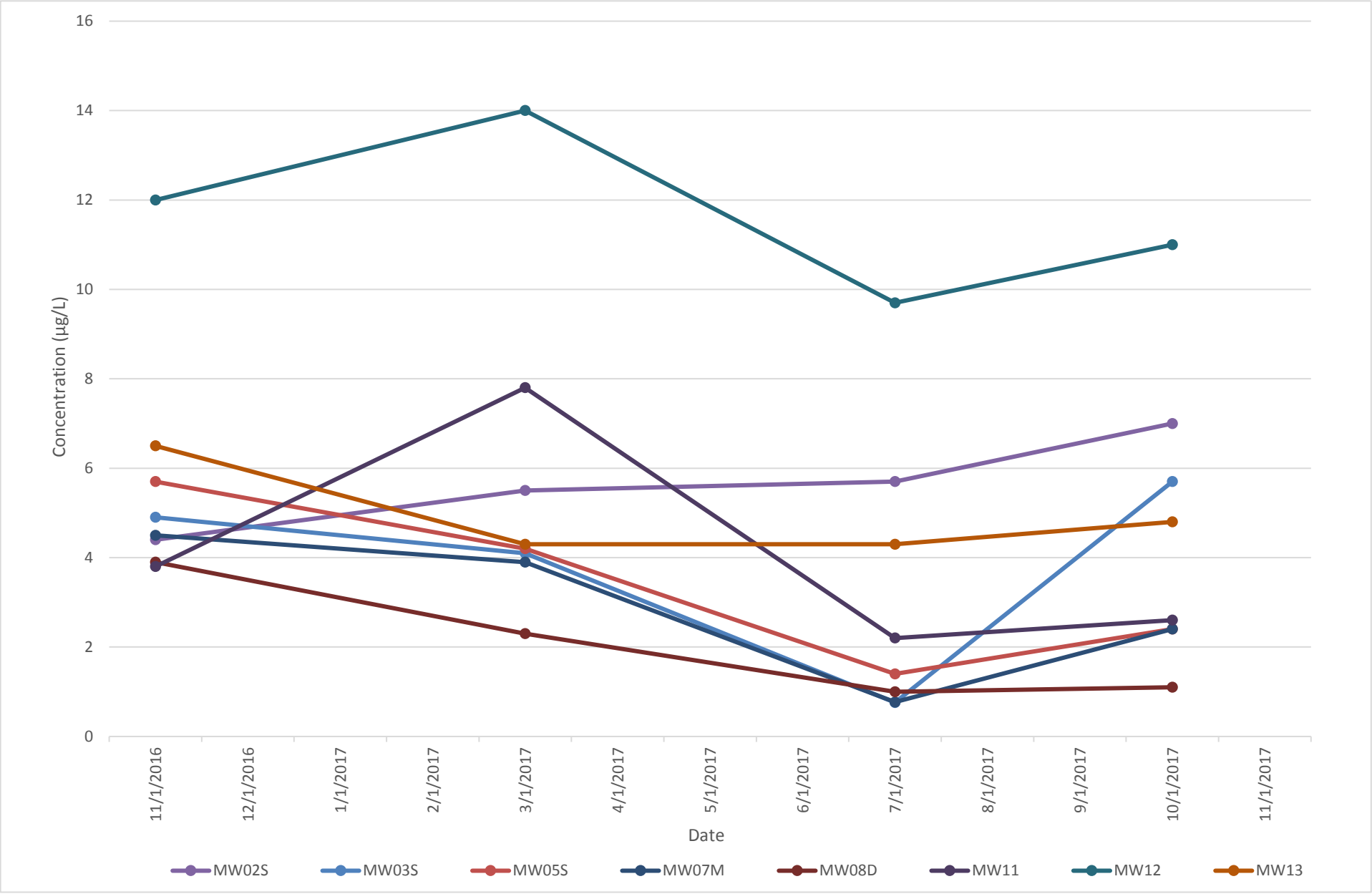
Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-27
BENZENE CONCENTRATION OVER TIME (> 50)



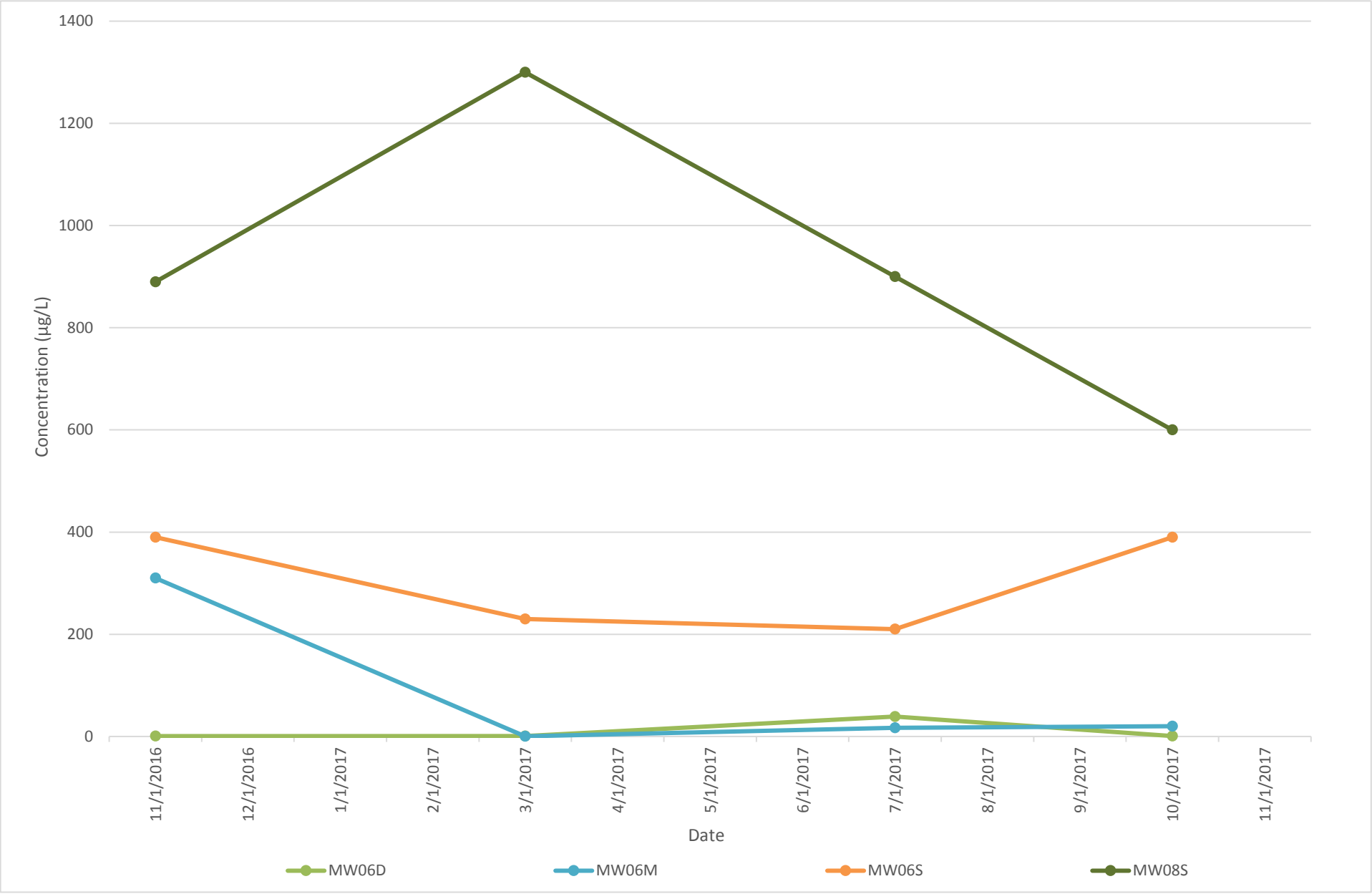
Note: Where non-detect, the laboratory reporting limit was used

FIGURE 4-28
NAPHTHALENE CONCENTRATION OVER TIME (0-15 µg/L)



Note: Where non-detect, the laboratory reporting limit was used.

FIGURE 4-29
NAPHTHALENE CONCENTRATION OVER TIME (>15 µg/L)



Note: Where non-detect, the laboratory reporting limit was used.

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-30
Benzo(a)pyrene in Surface Soil (August 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 448411
File Name: Surface_Soil_BaP.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Surface_Soil_BaP.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-31
Lead in Surface Soil (August 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 448411
File Name: Surface_Soil_Lead.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Surface_Soil_Lead.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-32
PCB Aroclor 1254 in Surface Soil (August 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: Surface_Soil_PCB.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\Surface_Soil_PCB.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-33
2-methylnapthalene in Subsurface Soils (August 2016 to March 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 448411
File Name: SubSurface_Soil_Methyl.mxd		

D:\GIS\GaryLandfill\MXD\2017\data_posts\SubSurface_Soil_Methyl.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-34
Benzo(a)pyrene in Subsurface Soils (August 2016 to March 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

Note: At MW05S, 2 to 3 ft, duplicate value is 740 µg/kg.

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: SubSurface_Soil_BaP.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SubSurface_Soil_BaP.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-35
Benzene in Subsurface Soils (August 2016 to March 2017)
Gary Development Landfill Superfund Site
Gary, Indiana

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: SubSurface_Soil_Benzene.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SubSurface_Soil_Benzene.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-36
Benzene in Soil Gas (September/December 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

Note: At GV17, duplicate value is 23,000 J µg/m3.

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: SoilGas_Benzene.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SoilGas_Benzene.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-37
Ethylbenzene in Soil Gas (September/December 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

Note: At GV17, duplicate value is 110,000 J µg/m3.

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: SoilGas_EthylyBenzene_v2.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SoilGas_EthylyBenzene_v2.mxd

PARSONS

10 South Riverside Plaza, Suite 400
Chicago, Illinois 60606-3724

Figure 4-38
Methane in Soil Gas (September/December 2016)
Gary Development Landfill Superfund Site
Gary, Indiana

Note: At GV17, duplicate value is 110 J %v/v.

C. Oneal	2/1/2018	
Revision: 2/1/2018		Parsons Project No. 449595
File Name: SoilGas_Methane.mxd		

D:\GIS\GaryLandfill\MXD\2017data_posts\SoilGas_Methane.mxd

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD07S-160908		SD107S-160908		SD07M-160908		SD08S-160908		SD08M-160908	
				Location	SD07		SD07		SD07		SD08		SD08	
				SDG	5001167931		5001167931		5001167931		5001167931		5001167931	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		9/8/2016		9/8/2016		9/8/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	11000		11000		13000		11000		17000	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	3	U	2.7	U	1.8	J	2.9	U	3.3	J
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	5.2		8		**17**		4.7		**15**	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	79		110		160		71		210	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.8		0.85		1.5		0.88		2.2	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.64		**1.1**		**3.5**		0.42		**1.6**	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	37000		37000		26000		41000		46000	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**52**	J	**92**	J	**200**		39		**280**	
SW6010C	7440-48-4	COBALT	50	mg/kg	9		8.8		9.2		7.6		6.5	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**49**		**82**		**160**		**57**		**200**	
SW6010C	7439-89-6	IRON	NS	mg/kg	24000		31000		56000		24000		61000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**68**		**110**		**310**		**66**		**330**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	20000		19000		12000		18000		21000	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	510		670		830		440		8400	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**30**		**35**		**50**		**30**		**46**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	2100		2000		2200		2700		1800	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	1.5	U	2		2.8		0.99	J	4	
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.33	J	**0.65**	J	**2**		0.71	U	**1.9**	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	570		620		1700		770		1100	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.5	U	1.4	U	0.92	J	1.4	U	7.5	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	23		29		50		23		100	
SW6010C	7440-66-6	ZINC	121	mg/kg	**280**		**400**		**1200**		**170**		**670**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	**0.18**		**0.23**		**1.2**		0.051		**0.19**	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	0.32	J	0.38	J	**1.6**		0.24	J	**1.7**	
SW9045D	PH	pH	NS	ph units	8.3		8.4		8.2		8.2		8	

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD07S-160908		SD107S-160908		SD07M-160908		SD08S-160908		SD08M-160908	
				Location	SD07		SD07		SD07		SD08		SD08	
				SDG	5001167931		5001167931		5001167931		5001167931		5001167931	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		9/8/2016		9/8/2016		9/8/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	12	U	12	U	34	U	13	U	29	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	12	U	12	U	34	U	13	U	29	U
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	24	U	120	U	670	U	25	U	28	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	**220**	J	**850**	J	**6800**		25	U	28	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	**300**	J	**500**	J	**3800**		25	U	28	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	24	U	120	U	**1200**		41		**97**	
VOLATILES														
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	6.5	U	6.7	U	15		6.5	U	8	U
SW8260B	67-64-1	ACETONE	9.9	ug/kg	26	UJ	**32**	J	**71**		26	U	**37**	
SW8260B	71-43-2	BENZENE	142	ug/kg	6.5	U	6.7	U	10	U	6.5	U	8	U
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	6.5	U	6.7	U	10	U	6.5	U	8	U
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	6.5	U	6.7	U	10	U	6.5	U	8	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	6.5	U	6.7	U	10	U	6.5	U	8	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	6.5	U	6.7	U	27		27		33	
SW8260B	108-88-3	TOLUENE	1220	ug/kg	10	J	96	J	10	U	6.5	U	8	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	6.5	U	6.7	U	10	U	6.5	U	8	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	13	U	13	U	21	U	13	U	16	U

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD07S-160908		SD107S-160908		SD07M-160908		SD08S-160908		SD08M-160908	
				Location	SD07		SD07		SD07		SD08		SD08	
				SDG	5001167931		5001167931		5001167931		5001167931		5001167931	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		9/8/2016		9/8/2016		9/8/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	27	J	23	J	**370**	J	19	J	**48**	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	28	J	**83**	J	**320**		31	J	**140**	
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	**42**	J	**41**	J	**940**		14	J	**47**	J
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	34	J	32	J	**850**		22	J	**280**	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**140**		**150**		**1400**		87		**790**	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	**170**		**170**		**2600**		98		**740**	
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	220		240		4700		130		1200	
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	170		150		**1100**		96		**400**	
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	110		95		**1800**		63		**360**	
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	2400	U	2500	U	3400	U	2600	U	2800	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	99	J	250	U	**640**		260	U	280	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	240	U	250	U	340	U	260	U	150	J
SW8270D	218-01-9	CHRYSENE	166	ug/kg	160		**170**		**2800**		110		**830**	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	48	U	50	U	**160**		51	U	**72**	
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	240	U	250	U	**600**		260	U	83	J
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	250		300		**4600**		170		**1700**	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	16	J	27	J	**250**		12	J	**140**	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	130		130		**990**		81		**340**	
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	39	J	39	J	**530**		90		49	J
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	96		68		**1100**		68		**1100**	
SW8270D	108-95-2	PHENOL	167	ug/kg	240	U	250	U	340	U	260	U	280	U
SW8270D	129-00-0	PYRENE	195	ug/kg	**210**		**250**		**3000**		150		**1300**	

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD09S-160908		SD09M-160908		SD10S-161025		SD10M-161025		SD11S-161025		SD11M-161025	
				Location	SD09		SD09		SD10		SD10		SD11		SD11	
				SDG	5001167931		5001167931		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	10000		8300		13000		12000		13000		14000	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	0.62	J	2.2	U	1.3	J	1.3	J	1.2	J	1	J
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	6.3		6.4		7.2		8.3		5.8		7.1	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	150		73		140		140		190		160	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.92		0.62		0.85		0.83		0.88		0.88	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.9		0.35		0.68		0.69		0.5		0.57	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	41000		31000		34000		35000		40000		46000	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**64**		24		38		38		**62**		41	
SW6010C	7440-48-4	COBALT	50	mg/kg	6.3		7.4		8.1		7.7		7.1		10	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**120**		**46**		**140**		**130**		**110**		**93**	
SW6010C	7439-89-6	IRON	NS	mg/kg	23000		15000		20000		20000		20000		22000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**110**		**60**		**91**		**89**		**58**		**60**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	16000		13000		17000		17000		15000		20000	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	960		630		500		510		1100		730	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**26**		19		**64**		**58**		**27**		**33**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1100		1200		1800		1600		2600		4300	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	1.2		0.81	J	1.4	U	0.87	J	0.97	J	1.3	
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.46	J	0.16	J	0.7	U	0.18	J	0.41	J	0.26	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	340		230		290		260		940		1000	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.1	U	1.1	U	1.4	U	1.2	U	1.3	U	1.3	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	24		18		27		26		33		30	
SW6010C	7440-66-6	ZINC	121	mg/kg	**360**		120		**280**		**290**		**210**		**190**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	0.11		0.04		0.085		0.12		0.11		0.094	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	**0.57**		0.26	J	0.72	U	0.61	U	0.29	J	0.75	U
SW9045D	PH	pH	NS	ph units	8.5		8.3		8		8.1		8		8.5	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD09S-160908		SD09M-160908		SD10S-161025		SD10M-161025		SD11S-161025		SD11M-161025	
				Location	SD09		SD09		SD10		SD10		SD11		SD11	
				SDG	5001167931		5001167931		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	21	U	11	U	12	U	12	U	12	U	13	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	21	U	11	U	12	U	12	U	12	U	13	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	21	U	22	U	24	U	240	U	24	U	26	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	21	U	22	U	**190**		**290**		24	U	26	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	**100**		22	U	24	U	240	U	24	U	26	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	50		26		24	U	240	U	24	U	26	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	5.4	U	7.8		5.9	U	5.5		5.3	U	7.2	U
SW8260B	67-64-1	ACETONE	9.9	ug/kg	22	U	**26**		**25**		**27**		21	U	29	U
SW8260B	71-43-2	BENZENE	142	ug/kg	5.4	U	4.9	U	2.4	U	1.9	U	2.1	U	2.9	U
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	5.4	U	4.9	U	5.9	U	4.7	U	5.3	U	7.2	U
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	5.4	U	4.9	U	2.4	U	1.9	U	2.1	U	2.9	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	5.4	U	4.9	U	2.4	U	1.9	U	2.1	U	2.9	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	5.4	U	4.9	U	5.9	U	4.7	U	5.3	U	7.2	U
SW8260B	108-88-3	TOLUENE	1220	ug/kg	5.4	U	4.9	U	2.4	U	1.9	U	2.1	U	2.9	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	5.4	U	4.9	U	2.4	U	1.9	U	2.1	U	2.9	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	11	U	9.8	U	4.7	U	3.8	U	4.2	U	5.8	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD09S-160908		SD09M-160908		SD10S-161025		SD10M-161025		SD11S-161025		SD11M-161025	
				Location	SD09		SD09		SD10		SD10		SD11		SD11	
				SDG	5001167931		5001167931		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	9/8/2016		9/8/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	21	J	9.4	J	22	J	23	J	**49**	J	**38**	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	11	J	43	U	16	J	48	U	49	U	50	U
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	**36**	J	7.3	J	11	J	18	J	9.9	J	8	J
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	41		16	J	55		34	J	23	J	19	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**150**		71		**170**		**120**		**110**		**110**	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	**170**		71		**170**		140		140	J+	130	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	230		77		270		220		230	J+	230	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	110		75		76		65		61	J+	59	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	140		40	J	94		80		88	J+	80	J+
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	2000	U	2200	U	2300	U	2400	U	2500	U	2600	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	75	J	220	U	230	U	110	J	170	J	130	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	200	U	220	U	230	UJ	240	UJ	250	UJ	260	UJ
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	218-01-9	CHRYSENE	166	ug/kg	**170**		80		**190**		140		130		140	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	23	J	43	U	24	J	22	J	23	J+	20	J+
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	280		83		380		240		170		190	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	12	J	43	U	20	J	11	J	9	J	12	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	89		41	J	90		71		69	J+	66	J+
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	23	J	12	J	30	J	27	J	24	J	20	J
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	120		53		**250**		130		110		96	
SW8270D	108-95-2	PHENOL	167	ug/kg	200	U	220	U	230	U	240	U	250	U	260	U
SW8270D	129-00-0	PYRENE	195	ug/kg	**230**		88		**330**		**220**		190		**230**	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD12S-161025		SD12M-161025		SD13S-161026		SD13M-161026		SD14S-161026		SD14M-161026	
				Location	SD12		SD12		SD13		SD13		SD14		SD14	
				SDG	5001190671		5001190671		5001191511		5001191511		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	10/25/2016		10/25/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	7900		7900	J	9500		13000		20000		15000	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	0.84	J	6.2	J	0.66	J	11		6.3		3.4	J
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	6.4		**22**	J	5		**52**		**33**		**19**	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	48		78	J	66		130		220		130	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.51		0.69	J	0.58		0.93		1.3		1.2	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.29		**2.8**	J	0.32		**3.5**		**4.2**		**3**	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	27000		4300	J	39000		11000		35000		45000	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	23		**370**	J	23		**390**		**540**		**390**	
SW6010C	7440-48-4	COBALT	50	mg/kg	5.8		3.7		8.8		13		7.7		10	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**41**		**280**	J	**97**		**540**		**640**		**280**	
SW6010C	7439-89-6	IRON	NS	mg/kg	16000		31000	J	14000		63000		70000		74000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	34		**600**	J	26		**1000**		**540**		**480**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	12000		2300	J	21000		5500		7600		17000	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	270		190	J	460		640		650		720	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	21		**47**	J	22		**140**		**60**		**54**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	6100		4400	J	3100		1800		11000		8800	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	0.6	J	2.4		1.1	J	4.4		5.4		3.5	
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.59	U	**1.4**		0.6	U	**1.6**		**1.9**		**1.8**	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	4600		4900	J	730		1100		11000		6700	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.2	U	1	J	1.2	U	1	J	2.6	U	2.2	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	17		18	J	18		25		52		38	
SW6010C	7440-66-6	ZINC	121	mg/kg	100		**540**	J	110		**1300**		**1200**		**1400**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	0.043		**0.21**		0.022		**0.35**		**0.37**		**0.38**	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	0.74	U	**0.81**	J	0.57	U	**1.7**		**2.4**		**2**	
SW9045D	PH	pH	NS	ph units	8.5		8.2		9		8.3		7.8		8	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD12S-161025		SD12M-161025		SD13S-161026		SD13M-161026		SD14S-161026		SD14M-161026	
				Location	SD12		SD12		SD13		SD13		SD14		SD14	
				SDG	5001190671		5001190671		5001191511		5001191511		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	10/25/2016		10/25/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	2.7	U	62	U	21	U	51	U	94	U	38	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	2.7	U	62	U	21	U	51	U	94	U	38	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	28	U	1500	U	22	U	25000	U	470	U	1900	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	28	U	**23000**		**85**		**130000**		470	U	**15000**	
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	**130**		1500	U	43		25000	U	**1700**		**8400**	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	28	U	1500	U	22	U	25000	U	470	U	1900	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	7.7	U	32		5.4	U	**46**		14	U	**410**	
SW8260B	67-64-1	ACETONE	9.9	ug/kg	31	U	**110**		**22**		**170**		**61**		**1100**	
SW8260B	71-43-2	BENZENE	142	ug/kg	3.1	U	7.1		2.2	U	10		12		24	
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	7.7	U	9.6	U	5.4	U	4.9	J	14	U	14	U
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	3.1	U	3.9	U	2.2	U	3.6	U	5.6	U	5.5	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	3.1	U	3.9	U	2.2	U	3.8		5.6	U	5.5	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	63		100		44		120		140		270	
SW8260B	108-88-3	TOLUENE	1220	ug/kg	3.1	U	3.9	U	2.2	U	11		5.6	U	5.5	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	3.1	U	3.9	U	2.2	U	9.2		5.6	U	5.5	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	6.1	U	7.7	U	4.3	U	7.7		11	U	11	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD12S-161025		SD12M-161025		SD13S-161026		SD13M-161026		SD14S-161026		SD14M-161026	
				Location	SD12		SD12		SD13		SD13		SD14		SD14	
				SDG	5001190671		5001190671		5001191511		5001191511		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1		0		1	
				End Depth (ft)	1		2		1		2		1		2	
				Date Sampled	10/25/2016		10/25/2016		10/26/2016		10/26/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	270	U	3100	U	220	U	15000	U	460	U	360	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	270	U	3100	U	220	U	15000	U	460	U	360	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	20	J	**300**	J	20	J	**1400**	J	**80**	J	**62**	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	270	U	3100	U	220	UJ	15000	UJ	460	U	360	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	12	J	**2300**		13	J	**140000**		**150**		**270**	
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	19	J	**3800**		7.2	J	**17000**	J	**110**		**120**	
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	15	J	**2000**		23	J	**70000**		**120**		**160**	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	44	J	**7500**		**230**		**120000**	J+	**160**		**160**	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	73		**20000**	J+	**330**		**98000**	J+	91	UJ	**420**	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	110		**42000**	J+	470		**180000**	J+	91	UJ	560	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	56		**8600**	J+	140		**50000**	J+	**210**	J+	**210**	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	34	J	**14000**	J+	210		**93000**	J+	91	UJ	**650**	J+
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	2700	U	31000	U	2200	U	150000	U	4600	U	3600	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	270	U	3100	U	220	U	15000	UJ	460	U	**220**	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	270	UJ	3100	UJ	220	UJ	15000	UJ	460	UJ	360	UJ
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	270	U	3100	U	220	UJ	15000	UJ	460	U	360	U
SW8270D	218-01-9	CHRYSENE	166	ug/kg	62		**11000**		**260**		**170000**	J+	**310**		**520**	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	17	J	**2200**	J+	**48**		**13000**	J+	91	UJ	**50**	J+
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	270	U	**1000**	J	220	U	**94000**		130	J	360	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	270	U	3100	U	220	U	15000	U	460	U	360	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	89		**10000**		290		**560000**		380		**730**	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	12	J	**1000**		9.8	J	**130000**		77	J	**120**	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	61		**11000**	J+	130		**43000**	J+	**230**	J+	**240**	J+
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	29	J	**320**	J	10	J	**1100**	J	100		80	
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	46	J	**1400**		95		**84000**		180		150	
SW8270D	108-95-2	PHENOL	167	ug/kg	270	U	3100	U	220	U	15000	U	460	U	360	U
SW8270D	129-00-0	PYRENE	195	ug/kg	85		**59000**		**230**		**540000**	J+	**440**		**1100**	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD15S-161101		SD16S-160930		SD16M-160930		SD17S-161026		SD17M-161026	
				Location	SD15		SD16		SD16		SD17		SD17	
				SDG	5001194391		5001179741		5001179741		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	11/1/2016		9/30/2016		9/30/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	11000		9800		17000	J	9100		8900	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	0.9	J	11	J	4.8	J	8.3		17	J
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	6		**71**		**28**	J	**38**		**58**	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	70		130		240	J	120		100	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.66		2.1	J	1.1	J	1.4		2.7	J
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.46		**13**		**3.2**	J	**5.4**		**8.2**	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	42000		13000		36000	J	9900		8900	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**53**		**1500**		**340**	J	**930**		**1500**	
SW6010C	7440-48-4	COBALT	50	mg/kg	8.2		19		6.7	J	9.9		14	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**59**		**280**		**370**	J	**210**		**320**	
SW6010C	7439-89-6	IRON	NS	mg/kg	21000		480000		49000	J	170000		260000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**55**		**2300**		**390**	J	**950**		**1500**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	17000		6200		10000	J	5200		4800	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	350		4200		450	J	1500		1800	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**26**		**140**		**47**	J	**87**		**130**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	6700		4200		5900	J	3800		4100	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	0.86	J	9.3		4.4	J	4.7		6.2	J
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.2	J	**9.2**		**0.7**	J	**4.7**		**5.8**	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	3500		4600		6100	J	3500		3900	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.3	U	3.6	J	3.6	UJ	1.1	J	11	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	22		69		57	J	36		44	
SW6010C	7440-66-6	ZINC	121	mg/kg	**150**		**9600**		**720**	J	**3100**		**3000**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	0.1		**0.63**		**0.34**	J	**0.79**		**0.93**	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	0.27	J	**3.4**		**0.78**	J	**1.6**		**3.1**	
SW9045D	PH	pH	NS	ph units	8.5		7.3		8.2	J	7.8		7.5	

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD15S-161101		SD16S-160930		SD16M-160930		SD17S-161026		SD17M-161026	
				Location	SD15		SD16		SD16		SD17		SD17	
				SDG	5001194391		5001179741		5001179741		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	11/1/2016		9/30/2016		9/30/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	24	U	**87**	J	**65**	J	65	U	78	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	24	U	360	U	67	UJ	**220**		**280**	
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	24	U	**51000**		130	UJ	1600	U	3700	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	24	U	**48000**		**1000**	J	**18000**		**37000**	
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	24	U	**26000**		**630**	J	**16000**		**28000**	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	24	U	3500	U	**260**	J	1600	U	3700	U
VOLATILES														
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	6.9	U	**64**		**870**	J	41		35	
SW8260B	67-64-1	ACETONE	9.9	ug/kg	28	U	**270**		**1300**	J	**930**		**230**	
SW8260B	71-43-2	BENZENE	142	ug/kg	40		11	U	**220**	J	5.4		4.9	U
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	6.9	U	11	U	23	J	11	U	12	U
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	2.8	U	11	U	13	J	4.4	U	4.9	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	2.8	U	11	U	25	UJ	4.4	U	4.9	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	69		26		160	J	70		80	
SW8260B	108-88-3	TOLUENE	1220	ug/kg	2.8	U	11	U	25	UJ	4.4	U	4.9	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	2.8	UJ	11	U	25	UJ	4.4	U	4.9	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	5.5	U	23	U	49	UJ	8.8	U	9.8	U

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD15S-161101		SD16S-160930		SD16M-160930		SD17S-161026		SD17M-161026	
				Location	SD15		SD16		SD16		SD17		SD17	
				SDG	5001194391		5001179741		5001179741		5001191511		5001191511	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		1		0		1	
				End Depth (ft)	1		1		2		1		2	
				Date Sampled	11/1/2016		9/30/2016		9/30/2016		10/26/2016		10/26/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	250	U	350	U	670	UJ	8400	U	3800	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	250	U	350	U	670	UJ	8400	U	3800	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	**76**	J	**1100**		**230**	J	**740**	J	**2400**	
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	250	U	350	U	670	UJ	8400	U	3800	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	**120**		**1800**		**290**	J	**1300**	J	**1600**	
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	**47**	J	**690**		**77**	J	**1800**		**6100**	
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	49		**1800**		**140**	J	1700	U	**4900**	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**110**	J+	**4000**	J+	**380**	J+	**1600**	J	**10000**	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	**210**	J+	**4900**	J+	**640**	J+	**5500**	J+	**25000**	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	380	J+	8700	J+	1200	J+	6600	J+	**31000**	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	**200**	J+	**3200**	J+	**390**	J+	**3900**	J+	**12000**	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	110	J+	**3200**	J+	**340**	J+	**2700**	J+	**27000**	J+
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	2500	UJ	3500	U	1500	J	84000	UJ	38000	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	**200**	J+	**2200**	J+	**840**	J+	8400	U	3800	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	250	UJ	350	UJ	670	UJ	8400	UJ	3800	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	250	U	350	U	670	UJ	8400	U	3800	UJ
SW8270D	218-01-9	CHRYSENE	166	ug/kg	**210**	J+	**4200**	J+	**840**	J+	**6300**		**9500**	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	**41**	J+	**820**	J+		R	**740**	J+	**2800**	J+
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	91	J	**2700**		210	J	8400	U	**4800**	
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	250	U	350	U	670	UJ	8400	U	3800	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	200		**10000**		**650**	J	**2600**		**12000**	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	55		**1600**		**160**	J	**760**	J	**1900**	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	180	J+	**2600**	J+	**270**	J+	**3800**	J+	**13000**	J+
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	94		**1100**		**250**	J	**880**	J	**2100**	
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	160		**1900**		**430**	J	1700	U	**5200**	
SW8270D	108-95-2	PHENOL	167	ug/kg	250	U	350	U	670	UJ	8400	U	3800	U
SW8270D	129-00-0	PYRENE	195	ug/kg	**420**	J+	**18000**	J+	**1300**	J+	**27000**		**15000**	

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD18S-160930		SD18M-160930		SD19S-160930		SD19M-160930	
				Location	SD18		SD18		SD19		SD19	
				SDG	5001179741		5001179741		5001179741		5001179741	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1	
				End Depth (ft)	1		2		1		2	
				Date Sampled	9/30/2016		9/30/2016		9/30/2016		9/30/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE												
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	20000		11000		10000		12000	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	13		15	J	1.8	U	3.1	
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	**29**		**73**		6.3		**18**	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	400		100		67		100	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	2.8		2.6	J	0.64		0.99	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	**5.4**		**15**		0.39		**3.1**	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	5400		13000		29000		24000	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**1500**		**1900**		26		**390**	
SW6010C	7440-48-4	COBALT	50	mg/kg	12		19		9.8		12	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**290**		**390**		**64**		**190**	
SW6010C	7439-89-6	IRON	NS	mg/kg	180000		300000		18000		87000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**1600**		**1400**		**70**		**500**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	3900		4100		16000		12000	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	1600		2600		590		1000	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**120**		**220**		**28**		**70**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	7000		8600		1500		2200	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	7.8		10	J	0.48	J	2.4	
SW6010C	7440-22-4	SILVER	0.5	mg/kg	**18**		**4.3**	J	0.46	U	**1.9**	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	6600		9900		95		680	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	2.8	U	4.6	J	0.92	U	0.89	J
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	46		48		20		31	
SW6010C	7440-66-6	ZINC	121	mg/kg	**4100**		**2900**		110		**1700**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	**2.7**		**0.56**		0.038		**0.24**	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	**2.1**		**5**		0.57	U	**1.2**	
SW9045D	PH	pH	NS	ph units	7.5		7.8		8.4		7.2	

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD18S-160930		SD18M-160930		SD19S-160930		SD19M-160930	
				Location	SD18		SD18		SD19		SD19	
				SDG	5001179741		5001179741		5001179741		5001179741	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1	
				End Depth (ft)	1		2		1		2	
				Date Sampled	9/30/2016		9/30/2016		9/30/2016		9/30/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES												
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	**120**	J	**110**	J	2	U	580	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	240	U	430	U	2	U	580	U
PCBS												
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	470	U	**29000**		20	U	**35000**	
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	**3900**		**48000**		20	U	**37000**	
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	**4500**		**21000**		32		**12000**	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	470	U	4200	U	20	U	2900	U
VOLATILES												
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg			**530**		4.6	U	**45**	
SW8260B	67-64-1	ACETONE	9.9	ug/kg	**490**				19	U	**200**	
SW8260B	71-43-2	BENZENE	142	ug/kg	17	U	10	J	4.6	U	9.4	U
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	17	U	22		4.6	U	4.8	J
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	17	U	16	U	4.6	U	9.4	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	17	U	16	U	4.6	U	9.4	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	50		320		4.6	U	46	
SW8260B	108-88-3	TOLUENE	1220	ug/kg	17	U	16	U	4.6	U	9.4	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	17	U	9.7	J	4.6	U	9.4	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	33	U	11	J	9.3	U	19	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD18S-160930		SD18M-160930		SD19S-160930		SD19M-160930	
				Location	SD18		SD18		SD19		SD19	
				SDG	5001179741		5001179741		5001179741		5001179741	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		0		1	
				End Depth (ft)	1		2		1		2	
				Date Sampled	9/30/2016		9/30/2016		9/30/2016		9/30/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	2400	U	6000	U	200	U	790	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	2400	U	6000	U	200	U	790	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	**460**	J	**1800**	J	79	U	**1700**	
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	2400	U	6000	U	200	U	**300**	J
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	**200**	J	**8300**		39	U	**26000**	
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	**620**		**3900**		39	U	**800**	
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	**540**		**4900**		7.2	J	**4800**	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**1600**		**12000**	J+	21	J	**7600**	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	**3100**		**23000**	J+	24	J	**6800**	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	4100		**41000**	J+	35	J	**11000**	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	**2100**		**12000**	J+	39	U	**1600**	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	**1800**		**14000**	J+	18	J	**3500**	J+
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	24000	UJ	60000	U	2000	UJ	7900	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	**1000**	J	6000	UJ	140	J	**1900**	
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	2400	U	6000	UJ	200	U	790	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	2400	U	6000	U	200	U	790	U
SW8270D	218-01-9	CHRYSENE	166	ug/kg	**1900**		**15000**	J+	38	J	**8000**	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	**450**	J	**3100**	J+	39	U	**410**	J+
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	2400	U	**3900**	J	200	U	**3800**	
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	2400	U	6000	U	200	U	790	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	**2900**		**16000**		45		**31000**	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	**180**	J	**4800**		39	U	**17000**	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	**2200**	J	**11000**	J+	39	UJ	**1500**	J+
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	**580**		**1900**		39	U	**1000**	
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	**1100**		**3400**		26	J	**2400**	
SW8270D	108-95-2	PHENOL	167	ug/kg	2400	U	6000	U	200	U	790	U
SW8270D	129-00-0	PYRENE	195	ug/kg	**3100**		**31000**	J+	41		**31000**	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD20S-161025		SD20M-161025		SD20D-161025		SD21S-161025		SD21M-161025		SD21D-161025	
				Location	SD20		SD20		SD20		SD21		SD21		SD21	
				SDG	5001190671		5001190671		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		2		0		1		2	
				End Depth (ft)	1		2		5		1		2		5	
				Date Sampled	10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	13000		10000		NA		13000		8300		NA	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	1.6	J	1.2	J	NA		1.4	J	0.96	J	NA	
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	7.7		4.4		NA		8.4		5.3		NA	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	150		90		NA		56		56		NA	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.93		0.79		NA		0.8		0.6	J	NA	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.98		**1.3**		NA		0.42		**1.1**		NA	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	38000		3800		NA		47000		3200		NA	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**48**		35		NA		**61**		**45**		NA	
SW6010C	7440-48-4	COBALT	50	mg/kg	8.8		5.7		NA		8.8		4.8		NA	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**140**		**45**		NA		**53**		**39**		NA	
SW6010C	7439-89-6	IRON	NS	mg/kg	23000		14000		NA		27000		13000		NA	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**110**		**85**		NA		**91**		**79**		NA	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	17000		4900		NA		24000		4400		NA	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	580		140		NA		330		82		NA	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**77**		**50**		NA		**31**		**49**		NA	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	3100		3100		NA		7200		7800		NA	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	1.8		1.9		NA		1.2	J	2.3		NA	
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.28	J	0.86	U	NA		0.24	J	0.83	U	NA	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	940		990		NA		3300		6200		NA	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.6	U	1.7	U	NA		1.7	U	1.7	U	NA	
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	30		19		NA		27		18		NA	
SW6010C	7440-66-6	ZINC	121	mg/kg	**390**		**380**		NA		**150**		**340**		NA	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	**0.19**		0.11		NA		0.12		0.056		NA	
SW9014	57-12-5	CYANIDE	0.5	mg/kg	0.85	U	0.48	J	NA		0.33	J	**2.7**		NA	
SW9045D	PH	pH	NS	ph units	8		8.3		NA		8.6		8.7		NA	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD20S-161025		SD20M-161025		SD20D-161025		SD21S-161025		SD21M-161025		SD21D-161025	
				Location	SD20		SD20		SD20		SD21		SD21		SD21	
				SDG	5001190671		5001190671		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		2		0		1		2	
				End Depth (ft)	1		2		5		1		2		5	
				Date Sampled	10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	16	U	17	U	NA		29	U	35	U	NA	
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	16	U	17	U	NA		29	U	35	U	NA	
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	30	U	340	U	270	U	2800	U	1800	U	32	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	**210**		**670**		**280**		**14000**		**18000**		**450**	
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	30	U	340	U	270	U	2800	U	1800	U	32	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	30	U	340	U	270	U	2800	U	1800	U	32	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	11	U	26		NA		24		39		NA	
SW8260B	67-64-1	ACETONE	9.9	ug/kg	**53**		**190**		NA		**120**		**170**		NA	
SW8260B	71-43-2	BENZENE	142	ug/kg	4.5	U	6.1		NA		13		20		NA	
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	11	U	11	U	NA		8.3	U	10	U	NA	
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	4.5	U	4.5	U	NA		3.3	U	4.1	U	NA	
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	4.5	U	4.5	U	NA		3.3	U	4.1	U	NA	
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	26		45		NA		120		160		NA	
SW8260B	108-88-3	TOLUENE	1220	ug/kg	4.5	U	4.5	U	NA		3.3	U	4.6		NA	
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	4.5	U	4.5	U	NA		3.3	U	4.1	U	NA	
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	9	U	9	U	NA		6.7	U	8.2	U	NA	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD20S-161025		SD20M-161025		SD20D-161025		SD21S-161025		SD21M-161025		SD21D-161025	
				Location	SD20		SD20		SD20		SD21		SD21		SD21	
				SDG	5001190671		5001190671		5001190671		5001190671		5001190671		5001190671	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		1		2		0		1		2	
				End Depth (ft)	1		2		5		1		2		5	
				Date Sampled	10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016		10/25/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	30	J	20	J	NA		**82**	J	**110**	J	NA	
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	22	J	**39**	J	NA		**170**	J	**250**	J	NA	
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	16	J	**61**	J	NA		**820**		**1100**		NA	
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	30	J	31	J	NA		**540**		**800**		NA	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**120**		48	J	NA		**3200**		**3700**		NA	
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	140	J+	89	J+	NA		**3800**	J+	**4700**	J+	NA	
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	230	J+	150	J+	NA		8400	J+	10000	J+	NA	
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	64	J+	170	J+	NA		**1700**	J+	**2100**	J+	NA	
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	86	J+	41	J+	NA		**3100**	J+	**4100**	J+	NA	
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	3100	U	3300	U	NA		14000	U	17000	U	NA	
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	170	J	330	U	NA		1400	U	1700	U	NA	
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	310	UJ	330	UJ	NA		1400	UJ	1700	UJ	NA	
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	218-01-9	CHRYSENE	166	ug/kg	150		77		NA		**3600**		**4600**		NA	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	30	J+	31	J+	NA		**450**	J+	**580**	J+	NA	
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	250		94		NA		**4900**		**5600**		NA	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	21	J	21	J	NA		**140**	J	**210**	J	NA	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	76	J+	170	J+	NA		**2100**	J+	**2600**	J+	NA	
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	30	J	64	U	NA		80	J	97	J	NA	
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	120		54	J	NA		**270**	J	**460**		NA	
SW8270D	108-95-2	PHENOL	167	ug/kg	310	U	330	U	NA		1400	U	1700	U	NA	
SW8270D	129-00-0	PYRENE	195	ug/kg	**250**		110		NA		**15000**		**19000**		NA	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD22S-161027		SD23S-161031		SD24S-161031		SD25S-161101		SD26S-161101		SD27S-161101	
				Location	SD22		SD23		SD24		SD25		SD26		SD27	
				SDG	5001192381		5001193541		5001193541		5001194391		5001194391		5001194391	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/27/2016		10/31/2016		10/31/2016		11/1/2016		11/1/2016		11/1/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	9800	J	13000	J	12000	J	1900		9600		28000	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	3.2	J	11	UJ	2	J	0.7	J	1.3	J	16	U
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	7.2	J	**11**	J	**26**	J	1.5		8.7		**16**	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	230	J	170	J	170	J	74		520		2400	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.97	J	0.97	J	0.93	J	0.19	J	0.78	J	2.1	
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	**1.1**	J	**1.2**	J	**1.1**	J	0.46		**1.1**		**1.5**	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	95000	J	56000	J	48000	J	28000		56000		30000	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**63**	J	37	J	32	J	11		41		39	
SW6010C	7440-48-4	COBALT	50	mg/kg	11	J	9.8	J	9.8	J	3.1		5.9		6.3	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**91**	J	**97**	J	**79**	J	10		**56**		**57**	
SW6010C	7439-89-6	IRON	NS	mg/kg	32000	J	29000	J	31000	J	5800		16000		23000	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**75**	J	**49**	J	**53**	J	21		**81**		**45**	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	17000	J	16000	J	17000	J	8600		11000		7600	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	850	J	450	J	380	J	190		310		200	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**35**	J	**39**	J	**36**	J	7.1		**23**		**30**	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	5300	J	12000	J	12000	J	750		2100		3600	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	6.1	UJ	3.5	J	2.5	J	0.77	J	1.2	J	1.5	J
SW6010C	7440-22-4	SILVER	0.5	mg/kg	3	UJ	2.7	UJ	2.1	UJ	0.7	U	0.35	J	0.3	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	6900	J	18000	J	16000	J	940		3100		4700	
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	6.1	UJ	5.4	UJ	4.3	UJ	1.4	U	2.1	U	1.6	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	42	J	26	J	27	J	12		34		76	
SW6010C	7440-66-6	ZINC	121	mg/kg	**270**	J	**280**	J	**270**	J	88		**210**		**170**	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	0.12	J	0.14	J	0.11	J	0.024	U	0.028	J	0.028	U
SW9014	57-12-5	CYANIDE	0.5	mg/kg	**12**	J	3	UJ	2.3	UJ	**1**		**0.63**	J	0.85	U
SW9045D	PH	pH	NS	ph units	8.5	J	7.7	J	7.6	J	9		8.1		8.5	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD22S-161027		SD23S-161031		SD24S-161031		SD25S-161101		SD26S-161101		SD27S-161101	
				Location	SD22		SD23		SD24		SD25		SD26		SD27	
				SDG	5001192381		5001193541		5001193541		5001194391		5001194391		5001194391	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/27/2016		10/31/2016		10/31/2016		11/1/2016		11/1/2016		11/1/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	110	UJ	100	UJ	83	UJ	27	U	42	U	**11**	J
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	110	UJ	100	UJ	83	UJ	27	U	42	U	31	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	110	UJ	100	UJ	82	UJ	130	U	41	U	1500	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	110	UJ	100	UJ	82	UJ	**120**	J	**330**		**1900**	J
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	110	UJ	100	UJ	82	UJ	130	U	41	U	1500	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	110	UJ	100	UJ	82	UJ	130	U	41	U	1500	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	**120**	J	**220**	J	**120**	J	19		**57**		17	
SW8260B	67-64-1	ACETONE	9.9	ug/kg	**680**	J	**980**	J	**580**	J	**83**		**310**		**100**	
SW8260B	71-43-2	BENZENE	142	ug/kg	13	UJ	**200**	J	**620**	J	2.8	U	12		3.1	U
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	33	UJ	42	UJ	28	UJ	4.1	J	8.5	J	7.6	U
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	13	UJ	17	UJ	11	UJ	2.8	U	6.1	U	3.1	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	13	UJ	37	J	21	J	2.8	U	6.1	U	3.1	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	33	UJ	120	J	95	J	7	U	15	U	7.6	U
SW8260B	108-88-3	TOLUENE	1220	ug/kg	13	UJ	33	J	27	J	2.8	U	6.1	U	3.1	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	13	UJ	21	J	12	J	2.8	UJ	6.1	UJ	3.1	UJ
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	27	UJ	46	J	32	J	5.6	U	12	U	6.1	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD22S-161027		SD23S-161031		SD24S-161031		SD25S-161101		SD26S-161101		SD27S-161101	
				Location	SD22		SD23		SD24		SD25		SD26		SD27	
				SDG	5001192381		5001193541		5001193541		5001194391		5001194391		5001194391	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/27/2016		10/31/2016		10/31/2016		11/1/2016		11/1/2016		11/1/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	390	U	320	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	390	U	320	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	**61**	J	**140**	J	**72**	J	12	J	**140**	J	20	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	1000	UJ	1100	UJ	**330**	J	260	U	390	U	320	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	200	UJ	**76**	J	**56**	J	52	U	**570**		63	U
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	29	J	210	UJ	160	UJ	52	U	21	J	63	U
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	200	UJ	45	J	40	J	8.8	J	**1300**		63	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**120**	J	**110**	J	93	J	24	J	**2300**	J+	37	J
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	140	J	120	J	46	J	26	J+	**2500**	J+	45	J
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	270	J	220	J	150	J	51	J+	3900	J+	66	
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	86	J	100	J	70	J	18	J+	**1400**	J+	27	J
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	96	J	210	UJ	59	J	52	UJ	**1400**	J+	26	J
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	10000	UJ	11000	UJ	8300	UJ	2600	UJ	3900	UJ	3200	UJ
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	1000	UJ	**380**	J	830	UJ	260	U	**1000**	J+	320	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	390	UJ	320	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	800		320	U
SW8270D	218-01-9	CHRYSENE	166	ug/kg	**200**	J	**200**	J	**420**	J	45	J	**2500**	J+	49	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	200	UJ	210	UJ	160	UJ	52	UJ	**310**	J+	15	J
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	320	J	320	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	1000	UJ	1100	UJ	830	UJ	260	U	390	U	320	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	280	J	340	J	250	J	45	J	**4200**		96	
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	55	J	**89**	J	68	J	11	J	**630**		63	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	79	J	210	UJ	160	UJ	23	J+	**1400**	J+	32	J
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	73	J	**580**	J	**340**	J	15	J	**270**		14	J
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	190	J	**250**	J	**210**	J	49	J	**4000**		49	J
SW8270D	108-95-2	PHENOL	167	ug/kg	1000	UJ	1100	UJ	**390**	J	260	U	390	U	320	U
SW8270D	129-00-0	PYRENE	195	ug/kg	**270**	J	**350**	J	**240**	J	83		**9300**	J+	75	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD28S-161101		SD29S-161027		SD30S-161027		SD30M-161027		SD31S-161027	
				Location	SD28		SD29		SD30		SD30		SD31	
				SDG	5001194391		5001192381		5001192381		5001192381		5001192381	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		1		0	
				End Depth (ft)	1		1		1		2		1	
				Date Sampled	11/1/2016		10/27/2016		10/27/2016		10/27/2016		10/27/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	19000		8300	J	5600		5800		12000	J
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	3.5		2.1	J	1.8	J	1.3	J	4.1	J
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	**20**		3.8	J	2.9		4.1		8.3	J
SW6010C	7440-39-3	BARIUM	NS	mg/kg	1100		89	J	360		180		260	J
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	1.7		0.66	J	0.53	J	0.49	J	1.3	J
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	**3.5**		0.87	J	0.98		**1.1**		**1.7**	J
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	37000		56000	J	97000		63000		82000	J
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**48**		43	J	**52**		37		**130**	J
SW6010C	7440-48-4	COBALT	50	mg/kg	9.6		6.7	J	6		5.9		11	J
SW6010C	7440-50-8	COPPER	31.6	mg/kg	**320**		**120**	J	**190**		**67**		**130**	J
SW6010C	7439-89-6	IRON	NS	mg/kg	28000		15000	J	13000		13000		26000	J
SW6010C	7439-92-1	LEAD	35.8	mg/kg	**140**		32	J	**80**		**110**		**66**	J
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	12000		18000	J	17000		14000		20000	J
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	350		460	J	800		560		750	J
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	**75**		**23**	J	22		20		**39**	J
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	2200		3300	J	2500		2200		8300	J
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	2		2.4	J	1.7	J	1.3	J	3.2	J
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.4	J	**0.55**	J	0.44	J	0.21	J	**0.74**	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	3300		4600	J	2500		1500		7800	J
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	0.72	J	4.3	UJ	2.3	U	1.8	U	5.3	UJ
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	56		24	J	26		20		83	J
SW6010C	7440-66-6	ZINC	121	mg/kg	**640**		**190**	J	**260**		**300**		**370**	J
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	**0.21**		0.061	J	0.12		0.12		0.074	J
SW9014	57-12-5	CYANIDE	0.5	mg/kg	0.85	U	**13**	J	**10**		**26**		**1.1**	J
SW9045D	PH	pH	NS	ph units	8.2		8.2	J	8.6		8.6		8.2	J

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD28S-161101		SD29S-161027		SD30S-161027		SD30M-161027		SD31S-161027	
				Location	SD28		SD29		SD30		SD30		SD31	
				SDG	5001194391		5001192381		5001192381		5001192381		5001192381	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		1		0	
				End Depth (ft)	1		1		1		2		1	
				Date Sampled	11/1/2016		10/27/2016		10/27/2016		10/27/2016		10/27/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	33	U	140	UJ	44	U	62	U	96	UJ
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	33	U	140	UJ	44	U	62	U	96	UJ
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	32	U	71	UJ	43	U	760	U	95	UJ
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	**190**		71	UJ	43	U	760	U	95	UJ
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	32	U	71	UJ	**530**		**4400**		95	UJ
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	32	U	71	UJ	43	U	760	U	95	UJ
VOLATILES														
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	36		**44**	J	14		18		**120**	J
SW8260B	67-64-1	ACETONE	9.9	ug/kg	**160**		**230**	J	**84**		**110**		**600**	J
SW8260B	71-43-2	BENZENE	142	ug/kg	3.5	J	7.1	UJ	3.9	U	4.1	U	13	UJ
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	9.1	U	18	UJ	9.8	U	10	U	33	UJ
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	3.7	U	7.1	UJ	3.9	U	4.1	U	13	UJ
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	3.7	U	7.1	UJ	3.9	U	4.1	U	13	UJ
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	9.1	U	18	UJ	9.8	U	10	U	38	J
SW8260B	108-88-3	TOLUENE	1220	ug/kg	3.7	U	7.1	UJ	3.9	U	4.1	U	13	UJ
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	3.7	UJ	7.1	UJ	3.9	U	4.1	U	13	UJ
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	7.3	U	14	UJ	7.8	U	8.1	U	26	UJ

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD28S-161101		SD29S-161027		SD30S-161027		SD30M-161027		SD31S-161027	
				Location	SD28		SD29		SD30		SD30		SD31	
				SDG	5001194391		5001192381		5001192381		5001192381		5001192381	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		1		0	
				End Depth (ft)	1		1		1		2		1	
				Date Sampled	11/1/2016		10/27/2016		10/27/2016		10/27/2016		10/27/2016	
				Matrix	SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	99	J	710	UJ	450	U	3100	U	940	UJ
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	**610**		710	UJ	450	U	3100	U	940	UJ
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	**520**		**91**	J	**230**		**5600**		**46**	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	310	U	710	UJ	450	U	3100	U	940	UJ
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	**460**		**43**	J	**860**		**21000**		190	UJ
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	21	J	**71**	J	**240**		**3900**		31	J
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	57	J	**58**	J	**2700**		**84000**		52	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	**160**	J+	**110**	J	**7700**		**150000**		**150**	J
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	**280**	J+	140	J+	**7800**	J+	**140000**	J+	**200**	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	500	J+	220	J+	**11000**	J+	**250000**	J+	350	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	**320**	J+	140	UJ	**4200**	J+	**23000**	J+	110	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	150	J+	83	J+	**3900**	J+	**91000**	J+	110	J+
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	3100	UJ	7100	UJ	4500	U	31000	U	9400	UJ
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	**15000**	J+	710	UJ	**9700**		**33000**		940	UJ
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	**16000**	J+	710	UJ	280	J	3100	U	940	UJ
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	310	U	710	UJ	1600	J	24000		940	UJ
SW8270D	218-01-9	CHRYSENE	166	ug/kg	**350**	J+	160	J	**7500**		**150000**		**210**	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	**80**	J+	140	UJ	**1300**	J+	**12000**	J+	190	UJ
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	170	J	710	UJ	**730**		**18000**		940	UJ
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	550		710	UJ	450	U	3100	U	940	UJ
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	270		310	J	**20000**		**480000**		310	J
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	**210**		75	J	**1500**		**46000**		60	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	**230**	J+	140	UJ	**3900**	J+	**26000**	J+	77	J+
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	**1400**		**500**	J	**860**		**8300**		78	J
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	**250**		**300**	J	**11000**		**360000**		200	J
SW8270D	108-95-2	PHENOL	167	ug/kg	310	U	710	UJ	450	U	3100	U	940	UJ
SW8270D	129-00-0	PYRENE	195	ug/kg	**1100**	J+	**330**	J	**14000**		**370000**		**340**	J

Bold / highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD90-160914		SD91-160914	
				Location	SD90		SD91	
				SDG	5001170871		5001170871	
				Sample Type	REGULAR		REGULAR	
				Start Depth (ft)	0		0	
				End Depth (ft)	2		2	
				Date Sampled	9/14/2016		9/14/2016	
				Matrix	SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q
METALS & CYANIDE								
SW6010C	7429-90-5	ALUMINUM	NS	mg/kg	2900		1300	
SW6010C	7440-36-0	ANTIMONY	NS	mg/kg	0.75	J	2.4	U
SW6010C	7440-38-2	ARSENIC	9.79	mg/kg	2.4		2	
SW6010C	7440-39-3	BARIUM	NS	mg/kg	35		10	
SW6010C	7440-41-7	BERYLLIUM	NS	mg/kg	0.53		0.16	J
SW6010C	7440-43-9	CADMIUM	0.99	mg/kg	0.24	J	0.18	J
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	22000		6900	
SW6010C	7440-47-3	CHROMIUM	43.4	mg/kg	**55**		3.5	
SW6010C	7440-48-4	COBALT	50	mg/kg	2.3		2	
SW6010C	7440-50-8	COPPER	31.6	mg/kg	24		2.4	
SW6010C	7439-89-6	IRON	NS	mg/kg	11000		4400	
SW6010C	7439-92-1	LEAD	35.8	mg/kg	19		6.6	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	7800		3500	
SW6010C	7439-96-5	MANGANESE	NS	mg/kg	1200		58	
SW6010C	7440-02-0	NICKEL	22.7	mg/kg	3.4		2.8	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	210		190	
SW6010C	7782-49-2	SELENIUM	NS	mg/kg	0.77	J	1.2	U
SW6010C	7440-22-4	SILVER	0.5	mg/kg	0.64	U	0.61	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	91	J	51	J
SW6010C	7440-28-0	THALLIUM	NS	mg/kg	1.3	U	1.2	U
SW6010C	7440-62-2	VANADIUM	NS	mg/kg	32		4.2	
SW6010C	7440-66-6	ZINC	121	mg/kg	**200**		23	
SW7471B	7439-97-6	MERCURY	0.174	mg/kg	0.021		0.013	J
SW9014	57-12-5	CYANIDE	0.5	mg/kg	**0.71**		0.63	U
SW9045D	PH	pH	NS	ph units	8		8.1	

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD90-160914		SD91-160914	
				Location	SD90		SD91	
				SDG	5001170871		5001170871	
				Sample Type	REGULAR		REGULAR	
				Start Depth (ft)	0		0	
				End Depth (ft)	2		2	
				Date Sampled	9/14/2016		9/14/2016	
				Matrix	SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q
PESTICIDES								
SW8081B	60-57-1	DIELDRIN	1.9	ug/kg	12	U	2.4	U
SW8081B	72-54-8	P,P'-DDD	4.88	ug/kg	12	U	2.4	U
PCBS								
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	59.8	ug/kg	23	U	24	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	59.8	ug/kg	23	U	24	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	59.8	ug/kg	23	U	24	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	59.8	ug/kg	23	U	24	U
VOLATILES								
SW8260B	78-93-3	2-BUTANONE	42.4	ug/kg	10		5.5	U
SW8260B	67-64-1	ACETONE	9.9	ug/kg	**47**		**33**	
SW8260B	71-43-2	BENZENE	142	ug/kg	4.9	U	1.4	J
SW8260B	75-15-0	CARBON DISULFIDE	23.9	ug/kg	4.9	U	11	
SW8260B	60-29-7	ETHYL ETHER	NS	ug/kg	4.9	U	5.5	U
SW8260B	100-41-4	ETHYLBENZENE	175	ug/kg	4.9	U	5.5	U
SW8260B	109-99-9	TETRAHYDROFURAN	NS	ug/kg	4.9	U	5.5	U
SW8260B	108-88-3	TOLUENE	1220	ug/kg	4.9	U	5.5	U
SW8260B	95-47-6	XYLENE, O-	433	ug/kg	4.9	U	5.5	U
SW8260B	XYLMP	XYLENES, M & P-	433	ug/kg	9.8	U	11	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-1
Sediment Sample Analytical Results, September to November 2016

				Sample ID	SD90-160914		SD91-160914	
				Location	SD90		SD91	
				SDG	5001170871		5001170871	
				Sample Type	REGULAR		REGULAR	
				Start Depth (ft)	0		0	
				End Depth (ft)	2		2	
				Date Sampled	9/14/2016		9/14/2016	
				Matrix	SEDIMENT		SEDIMENT	
Method	CAS No	Analyte	EPA Reg 5 Ecological Screening Levels for Sediments	Units	Res	Q	Res	Q
SEMIVOLATILES								
SW8270D	95-50-1	1,2-DICHLOROBENZENE	294	ug/kg	230	U	240	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	318	ug/kg	230	U	240	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	33	ug/kg	94	U	95	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	167	ug/kg	230	U	240	U
SW8270D	83-32-9	ACENAPHTHENE	33	ug/kg	46	U	47	U
SW8270D	208-96-8	ACENAPHTHYLENE	33	ug/kg	46	U	47	U
SW8270D	120-12-7	ANTHRACENE	57.2	ug/kg	13	J	47	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	108	ug/kg	84		47	U
SW8270D	50-32-8	BENZO(A)PYRENE	150	ug/kg	89		47	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	10400	ug/kg	67		47	U
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	170	ug/kg	72		47	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	240	ug/kg	110		47	U
SW8270D	65-85-0	BENZOIC ACID	NS	ug/kg	2300	U	2400	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	182	ug/kg	230	U	240	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	1970	ug/kg	230	U	240	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	230	U	240	U
SW8270D	218-01-9	CHRYSENE	166	ug/kg	100		47	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	33	ug/kg	46	U	47	U
SW8270D	132-64-9	DIBENZOFURAN	449	ug/kg	230	U	240	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	1114	ug/kg	230	U	240	U
SW8270D	206-44-0	FLUORANTHENE	423	ug/kg	180		47	U
SW8270D	86-73-7	FLUORENE	77.4	ug/kg	46	U	47	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	200	ug/kg	66		47	U
SW8270D	91-20-3	NAPHTHALENE	176	ug/kg	8	J	47	U
SW8270D	85-01-8	PHENANTHRENE	204	ug/kg	88		47	U
SW8270D	108-95-2	PHENOL	167	ug/kg	230	U	240	U
SW8270D	129-00-0	PYRENE	195	ug/kg	150		47	U

Bold/highlight: above EPA Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW02-161028		SW03-161028		SW04S-161102		SW04D-161102		SW05S-161101		SW05D-161101	
				Location	SW02		SW03		SW04		SW04		SW05		SW05	
				SDG	5001193161		5001193161		5001195131		5001195131		5001194261		5001194261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		10		1		8	
				End Depth (ft)	1		1		1		12		2		10	
				Date Sampled	10/28/2016		10/28/2016		11/2/2016		11/2/2016		11/1/2016		11/1/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	4.4		4.9		5.5		5		4.9		4.9	
SW6020	7440-39-3	BARIUM	2000	ug/l	410		460		540		480		420		420	
SW6020	7440-70-2	CALCIUM	NS	ug/l	17000		19000		21000		19000		18000		18000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	18		20		22		20		19		19	
SW6020	7440-48-4	COBALT	6.0	ug/l	1.4		1.5		1.6		1.5		1.4		1.5	
SW6020	7440-50-8	COPPER	1300	ug/l	2.3		2		1.4	J	2.3		1.5	J	1.3	J
SW6020	7439-89-6	IRON	14000	ug/l	83	J	92	J	110		86	J	95	J	110	
SW6020	7439-92-1	LEAD	15	ug/l	0.37	J	0.45	J	0.53		0.31	J	0.43	J	0.41	J
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	150000		170000		190000		170000		170000		160000	
SW6020	7439-96-5	MANGANESE	430	ug/l	94		100		120		110		96		96	
SW6020	7440-02-0	NICKEL	390	ug/l	18		20		22		20		20		20	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	250000		270000		320000		290000		280000		280000	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U	0.88	J	0.92	J
SW6020	7440-23-5	SODIUM	NS	ug/l	940000		1000000		1200000		1100000		1100000		1100000	
SW6020	7440-62-2	VANADIUM	86	ug/l	8.5		9.5		11		9.6		9.6		9.6	
SW6020	7440-66-6	ZINC	6000	ug/l	6.5	J	8.9	J	5.5	J	8.6	J	4.7	J	5.3	J
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	4.1	J	10	U	10	U	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW02-161028		SW03-161028		SW04S-161102		SW04D-161102		SW05S-161101		SW05D-161101	
				Location	SW02		SW03		SW04		SW04		SW05		SW05	
				SDG	5001193161		5001193161		5001195131		5001195131		5001194261		5001194261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		10		1		8	
				End Depth (ft)	1		1		1		12		2		10	
				Date Sampled	10/28/2016		10/28/2016		11/2/2016		11/2/2016		11/1/2016		11/1/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE																
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	4.7		5.2		5.5		5.8		5.2		5.1	
SW6020	7440-39-3	BARIUM	2000	ug/l	420		460		510		540		420		400	
SW6020	7440-70-2	CALCIUM	NS	ug/l	19000		21000		20000		21000		19000		17000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	19		21		21		23		20		18	
SW6020	7440-48-4	COBALT	6.0	ug/l	1.5		1.7		1.6		1.7		1.6		1.5	
SW6020	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	U	1.1	J	1	J	1.1	J
SW6020	7439-89-6	IRON	14000	ug/l	100		120		110		120		120		110	
SW6020	7439-92-1	LEAD	15	ug/l	0.51		0.55		0.57		0.52		0.44	J	0.45	J
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	170000		180000		180000		190000		180000		160000	
SW6020	7439-96-5	MANGANESE	430	ug/l	96		110		110		120		100		94	
SW6020	7440-02-0	NICKEL	390	ug/l	19		20		21		22		21		19	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	260000		310000		300000		320000		280000		260000	
SW6020	7782-49-2	SELENIUM	50	ug/l	0.88	J	2.5	U	2.5	U	2.5	U	0.83	J	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	970000		1100000		1100000		1200000		1100000		980000	
SW6020	7440-62-2	VANADIUM	86	ug/l	9.8		10		10		11		9.6		9.7	
SW6020	7440-66-6	ZINC	6000	ug/l	7.8	J	10	J	7.3	J	10	J	5.7	J	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U	9.1	J	10	U
WET CHEMISTRY																
A2340B	HARD	HARDNESS (AS CACO3)	NS	mg/l	740		790		790		830		790		700	
SM2540D	TSS	TOTAL SUSPENDED SOLIDS	NS	mg/l	NA		NA		NA		NA		NA		NA	
SM5310C	TOC	TOC	NS	mg/l	NA		NA		NA		NA		NA		NA	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW02-161028		SW03-161028		SW04S-161102		SW04D-161102		SW05S-161101		SW05D-161101	
				Location	SW02		SW03		SW04		SW04		SW05		SW05	
				SDG	5001193161		5001193161		5001195131		5001195131		5001194261		5001194261	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		10		1		8	
				End Depth (ft)	1		1		1		12		2		10	
				Date Sampled	10/28/2016		10/28/2016		11/2/2016		11/2/2016		11/1/2016		11/1/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES																
SW8260B	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260B	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	1	U
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SEMIVOLATILES																
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	0.25	J	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.74	U	0.27	J	0.27	J	0.77	U	0.3	J	0.28	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	UJ	15	UJ	15	UJ	15	UJ	15	UJ
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.37	U	0.37	U	0.37	U	0.39	U	0.37	U	0.38	U
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.74	U	0.74	U	0.75	U	0.77	U	0.74	U	0.75	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.74	U	**3.7**	J+	0.75	U	0.77	U	0.74	U	0.75	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.74	U	0.74	U	0.75	U	0.77	U	0.74	U	0.75	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW06-161028		SW07-161028		SW10-171012		SW11-171012		SW111-171012		SW12-171012	
				Location	SW06		SW07		SW10		SW11		SW11		SW12	
				SDG	5001193161		5001193161		5001355661		5001355661		5001355661		5001355661	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/28/2016		10/28/2016		10/12/2017		10/12/2017		10/12/2017		10/12/2017	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE																
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	1.3	J	1.3	J	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	4.6		4.8		5.3		1.9		2		1.1	
SW6020	7440-39-3	BARIUM	2000	ug/l	430		450		130		93		100		26	
SW6020	7440-70-2	CALCIUM	NS	ug/l	18000		18000		170000		47000		46000		44000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	19		19		2.4	J	2	J	2.6	J	5	U
SW6020	7440-48-4	COBALT	6.0	ug/l	1.5		1.4		1		1	U	1	U	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	2.5		1.7	J	0.53	J	2.4		2.1		4.1	
SW6020	7439-89-6	IRON	14000	ug/l	92	J	91	J	9000		370		460		120	
SW6020	7439-92-1	LEAD	15	ug/l	0.4	J	0.43	J	0.5	U	0.27	J	0.26	J	0.35	J
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	170000		170000		68000		35000		35000		14000	
SW6020	7439-96-5	MANGANESE	430	ug/l	99		100		**1900**		160		160		38	
SW6020	7440-02-0	NICKEL	390	ug/l	19		19		6.2		4.4		4.7		1.6	J
SW6020	7440-09-7	POTASSIUM	NS	ug/l	260000		260000		35000		130000		150000		4900	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	960000		990000		240000		200000		220000		26000	
SW6020	7440-62-2	VANADIUM	86	ug/l	8.9		9		5	U	5	U	5	U	5	U
SW6020	7440-66-6	ZINC	6000	ug/l	8	J	6.6	J	10	J	7.4	J	7.9	J	7.7	J
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U	10	U	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW06-161028		SW07-161028		SW10-171012		SW11-171012		SW111-171012		SW12-171012	
				Location	SW06		SW07		SW10		SW11		SW11		SW12	
				SDG	5001193161		5001193161		5001355661		5001355661		5001355661		5001355661	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/28/2016		10/28/2016		10/12/2017		10/12/2017		10/12/2017		10/12/2017	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE																
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	110		39	J	220		290	
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	1.3	J	3	U	1.3	J
SW6020	7440-38-2	ARSENIC	10	ug/l	4.7		5.6		6.3		2		2.4		1.5	
SW6020	7440-39-3	BARIUM	2000	ug/l	420		480		150		89		120		28	
SW6020	7440-70-2	CALCIUM	NS	ug/l	19000		22000		180000		47000		47000		44000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	20		21		5.7		2	J	2.7	J	6	
SW6020	7440-48-4	COBALT	6.0	ug/l	1.6		1.7		1.2		0.42	J	0.52	J	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2.9		3.1		3.5		5.1	
SW6020	7439-89-6	IRON	14000	ug/l	110		110		11000		480		1000		1700	
SW6020	7439-92-1	LEAD	15	ug/l	0.53		0.49	J	5.8		0.54		0.96		7.2	
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	170000		190000		75000		35000		37000		14000	
SW6020	7439-96-5	MANGANESE	430	ug/l	110		110		**1900**		160		190		65	
SW6020	7440-02-0	NICKEL	390	ug/l	20		21		7.2		4.6		5.5		2.1	
SW6020	7440-09-7	POTASSIUM	NS	ug/l	270000		300000		40000		130000		170000		4700	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	0.9	J	0.99	J	2.5	U	2.5	U	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	1000000		1100000		280000		190000		250000		24000	
SW6020	7440-62-2	VANADIUM	86	ug/l	9.5		11		2.2	J	5	U	2.6	J	5	U
SW6020	7440-66-6	ZINC	6000	ug/l	11	J	7.4	J	25		9	J	11	J	34	
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U	10	U	10	U
WET CHEMISTRY																
A2340B	HARD	HARDNESS (AS CACO3)	NS	mg/l	740		830		760		260		270		170	
SM2540D	TSS	TOTAL SUSPENDED SOLIDS	NS	mg/l	NA		NA		26		71	J	6.5	J	7	
SM5310C	TOC	TOC	NS	mg/l	NA		NA		13		11		12		3.4	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW06-161028		SW07-161028		SW10-171012		SW11-171012		SW111-171012		SW12-171012	
				Location	SW06		SW07		SW10		SW11		SW11		SW12	
				SDG	5001193161		5001193161		5001355661		5001355661		5001355661		5001355661	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Start Depth (ft)	0		0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1		1	
				Date Sampled	10/28/2016		10/28/2016		10/12/2017		10/12/2017		10/12/2017		10/12/2017	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES																
SW8260B	75-27-4	BROMODICHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	3.5	
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	2	U	2	U	2	U	6.5	
SW8260B	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	1	U	1	U	1	U	1	U	1	U	2.3	
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.82		0.5	U	0.5	U	0.5	U
SEMIVOLATILES																
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.5	U	0.09	J	1.5	U	1.6	U	1.6	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.73	U	0.76	U	0.76	U	0.76	U	0.8	U	0.78	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.2		0.15	U	0.16	U	0.16	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	**0.3**		0.15	U	0.16	U	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.45		0.15	U	0.16	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.092	J	0.15	U	0.16	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	6.9	J	15	U	15	U	15	U	16	U	16	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.36	U	0.38	U	0.26		0.15	U	0.16	U	0.16	U
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.73	U	0.76	U	0.37	J	0.76	U	0.8	U	0.78	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	U	0.2		0.15	U	0.16	U	0.16	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.73	UJ	0.76	U	0.76	U	0.76	U	0.8	U	0.78	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.73	U	0.76	U	0.32	J	0.76	U	0.8	U	0.78	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW13-171012		SW14-171012		SW15-171012		SW90-160914		SW91-160914	
				Location	SW13		SW14		SW15		SW90		SW91	
				SDG	5001355661		5001355661		5001355661		5001170881		5001170881	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1	
				Date Sampled	10/12/2017		10/12/2017		10/12/2017		9/14/2016		9/14/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	30	J	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	3	U	1.3	J	3	U	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	1		1		1.1		2.2		2.1	
SW6020	7440-39-3	BARIUM	2000	ug/l	25		24		22		53		49	
SW6020	7440-70-2	CALCIUM	NS	ug/l	44000		41000		41000		37000		36000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	1.6	J	5	U	5	U	5	U	5	U
SW6020	7440-48-4	COBALT	6.0	ug/l	1	U	1	U	1	U	1	U	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	1.8	J	3.9		1.6	J	2	U	2	U
SW6020	7439-89-6	IRON	14000	ug/l	68	J	61	J	57	J	45	J	100	U
SW6020	7439-92-1	LEAD	15	ug/l	0.23	J	0.34	J	0.34	J	0.5	U	0.5	U
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	14000		13000		13000		17000		17000	
SW6020	7439-96-5	MANGANESE	430	ug/l	23		23		20		18		6.1	
SW6020	7440-02-0	NICKEL	390	ug/l	1.1	J	1.7	J	1.2	J	2	U	2	U
SW6020	7440-09-7	POTASSIUM	NS	ug/l	4200		4500		4000		15000		15000	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	22000		24000		23000		19000		18000	
SW6020	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	5	U	5	U	5	U
SW6020	7440-66-6	ZINC	6000	ug/l	20	U	20	U	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW13-171012		SW14-171012		SW15-171012		SW90-160914		SW91-160914	
				Location	SW13		SW14		SW15		SW90		SW91	
				SDG	5001355661		5001355661		5001355661		5001170881		5001170881	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1	
				Date Sampled	10/12/2017		10/12/2017		10/12/2017		9/14/2016		9/14/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020	7429-90-5	ALUMINUM	20000	ug/l	230		130		93	J	100	U	100	U
SW6020	7440-36-0	ANTIMONY	6	ug/l	1.3	J	3	U	1.3	J	3	U	3	U
SW6020	7440-38-2	ARSENIC	10	ug/l	1.6		1.3		1.2		2.2		2.1	
SW6020	7440-39-3	BARIUM	2000	ug/l	27		24		24		56		52	
SW6020	7440-70-2	CALCIUM	NS	ug/l	45000		41000		43000		38000		38000	
SW6020	7440-47-3	CHROMIUM	100	ug/l	6.3		3.1	J	2.4	J	5	U	5	U
SW6020	7440-48-4	COBALT	6.0	ug/l	1	U	1	U	1	U	1	U	1	U
SW6020	7440-50-8	COPPER	1300	ug/l	5.3		3.7		3.1		2.6		2	U
SW6020	7439-89-6	IRON	14000	ug/l	1700		840		590		32	J	42	J
SW6020	7439-92-1	LEAD	15	ug/l	6.8		3.5		2.6		0.16	J	0.19	J
SW6020	7439-95-4	MAGNESIUM	NS	ug/l	14000		13000		14000		18000		18000	
SW6020	7439-96-5	MANGANESE	430	ug/l	68		41		37		33		41	
SW6020	7440-02-0	NICKEL	390	ug/l	1.8	J	1.7	J	2.6		0.55	J	2	U
SW6020	7440-09-7	POTASSIUM	NS	ug/l	4200		4500		4200		16000		16000	
SW6020	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
SW6020	7440-23-5	SODIUM	NS	ug/l	22000		23000		24000		20000		19000	
SW6020	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	5	U	5	U	5	U
SW6020	7440-66-6	ZINC	6000	ug/l	34		22		16	J	7.5	J	7	J
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	UJ	10	U
WET CHEMISTRY														
A2340B	HARD	HARDNESS (AS CACO3)	NS	mg/l	170		160		160		170		170	
SM2540D	TSS	TOTAL SUSPENDED SOLIDS	NS	mg/l	12		7		4	J	NA		NA	
SM5310C	TOC	TOC	NS	mg/l	3		3.1		3		NA		NA	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-2
Surface Water Analytical Results, September 2016 to October 2017

				Sample ID	SW13-171012		SW14-171012		SW15-171012		SW90-160914		SW91-160914	
				Location	SW13		SW14		SW15		SW90		SW91	
				SDG	5001355661		5001355661		5001355661		5001170881		5001170881	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	1		1		1		1		1	
				Date Sampled	10/12/2017		10/12/2017		10/12/2017		9/14/2016		9/14/2016	
				Matrix	SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER		SURFACE WATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-27-4	BROMODICHLOROMETHANE	80	ug/l	2.9		3.7		4		1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	5.7		7.1		7.2		1	U	1	U
SW8260B	124-48-1	DIBROMOCHLOROMETHANE	80	ug/l	2		2.3		2.6		1	U	1	U
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SEMIVOLATILES														
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.76	U	0.77	U	0.78	U	0.8	U	0.78	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.072	J	0.062	J	0.16	U	0.16	U	0.16	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.084	J	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	16	U	16	U	16	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.066	J	0.065	J	0.16	U	0.4	U	0.39	U
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.77	U	0.78	U	0.8	U	0.78	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	2.5	ug/l	0.15	U	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.76	U	0.77	U	0.78	U	0.8	U	0.78	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.76	U	0.77	U	0.78	U	0.8	U	0.78	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW01S-GW-161107		MW01S-GW-170327		MW01S-GW-170719		MW01S-GW-171009	
				Location	MW01S		MW01S		MW01S		MW01S	
				SDG	5001197191		5001256621		5001313321		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/7/2016		3/27/2017		7/19/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.1		2.7		5.2		3.9	
SW6020A	7440-39-3	BARIUM	2000	ug/l	270		310		390		370	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	100000		100000		150000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	2.1	J	3.3	J	5	UJ	3.2	J
SW6020A	7440-48-4	COBALT	6	ug/l	0.36	J	0.25	J	0.68	J	0.65	J
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	UJ	1.9	J+
SW6020A	7439-89-6	IRON	14000	ug/l	2000		1800		2200		2200	
SW6020A	7439-92-1	LEAD	15	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	71000		85000		120000		110000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**660**		**690**		**780**		**780**	
SW6020A	7440-02-0	NICKEL	390	ug/l	4.6		3.9		6.9		8	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	210000		240000		190000		210000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.086	J	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	430000		410000		610000		580000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	2.9	J	5	U
SW6020A	7440-66-6	ZINC	6000	ug/l	20	U	20	U	20	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW02S-GW-161109		MW02S-GW-170324		MW02S-GW-170720		MW02S-GW-171011	
				Location	MW02S		MW02S		MW02S		MW02S	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	57	J	100	U	200	U	49	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	4.4		3.1	J+	4.1	J	4.2	
SW6020A	7440-38-2	ARSENIC	10	ug/l	7.9		8.6	J	6.4		8.6	
SW6020A	7440-39-3	BARIUM	2000	ug/l	980		720		260		1100	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	UJ	2	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	1	U	0.49	J
SW6020A	7440-70-2	CALCIUM	NS	ug/l	76000		78000		52000		76000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	34		45		42		42	
SW6020A	7440-48-4	COBALT	6	ug/l	3.2		2.4		4		3.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	0.97	J	2	U	2.5	J	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	14000		9400		1600		6700	
SW6020A	7439-92-1	LEAD	15	ug/l	0.22	J	0.5	U	1	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	870000		910000		590000		920000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	180		190		36		160	
SW6020A	7440-02-0	NICKEL	390	ug/l	32		38		30	J	48	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	5100000		11000000		5500000		5500000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	3.3		**550**		11		6.8	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.099	J	1	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	6200000		13000000		10000000		6300000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	17		17		24		17	
SW6020A	7440-66-6	ZINC	6000	ug/l	17	J	22		40	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	11		15		17		13	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW02D-GW-161109		MW02D-GW-170324		MW02D-GW-170720		MW02D-GW-171011	
				Location	MW02D		MW02D		MW02D		MW02D	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	200	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1.7	J	1.1	J	6	U	1.5	J
SW6020A	7440-38-2	ARSENIC	10	ug/l	**37**		**37**		5.9	J	**52**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	**2400**		1800		250		**3000**	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	0.35	J	2	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	UJ	1	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	180000		160000		9200		160000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	7.9		6.7		11		14	
SW6020A	7440-48-4	COBALT	6	ug/l	1.8		1.7		2.4		2.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.2	J	2	U	2.6	J	4.5	
SW6020A	7439-89-6	IRON	14000	ug/l	**19000**		**17000**		940		13000	
SW6020A	7439-92-1	LEAD	15	ug/l	0.14	J	0.5	U	1	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	630000		510000		41000		770000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	220		260		22		210	
SW6020A	7440-02-0	NICKEL	390	ug/l	17		17		26	J	27	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	2900000		2800000		4500000		5200000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.9	J	**240**	J	5	UJ	12	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	1	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	5200000		4700000		12000000		8100000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	10	U	5	U
SW6020A	7440-66-6	ZINC	6000	ug/l	6.7	J	5.1	J	40	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	8	J	11		8.4	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW03S-GW-161109		MW103S-GW-161109		MW03S-GW-170327		MW03S-GW-170725		MW03S-GW-171011	
				Location	MW03S		MW03S		MW03S		MW03S		MW03S	
				SDG	5001198721		5001198721		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		11/9/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	300		390		87	J	110		140	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3.6		3.6		3.3		4		4	
SW6020A	7440-38-2	ARSENIC	10	ug/l	**13**		**15**		**11**		**12**		**14**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	570		660		1200		900		1200	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	190000		210000		160000		150000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	39		36		36		50		53	
SW6020A	7440-48-4	COBALT	6	ug/l	**12**		**12**		**9.6**		**13**		**11**	
SW6020A	7440-50-8	COPPER	1300	ug/l	2.3		3		1.5	J	9.4		9.3	
SW6020A	7439-89-6	IRON	14000	ug/l	**72000**		**77000**		**56000**		**40000**		**36000**	
SW6020A	7439-92-1	LEAD	15	ug/l	7.8		9.6		0.18	J	0.31	J	0.52	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	970000		960000		1000000		1200000		1200000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**510**		**560**		290		230		180	
SW6020A	7440-02-0	NICKEL	390	ug/l	88		90		75		120		140	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	2700000		2600000		2800000		3700000		4300000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.8		2.8		5.1		36		17	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.081	J	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	6000000		5800000		5900000		6700000		7100000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	5.7		5.9		10		2.2	J	4.4	J
SW6020A	7440-66-6	ZINC	6000	ug/l	36		38		9.3	J	12	J	19	J
SW9014	57-12-5	CYANIDE	200	ug/l	120		100		170		120		130	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW04S-GW-170327		MW04S-GW-170725		MW104S-GW-170725		MW04S-GW-171011	
				Location	MW04S		MW04S		MW04S		MW04S	
				SDG	5001256621		5001316311		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	3/27/2017		7/25/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	39	J	38	J	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	2.4	J	3.2		3.3		1.7	J
SW6020A	7440-38-2	ARSENIC	10	ug/l	4.3		**21**		**21**		**44**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	110		300		300	J	230	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.35	J	0.4	J	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	11000		55000		58000		21000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	6.2		14		15		12	
SW6020A	7440-48-4	COBALT	6	ug/l	0.96	J	4.7	J	5	J	0.77	J
SW6020A	7440-50-8	COPPER	1300	ug/l	3.3		2.7		3		2	U
SW6020A	7439-89-6	IRON	14000	ug/l	150		1300	J	1300	J	150	
SW6020A	7439-92-1	LEAD	15	ug/l	0.3	J	0.45	J	0.56		0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	87000		250000		250000		160000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	160		**1200**		**1300**		280	
SW6020A	7440-02-0	NICKEL	390	ug/l	7.7		24	J	27	J	16	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	160000		280000		290000		220000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.1	J	2.4	J	3		2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	470000		1200000		1200000		1100000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	3.3	J	7.4		7.6		4.5	J
SW6020A	7440-66-6	ZINC	6000	ug/l	13	J	19	J	21		20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	UJ	4.2	J	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW05S-GW-161108		MW05S-GW-170324		MW05S-GW-170725		MW05S-GW-171011	
				Location	MW05S		MW05S		MW05S		MW05S	
				SDG	5001197781		5001256291		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	28	J	28	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.6		10	U	2.2		2.2	
SW6020A	7440-39-3	BARIUM	2000	ug/l	380		260		260		220	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1.8		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	110000		170000		140000		110000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	12		9		10		24	
SW6020A	7440-48-4	COBALT	6	ug/l	3		3		3.3		4.9	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	U	0.82	J
SW6020A	7439-89-6	IRON	14000	ug/l	4200		1100		810		3100	
SW6020A	7439-92-1	LEAD	15	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	250000		220000		280000		290000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	280		320		330		310	
SW6020A	7440-02-0	NICKEL	390	ug/l	100		53		60		240	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	170000		160000		160000		180000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1	J	0.86	J	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	950000		920000		890000		1100000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	11		8.2		12		11	
SW6020A	7440-66-6	ZINC	6000	ug/l	5.2	J	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	5.7	J	8.9	J	12		7.4	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06S-GW-161108		MW06S-GW-170331		MW06S-GW-170725		MW06S-GW-171010	
				Location	MW06S		MW06S		MW06S		MW06S	
				SDG	5001197781		5001259001		5001316311		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/31/2017		7/25/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	330		100	U	48	J	53	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**16**		2.8		5.4		8.2	
SW6020A	7440-39-3	BARIUM	2000	ug/l	180		150		160		160	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		100000		130000		130000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	**260**		**120**		**250**		**270**	
SW6020A	7440-48-4	COBALT	6	ug/l	5.8		5.6		**6.1**		**6.4**	
SW6020A	7440-50-8	COPPER	1300	ug/l	18		0.57	J	1.7	J	1.9	J
SW6020A	7439-89-6	IRON	14000	ug/l	**36000**		**27000**		**38000**		**41000**	
SW6020A	7439-92-1	LEAD	15	ug/l	5		0.5	U	0.8		0.61	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	170000		120000		200000		250000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	240		160		170		160	
SW6020A	7440-02-0	NICKEL	390	ug/l	170		43		160		210	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	140000		71000		140000		150000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.96	J	2.5	U	2.5	U	1.2	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	750000		850000		800000		740000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	6.1		3.1	J	6.4		6.1	
SW6020A	7440-66-6	ZINC	6000	ug/l	19	J	20	U	7.6	J	7	J
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	8.4	J	10		6.8	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06M-GW-161108		MW06M-GW-170324		MW106M-GW-170324		MW06M-GW-170721		MW06M-GW-171010	
				Location	MW06M		MW06M		MW06M		MW06M		MW06M	
				SDG	5001197781		5001256291		5001256291		5001314711		5001353631	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	91	J	100	U	100	U	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	1.8		4.5	J	10	U	2.6		3.1	
SW6020A	7440-39-3	BARIUM	2000	ug/l	180		140	J	270	J	290		280	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2.1		2		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	56000		76000		83000		85000		79000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	63		80	J	41	J	57		61	
SW6020A	7440-48-4	COBALT	6	ug/l	3.6		5		5		5.1		5.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	7.7		2	U	2	U	2	UJ	2	U
SW6020A	7439-89-6	IRON	14000	ug/l	9400		7200		8300		14000		**17000**	
SW6020A	7439-92-1	LEAD	15	ug/l	1.1		0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	110000		130000		160000		190000		150000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	79		110		110		110		110	
SW6020A	7440-02-0	NICKEL	390	ug/l	52		40		28		29		32	J
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	73000		83000		81000		98000		83000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1	J	14	J	1.5	J	1.3	J	1	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	790000		930000		1000000		990000		900000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	3.6	J	5	U	2.5	J	3.6	J	3.7	J
SW6020A	7440-66-6	ZINC	6000	ug/l	13	J	20	U	20	U	20	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	13		6.7	J	13		9.6	J	8	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06D-GW-161108		MW06D-GW-170324		MW06D-GW-170725		MW06D-GW-171010		MW106D-GW-171010	
				Location	MW06D		MW06D		MW06D		MW06D		MW06D	
				SDG	5001197781		5001256291		5001316311		5001353631		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/10/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	7.6		7.9	J	6.8		7.1		7	
SW6020A	7440-39-3	BARIUM	2000	ug/l	690		750		870		830		820	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2		1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	120000		120000		110000		110000		110000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	3.3	J	4	J	3.9	J	4.3	J	4.2	J
SW6020A	7440-48-4	COBALT	6	ug/l	4.7		4.3		4.9		4.1		4.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	16		0.62	J	2	U
SW6020A	7439-89-6	IRON	14000	ug/l	6800		5000		4300		4900		4900	
SW6020A	7439-92-1	LEAD	15	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.29	J
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	170000		210000		210000		210000		220000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	54		22		18		18		18	
SW6020A	7440-02-0	NICKEL	390	ug/l	64		45		53		48		49	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	67000		62000		71000		70000		70000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.88	J	3.6		2.5	U	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	850000		930000		940000		860000		860000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	3.2	J	5	U	2.5	J
SW6020A	7440-66-6	ZINC	6000	ug/l	20	U	20	U	8	J	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	5.3	J	9.6	J	13		6.1	J	6.2	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW07M-GW-161108		MW07M-GW-170324		MW07M-GW-170721		MW07M-GW-171010	
				Location	MW07M		MW07M		MW07M		MW07M	
				SDG	5001197781		5001256291		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**14**		**14**		**17**		10	
SW6020A	7440-39-3	BARIUM	2000	ug/l	230		300		270		310	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2.2		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.46	J
SW6020A	7440-70-2	CALCIUM	NS	ug/l	13000		16000		12000		15000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	41		42		41		40	
SW6020A	7440-48-4	COBALT	6	ug/l	2.2		2		1.8		1.7	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	UJ	1.1	J
SW6020A	7439-89-6	IRON	14000	ug/l	3800		3600		2400		2600	
SW6020A	7439-92-1	LEAD	15	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	160000		160000		200000		220000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	53		33		18		17	
SW6020A	7440-02-0	NICKEL	390	ug/l	90		92		79		71	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	1900000		1900000		1800000		1600000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.1	J	**130**		5.7		2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.082	J	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	4200000		4500000		4000000		3900000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	12		7.4		5.9		5.6	
SW6020A	7440-66-6	ZINC	6000	ug/l	6.5	J	20	U	20	UJ	20	UJ
SW9014	57-12-5	CYANIDE	200	ug/l	13		14		15		16	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW08S-GW-161108		MW08S-GW-170323		MW08S-GW-170721		MW08S-GW-171010	
				Location	MW08S		MW08S		MW08S		MW08S	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	68	J	500	U	68	J	44	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	15	UJ	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**12**		**11**	J	**14**	J	8.8	
SW6020A	7440-39-3	BARIUM	2000	ug/l	86		110		150		140	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	10	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.28	J	2.5	UJ	0.5	UJ	0.69	
SW6020A	7440-70-2	CALCIUM	NS	ug/l	22000		25000		29000	J	24000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	86		99		86	J	70	
SW6020A	7440-48-4	COBALT	6	ug/l	3		3.4	J	3.1	J	2.4	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.6	J	16	J	3		0.61	J
SW6020A	7439-89-6	IRON	14000	ug/l	4400		3200		2800	J	2800	
SW6020A	7439-92-1	LEAD	15	ug/l	1.9		0.2	J	0.33	J	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	390000		410000		480000		390000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	140		130		140	J	120	
SW6020A	7440-02-0	NICKEL	390	ug/l	180		150		110	J	100	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	830000		860000		860000		720000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.94	J	13	UJ	2.1	J	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	2.5	U	0.5	U	0.15	J
SW6020A	7440-23-5	SODIUM	NS	ug/l	2800000		2900000		2900000		2400000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	9.5		13	J	9.4	J	8	
SW6020A	7440-66-6	ZINC	6000	ug/l	25		100	UJ	20	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	9.2	J	9.4	J	9.3	J	9.4	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW08D-GW-161108		MW08D-GW-170323		MW08D-GW-170721		MW08D-GW-171010	
				Location	MW08D		MW08D		MW08D		MW08D	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	500	U	200	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1	J	15	UJ	6	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**15**		**12**	J	**20**		7.4	
SW6020A	7440-39-3	BARIUM	2000	ug/l	**2400**		1700		**2300**		**2300**	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	10	U	2	UJ	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.34	J	2.5	UJ	1	U	0.73	
SW6020A	7440-70-2	CALCIUM	NS	ug/l	45000		28000		40000		34000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	26		37		46		38	
SW6020A	7440-48-4	COBALT	6	ug/l	2.1		2.2	J	3.4		2.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.3	J	10	UJ	6.6		2.5	
SW6020A	7439-89-6	IRON	14000	ug/l	4400		3000		3900		2900	
SW6020A	7439-92-1	LEAD	15	ug/l	0.5	U	5	U	1	UJ	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	280000		270000		280000		310000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	120		39		59		36	
SW6020A	7440-02-0	NICKEL	390	ug/l	61		46		63		46	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	13000000		14000000		14000000		14000000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	4.8		27	J	28		1.5	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	2.5	U	1	U	0.16	J
SW6020A	7440-23-5	SODIUM	NS	ug/l	15000000		15000000		16000000		16000000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	7.7		16	J	8.1	J	4	J
SW6020A	7440-66-6	ZINC	6000	ug/l	7.6	J	100	UJ	40	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	20		19		20		29	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW09S-GW-161107		MW09S-GW-170327		MW09S-GW-170720		MW09S-GW-171009		MW109S-GW-171009	
				Location	MW09S		MW09S		MW09S		MW09S		MW09S	
				SDG	5001197191		5001256621		5001314231		5001353081		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/7/2016		3/27/2017		7/20/2017		10/9/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	100	U	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**11**		4.5		3.8	J	8.7		8	
SW6020A	7440-39-3	BARIUM	2000	ug/l	240		220		81		230		230	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	100000		130000		31000		83000		82000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	20		11		18		29		28	
SW6020A	7440-48-4	COBALT	6	ug/l	4.8		2.3		4.9		5.7		5.8	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	1.8	J	0.7	J	2	UJ	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	**24000**		**19000**		1800		4700		4600	
SW6020A	7439-92-1	LEAD	15	ug/l	0.18	J	0.5	U	0.5	U	0.5	U	0.5	UJ
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	140000		150000		75000		180000		170000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**890**		**1200**		140		340		340	
SW6020A	7440-02-0	NICKEL	390	ug/l	49		24		37	J	62		61	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	330000		220000		410000		430000		430000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.5	J	2.5	U	2.5	UJ	2.1	J	1.3	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1400000		820000		4800000		1700000		1700000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	5	U	3.6	J	3.6	J
SW6020A	7440-66-6	ZINC	6000	ug/l	20	U	4.9	J	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	5.7	J	7.1	J	10		9.2	J	8	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW11-GW-161110		MW11-GW-170327		MW11-GW-170725		MW11-GW-171011	
				Location	MW11		MW11		MW11		MW11	
				SDG	5001199081		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/10/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100		69	J	36	J	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	6.1		1.3		1.9		3.1	
SW6020A	7440-39-3	BARIUM	2000	ug/l	580		1000		910		870	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.31	J	0.5	U	0.5	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	98000		210000		190000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	34		6.8		5.4		11	
SW6020A	7440-48-4	COBALT	6	ug/l	2.2		1.1		1.4		1.9	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2.2		0.67	J	2	U
SW6020A	7439-89-6	IRON	14000	ug/l	3000		**19000**		**15000**		5200	
SW6020A	7439-92-1	LEAD	15	ug/l	0.26	J	0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	400000		240000		230000		260000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	300		**920**		**470**		380	
SW6020A	7440-02-0	NICKEL	390	ug/l	8.2		2.5		3.6		4.7	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	130000		58000		52000		91000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	2.5	U	2.5	U	1	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1500000		190000		130000		550000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	19		3.3	J	3.1	J	7.8	
SW6020A	7440-66-6	ZINC	6000	ug/l	5.4	J	8	J	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	6.7	J	10	U	5.3	J	7	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW12-GW-161109		MW12-GW-170324		MW12-GW-170720		MW112-GW-170720		MW12-GW-171011	
				Location	MW12		MW12		MW12		MW12		MW12	
				SDG	5001198721		5001256291		5001314231		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	160		100	U	100	UJ	100	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	1.9		10	U	1.4	J	1.3	J	2.3	
SW6020A	7440-39-3	BARIUM	2000	ug/l	530		430		82		24		520	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	UJ	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		160000		66000		64000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	25		33		13		13		20	
SW6020A	7440-48-4	COBALT	6	ug/l	0.76	J	1.9		1.6		1.6		0.79	J
SW6020A	7440-50-8	COPPER	1300	ug/l	2		2	U	1.4	J	0.62	J	2	U
SW6020A	7439-89-6	IRON	14000	ug/l	8200		1900		810	J	220	J	2300	
SW6020A	7439-92-1	LEAD	15	ug/l	1.4		0.5	U	0.46	J	0.5	UJ	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	280000		170000		80000		99000		290000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**710**		**680**		160	J	50	J	**810**	
SW6020A	7440-02-0	NICKEL	390	ug/l	9.7		2.8	J	3.6	J	3.8		7.1	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	250000		150000		120000		110000		410000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	5.3		2.5	U	2.5	U	1.4	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	490000		360000		3700000	J	2400000	J	540000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	4.2	J	2.4	J	2.3	J	2.2	J	3.6	J
SW6020A	7440-66-6	ZINC	6000	ug/l	9.8	J	20	U	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	4.4	J	4.6	J	4.4	J	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-3
Groundwater Analytical Results, Dissolved Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW13-GW-161109		MW13-GW-170324		MW13-GW-170720		MW13-GW-171011	
				Location	MW13		MW13		MW13		MW13	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
DISSOLVED METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	120		61	J	29	J	41	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1.2	J	1.1	J	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	9.1		7.2	J	3.8		8	
SW6020A	7440-39-3	BARIUM	2000	ug/l	430		500		150	J	370	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2.4		1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		130000		42000	J	120000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	51		37		23		39	
SW6020A	7440-48-4	COBALT	6	ug/l	**6.5**		6		5.4		5.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	0.79	J	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	640		140		60	J	76	J
SW6020A	7439-92-1	LEAD	15	ug/l	1.1		0.5	U	0.5	U	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	290000		240000		92000	J	280000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	210		190		56	J	160	
SW6020A	7440-02-0	NICKEL	390	ug/l	35		35		21	J	33	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	310000		270000		230000		260000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	4.8		2.5	UJ	1.4	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1100000		940000		4100000		840000	
SW6020A	7440-62-2	VANADIUM	86	ug/l	9.9		4.4	J	3.8	J	8.1	
SW6020A	7440-66-6	ZINC	6000	ug/l	15	J	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	5.3	J	10	U	8.5	J	10	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW01S-GW-161107		MW01S-GW-170327		MW01S-GW-170719		MW01S-GW-171009	
				Location	MW01S		MW01S		MW01S		MW01S	
				SDG	5001197191		5001256621		5001313321		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/7/2016		3/27/2017		7/19/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	62	J	25	J	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.2		2.6		5.6		4.4	
SW6020A	7440-39-3	BARIUM	2000	ug/l	270		310		400		390	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	100000		94000		150000		160000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	2.3	J	2.3	J	5	UJ	3	J
SW6020A	7440-48-4	COBALT	6	ug/l	0.38	J	0.28	J	0.72	J	0.64	J
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	2	UJ	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	2100		2100		2500		2500	
SW6020A	7439-92-1	LEAD	15	ug/l	0.24	J	0.78		0.42	J	0.5	U
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	72000		81000		120000		130000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**670**		**650**		**790**		**850**	
SW6020A	7440-02-0	NICKEL	390	ug/l	4.7		3.5		7.8		8.9	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	210000		220000		190000		220000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.84	J	2.5	U	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	430000		370000		630000		630000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	2.8	J	5	U
SW6020A	7440-66-6	ZINC	6000	ug/l	20	U	7.2	J	20	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	10	U	10	U	10	U
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	0.3	U	0.3	UJ	1.5	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	5	U	5	U	3.9	J	3	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW02S-GW-161109		MW02S-GW-170324		MW02S-GW-170720		MW02S-GW-171011	
				Location	MW02S		MW02S		MW02S		MW02S	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	310		100		200	U	84	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	4.9		3.4	J+	5.9	J	4.2	
SW6020A	7440-38-2	ARSENIC	10	ug/l	8.4		9.4	J	6.6		8.3	
SW6020A	7440-39-3	BARIUM	2000	ug/l	980		680		400		1100	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	UJ	2	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	1	U	0.56	
SW6020A	7440-70-2	CALCIUM	NS	ug/l	78000		77000		69000		76000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	37		43		56		43	
SW6020A	7440-48-4	COBALT	6	ug/l	3.3		2.3		5		3.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	2.1		2	U	3.7	J	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	**15000**		9200		2900		6700	
SW6020A	7439-92-1	LEAD	15	ug/l	3.1		1.2		1	U	0.73	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	860000		850000		620000		830000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	190		190		69		160	
SW6020A	7440-02-0	NICKEL	390	ug/l	34		36		31	J	46	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	5100000		5200000		5500000		5100000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.9		**540**		11		5.3	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.084	J	1	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	6200000		6300000		10000000		5700000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	4	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	18		19		26		17	
SW6020A	7440-66-6	ZINC	6000	ug/l	23		59		32	J	35	
SW9014	57-12-5	CYANIDE	200	ug/l	8.1	J	13		13		9.2	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	1.5	U	0.3	U	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	37		43		56		43	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW02D-GW-161109		MW02D-GW-170324		MW02D-GW-170720		MW02D-GW-171011	
				Location	MW02D		MW02D		MW02D		MW02D	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	140		100	U	200	U	100	U
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1.7	J	1.2	J	6	U	1.5	J
SW6020A	7440-38-2	ARSENIC	10	ug/l	**42**		**45**		8.7	J	**51**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	**2500**		1800	J	370		**3000**	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	0.42	J	2	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	UJ	1	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	200000		160000		24000		160000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	9.7		6.6		11		13	
SW6020A	7440-48-4	COBALT	6	ug/l	2.1		1.8		2.1		2.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	4		2	U	1.3	J	3.2	
SW6020A	7439-89-6	IRON	14000	ug/l	**21000**		**16000**		2600		13000	
SW6020A	7439-92-1	LEAD	15	ug/l	0.61		0.15	J	1	U	0.62	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	630000		510000		100000		680000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	380		230		42		210	
SW6020A	7440-02-0	NICKEL	390	ug/l	21		15		24	J	27	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	3200000		2700000		3900000		4500000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.7	J	**270**	J	5	UJ	10	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	1	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	5200000		4600000		11000000		7000000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	4	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	10	U	5	U
SW6020A	7440-66-6	ZINC	6000	ug/l	8.7	J	20	UJ	40	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	7.8	J	9.9	J	9.6	J	9.5	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	0.6	U	0.3	U	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	9.7		6.6		11		13	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW03S-GW-161109		MW103S-GW-161109		MW03S-GW-170327		MW03S-GW-170725		MW03S-GW-171011	
				Location	MW03S		MW03S		MW03S		MW03S		MW03S	
				SDG	5001198721		5001198721		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		11/9/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	380		490		310		790		380	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3.6		3.6		3.3		4.4		4	
SW6020A	7440-38-2	ARSENIC	10	ug/l	**14**		**15**		**11**		**15**		**15**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	600		670		1100		1100		1300	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	200000		220000		170000		170000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	38		36		39		55		55	
SW6020A	7440-48-4	COBALT	6	ug/l	**12**		**13**		**10**		**15**		**11**	
SW6020A	7440-50-8	COPPER	1300	ug/l	2.6		3.5		4.2		14		7.7	
SW6020A	7439-89-6	IRON	14000	ug/l	**75000**		**80000**		**57000**		**45000**		**36000**	
SW6020A	7439-92-1	LEAD	15	ug/l	11		12		5.7		**16**		6	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	980000		960000		1100000		1300000		1300000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**550**		**570**		310		290		180	
SW6020A	7440-02-0	NICKEL	390	ug/l	93		91		78		130		130	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	2700000		2500000		2800000		4100000		4500000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.6		2.6		3.8		31		11	
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	6000000		5800000		6100000		7600000		7500000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	6.4		6.4		9.7		4.2	J	5.3	
SW6020A	7440-66-6	ZINC	6000	ug/l	41		44		27		58		61	
SW9014	57-12-5	CYANIDE	200	ug/l	130	J	51	J	**210**		110		120	
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	3	U	3	U	3	U	0.6	U	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	38		36		39		55		55	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW04S-GW-170327		MW04S-GW-170725		MW104S-GW-170725		MW04S-GW-171011	
				Location	MW04S		MW04S		MW04S		MW04S	
				SDG	5001256621		5001316311		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	3/27/2017		7/25/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	230		38	J	43	J	32	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	2.4	J	3.2		3.6		1.9	J
SW6020A	7440-38-2	ARSENIC	10	ug/l	4.8		**20**		**20**		**51**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	110		290		300	J	230	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.35	J	0.49	J	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	12000		53000		59000		21000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	6.3		14		15		12	
SW6020A	7440-48-4	COBALT	6	ug/l	1.2		4.6		5.4	J	0.81	J
SW6020A	7440-50-8	COPPER	1300	ug/l	4.7		4.5		5.3		0.57	J
SW6020A	7439-89-6	IRON	14000	ug/l	490		1200		1300	J	1600	
SW6020A	7439-92-1	LEAD	15	ug/l	2.5		1		1.1		0.93	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	89000		240000		260000		150000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	170		**1200**		**1300**		270	
SW6020A	7440-02-0	NICKEL	390	ug/l	8.2		24		27	J	17	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	150000		290000		300000		220000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.1	J	2.6		3		2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	470000		1200000		1300000		1100000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	6.6		6.6		4.9	J
SW6020A	7440-66-6	ZINC	6000	ug/l	10	J	19	J	23		20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	4.4	J	5.6	J	10	U
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.18	J	0.6	U	0.3	U	**0.49**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	6.1		14		15		12	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW05S-GW-161108		MW05S-GW-170324		MW05S-GW-170725		MW05S-GW-171011	
				Location	MW05S		MW05S		MW05S		MW05S	
				SDG	5001197781		5001256291		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	100	U	100	U	35	J	480	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.5		10	U	2.2		3.4	
SW6020A	7440-39-3	BARIUM	2000	ug/l	370		260		240		220	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1.8		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	110000		170000		130000		110000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	13		9.4		9.6		41	
SW6020A	7440-48-4	COBALT	6	ug/l	3		3		2.9		4.9	
SW6020A	7440-50-8	COPPER	1300	ug/l	2	U	2	U	0.54	J	9.5	
SW6020A	7439-89-6	IRON	14000	ug/l	4100		1200		770		5500	
SW6020A	7439-92-1	LEAD	15	ug/l	0.34	J	0.33	J	0.27	J	4.6	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	240000		210000		250000		290000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	280		310		300		310	
SW6020A	7440-02-0	NICKEL	390	ug/l	83		53		55		230	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	160000		150000		150000		170000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.1	J	1.4	J	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	920000		940000		810000		1100000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	11		8		11		11	
SW6020A	7440-66-6	ZINC	6000	ug/l	5.8	J	5.5	J	20	U	31	
SW9014	57-12-5	CYANIDE	200	ug/l	5	J	9.9	J	10		7.4	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	0.6	U	0.3	U	**4.7**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	13		9.4		9.6		36	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06S-GW-161108		MW06S-GW-170331		MW06S-GW-170725		MW06S-GW-171010	
				Location	MW06S		MW06S		MW06S		MW06S	
				SDG	5001197781		5001259001		5001316311		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/31/2017		7/25/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	530		250		170		150	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**18**		4.2		**18**		**24**	
SW6020A	7440-39-3	BARIUM	2000	ug/l	180		150		170		160	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.19	J	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		100000		130000		120000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	**300**		**160**		**320**		**310**	
SW6020A	7440-48-4	COBALT	6	ug/l	**6.2**		5.7		**6.6**		**6.5**	
SW6020A	7440-50-8	COPPER	1300	ug/l	29		23		18		22	
SW6020A	7439-89-6	IRON	14000	ug/l	**38000**		**26000**		**40000**		**40000**	
SW6020A	7439-92-1	LEAD	15	ug/l	6.6		2.8		7.7		9.9	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	180000		120000		210000		240000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	250		160		180		160	
SW6020A	7440-02-0	NICKEL	390	ug/l	180		45		170		200	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	140000		69000		150000		150000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.1	J	2.5	U	2.5	U	1.3	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	760000		770000		790000		720000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	6.9		3.7	J	8		7.6	
SW6020A	7440-66-6	ZINC	6000	ug/l	26		19	J	15	J	14	J
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	7.9	J	6.7	J	6.2	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	1.5	U	0.6	UJ	**5.6**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	300		160		320		300	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06M-GW-161108		MW06M-GW-170324		MW106M-GW-170324		MW06M-GW-170721		MW06M-GW-171010	
				Location	MW06M		MW06M		MW06M		MW06M		MW06M	
				SDG	5001197781		5001256291		5001256291		5001314711		5001353631	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	680		110		85	J	28	J	58	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.7		4.4	J	10	U	2.8		3.1	
SW6020A	7440-39-3	BARIUM	2000	ug/l	190		120	J	190	J	260		260	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2		1.5		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.32	J	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	64000		70000		61000		83000		78000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	**150**		95	J	39	J	66		73	J
SW6020A	7440-48-4	COBALT	6	ug/l	4.7		5		3.6		5.2		5.4	
SW6020A	7440-50-8	COPPER	1300	ug/l	69		15	J	8.6		3.1		6.2	
SW6020A	7439-89-6	IRON	14000	ug/l	13000		7100		7000		**15000**		**18000**	
SW6020A	7439-92-1	LEAD	15	ug/l	8.4		1.5		1.1		0.27	J	0.92	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	110000		120000		110000		180000		150000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	130		110	J	80	J	110		120	
SW6020A	7440-02-0	NICKEL	390	ug/l	81		49		21		28		32	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	82000		81000	J	56000	J	100000		82000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.5	J	6.5		2.5	U	1.8	J	1	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.1	J	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	840000		980000	J	690000	J	980000		880000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	5		5	U	5	U	2.8	J	3.8	J
SW6020A	7440-66-6	ZINC	6000	ug/l	84		12	J	12	J	20	UJ	8.1	J
SW9014	57-12-5	CYANIDE	200	ug/l	15		7.4	J	13		14		11	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	**1.2**		0.22	J	**6.4**	J	**6.9**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	150		94		39		60		66	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW06D-GW-161108		MW06D-GW-170324		MW06D-GW-170725		MW06D-GW-171010		MW106D-GW-171010	
				Location	MW06D		MW06D		MW06D		MW06D		MW06D	
				SDG	5001197781		5001256291		5001316311		5001353631		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/10/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	800		240		210		170		71	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	7.9		8.7	J	6.8		7.2		7.6	
SW6020A	7440-39-3	BARIUM	2000	ug/l	680		820		790		810		840	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2.1		1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		130000		120000		110000		110000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	4.5	J	5.9		4.2	J	4.4	J	4.5	J
SW6020A	7440-48-4	COBALT	6	ug/l	5.4		5.1		5.8		4.2		4.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.4	J	1.9	J	0.61	J	0.88	J	2	U
SW6020A	7439-89-6	IRON	14000	ug/l	8400		6100		3500		5100		5000	
SW6020A	7439-92-1	LEAD	15	ug/l	1.2		0.78		0.51		0.36	J	0.37	J
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	170000		230000		210000		210000		220000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	100		36		28		22		20	
SW6020A	7440-02-0	NICKEL	390	ug/l	66		52		57		49		49	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	67000		66000		70000		68000		70000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.95	J	2.9		2.5	U	2.5	U	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	860000		1000000		930000		840000		870000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	3	J	5	U	2.8	J	5	U	2.3	J
SW6020A	7440-66-6	ZINC	6000	ug/l	23		8.9	J	10	J	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	3.6	J	8.5	J	16		9.3	J	9.3	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	0.3	U	0.3	U	1.5	U	0.6	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	4.5	J	5.9		400		4.4	J	4.5	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW07M-GW-161108		MW07M-GW-170324		MW07M-GW-170721		MW07M-GW-171010	
				Location	MW07M		MW07M		MW07M		MW07M	
				SDG	5001197781		5001256291		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	92	J	100		29	J	27	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**14**		**15**		**17**		9.6	
SW6020A	7440-39-3	BARIUM	2000	ug/l	230		280		270		270	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2		1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.31	J
SW6020A	7440-70-2	CALCIUM	NS	ug/l	13000		16000		12000		13000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	42		40		41		36	
SW6020A	7440-48-4	COBALT	6	ug/l	2.1		2		1.7		1.5	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.9	J	1.1	J	2.4		1.1	J
SW6020A	7439-89-6	IRON	14000	ug/l	3700		3400		2400		2400	
SW6020A	7439-92-1	LEAD	15	ug/l	1.2		4.4		0.22	J	0.3	J
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	150000		160000		210000		210000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	52		39		18		16	
SW6020A	7440-02-0	NICKEL	390	ug/l	91		86		77		63	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	1900000		1800000		1900000		1500000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2	J	**160**		5.5		2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	4300000		4200000		4200000		3600000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	12		7.2		5.9		5.8	
SW6020A	7440-66-6	ZINC	6000	ug/l	7.4	J	4.7	J	20	UJ	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	15		12		14		12	
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	0.6	U	**1.7**	J	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	42		40		39		36	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW08S-GW-161108		MW08S-GW-170323		MW08S-GW-170721		MW08S-GW-171010	
				Location	MW08S		MW08S		MW08S		MW08S	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	110		500	U	67	J	130	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1.1	J	15	UJ	1.3	J	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**12**		**12**	J	**13**	J	9.5	
SW6020A	7440-39-3	BARIUM	2000	ug/l	88		120		150	J	150	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	10	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.4	J	2.5	UJ	0.7	J	0.85	
SW6020A	7440-70-2	CALCIUM	NS	ug/l	22000		25000		25000	J	27000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	86		100		74	J	80	
SW6020A	7440-48-4	COBALT	6	ug/l	3		3.4	J	2.8	J	2.7	
SW6020A	7440-50-8	COPPER	1300	ug/l	2		10	UJ	2	UJ	3	
SW6020A	7439-89-6	IRON	14000	ug/l	4300		3400		2600	J	3700	
SW6020A	7439-92-1	LEAD	15	ug/l	5		4.4		2.1		5.3	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	390000		400000		410000		430000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	130		130		120	J	130	
SW6020A	7440-02-0	NICKEL	390	ug/l	160		150		94	J	120	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	830000		860000		750000		800000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.5	J	13	UJ	2.7	J	2.5	U
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	2.5	U	0.19	J	0.14	J
SW6020A	7440-23-5	SODIUM	NS	ug/l	2800000		2900000		2500000		2600000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	0.57	J	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	9.5		14	J	11		9.5	
SW6020A	7440-66-6	ZINC	6000	ug/l	20		100	UJ	20	UJ	19	J+
SW9014	57-12-5	CYANIDE	200	ug/l	3.6	J	7.2	J	11		6.4	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	**0.8**		**18**	J	**14**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	86		99		56		66	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW08D-GW-161108		MW08D-GW-170323		MW08D-GW-170721		MW08D-GW-171010	
				Location	MW08D		MW08D		MW08D		MW08D	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	120		500	U	66	J	310	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1	J	15	U	6	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**14**		9.6	J	**18**		6.6	
SW6020A	7440-39-3	BARIUM	2000	ug/l	**2400**		1300	J	1600		**2600**	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	5	U	2	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.25	J	2.5	U	1	U	0.57	
SW6020A	7440-70-2	CALCIUM	NS	ug/l	47000		24000	J	29000		40000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	27		28		33		37	
SW6020A	7440-48-4	COBALT	6	ug/l	2.3		2.1	J	2.2		2.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	1.4	J	20	U	4	UJ	2.9	
SW6020A	7439-89-6	IRON	14000	ug/l	4700		3000	J	2900		3600	
SW6020A	7439-92-1	LEAD	15	ug/l	0.34	J	2.5	U	1	U	0.81	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	280000		220000		300000		280000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	130		47		43		49	
SW6020A	7440-02-0	NICKEL	390	ug/l	63		45		46		47	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	13000000		13000000		14000000		12000000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	3.4		**1200**	J	20		1.2	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	2.5	U	1	U	0.18	J
SW6020A	7440-23-5	SODIUM	NS	ug/l	15000000		14000000		16000000		14000000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	10	U	4	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	8		25	U	5.3	J	4.9	J
SW6020A	7440-66-6	ZINC	6000	ug/l	7.4	J	200	UJ	40	UJ	20	UJ
SW9014	57-12-5	CYANIDE	200	ug/l	18		16		22		16	
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	0.3	U	0.6	UJ	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	27		28		33		37	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW09S-GW-161107		MW09S-GW-170327		MW09S-GW-170720		MW09S-GW-171009		MW109S-GW-171009	
				Location	MW09S		MW09S		MW09S		MW09S		MW09S	
				SDG	5001197191		5001256621		5001314231		5001353081		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/7/2016		3/27/2017		7/20/2017		10/9/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	64	J	100	U	28	J	40	J	35	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	**11**		5.9		5.6		8.7		8.8	
SW6020A	7440-39-3	BARIUM	2000	ug/l	250		230		240		230		230	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	U	1	U
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	110000		120000		86000		85000		82000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	21		8.8		23		30		29	
SW6020A	7440-48-4	COBALT	6	ug/l	5		2.4		5.7		**6.1**		5.9	
SW6020A	7440-50-8	COPPER	1300	ug/l	2.2		2	U	1	J	2	UJ	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	**25000**		**21000**		4500		5000		4900	
SW6020A	7439-92-1	LEAD	15	ug/l	1.1		0.98		0.35	J	0.84		0.5	UJ
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	140000		150000		190000		180000		180000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**910**		**1100**		350		350		340	
SW6020A	7440-02-0	NICKEL	390	ug/l	51		23		41		63		62	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	330000		220000		440000		430000		430000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	1.3	J	2.5	U	2.5	U	2	J	1.4	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1400000		790000		1600000		1800000		1700000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	5	U	5	U	2.5	J	3.8	J	3.7	J
SW6020A	7440-66-6	ZINC	6000	ug/l	5.8	J	6.4	J	20	U	20	U	20	U
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	4.2	J	5.8	J	7.2	J	7.8	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	**0.69**		**0.94**	J	0.3	U	0.3	U
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	21		8.1		22		30		29	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW11-GW-161110		MW11-GW-170327		MW11-GW-170725		MW11-GW-171011	
				Location	MW11		MW11		MW11		MW11	
				SDG	5001199081		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/10/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	820		520		180		360	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	6.6		1.7		2.4		3.4	
SW6020A	7440-39-3	BARIUM	2000	ug/l	610		980		1000		890	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.33	J	0.5	U	0.5	U	0.5	UJ
SW6020A	7440-70-2	CALCIUM	NS	ug/l	100000		200000		220000		140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	36		7.7		6.6		12	
SW6020A	7440-48-4	COBALT	6	ug/l	2.8		1.8		1.8		2.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	3.8		4		0.96	J	2.3	
SW6020A	7439-89-6	IRON	14000	ug/l	5300		**22000**		**18000**		6900	
SW6020A	7439-92-1	LEAD	15	ug/l	5.3		1.6		1.5		2.4	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	400000		230000		290000		270000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	360		**900**		**550**		390	
SW6020A	7440-02-0	NICKEL	390	ug/l	10		3.7		4.9		6.4	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	130000		54000		58000		91000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	0.96	J	2.5	U	2.5	U	1.1	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.13	J	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1400000		180000		150000		500000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	20		3.7	J	3.8	J	6.9	
SW6020A	7440-66-6	ZINC	6000	ug/l	29		27		10	J	18	J
SW9014	57-12-5	CYANIDE	200	ug/l	8.7	J	4.3	J	6.9	J	4.1	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	**9**		0.17	J	1.5	U	**2**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	27		7.5		6.6		10	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW12-GW-161109		MW12-GW-170324		MW12-GW-170720		MW112-GW-170720		MW12-GW-171011	
				Location	MW12		MW12		MW12		MW12		MW12	
				SDG	5001198721		5001256291		5001314231		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE														
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	760		980		100	U	100	U	610	
SW6020A	7440-36-0	ANTIMONY	6	ug/l	3	U	3	UJ	3	U	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	2.2		10	U	1.5	J	1.1	J	2.7	
SW6020A	7440-39-3	BARIUM	2000	ug/l	500		390		120	J	20	J	540	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	1	UJ	1	U	1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	120000		140000		80000	J	23000	J	140000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	26		37		15	J	10	J	22	
SW6020A	7440-48-4	COBALT	6	ug/l	0.96	J	2.1		1.7		1.3		1.1	
SW6020A	7440-50-8	COPPER	1300	ug/l	12		11	J	0.73	J	0.77	J	14	
SW6020A	7439-89-6	IRON	14000	ug/l	9000		8300		1200	J	200	J	7200	
SW6020A	7439-92-1	LEAD	15	ug/l	7.8		7.1		0.5	U	0.5	U	5.9	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	250000		270000		110000	J	21000	J	300000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	**700**		**890**		270	J	37	J	**870**	
SW6020A	7440-02-0	NICKEL	390	ug/l	10		8.6	J	4	J	3.3	J	9.5	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	220000		130000		110000		91000		420000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	3.3		2.5	UJ	2.5	U	1.8	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	440000		310000		4100000		3200000		560000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	4.4	J	3.8	J	5	U	5	U	3.9	J
SW6020A	7440-66-6	ZINC	6000	ug/l	50		35		20	U	20	U	34	
SW9014	57-12-5	CYANIDE	200	ug/l	10	U	5.2	J	5.9	J	4.8	J	10	U
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	0.6	U	0.32	J	1.5	U	1.5	U	**0.92**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	26		37		15		10		21	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-4
Groundwater Analytical Results, Total Metals and Cyanide (November 2016 to October 2017)

				Sample ID	MW13-GW-161109		MW13-GW-170324		MW13-GW-170720		MW13-GW-171011	
				Location	MW13		MW13		MW13		MW13	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
TOTAL METALS & CYANIDE												
SW6020A	7429-90-5	ALUMINUM	20000	ug/l	280		95	J	28	J	68	J
SW6020A	7440-36-0	ANTIMONY	6	ug/l	1.4	J	1	J	3	U	3	U
SW6020A	7440-38-2	ARSENIC	10	ug/l	9.1		6.8	J	4.2		8.5	
SW6020A	7440-39-3	BARIUM	2000	ug/l	420		450		84		370	
SW6020A	7440-41-7	BERYLLIUM	4	ug/l	1	U	2.2		1	U	1	UJ
SW6020A	7440-43-9	CADMIUM	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-70-2	CALCIUM	NS	ug/l	130000		120000		25000		120000	
SW6020A	7440-47-3	CHROMIUM	100	ug/l	49		34		23		40	
SW6020A	7440-48-4	COBALT	6	ug/l	**6.5**		5.4		5.6		5.2	
SW6020A	7440-50-8	COPPER	1300	ug/l	3.3		2	U	1.5	J	2	UJ
SW6020A	7439-89-6	IRON	14000	ug/l	2800		1100		120		720	
SW6020A	7439-92-1	LEAD	15	ug/l	6.2		0.78		0.19	J	0.82	
SW6020A	7439-95-4	MAGNESIUM	NS	ug/l	290000		220000		52000		280000	
SW6020A	7439-96-5	MANGANESE	430	ug/l	220		180		32		160	
SW6020A	7440-02-0	NICKEL	390	ug/l	36		32		22	J	34	
SW6020A	7440-09-7	POTASSIUM	NS	ug/l	310000		230000		240000		260000	
SW6020A	7782-49-2	SELENIUM	50	ug/l	2.5	U	4		2.5	U	1.7	J
SW6020A	7440-22-4	SILVER	94	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW6020A	7440-23-5	SODIUM	NS	ug/l	1000000		870000		4200000		830000	
SW6020A	7440-28-0	THALLIUM	2	ug/l	2	U	2	U	2	U	2	U
SW6020A	7440-62-2	VANADIUM	86	ug/l	9.5		3.4	J	3.8	J	8.5	
SW6020A	7440-66-6	ZINC	6000	ug/l	28		6.8	J	20	U	14	J
SW9014	57-12-5	CYANIDE	200	ug/l	3.6	J	3.5	J	9.4	J	7.1	J
SW7199	18540-29-9	CHROMIUM, HEXAVALENT	0.35	ug/l	1.5	U	**0.8**	J	**0.64**		**8.8**	
SW7199	16065-83-1	CHROMIUM, TRIVALENT	16000	ug/l	49		33		22		31	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW01S-GW-161107		MW01S-GW-170327		MW01S-GW-170719		MW01S-GW-171009	
				Location	MW01S		MW01S		MW01S		MW01S	
				SDG	5001197191		5001256621		5001313321		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/7/2016		3/27/2017		7/19/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	5	U	5	U	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	1	U	1	U	1	U	1	U
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	5	U	10	U	10	U	10	U
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	1	U	1	U	1	U	1	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW02S-GW-161109		MW02S-GW-170324		MW02S-GW-170720		MW02S-GW-171011	
				Location	MW02S		MW02S		MW02S		MW02S	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	0.51	J	0.65	J	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	9		6.9		7.1		8.5	
SW8260B	67-64-1	ACETONE	14000	ug/l	18		5	U	15		5	U
SW8260B	71-43-2	BENZENE	5	ug/l	**12**		**11**		**10**		**10**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	13		13		14		13	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	29		30		25		23	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	13	UJ
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	320		290		240		250	
SW8260B	108-88-3	TOLUENE	1000	ug/l	14		10		4.5		3.7	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	15		13		11		5.9	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	39		27		20		16	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW02D-GW-161109		MW02D-GW-170324		MW02D-GW-170720		MW02D-GW-171011	
				Location	MW02D		MW02D		MW02D		MW02D	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	5	U	5	U	7.1		5	U
SW8260B	71-43-2	BENZENE	5	ug/l	0.65		0.5	U	0.31	J	0.81	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	7.8		1	U	5.1		4.6	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	11	UJ
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	110		70		69		69	
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	1	U	1	U	1	U	1	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW03S-GW-161109		MW103S-GW-161109		MW03S-GW-170327		MW03S-GW-170725		MW03S-GW-171011	
				Location	MW03S		MW03S		MW03S		MW03S		MW03S	
				SDG	5001198721		5001198721		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		11/9/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	2	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	61		67		5	U	5	U	73	
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	10	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	21		21		13		7.8		22	
SW8260B	67-64-1	ACETONE	14000	ug/l	39		36		20		15		78	
SW8260B	71-43-2	BENZENE	5	ug/l	**12**		**11**		**11**		**12**		**11**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	4	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	0.48	J	0.62	J	2	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	2	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	1	U	2	U	2	U	4	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	29		24		37		40		37	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	31		24		34		39		32	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	**19**	J+
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	0.5	J	1	U	2	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	570		550		480		820		590	
SW8260B	108-88-3	TOLUENE	1000	ug/l	17		17		14		13		13	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	2	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	UJ	0.79	J	0.5	U	0.5	U	1	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	26	J	19	J	30		36		30	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	59		44		70		79		64	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW04S-GW-170327		MW04S-GW-170725		MW104S-GW-170725		MW04S-GW-171011	
				Location	MW04S		MW04S		MW04S		MW04S	
				SDG	5001256621		5001316311		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	3/27/2017		7/25/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	5	U	5	U	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	2	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	1	U	1	U	1	U	1	U
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	10	U	10	U	10	U	10	U
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	1	U	1	U	1	U	1	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW05S-GW-161108		MW05S-GW-170324		MW05S-GW-170725		MW05S-GW-171011	
				Location	MW05S		MW05S		MW05S		MW05S	
				SDG	5001197781		5001256291		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	8.3		5	U	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	**750**		**170**		**430**		**800**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	69		20		29		36	
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	11		8.2		8.4		9.1	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	5.1		3.4		0.9		0.83	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	330		270		240		210	
SW8260B	108-88-3	TOLUENE	1000	ug/l	1.8		0.77		1		1.3	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	5.4		3		3.2		2.8	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	7.2		2.7		1		0.97	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW06S-GW-161108		MW06S-GW-170331		MW06S-GW-170725		MW06S-GW-171010	
				Location	MW06S		MW06S		MW06S		MW06S	
				SDG	5001197781		5001259001		5001316311		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/31/2017		7/25/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	13		2	U	10	U	10	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	25	U	10	U	50	U	50	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	25	U	10	U	50	U	50	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	25	U	10	U	50	U	50	U
SW8260B	67-64-1	ACETONE	14000	ug/l	62		13		50	U	50	U
SW8260B	71-43-2	BENZENE	5	ug/l	**4200**		**1100**		**3000**		**4600**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	10	U	4	U	20	U	20	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	9.7		25		10	U	9.1	J
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	190		90	J	110		100	
SW8260B	67-66-3	CHLOROFORM	80	ug/l	5	U	4	U	20	U	20	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	41		14		26		35	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	**2000**		630		**1300**		**1900**	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	25	U	10	U	50	U	50	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	5	U	2	U	10	U	10	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	**12000**		750		**8400**		**13000**	
SW8260B	108-88-3	TOLUENE	1000	ug/l	**2600**		830		400		200	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	3.7	J	2	U	10	U	10	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	2.5	U	1	U	5	U	5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	**770**		**330**		**600**		**330**	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	**3800**		**1600**		**3300**		**3600**	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW06M-GW-161108		MW06M-GW-170324		MW106M-GW-170324		MW06M-GW-170721		MW06M-GW-171010	
				Location	MW06M		MW06M		MW06M		MW06M		MW06M	
				SDG	5001197781		5001256291		5001256291		5001314711		5001353631	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	5	U	0.61	J	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	25	U	7	J	5	UJ	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	25	U	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	25	U	9		7		5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	25	U	19	J	10	J	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	**360**		**11**	J	**100**	J	**58**		**42**	J+
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	10	U	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	5	U	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	460		230	J	330	J	440		620	
SW8260B	67-66-3	CHLOROFORM	80	ug/l	5	U	2	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	12		8		9.8		12		11	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	**1300**		0.5	UJ	92	J	51		50	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	25	U	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	5	U	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	80		27	J	130	J	280		330	
SW8260B	108-88-3	TOLUENE	1000	ug/l	250		0.5	UJ	5.7	J	2		3	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	5	U	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	2.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	**970**		3.6	J	23	J	5.5		4.9	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	**4300**		95	J	**660**	J	170		130	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW06D-GW-161108		MW06D-GW-170324		MW06D-GW-170725		MW06D-GW-171010		MW106D-GW-171010	
				Location	MW06D		MW06D		MW06D		MW06D		MW06D	
				SDG	5001197781		5001256291		5001316311		5001353631		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/10/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	5	UJ	5	U	5	U	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	**6.1**		**6.3**		**7.3**		**7.6**		**7.5**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	3		3.6		2.4		1.4		1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	7.4		6.5		7		5.5		5.8	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	0.63		0.5	U	0.32	J	0.5	U	0.5	U
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	130		43		87		44		49	
SW8260B	108-88-3	TOLUENE	1000	ug/l	1.2		0.83		0.67		0.68		0.74	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	2.4		3.1		2.8		2.6	
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	**6.1**		**14**		**6.4**		**6.1**	J	0.5	UJ
SW8260B	95-47-6	XYLENE, O-	190	ug/l	0.58		0.5	U	0.37	J	0.4	J	0.61	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	2		1.2		2.4		2.5	J	3.6	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW07M-GW-161108		MW07M-GW-170324		MW07M-GW-170721		MW07M-GW-171010	
				Location	MW07M		MW07M		MW07M		MW07M	
				SDG	5001197781		5001256291		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	16		9.6		**39**		18	
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	6.7		5	U	5	U	6.5	
SW8260B	71-43-2	BENZENE	5	ug/l	**32**		**23**		**49**		**28**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	**310**		**250**		**200**		**150**	
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1.4		1.5		2.8		1.9	
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	1.2	J
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	5.4		3.8		4.3		2.9	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	38		32		63		42	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	220		200		300		200	
SW8260B	108-88-3	TOLUENE	1000	ug/l	190		100		440		180	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	1.1		1.2		2		0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	53		28		34		24	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	120		53		62		45	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW08S-GW-161108		MW08S-GW-170323		MW08S-GW-170721		MW08S-GW-171010	
				Location	MW08S		MW08S		MW08S		MW08S	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	2	U	5	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	10	U	25	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	10	U	25	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	10	U	25	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	13		11		25	U	7.5	
SW8260B	71-43-2	BENZENE	5	ug/l	**45**		**44**		**46**		**29**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	4	U	10	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1.9		2.1		5	U	1.6	
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	18		20		11		9.7	
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	4	U	10	U	0.52	J
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	25		22		22		16	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	130		130		150		76	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	10	U	25	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	2	U	5	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	260		210		210		170	
SW8260B	108-88-3	TOLUENE	1000	ug/l	16		14		14		6.6	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	2	U	5	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	1	U	2.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	72		83		100		56	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	**220**		**220**		**300**		160	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW08D-GW-161108		MW08D-GW-170323		MW08D-GW-170721		MW08D-GW-171010	
				Location	MW08D		MW08D		MW08D		MW08D	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	2.1		2.2		1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	8.7		5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5.7		7.3		5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	200		470		610		66	
SW8260B	67-64-1	ACETONE	14000	ug/l	24		13		17		14	
SW8260B	71-43-2	BENZENE	5	ug/l	0.68		0.49	J	0.51		0.5	U
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	0.84	J
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	6.4		5.8		8		4.7	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	5.5		3.5		2.5		1.9	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	540		560		770		540	
SW8260B	108-88-3	TOLUENE	1000	ug/l	5		2.5		2.1		1.6	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	1		0.76		0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	4.5		2.4		1.9		1.5	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	14		7.8		5		4.2	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW09S-GW-161107		MW09S-GW-170327		MW09S-GW-170720		MW09S-GW-171009		MW109S-GW-171009	
				Location	MW09S		MW09S		MW09S		MW09S		MW09S	
				SDG	5001197191		5001256621		5001314231		5001353081		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/7/2016		3/27/2017		7/20/2017		10/9/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	28		10		8.2		5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	3.4		5		**7.3**		**6.5**		**6.7**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	3.2		2.4		4		3.8		3.6	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	84		63		77		87		91	
SW8260B	108-88-3	TOLUENE	1000	ug/l	0.29	J	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	1	U	1	U	1	U	1	U	1	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW11-GW-161110		MW11-GW-170327		MW11-GW-170725		MW11-GW-171011	
				Location	MW11		MW11		MW11		MW11	
				SDG	5001199081		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/10/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	370		19		5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	74		12		17		5	U
SW8260B	71-43-2	BENZENE	5	ug/l	2.3		2.3		1.9		1.8	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	3.9		2.8		1.5	
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	22		4.1		3.9		15	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	5.1		1.5		1.3		3.7	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	7.1	UJ
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	22		5.9	J	7.2	J	8.8	J
SW8260B	108-88-3	TOLUENE	1000	ug/l	17		1.7		12		3.6	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	5.1		2		1.7		3.8	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	9.9		4.1		3.5		8	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW12-GW-161109		MW12-GW-170324		MW12-GW-170720		MW112-GW-170720		MW12-GW-171011	
				Location	MW12		MW12		MW12		MW12		MW12	
				SDG	5001198721		5001256291		5001314231		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES														
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	42		5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5.2		5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	23		5	U	5	U	5	U	5	U
SW8260B	71-43-2	BENZENE	5	ug/l	**12**		**7.7**		**6.7**		**7.5**		**12**	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	2	U	2	U	2	U	2	U	2	U
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	1	U	2		1.2		1.4		0.93	J
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	5.3		4.4		3.8		5		6.7	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	4.6		1.1		0.5	U	0.5	U	0.71	
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	5	U	12	UJ
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	55		45		25		22		41	
SW8260B	108-88-3	TOLUENE	1000	ug/l	18		1.1		0.42	J	0.44	J	2.7	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	3.7		1		0.36	J	0.34	J	1.9	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	8.2		2.1		0.8	J	0.87	J	4.9	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-5
Groundwater Analytical Results, Volatile Organics (November 2016 to October 2017)

				Sample ID	MW13-GW-161109		MW13-GW-170324		MW13-GW-170720		MW13-GW-171011	
				Location	MW13		MW13		MW13		MW13	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
VOLATILES												
SW8260B	75-34-3	1,1-DICHLOROETHANE	28	ug/l	1	U	1	U	1	U	1	U
SW8260B	78-93-3	2-BUTANONE	5600	ug/l	5	U	5	U	5	U	5	U
SW8260B	591-78-6	2-HEXANONE	38	ug/l	5	U	5	U	5	U	5	U
SW8260B	108-10-1	4-METHYL-2-PENTANONE	6300	ug/l	5	U	5	U	5	U	5	U
SW8260B	67-64-1	ACETONE	14000	ug/l	5	U	5	U	6.7		5	U
SW8260B	71-43-2	BENZENE	5	ug/l	2.5		2.8		2.4		2	
SW8260B	75-15-0	CARBON DISULFIDE	810	ug/l	3.7		2.5		4.5		5.4	
SW8260B	108-90-7	CHLOROBENZENE	100	ug/l	0.64	J	2.9		2.8		1	
SW8260B	75-00-3	CHLOROETHANE	21000	ug/l	1	U	1	U	1	U	1	U
SW8260B	67-66-3	CHLOROFORM	80	ug/l	1	U	2	U	2	U	2	U
SW8260B	60-29-7	ETHYL ETHER	3900	ug/l	1	U	2.1		1.7		1	
SW8260B	100-41-4	ETHYLBENZENE	700	ug/l	2.6		1.3		0.45	J	0.36	J
SW8260B	75-09-2	METHYLENE CHLORIDE	5	ug/l	5	U	5	U	5	U	9.3	UJ
SW8260B	127-18-4	TETRACHLOROETHENE	5	ug/l	1	U	1	U	1	U	1	U
SW8260B	109-99-9	TETRAHYDROFURAN	3400	ug/l	270		530		310		190	
SW8260B	108-88-3	TOLUENE	1000	ug/l	2.6		1.4		1		0.74	
SW8260B	156-60-5	TRANS-1,2-DICHLOROETHENE	100	ug/l	1	U	1	U	1	U	1	U
SW8260B	75-01-4	VINYL CHLORIDE	2	ug/l	0.5	U	0.5	U	0.5	U	0.5	U
SW8260B	95-47-6	XYLENE, O-	190	ug/l	3.1		3.4		2		1.5	
SW8260B	XYLMP	XYLENES, M & P-	190	ug/l	5.7		5.5		2.7		2.3	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW01S-GW-161107		MW01S-GW-170327		MW01S-GW-170719		MW01S-GW-171009	
				Location	MW01S		MW01S		MW01S		MW01S	
				SDG	5001197191		5001256621		5001313321		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/7/2016		3/27/2017		7/19/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**23**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.6	U	7.3	U	7.7	U	7.6	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.6	U	7.3	U	7.7	U	7.6	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.6	U	7.3	UJ	7.7	U	7.6	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	1.5		1.5		1.5		1.8	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	15	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	UJ	8	J	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.6	U	7.3	U	7.7	U	7.6	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	3.7	UJ	3.8	U	3.8	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.38	U	0.15	U	0.15	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.22	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.5	U	3.8	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	1.5	U	3.8	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	3.7	U	3.8	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW01S-GW-161107		MW01S-GW-170327		MW01S-GW-170719		MW01S-GW-171009	
				Location	MW01S		MW01S		MW01S		MW01S	
				SDG	5001197191		5001256621		5001313321		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/7/2016		3/27/2017		7/19/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.76	U	0.42	J	0.77	U	0.76	U
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.76	U	1.5	U	1.5	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	15	UJ	15	U	15	UJ
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.76	U	0.73	U	0.77	U	0.76	U
SW8270D	108-95-2	PHENOL	5800	ug/l	3.8	U	3.7	U	3.8	U	3.8	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.76	U	0.73	U	0.77	U	0.76	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW02S-GW-161109		MW02S-GW-170324		MW02S-GW-170720		MW02S-GW-171011	
				Location	MW02S		MW02S		MW02S		MW02S	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**720**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	0.74	J	0.95	J	1.5	U	0.96	J
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.6	U	8.2	U	7.6	U	38	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.76	U	0.82	U	0.76	U	3.8	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.4	J	1.1	J	1.3	J	1.4	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.6	U	8.2	U	7.6	U	38	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.6	U	8.2	U	7.6	U	38	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.76	U	0.82	U	0.33	J	3.8	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.76	U	0.82	U	0.76	U	3.8	U
SW8270D	62-53-3	ANILINE	130	ug/l	22		16	U	15	U	76	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.76	U	1.2		0.85		3.8	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.16	U	0.15	U	0.76	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	UJ	0.16	UJ	0.15	U	0.76	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	UJ	0.16	UJ	0.15	U	0.76	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	UJ	0.16	UJ	0.15	U	0.76	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	16	U	15	U	76	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.6	U	8.2	U	7.6	U	38	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	4.1	UJ	3.8	UJ	19	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.15	U	0.16	U	0.15	U	0.76	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	UJ	0.24	UJ	0.23	U	1.1	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.6	U	1.5	U	19	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.6	U	1.5	U	19	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	4.1	U	3.8	U	19	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW02S-GW-161109		MW02S-GW-170324		MW02S-GW-170720		MW02S-GW-171011	
				Location	MW02S		MW02S		MW02S		MW02S	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.82	U	0.76	U	3.8	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.76	U	0.39	J	0.76	U	3.8	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	UJ	0.16	UJ	0.15	U	0.76	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.6	U	1.5	U	7.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**4.4**		**5.5**		**5.7**		**7**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.76	U	1.9		1.5	U	7.6	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	16	U	15	U	76	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.76	U	0.38	J	0.76	U	3.8	U
SW8270D	108-95-2	PHENOL	5800	ug/l	3.8	UJ	4.1	U	3.8	U	19	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.76	U	0.82	U	0.76	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW02D-GW-161109		MW02D-GW-170324		MW02D-GW-170720		MW02D-GW-171011	
				Location	MW02D		MW02D		MW02D		MW02D	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**260**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	1.8	J	5.9	J	7.7	U	7.6	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	0.055	J	1.6	U	1.5	U	1.5	U
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	0.35	J	0.31	J	1.5	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	3.2		3		1.5	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.6	U	8.2	U	7.7	U	7.6	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.6	U	8.2	U	7.7	U	7.6	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	16	UJ	15	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.76	U	0.82	U	0.77	U	0.51	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.16	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	UJ	0.16	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	UJ	0.16	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	UJ	0.16	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U		R	15	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.6	U	8.2	U	7.7	U	7.6	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	4.1	UJ	3.8	UJ	3.8	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.15	U	0.16	U	0.15	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	UJ	0.25	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.6	U	1.5	U	3.8	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.6	U	1.5	U	3.8	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	1.2	J	3.8	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW02D-GW-161109		MW02D-GW-170324		MW02D-GW-170720		MW02D-GW-171011	
				Location	MW02D		MW02D		MW02D		MW02D	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	UJ	0.16	U	0.15	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.6	U	1.5	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.76	U	0.82	U	0.77	U	0.76	U
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.76	U	1.6	U	1.5	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	16	U	15	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.76	U	0.5	J	0.77	U	0.76	U
SW8270D	108-95-2	PHENOL	5800	ug/l	0.93	J	4.1	U	3.8	U	0.72	J
SW8270D	129-00-0	PYRENE	120	ug/l	0.76	U	0.82	U	0.77	U	0.76	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW03S-GW-161109		MW103S-GW-161109		MW03S-GW-170327		MW03S-GW-170725		MW03S-GW-171011	
				Location	MW03S		MW03S		MW03S		MW03S		MW03S	
				SDG	5001198721		5001198721		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		11/9/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		NA		**600**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	0.8	J	1.5	U	1.5	U	0.77	J	7.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.5	U	1.5	U	1.5	U	7.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.8		1.5	U	1.7		2		2.1	J
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.7	U	7.6	U	7.5	U	7.6	U	24	J
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.1	J	1	J	0.72	J	1.7		1	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	2.7	J	1.5	UJ	1.5	U	1.5	U	7.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.5	U	100		1.5	U	75	
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.7	U	7.6	U	7.5	U	7.6	U	38	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.7	U	7.6	U	7.5	UJ	7.6	U	38	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	15	U	15	U	76	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.77	U	0.76	U	0.28	J	0.28	J	3.8	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.76	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	UJ	0.15	UJ	0.15	U	0.15	U	0.76	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	UJ	0.15	UJ	0.15	U	0.15	U	0.76	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	UJ	0.15	UJ	0.15	U	0.15	U	0.76	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	15	UJ	15	U	76	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	1.4	J	1.4	J	1.8	J	1.8	J	38	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	0.66	J	0.64	J	0.58	J	1.5	U	7.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	3.8	U	3.7	UJ	3.8	U	19	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.15	U	0.15	U	0.15	U	0.15	U	0.76	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	UJ	0.23	UJ	0.22	U	0.23	U	1.1	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.5	U	1.5	U	1.5	U	7.6	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	11	J	15	J	6.8		3.3		6.3	J
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	0.56	J	1.5	U	19	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	3.8	U	0.7	J	3.8	U	19	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW03S-GW-161109		MW103S-GW-161109		MW03S-GW-170327		MW03S-GW-170725		MW03S-GW-171011	
				Location	MW03S		MW03S		MW03S		MW03S		MW03S	
				SDG	5001198721		5001198721		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		11/9/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D														
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	UJ	0.15	UJ	0.15	U	0.15	U	0.76	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.5	U	1.5	U	7.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**4.9**	J	**3.5**	J	**4.1**		0.76	U	**5.7**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.77	UJ	25	J	18		1.5	U	12	
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	15	U	15	UJ	15	U	76	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U
SW8270D	108-95-2	PHENOL	5800	ug/l	3.8	U	3.8	U	3.7	U	3.8	U	16	J
SW8270D	129-00-0	PYRENE	120	ug/l	0.77	U	0.76	U	0.75	U	0.76	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW04S-GW-170327		MW04S-GW-170725		MW104S-GW-170725		MW04S-GW-171011	
				Location	MW04S		MW04S		MW04S		MW04S	
				SDG	5001256621		5001316311		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	3/27/2017		7/25/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**13**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.5	U	8	U	8	U	7.8	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.5	U	8	U	8	U	7.8	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.5	UJ	8	U	8	U	7.8	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	16	U	16	U	16	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	UJ	16	U	16	U	16	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.5	U	8	U	8	U	7.8	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	UJ	4	U	4	U	3.9	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.24	U	0.24	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.6	U	1.6	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.6	U	1.6	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	4	U	4	U	3.9	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW04S-GW-170327		MW04S-GW-170725		MW104S-GW-170725		MW04S-GW-171011	
				Location	MW04S		MW04S		MW04S		MW04S	
				SDG	5001256621		5001316311		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	3/27/2017		7/25/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.16	U	0.16	U	0.16	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	UJ	16	U	16	U	16	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.75	U	0.8	U	0.8	U	0.78	U
SW8270D	108-95-2	PHENOL	5800	ug/l	3.8	U	4	U	4	U	3.9	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.75	U	0.8	U	0.8	U	0.78	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW05S-GW-161108		MW05S-GW-170324		MW05S-GW-170725		MW05S-GW-171011	
				Location	MW05S		MW05S		MW05S		MW05S	
				SDG	5001197781		5001256291		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**360**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	4.3		3.5		4.1		4.2	
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	0.66	J	0.39	J	0.41	J	0.42	J
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	8		5.7		7.2		7.2	
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.7	U	7.4	U	8	U	7.6	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.77	U	0.74	U	0.8	U	0.76	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	6.8		3.4		0.54	J	0.9	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.5	U	1.6	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	0.53	J	0.36	J	1.6	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.7	U	7.4	U	8	U	7.6	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.7	U	**42**		8	U	7.6	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.24	J	0.59	J	0.4	J	0.38	J
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.77	U	0.74	U	0.8	U	0.76	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	16	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.48	J	0.75		0.48	J	0.53	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	4.7	J	15	U	16	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.7	U	1.4	J	8	U	2.5	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.6	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	3.7	UJ	4	U	0.37	J
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.38	U	0.15	U	0.16	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.22	U	0.24	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	0.26	J	1.6	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.6	U	3.8	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	1.6	U	3.8	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	3.7	U	4	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW05S-GW-161108		MW05S-GW-170324		MW05S-GW-170725		MW05S-GW-171011	
				Location	MW05S		MW05S		MW05S		MW05S	
				SDG	5001197781		5001256291		5001316311		5001354831	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.77	U	0.74	U	0.8	U	0.76	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.27	J	0.4	J	0.24	J	0.24	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.6	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**5.7**		**4.2**		1.4		**2.4**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	1.1		1.1	J	1.6	U	1.9	
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	15	U	16	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.77	U	0.22	J	0.8	U	0.76	U
SW8270D	108-95-2	PHENOL	5800	ug/l	2.6	J	1.4	J	1.7	J	2.9	J
SW8270D	129-00-0	PYRENE	120	ug/l	0.77	U	0.74	U	0.8	U	0.76	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06S-GW-161108		MW06S-GW-170331		MW06S-GW-170725		MW06S-GW-171010	
				Location	MW06S		MW06S		MW06S		MW06S	
				SDG	5001197781		5001259001		5001316311		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/31/2017		7/25/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		**760**	J	**2000**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	21		16		12		1.5	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	0.77	J	0.51	J	0.39	J	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	2.6		1.7		1.4	J	1.5	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.6	U	8.6		7.8	U	7.7	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.76	U	0.75	U	0.78	U	0.77	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	**200**		**130**		**110**		**180**	
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.5	U	1.6	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	2.9		8.6		1.6	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	48		7.5	U	7.8	U	7.7	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.6	U	**120**		7.8	U	7.7	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	4.1		0.75	U	2.5		3.2	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.76	U	0.75	U	0.78	U	0.67	J
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	16	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.65	J	0.75	U	0.78	U	0.77	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.16	U	0.08	J
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	75		15	U	16	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	5.7	J	1.8	J	1.8	J	1.8	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5		1.5		1.2	J	0.99	J
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8		2.3	J	2	J	3.9	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.38	U	0.15	U	0.16	U	0.085	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.22	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	2.4		1.5	U	1.5	J	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.6	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	1.6	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	0.85	J	1	J	0.72	J	0.63	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06S-GW-161108		MW06S-GW-170331		MW06S-GW-170725		MW06S-GW-171010	
				Location	MW06S		MW06S		MW06S		MW06S	
				SDG	5001197781		5001259001		5001316311		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/31/2017		7/25/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.75	U	0.78	U	0.77	U
SW8270D	86-73-7	FLUORENE	290	ug/l	5		3		3		4	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.15	U	0.16	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	16		4.3		1.6	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**390**		**230**		**210**		**390**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.76	U	1.5	U	1.6	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	15	U	16	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	11		4.7		4.7		7.5	
SW8270D	108-95-2	PHENOL	5800	ug/l	28		10		3.9	U	3.9	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.66	J	0.75	U	0.78	U	0.39	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06M-GW-161108		MW06M-GW-170324		MW106M-GW-170324		MW06M-GW-170721		MW06M-GW-171010	
				Location	MW06M		MW06M		MW06M		MW06M		MW06M	
				SDG	5001197781		5001256291		5001256291		5001314711		5001353631	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**110**	J	**130**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	22		1.6	UJ	7.9	J	1.7		1.7	
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	0.65	J	0.21	J	0.28	J	1.6	U	1.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	6.6		0.69	J	2.8	J	0.62	J	0.84	J
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	14		8	U	9.4		7.9	U	7.9	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.77	U	0.8	U	0.84	U	0.79	UJ	0.79	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	**210**		1.6	UJ	**57**	J	24	J	28	
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.6	U	1.7	U	1.6	UJ	1.6	UJ
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	3.3		3.6	J	5.6	J	0.5	J	0.65	J
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.7	U	8	U	8.4	U	7.9	U	7.9	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.7	U	**18**	J	**77**	J	7.9	U	7.9	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	4.4		0.8	UJ	2.9	J	0.9	J	0.79	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.77	U	0.8	U	0.84	U	0.79	UJ	0.79	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	16	U	17	U	16	UJ	16	UJ
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.37	J	0.8	U	0.84	U	0.79	UJ	0.79	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.096	J	0.16	U	0.17	U	0.16	U	0.16	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.1	J	0.16	U	0.17	U	0.16	UJ	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.16	U	0.17	U	0.16	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.16	U	0.17	U	0.16	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	16	U	17	U	16	U	16	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	2.9	J	1.7	J	8.4	UJ	7.9	U	7.9	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.3	J	0.75	J	0.75	J	1.6	U	1.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	2.7	J	4	UJ	1.2	J	4	U	0.6	J
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.13	J	0.16	UJ	0.091	J	0.16	U	0.16	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.24	U	0.25	U	0.24	UJ	0.24	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	2.4		1.6	U	1.4	J	1.6	UJ	1.6	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	0.72	J	1.7	UJ	1.6	U	4	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.6	U	1.7	U	1.6	UJ	4	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	0.95	J	0.77	J	0.78	J	4	UJ	4	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06M-GW-161108		MW06M-GW-170324		MW106M-GW-170324		MW06M-GW-170721		MW06M-GW-171010	
				Location	MW06M		MW06M		MW06M		MW06M		MW06M	
				SDG	5001197781		5001256291		5001256291		5001314711		5001353631	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D														
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.77	U	0.8	U	0.84	U	0.79	UJ	0.79	U
SW8270D	86-73-7	FLUORENE	290	ug/l	4.8		0.8	UJ	3.2	J	1.1	J	1.1	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.16	U	0.17	U	0.16	UJ	0.16	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	4.8		3.5	J	1.7	UJ	1.6	UJ	1.6	UJ
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**310**		0.33	J	**70**	J	**17**	J	**20**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.77	U	1.6	U	1.7	U	1.6	UJ	1.6	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	16	U	17	U	16	U	16	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	8.1		0.8	UJ	3.1	J	1.9	J	1.9	
SW8270D	108-95-2	PHENOL	5800	ug/l	4.7		7.9	J	3.2	J	4	UJ	0.61	J
SW8270D	129-00-0	PYRENE	120	ug/l	0.43	J	0.8	U	0.84	U	0.79	U	0.79	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06D-GW-161108		MW06D-GW-170324		MW06D-GW-170725		MW06D-GW-171010		MW106D-GW-171010	
				Location	MW06D		MW06D		MW06D		MW06D		MW06D	
				SDG	5001197781		5001256291		5001316311		5001353631		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/10/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**1200**	J	**1300**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.6	U	2.8		1.5	U	1.5	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.7	U	7.9	U	7.1	J	7.6	U	7.7	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.77	U	0.79	U	0.78	U	0.76	U	0.77	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	0.39	J	0.12	J	21		0.11	J	0.23	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.7	U	7.9	U	7.8	U	7.6	U	7.7	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.7	U	7.9	U	7.8	U	7.6	U	7.7	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.77	U	0.79	U	0.46	J	0.76	U	0.77	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.77	U	0.79	U	0.78	U	0.76	U	0.77	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	16	U	16	U	15	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.77	U	0.79	U	0.78	U	0.76	U	0.77	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	16	U	16	U	15	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.7	U	7.9	U	7.8	U	7.6	U	7.7	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.9	U	4	UJ	0.44	J	3.8	U	3.9	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.39	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.24	U	0.23	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.6	U	0.31	J	1.5	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.6	U	1.6	U	3.8	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.6	U	1.6	U	3.8	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.9	U	4	U	3.9	U	3.8	U	3.9	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW06D-GW-161108		MW06D-GW-170324		MW06D-GW-170725		MW06D-GW-171010		MW106D-GW-171010	
				Location	MW06D		MW06D		MW06D		MW06D		MW06D	
				SDG	5001197781		5001256291		5001316311		5001353631		5001353631	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/8/2016		3/24/2017		7/25/2017		10/10/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D														
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.77	U	0.79	U	0.78	U	0.76	U	0.77	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.77	U	0.79	U	0.6	J	0.76	U	0.77	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.16	U	0.16	U	0.15	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	0.37	J	1.6	U	1.9		1.5	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.71	J	0.79	U	**39**		0.76	U	0.48	J
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.77	U	1.6	U	1.6	U	1.5	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	16	U	16	U	15	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.77	U	0.24	J	1.1		0.76	U	0.77	U
SW8270D	108-95-2	PHENOL	5800	ug/l	3.9	U	4	U	3.9	U	3.8	U	3.9	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.77	U	0.79	U	0.78	U	0.76	U	0.77	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW07M-GW-161108		MW07M-GW-170324		MW07M-GW-170721		MW07M-GW-171010	
				Location	MW07M		MW07M		MW07M		MW07M	
				SDG	5001197781		5001256291		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		**2400**	J	**2100**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	3.2		4.4		0.94	J	0.73	J
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.6	U	1.4	U	1.5	U	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	0.6	J	0.58	J	1.5	U	0.19	J
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	78		39		93		50	
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.79	U	0.72	U	0.77	U	0.77	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	0.8	J	0.49	J	1.5	U	0.32	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	46		23		45		1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	18		10		16		1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.9	U	7.2	U	7.7	U	7.7	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.9	U	**33**		7.7	U	7.7	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.52	J	0.29	J	0.77	U	0.77	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.79	U	0.21	J	0.77	U	0.77	U
SW8270D	62-53-3	ANILINE	130	ug/l	16	U	14	U	15	U	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	1.4		1.6		0.75	J	1.2	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.16	U	0.14	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.16	U	0.14	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.16	U	0.14	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.16	U	0.14	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	43		28		15	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.9	U	1.3	J	7.7	U	7.7	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.6	U	1.4	U	1.5	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	0.98	J	3.6	UJ	3.9	U	3.8	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.4	U	0.14	U	0.15	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.24	U	0.22	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.6	U	1.4	U	1.5	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.6	U	1.4	U	1.5	U	3.8	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.6	U	1.4	U	1.5	U	3.8	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	4	U	3.6	U	3.9	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW07M-GW-161108		MW07M-GW-170324		MW07M-GW-170721		MW07M-GW-171010	
				Location	MW07M		MW07M		MW07M		MW07M	
				SDG	5001197781		5001256291		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/24/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.79	U	0.72	U	0.77	U	0.77	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.52	J	0.37	J	0.77	U	0.77	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.16	U	0.14	U	0.15	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.6	U	1.4	U	1.5	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**4.5**		**3.9**		0.77	U	**2.4**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.79	U	1.4	U	1.5	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	16	U	14	U	15	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.89		0.66	J	0.41	J	0.34	J
SW8270D	108-95-2	PHENOL	5800	ug/l	4	U	3.6	U	3.9	U	3.8	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.79	U	0.72	U	0.77	U	0.77	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW08S-GW-161108		MW08S-GW-170323		MW08S-GW-170721		MW08S-GW-171010	
				Location	MW08S		MW08S		MW08S		MW08S	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**2100**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	0.93	J	1.2	J	1.6	U	14	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	0.29	J	0.42	J	1.6	U	14	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.2	J	2.7		1.9		14	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.7	J	7.5	U	53		41	J
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.78	U	0.75	U	0.78	UJ	7.2	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	5.3		6.6		8.5		4.8	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.6	U	1.5	U	1.6	UJ	14	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	6.7		1.5	U	1.6	UJ	14	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.8	U	7.5	U	7.8	UJ	72	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.8	U	7.5	U	7.8	UJ	72	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	1.7		1.8		0.96	J	7.2	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.78	U	0.75	U	0.78	UJ	7.2	U
SW8270D	62-53-3	ANILINE	130	ug/l	16	U	15	U	16	UJ	140	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	1.4		2.1		0.97	J	7.2	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.16	U	0.3		0.16	UJ	**1.7**	
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.16	UJ	0.15	UJ	0.16	UJ	**0.87**	J
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.16	UJ	0.15	UJ	0.16	U	1.3	J
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.16	UJ	0.15	UJ	0.16	U	0.57	J
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	16	U	15	U	16	U	140	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	3.2	J	3.4	J	1.8	J	**24**	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.6	U	1.5	U	1.6	U	14	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	2.5	J	3.9	J	0.99	J	36	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.39	U	0.16		0.16	UJ	1.6	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	UJ	0.22	UJ	0.23	UJ	2.2	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.2	J	1.4	J	0.77	J	14	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.6	U	1.5	U	1.6	UJ	36	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.6	U	1.5	U	1.6	UJ	36	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.9	U	3.7	U	3.9	UJ	36	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW08S-GW-161108		MW08S-GW-170323		MW08S-GW-170721		MW08S-GW-171010	
				Location	MW08S		MW08S		MW08S		MW08S	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.78	U	0.58	J	0.78	UJ	6.7	J
SW8270D	86-73-7	FLUORENE	290	ug/l	1.6		1.8		1.2	J	3	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.16	UJ	0.15	UJ	0.16	UJ	1.4	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.6	U	1.5	U	1.6	U	14	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**890**		**1300**		**900**		**600**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	2.8		4.9		2.7	J	3.1	J
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	16	U	15	U	16	U	140	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	2.3		2.1		1.6	J	9.4	
SW8270D	108-95-2	PHENOL	5800	ug/l	3.9	U	3.7	U	3.9	U	36	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.53	J	0.55	J	0.78	U	4.3	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW08D-GW-161108		MW08D-GW-170323		MW08D-GW-170721		MW08D-GW-171010	
				Location	MW08D		MW08D		MW08D		MW08D	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**2200**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.6	U	7.3	U	7.6	U	7.5	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.76	U	0.73	U	0.76	U	0.75	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	0.22	J	1.5	U	0.14	J	1.5	U
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.6	U	7.3	U	7.6	U	7.5	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.6	U	7.3	U	7.6	U	7.5	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.76	U	0.73	U	0.76	U	0.75	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.76	U	0.73	U	0.76	U	0.75	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	4	J	15	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.62	J	0.73	U	0.7	J	0.55	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	15	U	15	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	7.6	U	7.3	U	7.6	U	7.5	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.8	U	3.6	UJ	3.8	U	3.8	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.38	U	0.15	U	0.15	U	0.15	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.22	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	3.8	U	3.8	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	3.8	U	3.8	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.8	U	3.6	U	3.8	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW08D-GW-161108		MW08D-GW-170323		MW08D-GW-170721		MW08D-GW-171010	
				Location	MW08D		MW08D		MW08D		MW08D	
				SDG	5001197781		5001255491		5001314711		5001353801	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/8/2016		3/23/2017		7/21/2017		10/10/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.76	U	0.73	U	0.76	U	0.75	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.76	U	0.73	U	0.76	U	0.75	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.15	U	0.15	U	0.15	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.5	U	1.5	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**3.9**		**2.3**		1		1.1	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.76	U	1.5	U	1.5	U	1.5	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	**3.7**	J	15	U	15	U	15	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.76	U	1.1		0.76	U	0.75	U
SW8270D	108-95-2	PHENOL	5800	ug/l	0.58	J	3.6	U	3.8	U	3.8	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.76	U	0.73	U	0.76	U	0.75	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW09S-GW-161107		MW09S-GW-170327		MW09S-GW-170720		MW09S-GW-171009		MW109S-GW-171009	
				Location	MW09S		MW09S		MW09S		MW09S		MW09S	
				SDG	5001197191		5001256621		5001314231		5001353081		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/7/2016		3/27/2017		7/20/2017		10/9/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**1100**	J	**1000**	J
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	8.4	U	7.6	U	7.7	U	7.7	U	7.8	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	3		0.43	J	1.5	U	1.5	U	1.6	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	8.4	U	7.6	U	7.7	U	7.7	U	7.8	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	8.4	U	7.6	UJ	7.7	U	7.7	U	7.8	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	0.84		0.87		1.5		0.77	UJ	1.4	J
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	62-53-3	ANILINE	130	ug/l	17	U	15	U	15	U	15	U	16	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.96		1.1		2		2.4		2.4	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.17	U	0.11	J	0.15	U	0.15	U	0.16	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.17	U	0.15	U	0.15	U	0.15	U	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.17	U	0.15	U	0.15	U	0.15	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.17	U	0.15	U	0.15	U	0.15	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	17	U	15	UJ	15	U	15	U	16	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	8.4	U	7.6	U	7.7	U	7.7	U	7.8	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	4.2	U	3.8	UJ	1.5	J	3.9	U	3.9	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.42	U	0.21		0.15	U	0.15	U	0.16	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.25	U	0.23	U	0.23	U	0.23	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.7	U	1.5	U	1.5	U	3.9	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.7	U	1.5	U	1.5	U	3.9	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	4.2	U	3.8	U	3.9	U	3.9	U	3.9	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW09S-GW-161107		MW09S-GW-170327		MW09S-GW-170720		MW09S-GW-171009		MW109S-GW-171009	
				Location	MW09S		MW09S		MW09S		MW09S		MW09S	
				SDG	5001197191		5001256621		5001314231		5001353081		5001353081	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	11/7/2016		3/27/2017		7/20/2017		10/9/2017		10/9/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D														
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	86-73-7	FLUORENE	290	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.17	U	0.15	U	0.15	U	0.15	U	0.16	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.7	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.84	U	1.5	U	1.5	U	1.5	U	1.6	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	17	U	15	UJ	15	U	15	U	16	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U
SW8270D	108-95-2	PHENOL	5800	ug/l	0.87	J	3.8	U	3.9	U	3.9	U	3.9	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.84	U	0.76	U	0.77	U	0.77	U	0.78	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW11-GW-161110		MW11-GW-170327		MW11-GW-170725		MW11-GW-171011	
				Location	MW11		MW11		MW11		MW11	
				SDG	5001199081		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/10/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**34**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	7.8	U	1.5	U	1.6	U	1.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	7.8	U	1.5	U	1.6	U	1.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.1	J	1.5	U	1.6		1.6	
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	39	U	7.6	U	7.9	U	7.8	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	**22**		0.76	U	0.79	U	0.78	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.6	J	2.2		1.1	J	1.3	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	5.4	J	1.5	U	1.6	U	1.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	680		82		68		1.6	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	39	U	7.6	U	7.9	U	7.8	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	39	U	7.6	UJ	7.9	U	7.8	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	3.9	U	1.7		1.3		0.95	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	3.9	U	0.76	U	0.79	U	0.78	U
SW8270D	62-53-3	ANILINE	130	ug/l	78	U	15	U	16	U	16	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	3.9	U	0.56	J	0.26	J	0.59	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	**1.4**		**0.5**		0.16		**0.36**	
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	**0.94**		**0.4**		0.14	J	**0.29**	
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	1.1		0.52		0.13	J	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.55	J	0.17		0.054	J	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	240		15	UJ	16	U	16	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	**14**	J	**11**		2.3	J	5.4	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	7.8	U	1.5	U	1.6	U	1.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	4.4	J	2.9	J	0.65	J	1.3	J
SW8270D	218-01-9	CHRYSENE	250	ug/l	1.1		0.52		0.09	J	0.3	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	1.2	U	0.23	U	0.24	U	0.23	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	7.8	U	0.85	J	0.6	J	0.44	J
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	7.8	U	1.5	U	1.6	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	7.8	U	1.5	U	1.6	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	20	U	3.8	U	3.9	U	3.9	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW11-GW-161110		MW11-GW-170327		MW11-GW-170725		MW11-GW-171011	
				Location	MW11		MW11		MW11		MW11	
				SDG	5001199081		5001256621		5001316311		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/10/2016		3/27/2017		7/25/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	3.1	J	1.7		0.47	J	1.4	
SW8270D	86-73-7	FLUORENE	290	ug/l	1	J	1.2		0.92		0.81	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	**0.51**	J	0.18		0.16	U	0.16	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	7.8	U	1.5	U	1.6	U	1.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**3.8**	J	**7.8**		**2.2**		**2.6**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	3.9	U	1.5	U	1.6	U	0.63	J
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	78	U	15	UJ	16	U	16	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	4.6		2.9		1.1		1.8	
SW8270D	108-95-2	PHENOL	5800	ug/l	24	J	3.8	U	2.8	J	0.99	J
SW8270D	129-00-0	PYRENE	120	ug/l	2.6	J	1.2		0.38	J	0.99	

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW12-GW-161109		MW12-GW-170324		MW12-GW-170720		MW112-GW-170720		MW12-GW-171011	
				Location	MW12		MW12		MW12		MW12		MW12	
				SDG	5001198721		5001256291		5001314231		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		NA		**120**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	1.5	U	0.38	J	1.6	U	1.6	U	1.6	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	1.5	U	3.8		2.1		1.8		2.4	
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	7.7	U	7.5	U	7.8	U	7.8	U	4.3	J
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	0.77	U	0.75	U	0.78	U	0.78	U	0.79	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	2.7		2.3		0.77	J	0.79	J	1.6	
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	1.6		1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	290		1.3	J	1.6	U	1.6	U	1.6	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	7.7	U	7.5	U	7.8	U	7.8	U	7.9	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	7.7	U	7.5	U	7.8	U	7.8	U	7.9	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	6.6		2.8		1		1.1		1.8	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	0.77	U	0.75	U	0.78	U	0.78	U	0.79	U
SW8270D	62-53-3	ANILINE	130	ug/l	15	U	15	U	16	U	16	U	16	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	0.43	J	0.99		0.78	U	0.78	U	0.44	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	0.12	J	0.15	U	0.16	U	0.16	U	0.15	J
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	0.2		**0.42**		0.16	U	0.16	U	0.16	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.22		0.67		0.16	U	0.16	U	0.16	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.15	U	0.21		0.16	U	0.16	U	0.16	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	15	U	15	U	16	U	16	U	16	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	2.9	J	**12**		7.8	U	1.8	J	2.4	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	9.9	J	5.5	J	0.33	J	0.36	J	1.5	J
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.15	U	0.61		0.16	U	0.16	U	0.15	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	0.23	U	0.05	J	0.23	U	0.23	U	0.24	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	5.1		2.1		0.35	J	0.41	J	1.1	J
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	3.9	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	3.9	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	3.9	U	3.7	U	3.9	U	3.9	U	3.9	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW12-GW-161109		MW12-GW-170324		MW12-GW-170720		MW112-GW-170720		MW12-GW-171011	
				Location	MW12		MW12		MW12		MW12		MW12	
				SDG	5001198721		5001256291		5001314231		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D														
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	0.47	J	2.4		0.78	U	0.78	U	0.5	J
SW8270D	86-73-7	FLUORENE	290	ug/l	4.9		2.9		0.44	J	0.54	J	1.3	
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.15	U	0.14	J	0.16	U	0.16	U	0.16	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	1.5	U	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**12**		**14**		**9.7**		**8.8**		**11**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	0.77	U	1.5	U	1.6	U	1.6	U	1.6	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	15	U	15	U	16	U	16	U	16	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	3		3.9		0.48	J	0.51	J	0.9	
SW8270D	108-95-2	PHENOL	5800	ug/l	3.9	U	1.1	J	3.9	U	3.9	U	3.9	U
SW8270D	129-00-0	PYRENE	120	ug/l	0.42	J	2		0.78	U	0.78	U	0.39	J

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW13-GW-161109		MW13-GW-170324		MW13-GW-170720		MW13-GW-171011	
				Location	MW13		MW13		MW13		MW13	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D-SIM	123-91-1	1,4-DIOXANE	4.6	ug/l	NA		NA		NA		**180**	
SW8270D	95-50-1	1,2-DICHLOROBENZENE	600	ug/l	7.6	U	1.5	U	7.9	U	7.7	U
SW8270D	541-73-1	1,3-DICHLOROBENZENE	NS	ug/l	7.6	U	1.5	U	7.9	U	7.7	U
SW8270D	106-46-7	1,4-DICHLOROBENZENE	75	ug/l	2.8	J	4.5		7.9	U	2.5	J
SW8270D	105-67-9	2,4-DIMETHYLPHENOL	360	ug/l	38	U	7.4	U	40	U	38	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	0.49	ug/l	3.8	U	0.74	U	4	U	3.8	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	36	ug/l	1.1	J	0.75	J	1	J	0.58	J
SW8270D	95-48-7	2-METHYLPHENOL (O-CRESOL)	930	ug/l	7.6	U	1.5	U	7.9	U	7.7	U
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	1400	ug/l	2.1	J	0.35	J	7.9	U	7.7	U
SW8270D	59-50-7	4-CHLORO-3-METHYLPHENOL	1400	ug/l	38	U	7.4	U	40	U	38	U
SW8270D	106-47-8	4-CHLOROANILINE	3.7	ug/l	38	U	7.4	UJ	40	U	38	U
SW8270D	83-32-9	ACENAPHTHENE	530	ug/l	3.8	U	0.74	U	4	U	3.8	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/l	3.8	U	0.74	U	4	U	3.8	U
SW8270D	62-53-3	ANILINE	130	ug/l	76	U	15	U	79	U	77	U
SW8270D	120-12-7	ANTHRACENE	1800	ug/l	3.8	U	1		4	U	3.8	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	0.3	ug/l	**1.1**		**0.32**		0.79	U	0.77	U
SW8270D	50-32-8	BENZO(A)PYRENE	0.2	ug/l	**0.7**	J	0.15	U	0.79	U	0.77	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	2.5	ug/l	0.88		0.25		0.79	U	0.77	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	25	ug/l	0.28	J	0.15	U	0.79	U	0.77	U
SW8270D	65-85-0	BENZOIC ACID	75000	ug/l	76	U	15	UJ	79	U	77	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	6	ug/l	38	U	1.6	J	40	U	38	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	160	ug/l	7.6	U	1.5	U	7.9	U	7.7	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/l	3.2	J	3.7	UJ	20	UJ	19	U
SW8270D	218-01-9	CHRYSENE	250	ug/l	0.83		0.25		0.79	U	0.77	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	0.25	ug/l	1.1	U	0.22	U	1.2	U	1.2	U
SW8270D	132-64-9	DIBENZOFURAN	7.9	ug/l	7.6	U	0.43	J	7.9	U	7.7	U
SW8270D	84-66-2	DIETHYL PHTHALATE	15000	ug/l	7.6	U	1.5	U	7.9	U	19	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/l	7.6	U	1.5	U	7.9	U	19	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	900	ug/l	19	U	3.7	U	20	U	19	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-6
Groundwater Analytical Results, Semivolatile Organics (November 2016 to October 2017)

				Sample ID	MW13-GW-161109		MW13-GW-170324		MW13-GW-170720		MW13-GW-171011	
				Location	MW13		MW13		MW13		MW13	
				SDG	5001198721		5001256291		5001314231		5001354461	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	11/9/2016		3/24/2017		7/20/2017		10/11/2017	
				Matrix	GROUNDWATER		GROUNDWATER		GROUNDWATER		GROUNDWATER	
Method	CAS No	Analyte	2017 IDEM RISC GW Tap Residential*	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES, CONT'D												
SW8270D	206-44-0	FLUORANTHENE	800	ug/l	3.1	J	0.74	U	4	U	3.8	U
SW8270D	86-73-7	FLUORENE	290	ug/l	1.1	J	0.61	J	4	U	3.8	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	0.34	ug/l	0.76	U	0.15	U	0.79	U	0.77	U
SW8270D	78-59-1	ISOPHORONE	780	ug/l	7.6	U	1.5	U	7.9	U	7.7	U
SW8270D	91-20-3	NAPHTHALENE	1.7	ug/l	**6.5**		**4.3**		**4.3**		**4.8**	
SW8270D	86-30-6	N-NITROSODIPHENYLAMINE	120	ug/l	3.8	U	1.5	U	7.9	U	7.7	U
SW8270D	87-86-5	PENTACHLOROPHENOL	1	ug/l	76	U	15	UJ	79	U	77	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/l	3	J	1.5		1.2	J	1.6	J
SW8270D	108-95-2	PHENOL	5800	ug/l	19	UJ	3.7	U	20	U	19	U
SW8270D	129-00-0	PYRENE	120	ug/l	2.6	J	0.72	J	4	U	3.8	U

*2017 IDEM RISC GW Tap Residential with IDEM Optional Screening Levels

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard NA = Sample not analyzed for this constituent

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS01S-160816		SS01M-160816		SS02S-160825		SS02M-160825		SS03S-SO-160825		SS03M-160825	
				Location	SS01		SS01		SS02		SS02		SS03		SS03	
				SDG	5001157701		5001157701		5001162171		5001162171		5001162171		5001162171	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/16/2016		8/16/2016		8/25/2016		8/25/2016		8/25/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	20000		7900		11000	J	12000		10000		9200	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	0.72	J	0.44	J	0.5	J	0.54	J	1.3	J	0.54	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	8.5		3.4		6.2	J	6.7		6.1		6.7	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	260		96		78	J	94		61		49	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	2.2		0.88		0.68		0.66		0.66		0.61	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	1.2		0.47		0.26		0.24		0.41		0.28	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	93000		31000		14000	J	5000		29000		39000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	140		23		21	J	19		21		23	
SW6010C	7440-48-4	COBALT	350	mg/kg	81		1.8		10		9.8		14		12	
SW6010C	7440-50-8	COPPER	47000	mg/kg	340		45		24	J	18		26		27	
SW6010C	7439-89-6	IRON	100000	mg/kg	17000		8400		19000	J	21000		19000		18000	
SW6010C	7439-92-1	LEAD	800	mg/kg	240		61		22		18		38		22	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	45000		8400		9900	J	5300		17000		22000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	2000		830		480	J	440		740		370	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	75		7.8		26		24		32		31	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1100		490		4500	J	5200		2300		2700	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	2.5	J+	0.83	J+	1.2	UJ	1.2	U	0.79	J	1.1	U
SW6010C	7440-22-4	SILVER	5800	mg/kg	4.7		2.9		0.58	UJ	0.59	U	0.59	U	0.55	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	490		160		740		840		120		220	
SW6010C	7440-28-0	THALLIUM	12	mg/kg	1.1	U	0.98	U	1.2	U	1.2	U	1.2	U	1.1	U
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	29		10		23	J	24		21		18	
SW6010C	7440-66-6	ZINC	100000	mg/kg	470		120		73		61		98		71	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.36		0.044		0.044		0.039		0.053		0.019	
SW9014	57-12-5	CYANIDE	150	mg/kg	1.5		1.1		0.67	U	0.35	U	0.6	U	0.59	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS01S-160816		SS01M-160816		SS02S-160825		SS02M-160825		SS03S-SO-160825		SS03M-160825	
				Location	SS01		SS01		SS02		SS02		SS03		SS03	
				SDG	5001157701		5001157701		5001162171		5001162171		5001162171		5001162171	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/16/2016		8/16/2016		8/25/2016		8/25/2016		8/25/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	19	U	9.7	U	2.2	UJ	2.2	U	2.1	U	2.1	U
SW8081B	72-20-8	ENDRIN	250000	ug/kg	19	U	5.5	J	2.2	U	2.2	U	2.1	U	2.1	U
SW8081B	72-55-9	P,P'-DDE	93000	ug/kg	19	U	9.7	U	2.2	UJ	2.2	U	2.1	U	2.1	U
SW8081B	50-29-3	P,P'-DDT	85000	ug/kg	19	U	9.7	U	2.2	U	2.2	U	2.1	U	2.1	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	19	U	19	U	21	U	22	U	21	U	20	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	19	U	19	U	21	U	22	U	21	U	10	J
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	190		50		21	U	22	U	21	U	20	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	190		48		21	U	22	U	21	U	20	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	4.7	U	4.6	U	6.4	U	19		4.6	U	4.5	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	19	U	19	U	46		160		19	U	18	U
SW8260B	71-43-2	BENZENE	51000	ug/kg	4.7	U	4.6	U	6.4	UJ	5	U	4.6	U	4.5	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	4.7	U	4.6	U	6.4	U	18		4.6	U	4.5	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS01S-160816		SS01M-160816		SS02S-160825		SS02M-160825		SS03S-SO-160825		SS03M-160825	
				Location	SS01		SS01		SS02		SS02		SS03		SS03	
				SDG	5001157701		5001157701		5001162171		5001162171		5001162171		5001162171	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/16/2016		8/16/2016		8/25/2016		8/25/2016		8/25/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	980	UJ	190	U	220	U	220	U	210	U	200	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	62	J	11	J	88	U	86	U	16	J	79	U
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	94	J	38	U	43	U	42	U	41	U	39	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	180	J	18	J	43	U	42	U	41	U	39	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	300	J	28	J	43	U	42	U	14	J	39	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	1400	J	110		15	J	6.4	J	53		5.6	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	1600	J	130		16	J	42	U	58		39	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	2300	J	240		27	J	42	U	110		39	U
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	1100	J	68		14	J	42	U	47		39	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	1100	J	78		13	J	42	U	34	J	39	U
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	9800	U	1900	U	2200	U	450	J	2100	U	2000	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	570	J	190	U	220	U	220	U	210	U	200	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	980	UJ	190	U	220	U	220	U	210	U	200	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	980	U	190	U	220	U	220	U	210	U	200	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	1500	J	160		22	J	42	U	93		13	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	300	J	27	J	43	UJ	42	U	13	J	39	U
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	980	UJ	190	U	220	U	220	U	210	U	200	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	980	U	190	U	220	U	220	U	210	U	200	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	2600	J	160		27	J	8.9	J	110		8.4	J
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	81	J	38	U	43	U	42	U	41	U	39	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	910	J	69		43	U	42	U	29	J	39	U
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	120	J	7.7	J	43	U	42	U	12	J	39	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	1200	J	96		13	J	42	U	56		20	J
SW8270D	108-95-2	PHENOL	100000000	ug/kg	980	UJ	190	U	220	U	220	U	210	U	200	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	2300	J	180		19	J	42	U	94		10	J

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS04S-160824		SS04M-160824		SS05S-160824		SS05M-160824		SS06S-160824		SS06M-160824	
				Location	SS04		SS04		SS05		SS05		SS06		SS06	
				SDG	5001161361		5001161361		5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	6600		8700		32000		36000		12000		15000	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	2.1	U	2	U	0.97	J	1	J	0.43	J	2	U
SW6010C	7440-38-2	ARSENIC	30	mg/kg	12		6.5		26		26		7.3		6.1	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	35		49		2600		4400		54		610	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.47		0.58		2.4		2.3		0.8		1.1	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	0.12	J	0.2		2.1		1.8		0.12	J	0.36	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	63000		49000		43000		52000		42000		40000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	12		17		51		38		20		20	
SW6010C	7440-48-4	COBALT	350	mg/kg	7.6		8.6		11		12		11		9.6	
SW6010C	7440-50-8	COPPER	47000	mg/kg	12		23		83		81		18		24	
SW6010C	7439-89-6	IRON	100000	mg/kg	17000		18000		25000		22000		21000		20000	
SW6010C	7439-92-1	LEAD	800	mg/kg	12		21		92		60		12		17	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	36000		25000		9100		12000		22000		18000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	820		380		410		300		330		520	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	22		29		38		36		32		27	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1600		1900		2900		2500		3000		2000	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	1.1	U	1	U	2.3		1.3	J	0.54	J	0.69	J
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.53	U	0.5	U	0.75	U	0.69	U	0.51	U	0.51	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	110		110		2100		2100		180		2000	
SW6010C	7440-28-0	THALLIUM	12	mg/kg	1.1	U	1	U	1.5	U	1.4	U	1	U	1	U
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	13		18		100		100		20		28	
SW6010C	7440-66-6	ZINC	100000	mg/kg	62		81		380		430		69		84	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.021		0.035		0.24		0.29		0.018		0.035	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.52	U	0.55	U	0.78	U	0.7	U	0.55	U	0.5	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS04S-160824		SS04M-160824		SS05S-160824		SS05M-160824		SS06S-160824		SS06M-160824	
				Location	SS04		SS04		SS05		SS05		SS06		SS06	
				SDG	5001161361		5001161361		5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	2	U	0.53	J	1.9	J	2.2	J	1.9	U	1.9	U
SW8081B	72-20-8	ENDRIN	250000	ug/kg	2	U	2	U	2.6	U	2.7	U	1.9	U	1.9	U
SW8081B	72-55-9	P,P'-DDE	93000	ug/kg	2	U	2	U	2.6	U	2.7	U	1.9	U	1.9	U
SW8081B	50-29-3	P,P'-DDT	85000	ug/kg	2	U	2	U	2.6	U	2.7	U	1.9	U	1.9	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	20	U	20	U	120		150		19	U	19	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	20	U	20	U	26	U	26	U	19	U	19	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	16	J	72		160		120		19	U	19	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	20	U	20	U	26	U	26	U	19	U	11	J
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	4.5	U	4.1	U	8	U	8.2	U	5.3	U	4.8	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	18	U	17	U	32	U	33	U	21	U	67	
SW8260B	71-43-2	BENZENE	51000	ug/kg	4.5	U	4.1	U	8	U	8.2	U	5.3	U	15	
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	4.5	U	4.1	U	8	U	8.2	U	5.3	U	13	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS04S-160824		SS04M-160824		SS05S-160824		SS05M-160824		SS06S-160824		SS06M-160824	
				Location	SS04		SS04		SS05		SS05		SS06		SS06	
				SDG	5001161361		5001161361		5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	200	U	60	J	260	U	270	U	190	U	190	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	81	U	75	U	18	J	13	J	76	U	20	J
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	40	U	37	U	51	U	52	U	37	U	38	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	40	U	37	U	9.5	J	52	U	37	U	38	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	40	U	37	U	14	J	11	J	37	U	38	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	13	J	16	J	70		63		6	J	20	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	14	J	19	J+	85	J+	69	J+	9.5	J+	18	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	27	J	42	J+	140	J+	140	J+	16	J+	45	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	40	U	15	J+	41	J+	32	J+	14	J+	17	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	40	U	12	J+	71	J+	40	J+	37	UJ	11	J+
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	2000	U	1900	U	2600	U	2700	U	1900	U	1900	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	200	U	92	J	810		36000		190	U	190	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	200	U	190	U	400		130	J	190	U	190	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	200	U	190	U	260	U	270	U	190	U	190	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	19	J	23	J	96		86		18	J	35	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	40	U	37	UJ	51	UJ	52	UJ	37	UJ	38	UJ
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	200	U	190	U	260	U	270	U	190	U	190	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	200	U	190	U	260	U	15000		190	U	190	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	28	J	29	J	170		150		16	J	35	J
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	40	U	37	U	51	U	52	U	37	U	38	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	40	U	11	J+	34	J+	27	J+	37	UJ	10	J+
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	40	U	37	U	23	J	16	J	37	U	15	J
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	15	J	14	J	75		53		12	J	30	J
SW8270D	108-95-2	PHENOL	100000000	ug/kg	200	U	740		260	U	270	U	190	U	190	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	20	J	24	J	150		120		16	J	32	J

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS07S-160824		SS07M-160824		SS08S-160824		SS08M-160824	
				Location	SS07		SS07		SS08		SS08	
				SDG	5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE												
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	20000		9400		9800		39000	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	2.2	U	1.9	U	2.2	U	1.7	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	13		6.8		6.8		27	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	1500		61		390		6200	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	1.3		0.66		0.7		2.5	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	0.92		0.087	J	0.24		2	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	48000		50000		50000		60000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	24		16		15		40	
SW6010C	7440-48-4	COBALT	350	mg/kg	11		10		7.8		14	
SW6010C	7440-50-8	COPPER	47000	mg/kg	48		15		33		190	
SW6010C	7439-89-6	IRON	100000	mg/kg	20000		17000		15000		23000	
SW6010C	7439-92-1	LEAD	800	mg/kg	27		10		13		46	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	18000		26000		26000		12000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	360		380		360		680	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	30		26		22		42	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	2000		2400		1700		1600	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	0.58	J	0.57	J	1.1	U	2.9	
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.56	U	0.48	U	0.55	U	0.3	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	1700		140		240		2300	
SW6010C	7440-28-0	THALLIUM	12	mg/kg	1.1	U	0.97	U	1.1	U	1.1	J
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	47		16		20		99	
SW6010C	7440-66-6	ZINC	100000	mg/kg	120		52		69		380	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.054		0.015	J	0.025		0.25	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.19	J	0.57	U	0.6	U	0.72	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS07S-160824		SS07M-160824		SS08S-160824		SS08M-160824	
				Location	SS07		SS07		SS08		SS08	
				SDG	5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES												
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	2.2	U	1.9	U	2	U	2.6	U
SW8081B	72-20-8	ENDRIN	250000	ug/kg	2.2	U	1.9	U	2	U	2.6	U
SW8081B	72-55-9	P,P'-DDE	93000	ug/kg	2.2	U	1.9	U	2	U	2.6	U
SW8081B	50-29-3	P,P'-DDT	85000	ug/kg	2.2	U	1.9	U	2	U	2.6	U
PCBS												
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	22	U	19	U	19	U	26	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	22	U	19	U	19	U	26	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	22	U	19	U	19	U	26	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	13	J	19	U	19	U	26	U
VOLATILES												
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	5.4	U	4.7	U	4.6	U	7.8	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	22	U	19	U	19	U	31	U
SW8260B	71-43-2	BENZENE	51000	ug/kg	5.4	U	4.7	U	4.6	U	7.8	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	5.4	U	4.7	U	4.6	U	7.8	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS07S-160824		SS07M-160824		SS08S-160824		SS08M-160824	
				Location	SS07		SS07		SS08		SS08	
				SDG	5001161361		5001161361		5001161361		5001161361	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0		0.5	
				End Depth (ft)	0.5		2		0.5		2	
				Date Sampled	8/24/2016		8/24/2016		8/24/2016		8/24/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	31	J	76	U	78	U	35	J
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	42	U	38	U	38	U	51	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	17	J	38	U	38	U	51	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	26	J	38	U	38	U	51	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	75		5.5	J	13	J	32	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	100	J+	38	U	14	J	35	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	220	J+	12	J	32	J	57	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	51	J+	38	U	14	J	20	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	86	J+	38	U	38	U	20	J+
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	2100	U	1900	U	1900	U	2600	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	210	U	190	U	190	U	260	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	120		11	J	22	J	39	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	13	J+	38	U	38	U	51	UJ
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	170		9.6	J	33	J	69	
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	42	U	38	U	38	U	51	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	46	J+	38	U	38	U	17	J+
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	24	J	38	U	7.5	J	23	J
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	70		16	J	20	J	53	
SW8270D	108-95-2	PHENOL	100000000	ug/kg	210	U	190	U	190	U	260	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	140		9.1	J	26	J	53	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS09S-160816		SS09M-160816		SS109M-160816		SS10S-160816		SS10M-160816		SS11-160825	
				Location	SS09		SS09		SS09		SS10		SS10		SS11	
				SDG	5001157701		5001157701		5001157701		5001157701		5001157701		5001162171	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0.5		0		0.5		0	
				End Depth (ft)	0.5		2		2		0.5		2		2	
				Date Sampled	8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	8700		7200	J	11000	J	12000		10000		6000	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	2.3	U	0.49	J	2	UJ	2.1	U	2.1	U	0.86	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	7.3		6.9		5.5		5.5		11		10	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	96		62	J	110	J	74		59		190	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.65		0.45		0.61		2.2		0.52		0.56	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	0.23		0.23		0.25		0.13	J	0.13	J	0.64	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	45000		34000	J	46000	J	43000		3200		17000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	62		23	J	83	J	12		13		32	
SW6010C	7440-48-4	COBALT	350	mg/kg	11		10		8.6		6		11		4.6	
SW6010C	7440-50-8	COPPER	47000	mg/kg	34		23	J	52	J	11		14		29	
SW6010C	7439-89-6	IRON	100000	mg/kg	25000		15000	J	23000	J	11000		19000		13000	
SW6010C	7439-92-1	LEAD	800	mg/kg	28		25		29		16		24		36	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	20000		14000	J	19000	J	12000		2500		5400	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	2100		1100	J	2000	J	1000		920		600	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	23		24		21		12		16		13	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1400		1400	J	1500	J	1100		850		690	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	0.9	J+	0.59	J	1.4	J+	2.2	J+	1.1	J+	1.5	
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.28	J	0.5	U	0.37	J	0.12	J	0.53	U	0.62	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	140		170		150		350		50	J	260	
SW6010C	7440-28-0	THALLIUM	12	mg/kg	1.1	U	1	UJ	1	U	1.1	U	1.1	U	1.2	U
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	40		21	J	45	J	17		22		28	
SW6010C	7440-66-6	ZINC	100000	mg/kg	84		80		85		37		47		74	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.032		0.037		0.04		0.033		0.028		0.054	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.59	U	0.59	U	0.6	U	0.56	U	0.55	U	0.62	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS09S-160816		SS09M-160816		SS109M-160816		SS10S-160816		SS10M-160816		SS11-160825	
				Location	SS09		SS09		SS09		SS10		SS10		SS11	
				SDG	5001157701		5001157701		5001157701		5001157701		5001157701		5001162171	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0.5		0		0.5		0	
				End Depth (ft)	0.5		2		2		0.5		2		2	
				Date Sampled	8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	9.6	U	9.7	U	9.9	U	2	U	1.9	U	2.2	U
SW8081B	72-20-8	ENDRIN	250000	ug/kg	9.6	U	9.7	U	9.9	U	2	U	1.9	U	2.2	U
SW8081B	72-55-9	P,P'-DDE	93000	ug/kg	9.6	U	9.7	U	9.9	U	0.84	J	1.9		1.7	J
SW8081B	50-29-3	P,P'-DDT	85000	ug/kg	9.6	U	9.7	U	9.9	U	2	U	1.9	U	3.7	
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	19	U	19	U	19	U	19	U	19	U	22	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	19	U	19	U	19	U	19	U	19	U	22	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	22		25		25		19	U	19	U	22	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	10	J	19	U	19	U	19	U	19	U	22	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	4.3	U	4.7	U	4.9	U	4.7	U	4.1	U	5.8	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	17	U	19	U	20	U	19	U	17	U	23	U
SW8260B	71-43-2	BENZENE	51000	ug/kg	4.3	U	4.7	U	4.9	U	4.7	U	4.1	U	5.8	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	4.3	U	4.7	U	4.9	U	4.7	U	4.1	U	5.8	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS09S-160816		SS09M-160816		SS109M-160816		SS10S-160816		SS10M-160816		SS11-160825	
				Location	SS09		SS09		SS09		SS10		SS10		SS11	
				SDG	5001157701		5001157701		5001157701		5001157701		5001157701		5001162171	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0.5		0.5		0		0.5		0	
				End Depth (ft)	0.5		2		2		0.5		2		2	
				Date Sampled	8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/16/2016		8/25/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	200	U	190	U	200	U	200	U	190	U	220	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	9.5	J	16	J	15	J	79	U	76	U	96	
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	39	U	38	U	39	U	39	U	38	U	44	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	6.1	J	38	U	39	U	39	U	38	U	77	
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	14	J	10	J	13	J	39	U	38	U	75	
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	48		47		64		5.8	J	7	J	310	
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	51		49		66		39	U	38	U	290	
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	92		110		110		11	J	11	J	440	
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	21	J	23	J	55	J	39	U	38	U	97	
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	31	J	28	J	37	J	39	U	38	U	250	
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	2000	U	1900	U	2000	U	2000	U	1900	U	440	J
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	72	J	190	UJ	200	U	200	U	190	U	110	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	200	U	180	J	200	U	200	U	190	U	220	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	200	U	190	U	200	U	200	U	190	U	220	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	61		57		83		39	U	38	U	310	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	39	U	38	U	39	U	39	U	38	U	29	J
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	200	U	190	U	200	U	200	U	190	U	220	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	200	U	190	U	200	U	200	U	190	U	220	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	91		68		110		9	J	9.9	J	660	
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	39	U	38	U	39	U	39	U	38	U	32	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	24	J	25	J	49	J	39	U	38	U	99	
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	9.1	J	12	J	11	J	39	U	38	U	53	
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	55		48		67		39	U	5.3	J	370	
SW8270D	108-95-2	PHENOL	100000000	ug/kg	200	U	190	U	200	U	200	U	190	U	220	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	87		67		100		9.2	J	9	J	460	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS12-160825		SS13-160825		SS14-160826		SS15-160826		SS16-160826	
				Location	SS12		SS13		SS14		SS15		SS16	
				SDG	5001162171		5001162171		5001162841		5001162841		5001162841	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	2		2		2		2		2	
				Date Sampled	8/25/2016		8/25/2016		8/26/2016		8/26/2016		8/26/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	9300		19000		16000		29000	J	9400	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	1.3	J	63		1.7	J	22	UJ	0.73	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	4.7		**40**		9.3		16	J	4.8	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	190		530		670		4100		61	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.63		0.57		0.91		1.9		0.64	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	0.55		21		1.1		2.3		0.23	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	47000		28000		39000		52000	J	50000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	100		120		170		37	J	16	
SW6010C	7440-48-4	COBALT	350	mg/kg	6.5		15		9.2		13		8.3	
SW6010C	7440-50-8	COPPER	47000	mg/kg	70		7200		230		82	J	16	
SW6010C	7439-89-6	IRON	100000	mg/kg	23000		53000		21000		24000	J	16000	
SW6010C	7439-92-1	LEAD	800	mg/kg	51		**5400**		78		39	J	11	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	21000		15000		17000		17000	J	26000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	2500		660		410		720	J	380	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	20		930		42		38		22	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1400		880		1600		4200	J	2200	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	0.9	J	2.1		0.53	J	1.9		1.1	U
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.21	J	4.7		0.49	U	0.56	U	0.56	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	200		140		570		1200	J	200	
SW6010C	7440-28-0	THALLIUM	12	mg/kg	1	U	1.2	U	0.97	U	11	U	1.1	U
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	57		21		24		79		18	
SW6010C	7440-66-6	ZINC	100000	mg/kg	200		31000		220		170	J	54	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.094		1.4		0.095		0.11	J+	0.042	J+
SW9014	57-12-5	CYANIDE	150	mg/kg	0.28	J	0.84		0.5	U	0.65	UJ	0.55	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS12-160825		SS13-160825		SS14-160826		SS15-160826		SS16-160826	
				Location	SS12		SS13		SS14		SS15		SS16	
				SDG	5001162171		5001162171		5001162841		5001162841		5001162841	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	2		2		2		2		2	
				Date Sampled	8/25/2016		8/25/2016		8/26/2016		8/26/2016		8/26/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	1.9	U	140	J	19	U	2.2	UJ	1.8	U
SW8081B	72-20-8	ENDRIN	250000	ug/kg	1.9	U	100	U	19	U	2.2	UJ	1.8	U
SW8081B	72-55-9	P,P'-DDE	93000	ug/kg	1.9	U	100	U	19	U	2.2	UJ	1.8	U
SW8081B	50-29-3	P,P'-DDT	85000	ug/kg	1.9	U	100	U	19	U	2.2	U	1.8	U
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	19	U	1000	U	19	U	22	U	18	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	19	U	1000	U	19	U	22	U	18	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	19	U	1000	U	19	U	26		10	J
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	13	J	6600		19	U	22	U	18	U
VOLATILES														
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	4.5	U	4.6	U	6.4	U	7.1	U	5	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	18	U	18	U	26	U	28	U	20	U
SW8260B	71-43-2	BENZENE	51000	ug/kg	4.5	U	4.6	U	6.4	U	7.1	UJ	5	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	4.5	U	4.6	U	6.4	U	7.1	U	5	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-7
Surface Soil Analytical Results, August 2016

				Sample ID	SS12-160825		SS13-160825		SS14-160826		SS15-160826		SS16-160826	
				Location	SS12		SS13		SS14		SS15		SS16	
				SDG	5001162171		5001162171		5001162841		5001162841		5001162841	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	0		0		0		0		0	
				End Depth (ft)	2		2		2		2		2	
				Date Sampled	8/25/2016		8/25/2016		8/26/2016		8/26/2016		8/26/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	190	U	210	U	200	U	220	UJ	180	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	17	J	98		270	J	14	J	73	U
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	12	J	150		290		8.3	J	36	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	100		590		1500		20	J	7.2	J
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	91		600		1700		14	J	36	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	500		880		1800	J	52		7.9	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	480	J+	1900		**5400**	J+	70	J+	36	UJ
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	900	J+	2200		5100	J+	100	J+	36	UJ
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	170	J+	730		4900	J+	43	UJ	36	UJ
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	310	J+	1600		1000	J+	35	J+	36	UJ
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	1900	U	2100	U	2000	U	2200	U	1800	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	92	J	2300		290		130	J	180	U
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	190	U	930		200	U	170	J	180	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	190	U	350		610		220	U	180	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	500		2200		2100		67		14	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	54	J+	140		440		43	UJ	36	UJ
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	190	U	88	J	310		220	U	180	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	190	U	340		200	U	220	U	180	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	930		3700		4800	J	95		8.5	J
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	42		140		370		43	U	36	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	170	J+	660		4700	J+	43	UJ	36	UJ
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	13	J	91		1400		11	J	36	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	390		2000		3700	J	60		8.8	J
SW8270D	108-95-2	PHENOL	100000000	ug/kg	190	U	210	U	200	U	220	U	180	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	830		3000		4700		120		17	J

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-8
Surface Soil
2016 Asbestos Analytical Results

		Sample ID	SS03-160825	SS02-160825	SS11-160825	SS12-160825	SS13-160825	SS14-160826	SS15-160826	SS16-160826
		Location	SS03	SS02	SS11	SS12	SS13	SS14	SS15	SS16
		Laboratory	EMSL Analytical	EMSL Analytical	EMSL Analytical	EMSL Analytical	EMSL Analytical	EMSL Analytical	EMSL Analytical	EMSL Analytical
		SDG	500-116219	500-116219	500-116219	500-116219	500-116219	500-116285	500-116285	500-116285
		Sample Type	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR	REGULAR
		Date Sampled	8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/25/2016	8/26/2016	8/26/2016	8/26/2016
		Matrix	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL	SURFACE SOIL
Method	Analyte	Units								
ASBESTOS										
NIOSH 9002	ASBESTOS	%	ND	ND	ND	ND	ND	ND	ND	ND
NIOSH 9002	NON-ASBESTOS - CELLULOSE	%	<1% CELLULOSE	3% CELLULOSE	<1% CELLULOSE	<1% CELLULOSE	2% CELLULOSE	<1% CELLULOSE	<1% CELLULOSE	<1% CELLULOSE
NIOSH 9002	NON-ASBESTOS - NON-FIBROUS	%	100% OTHER	97% OTHER	10% QUARTZ 90% OTHER	5% QUARTZ 95% OTHER	5% QUARTZ <1% MICA <1% MICA	5% QUARTZ 95% OTHER	5% QUARTZ 95% OTHER	5% QUARTZ 95% OTHER
NIOSH 9002	APPEARANCE		GRAY NON-FIBROUS HOMOGENEOUS	GRAY NON-FIBROUS HOMOGENEOUS	BLACK NON-FIBROUS HOMOGENEOUS	GRAY NON-FIBROUS HOMOGENEOUS	BLACK NON-FIBROUS HOMOGENEOUS	GRAY NON-FIBROUS HOMOGENEOUS	GRAY NON-FIBROUS HOMOGENEOUS	TAN NON-FIBROUS HOMOGENEOUS

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW01SS-SO-160927		MW01SM-SO-160927		MW02DS-SO-161006		MW03SS-SO-161005		MW03SM-SO-161005	
				Location	MW01S		MW01S		MW02D		MW03S		MW03S	
				SDG	5001177041		5001177041		5001182501		5001182501		5001182501	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	2		5		2		2		6	
				End Depth (ft)	5		6		3		3		7	
				Date Sampled	9/27/2016		9/27/2016		10/6/2016		10/5/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010	7429-90-5	ALUMINUM	100000	mg/kg	10000		7600		6600		8300		9700	
SW6010	7440-36-0	ANTIMONY	470	mg/kg	0.5	J	0.91	J	0.64	J	0.79	J	0.87	J
SW6010	7440-38-2	ARSENIC	30	mg/kg	1.8		3.1		5.1		7		5.7	
SW6010	7440-39-3	BARIUM	100000	mg/kg	110		81	J	34		31		50	
SW6010	7440-41-7	BERYLLIUM	2300	mg/kg	1.6		1.2		0.45		0.54		0.6	
SW6010	7440-43-9	CADMIUM	980	mg/kg	0.32		0.48		0.4		0.32		0.33	
SW6010	7440-70-2	CALCIUM	NS	mg/kg	160000		99000		46000		47000		51000	
SW6010	7440-47-3	CHROMIUM	NS	mg/kg	5.5		9.8	J	19		16		17	
SW6010	7440-48-4	COBALT	350	mg/kg	1.6		2		8		10		10	
SW6010	7440-50-8	COPPER	47000	mg/kg	9.2		28	J	30		19		18	
SW6010	7439-89-6	IRON	100000	mg/kg	5400		6400		15000		17000		18000	
SW6010	7439-92-1	LEAD	800	mg/kg	34		59	J	46		13		140	
SW6010	7439-95-4	MAGNESIUM	NS	mg/kg	35000		29000	J	26000		23000		24000	
SW6010	7439-96-5	MANGANESE	26000	mg/kg	980		730	J	370		290		340	
SW6010	7440-02-0	NICKEL	22000	mg/kg	4.5		6.4	J	24		26		27	
SW6010	7440-09-7	POTASSIUM	NS	mg/kg	830		590	J	3200		2700		3400	
SW6010	7782-49-2	SELENIUM	5800	mg/kg	1		0.82	J	0.88	J	1.1	J	0.64	J
SW6010	7440-22-4	SILVER	5800	mg/kg	0.21	J	0.22	J	0.58	U	0.54	U	0.53	U
SW6010	7440-23-5	SODIUM	NS	mg/kg	310		220		1800		840		810	
SW6010	7440-28-0	THALLIUM	12	mg/kg	0.98	U	1	U	0.96	U	1.2	U	1	U
SW6010	7440-62-2	VANADIUM	5800	mg/kg	6.4		7.5	J	15		17		19	
SW6010	7440-66-6	ZINC	100000	mg/kg	56		100	J	100		61		68	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.036	J+	0.072		0.067		0.021		0.02	
SW9014	57-12-5	CYANIDE	150	mg/kg	2		0.97		0.34	J	0.29	J	0.51	U
SW9045D	PH	pH	NS	ph units	10.8		10.6		8.1		7.7		8.3	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW01SS-SO-160927		MW01SM-SO-160927		MW02DS-SO-161006		MW03SS-SO-161005		MW03SM-SO-161005	
				Location	MW01S		MW01S		MW02D		MW03S		MW03S	
				SDG	5001177041		5001177041		5001182501		5001182501		5001182501	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	2		5		2		2		6	
				End Depth (ft)	5		6		3		3		7	
				Date Sampled	9/27/2016		9/27/2016		10/6/2016		10/5/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081	72-54-8	P,P'-DDD	96000	ug/kg	18	UJ	19	U	11	U	10	U	9.9	U
SW8081	72-55-9	P,P'-DDE	93000	ug/kg	18	UJ	19	U	2.4	J	10	U	9.9	U
SW8081	50-29-3	P,P'-DDT	85000	ug/kg	18	U	19	U	11	U	10	U	9.9	U
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	18	U	19	U	22	U	20	U	19	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	18	U	19	U	22	U	20	U	19	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	18	U	19	U	22	U	20	U	19	U
VOLATILES														
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	640000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	910000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	75-34-3	1,1-DICHLOROETHANE	160000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	44000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	78-93-3	2-BUTANONE	28000000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	280	U
SW8260	591-78-6	2-HEXANONE	1300000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	280	U
SW8260	67-64-1	ACETONE	100000000	ug/kg	22	U	39	J	19	U	19	U	280	U
SW8260	71-43-2	BENZENE	51000	ug/kg	5.6	U	4.9	U	11		4.8	U	430	
SW8260	108-90-7	CHLOROBENZENE	760000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	75-00-3	CHLOROETHANE	2100000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	60-29-7	ETHYL ETHER	10000000	ug/kg	5.6	U	4.9	U	3.8	J	4.8	U	56	U
SW8260	100-41-4	ETHYLBENZENE	250000	ug/kg	5.6	U	4.9	U	4	J	4.8	U	1600	
SW8260	127-18-4	TETRACHLOROETHENE	170000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	56	U
SW8260	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	5.6	U	4.9	U	36		11		870	
SW8260	108-88-3	TOLUENE	820000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	50	
SW8260	79-01-6	TRICHLOROETHENE	19000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	28	U
SW8260	95-47-6	XYLENE, O-	430000	ug/kg	5.6	U	4.9	U	4.7	U	4.8	U	400	
SW8260	XYLMP	XYLENES, M & P-	NS	ug/kg	11	U	9.8	U	2.9	J	9.6	U	950	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW01SS-SO-160927		MW01SM-SO-160927		MW02DS-SO-161006		MW03SS-SO-161005		MW03SM-SO-161005	
				Location	MW01S		MW01S		MW02D		MW03S		MW03S	
				SDG	5001177041		5001177041		5001182501		5001182501		5001182501	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	2		5		2		2		6	
				End Depth (ft)	5		6		3		3		7	
				Date Sampled	9/27/2016		9/27/2016		10/6/2016		10/5/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270	120-82-1	1,2,4-TRICHLOROBENZENE	260000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	95-50-1	1,2-DICHLOROBENZENE	380000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	541-73-1	1,3-DICHLOROBENZENE	NS	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	820000	ug/kg	360	U	370	U	430	U	130	J	390	U
SW8270	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	32	J	130	J	8.1	J	75	U	32	J
SW8270	83-32-9	ACENAPHTHENE	45000000	ug/kg	14	J	120		43	U	37	U	39	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/kg	39		86		43	U	37	U	39	U
SW8270	120-12-7	ANTHRACENE	100000000	ug/kg	99		550		43	U	37	U	11	J
SW8270	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	400		1500		17	J	37	U	27	J
SW8270	50-32-8	BENZO(A)PYRENE	2900	ug/kg	430	J+	1400	J+	15	J	37	U	24	J
SW8270	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	700	J+	2200	J+	28	J	37	U	42	
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	190	J+	580	J+	43	U	37	UJ	16	J
SW8270	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	330	J+	1100	J+	43	U	37	U	16	J
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	180	U	84	J	220	U	190	U	150	J
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	86-74-8	CARBAZOLE	NS	ug/kg	180	U	240		220	U	190	U	200	U
SW8270	218-01-9	CHRYSENE	2900000	ug/kg	480		1800		27	J	11	J	40	
SW8270	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	36	UJ	150	J+	43	U	37	UJ	9	J
SW8270	132-64-9	DIBENZOFURAN	1000000	ug/kg	180	U	87	J	220	U	190	U	200	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	180	U	190	U	220	U	190	U	200	U
SW8270	206-44-0	FLUORANTHENE	30000000	ug/kg	710		3400		39	J	8.9	J	84	
SW8270	86-73-7	FLUORENE	30000000	ug/kg	23	J	180		43	U	37	U	13	J
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	210	J+	600	J+	12	J	37	U	15	J
SW8270	91-20-3	NAPHTHALENE	170000	ug/kg	19	J	110		15	J	37	U	46	
SW8270	85-01-8	PHENANTHRENE	NS	ug/kg	400		2900		29	J	22	J	65	
SW8270	129-00-0	PYRENE	23000000	ug/kg	890		3400		35	J	12	J	77	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW04S-SO-170309		MW05SS-SO-161004		MW105SS-SO-161004		MW05SM-SO-161004		MW05SD-SO-161005	
				Location	MW04S		MW05S		MW05S		MW05S		MW05S	
				SDG	5001249321		5001181461		5001181461		5001181461		5001181461	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Start Depth (ft)	2		2		2		6		11	
				End Depth (ft)	4		3		3		7		12	
				Date Sampled	3/9/2017		9/27/2016		9/27/2016		9/27/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010	7429-90-5	ALUMINUM	100000	mg/kg	1200		36000		42000		27000		37000	
SW6010	7440-36-0	ANTIMONY	470	mg/kg	1.2	J	13	U	67	U	12	UJ	14	U
SW6010	7440-38-2	ARSENIC	30	mg/kg	2.3		**31**		28		29	J	29	
SW6010	7440-39-3	BARIUM	100000	mg/kg	13		4700		7100		2200		4700	
SW6010	7440-41-7	BERYLLIUM	2300	mg/kg	0.14	J	2.7		2.5		2.5	J	2.6	
SW6010	7440-43-9	CADMIUM	980	mg/kg	0.18	J	3.8		3.9		2.2	J	3.1	
SW6010	7440-70-2	CALCIUM	NS	mg/kg	9600		57000		73000		37000		51000	
SW6010	7440-47-3	CHROMIUM	NS	mg/kg	4.4		56		43		63	J	39	
SW6010	7440-48-4	COBALT	350	mg/kg	2		14		14	J	11		11	
SW6010	7440-50-8	COPPER	47000	mg/kg	7.7		120		110		100	J	76	
SW6010	7439-89-6	IRON	100000	mg/kg	5700		31000		26000		36000		22000	
SW6010	7439-92-1	LEAD	800	mg/kg	17		98		95		100		58	
SW6010	7439-95-4	MAGNESIUM	NS	mg/kg	4300		10000		10000		9700		7600	
SW6010	7439-96-5	MANGANESE	26000	mg/kg	100		280		240		730	J	220	
SW6010	7440-02-0	NICKEL	22000	mg/kg	4.1		58		44		43		37	
SW6010	7440-09-7	POTASSIUM	NS	mg/kg	180		2400		2300		1600	J	2300	
SW6010	7782-49-2	SELENIUM	5800	mg/kg	1	U	2.5		2		2.3		1.4	
SW6010	7440-22-4	SILVER	5800	mg/kg	0.5	U	0.27	J	0.2	J	0.35	J	0.68	U
SW6010	7440-23-5	SODIUM	NS	mg/kg	47	J	4800		7800		5100		5300	
SW6010	7440-28-0	THALLIUM	12	mg/kg	1	U	6.7	U	34	U	3.7	J	2.5	J
SW6010	7440-62-2	VANADIUM	5800	mg/kg	4.2		140		200		110	J	140	
SW6010	7440-66-6	ZINC	100000	mg/kg	49		330		250		360		160	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.015	J	0.34	J	0.2	J	0.16	J	0.43	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.51	U	0.29	J	0.27	J	0.61	J	0.57	J
SW9045D	PH	pH	NS	ph units	8.3		8.1		8.1		8.4		7.9	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW04S-SO-170309		MW05SS-SO-161004		MW105SS-SO-161004		MW05SM-SO-161004		MW05SD-SO-161005	
				Location	MW04S		MW05S		MW05S		MW05S		MW05S	
				SDG	5001249321		5001181461		5001181461		5001181461		5001181461	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Start Depth (ft)	2		2		2		6		11	
				End Depth (ft)	4		3		3		7		12	
				Date Sampled	3/9/2017		9/27/2016		9/27/2016		9/27/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081	72-54-8	P,P'-DDD	96000	ug/kg	1.8	U	12	U	12	U	21	U	12	U
SW8081	72-55-9	P,P'-DDE	93000	ug/kg	1.8	U	12	U	12	U	21	U	12	U
SW8081	50-29-3	P,P'-DDT	85000	ug/kg	1.1	J	12	U	12	U	21	U	12	U
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	17	U	24	U	24	U	210	U	23	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	17	U	24	U	24	U	1000		140	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	17	U	33		37		210	U	23	U
VOLATILES														
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	640000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	910000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	75-34-3	1,1-DICHLOROETHANE	160000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	44000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	78-93-3	2-BUTANONE	28000000	ug/kg	4.5	U	7.7	U	8.1	U	15	J	6.7	U
SW8260	591-78-6	2-HEXANONE	1300000	ug/kg	4.5	U	7.7	U	8.1	U	6.3	U	7.8	
SW8260	67-64-1	ACETONE	100000000	ug/kg	18	U	31	U	33	U	200	J	27	U
SW8260	71-43-2	BENZENE	51000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	108-90-7	CHLOROBENZENE	760000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	75-00-3	CHLOROETHANE	2100000	ug/kg	4.5	U	7.7	U	8.1	U	6.3	U	6.7	U
SW8260	60-29-7	ETHYL ETHER	10000000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	100-41-4	ETHYLBENZENE	250000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	127-18-4	TETRACHLOROETHENE	170000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	4.5	U	7.7	U	8.1	U	11		6.7	U
SW8260	108-88-3	TOLUENE	820000	ug/kg	1.8	UJ	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	79-01-6	TRICHLOROETHENE	19000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	95-47-6	XYLENE, O-	430000	ug/kg	1.8	U	7.7	U	8.1	U	6.3	UJ	6.7	U
SW8260	XYLMP	XYLENES, M & P-	NS	ug/kg	3.6	U	15	U	16	U	13	UJ	13	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW04S-SO-170309		MW05SS-SO-161004		MW105SS-SO-161004		MW05SM-SO-161004		MW05SD-SO-161005	
				Location	MW04S		MW05S		MW05S		MW05S		MW05S	
				SDG	5001249321		5001181461		5001181461		5001181461		5001181461	
				Sample Type	REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Start Depth (ft)	2		2		2		6		11	
				End Depth (ft)	4		3		3		7		12	
				Date Sampled	3/9/2017		9/27/2016		9/27/2016		9/27/2016		10/5/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270	120-82-1	1,2,4-TRICHLOROBENZENE	260000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	95-50-1	1,2-DICHLOROBENZENE	380000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	541-73-1	1,3-DICHLOROBENZENE	NS	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	820000	ug/kg	350	U	450	U	470	U	2100	U	470	U
SW8270	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	72	U	47	J	42	J	310	J	30	J
SW8270	83-32-9	ACENAPHTHENE	45000000	ug/kg	35	U	21	J	24	J	390		75	
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/kg	35	U	12	J	17	J	73	J	9	J
SW8270	120-12-7	ANTHRACENE	100000000	ug/kg	35	U	68		110		160	J	130	
SW8270	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	10	J	450		760		500		410	
SW8270	50-32-8	BENZO(A)PYRENE	2900	ug/kg	17	J	500	J	740	J	580		390	J+
SW8270	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	19	J	790		1300		1000		570	J+
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	15	J	180		230		210	J	140	J+
SW8270	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	35	U	360		500		340	J	230	J+
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	180	U	270	J	8800	J	1900		740	
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	180	U	230	UJ	25000	J	1100	UJ	250	
SW8270	86-74-8	CARBAZOLE	NS	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	218-01-9	CHRYSENE	2900000	ug/kg	18	J	500	J	870	J	640		380	
SW8270	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	35	U	55		77		73	J	31	J+
SW8270	132-64-9	DIBENZOFURAN	1000000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	180	U	230	U	240	U	1100	U	240	U
SW8270	206-44-0	FLUORANTHENE	30000000	ug/kg	13	J	640	J	1100	J	1400		850	
SW8270	86-73-7	FLUORENE	30000000	ug/kg	35	U	21	J	27	J	220		55	
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	14	J	180		240		200	J	140	J+
SW8270	91-20-3	NAPHTHALENE	170000	ug/kg	35	U	51		48		870		23	J
SW8270	85-01-8	PHENANTHRENE	NS	ug/kg	13	J	270	J	490	J	560		470	
SW8270	129-00-0	PYRENE	23000000	ug/kg	15	J	500	J	890	J	1300		810	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW06DS-SO-161003		MW06DM-SO-161003		MW06DD-SO-161003		MW07MS-SO-161003	
				Location	MW06D		MW06D		MW06D		MW07M	
				SDG	5001180741		5001180741		5001180741		5001180211	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	3		7		11		3	
				End Depth (ft)	4		8		12		4	
				Date Sampled	9/27/2016		9/27/2016		9/27/2016		9/27/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE												
SW6010	7429-90-5	ALUMINUM	100000	mg/kg	9700		1500		830		48000	
SW6010	7440-36-0	ANTIMONY	470	mg/kg	0.67	J	0.47	J	2.1	U	0.68	J
SW6010	7440-38-2	ARSENIC	30	mg/kg	12		2.9		1.6		23	
SW6010	7440-39-3	BARIUM	100000	mg/kg	32		15		3.2		6300	
SW6010	7440-41-7	BERYLLIUM	2300	mg/kg	0.66		0.12	J	0.41	U	2.8	
SW6010	7440-43-9	CADMIUM	980	mg/kg	0.23		0.25		0.09	J	2.8	
SW6010	7440-70-2	CALCIUM	NS	mg/kg	46000		15000		9000		130000	
SW6010	7440-47-3	CHROMIUM	NS	mg/kg	17		4.1		56		32	
SW6010	7440-48-4	COBALT	350	mg/kg	14		2.1		1.4		15	J
SW6010	7440-50-8	COPPER	47000	mg/kg	25		8.2		0.98	J	110	
SW6010	7439-89-6	IRON	100000	mg/kg	20000		3600		2400		29000	
SW6010	7439-92-1	LEAD	800	mg/kg	14		24		1.9		35	
SW6010	7439-95-4	MAGNESIUM	NS	mg/kg	24000		7000		5300		24000	
SW6010	7439-96-5	MANGANESE	26000	mg/kg	340		81		47		340	
SW6010	7440-02-0	NICKEL	22000	mg/kg	35		3.7		2.4		44	
SW6010	7440-09-7	POTASSIUM	NS	mg/kg	2600		200		190		3400	
SW6010	7782-49-2	SELENIUM	5800	mg/kg	1.1		0.99	U	1	U	2.1	
SW6010	7440-22-4	SILVER	5800	mg/kg	0.5	U	0.5	U	0.52	U	0.7	U
SW6010	7440-23-5	SODIUM	NS	mg/kg	150		54	J	96	J	3300	
SW6010	7440-28-0	THALLIUM	12	mg/kg	0.99	U	0.99	U	1	U	70	U
SW6010	7440-62-2	VANADIUM	5800	mg/kg	19		4.1		3.1		99	
SW6010	7440-66-6	ZINC	100000	mg/kg	62		54		8		150	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.027		0.011	J	0.019	U	0.098	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.17	J	0.29	J	0.52	U	0.38	J
SW9045D	PH	pH	NS	ph units	8.7		8.6		9		9.4	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW06DS-SO-161003		MW06DM-SO-161003		MW06DD-SO-161003		MW07MS-SO-161003	
				Location	MW06D		MW06D		MW06D		MW07M	
				SDG	5001180741		5001180741		5001180741		5001180211	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	3		7		11		3	
				End Depth (ft)	4		8		12		4	
				Date Sampled	9/27/2016		9/27/2016		9/27/2016		9/27/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES												
SW8081	72-54-8	P,P'-DDD	96000	ug/kg	9.8	U	9	U	22		13	U
SW8081	72-55-9	P,P'-DDE	93000	ug/kg	9.8	UJ	9	UJ	4.4	J	13	U
SW8081	50-29-3	P,P'-DDT	85000	ug/kg	9.8	U	9	U	9.8	U	13	U
PCBS												
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	19	U	170		2100		26	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	19	U	18	U	390	U	26	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	19	U	18	U	390	U	26	U
VOLATILES												
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	640000	ug/kg	50	U	60	U	520		10	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	910000	ug/kg	50	U	60	U	230		10	U
SW8260	75-34-3	1,1-DICHLOROETHANE	160000	ug/kg	50	U	60	U	1000		10	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	44000	ug/kg	37	J	60	U	150	U	10	U
SW8260	78-93-3	2-BUTANONE	28000000	ug/kg	250	U	300	U	750	U	10	U
SW8260	591-78-6	2-HEXANONE	1300000	ug/kg	250	U	300	U	750	U	10	U
SW8260	67-64-1	ACETONE	100000000	ug/kg	250	U	300	U	750	U	40	U
SW8260	71-43-2	BENZENE	51000	ug/kg	6300		790		**70000**		10	U
SW8260	108-90-7	CHLOROBENZENE	760000	ug/kg	50	U	60	U	720		10	U
SW8260	75-00-3	CHLOROETHANE	2100000	ug/kg	1400		280		14000		10	U
SW8260	60-29-7	ETHYL ETHER	10000000	ug/kg	50	U	60	U	150	U	10	U
SW8260	100-41-4	ETHYLBENZENE	250000	ug/kg	390		1200		**790000**		10	U
SW8260	127-18-4	TETRACHLOROETHENE	170000	ug/kg	180		60	U	160		10	U
SW8260	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	250	U	300	U	750	U	10	U
SW8260	108-88-3	TOLUENE	820000	ug/kg	26000		260		**1100000**		10	U
SW8260	79-01-6	TRICHLOROETHENE	19000	ug/kg	110		30	U	75	U	10	U
SW8260	95-47-6	XYLENE, O-	430000	ug/kg	370		170		**720000**		10	U
SW8260	XYLMP	XYLENES, M & P-	NS	ug/kg	920		8900		2600000		20	U

Bold/highlight: above IDEM Screening Level
Table shows detected analytes only.
Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW06DS-SO-161003		MW06DM-SO-161003		MW06DD-SO-161003		MW07MS-SO-161003	
				Location	MW06D		MW06D		MW06D		MW07M	
				SDG	5001180741		5001180741		5001180741		5001180211	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	3		7		11		3	
				End Depth (ft)	4		8		12		4	
				Date Sampled	9/27/2016		9/27/2016		9/27/2016		9/27/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270	120-82-1	1,2,4-TRICHLOROBENZENE	260000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	95-50-1	1,2-DICHLOROBENZENE	380000	ug/kg	190	U	63	J	3200	J	260	U
SW8270	541-73-1	1,3-DICHLOROBENZENE	NS	ug/kg	190	U	180	U	3800	U	260	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	820000	ug/kg	380	U	350	U	7500	U	510	U
SW8270	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	28	J	1800		150000		100	U
SW8270	83-32-9	ACENAPHTHENE	45000000	ug/kg	38	U	54		5000		51	U
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/kg	38	U	35	U	750	U	51	U
SW8270	120-12-7	ANTHRACENE	100000000	ug/kg	38	U	35	U	1400		51	U
SW8270	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	38	U	35	U	400	J	15	J
SW8270	50-32-8	BENZO(A)PYRENE	2900	ug/kg	38	U	35	U	750	U	16	J
SW8270	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	38	U	35	U	750	U	22	J
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	38	U	35	U	750	U	51	U
SW8270	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	38	U	35	U	750	U	51	U
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	190	U	180	U	35000		380	
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	190	U	180	U	3100	J	260	U
SW8270	86-74-8	CARBAZOLE	NS	ug/kg	190	U	180	U	3800	U	260	U
SW8270	218-01-9	CHRYSENE	2900000	ug/kg	14	J	14	J	750	U	19	J
SW8270	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	38	U	35	U	750	U	51	U
SW8270	132-64-9	DIBENZOFURAN	1000000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	190	U	180	U	3800	U	260	U
SW8270	206-44-0	FLUORANTHENE	30000000	ug/kg	38	U	14	J	960		29	J
SW8270	86-73-7	FLUORENE	30000000	ug/kg	38	U	59		6500		51	U
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	38	U	35	U	750	U	51	U
SW8270	91-20-3	NAPHTHALENE	170000	ug/kg	38	U	1000		72000		51	U
SW8270	85-01-8	PHENANTHRENE	NS	ug/kg	53		22	J	23000		17	J
SW8270	129-00-0	PYRENE	23000000	ug/kg	8.6	J	13	J	1900		25	J

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW08SD-SO-161007		MW08DS-SO-160929		MW08D-SO-160929		MW08DD-SO-161007		MW09SS-SO-160929	
				Location	MW08S		MW08D		MW08D		MW08D		MW09S	
				SDG	5001183231		5001178781		5001178781		5001183231		5001178781	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	21		2		7		13		3	
				End Depth (ft)	22		3		8		14		4	
				Date Sampled	10/7/2016		9/29/2016		9/29/2016		10/7/2016		9/29/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE														
SW6010	7429-90-5	ALUMINUM	100000	mg/kg	28000		23000		7400		21000		2300	
SW6010	7440-36-0	ANTIMONY	470	mg/kg	5.2	J	22	U	21	U	3.9	J	2.2	
SW6010	7440-38-2	ARSENIC	30	mg/kg	16		14		5.1		12		6.8	
SW6010	7440-39-3	BARIUM	100000	mg/kg	2500		2100		640		630		25	
SW6010	7440-41-7	BERYLLIUM	2300	mg/kg	2.3		1.7		0.68		1.5		0.3	J
SW6010	7440-43-9	CADMIUM	980	mg/kg	1.1		0.94		0.36		0.73		0.77	
SW6010	7440-70-2	CALCIUM	NS	mg/kg	56000		46000		35000		44000		5700	
SW6010	7440-47-3	CHROMIUM	NS	mg/kg	65		110		220		100		85	
SW6010	7440-48-4	COBALT	350	mg/kg	8.4		7.2		2.2	J	6.6		2.9	
SW6010	7440-50-8	COPPER	47000	mg/kg	140		210		37		160		55	
SW6010	7439-89-6	IRON	100000	mg/kg	24000		29000		28000		28000		11000	
SW6010	7439-92-1	LEAD	800	mg/kg	36		49		13		41		120	
SW6010	7439-95-4	MAGNESIUM	NS	mg/kg	10000		14000		8300		13000		2400	
SW6010	7439-96-5	MANGANESE	26000	mg/kg	2000		4100		6100		3800		130	
SW6010	7440-02-0	NICKEL	22000	mg/kg	29		29		9		26		18	
SW6010	7440-09-7	POTASSIUM	NS	mg/kg	1500		1200		460		1100		310	
SW6010	7782-49-2	SELENIUM	5800	mg/kg	3.2		3.3		3		3.4		1	U
SW6010	7440-22-4	SILVER	5800	mg/kg	0.64	U	0.27	J	0.31	J	0.23	J	0.19	J
SW6010	7440-23-5	SODIUM	NS	mg/kg	2800		2500		1300		2300		160	
SW6010	7440-28-0	THALLIUM	12	mg/kg	6.4	U	1.1	U	1.1	U	5.8	U	1	U
SW6010	7440-62-2	VANADIUM	5800	mg/kg	97		110		74		87		6.1	
SW6010	7440-66-6	ZINC	100000	mg/kg	180		180		37		150		150	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.17		0.078		0.046		0.086		0.045	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.21	J	0.3	J	0.31	J	0.34	J	0.33	J
SW9045D	PH	pH	NS	ph units	7.9		8.1		8.4		7.6		8.1	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW08SD-SO-161007		MW08DS-SO-160929		MW08D-SO-160929		MW08DD-SO-161007		MW09SS-SO-160929	
				Location	MW08S		MW08D		MW08D		MW08D		MW09S	
				SDG	5001183231		5001178781		5001178781		5001183231		5001178781	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	21		2		7		13		3	
				End Depth (ft)	22		3		8		14		4	
				Date Sampled	10/7/2016		9/29/2016		9/29/2016		10/7/2016		9/29/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES														
SW8081	72-54-8	P,P'-DDD	96000	ug/kg	11	U	20	U	20	U	11	U	220	U
SW8081	72-55-9	P,P'-DDE	93000	ug/kg	11	U	20	U	20	U	11	U	220	U
SW8081	50-29-3	P,P'-DDT	85000	ug/kg	11	U	20	U	20	U	11	U	220	U
PCBS														
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	22	U	19	U	20	U	21	U	1100	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	22	U	19	U	20	U	21	U	7900	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	22	U	19	U	20	U	21	U	1100	U
VOLATILES														
SW8260	71-55-6	1,1,1-TRICHLOROETHANE	640000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	910000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	75-34-3	1,1-DICHLOROETHANE	160000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	78-87-5	1,2-DICHLOROPROPANE	44000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	78-93-3	2-BUTANONE	28000000	ug/kg	470	U	340	U	450	U	350	U	5	U
SW8260	591-78-6	2-HEXANONE	1300000	ug/kg	470	U	340	U	450	U	350	U	5	U
SW8260	67-64-1	ACETONE	100000000	ug/kg	470	U	340	U	450	U	350	U	20	U
SW8260	71-43-2	BENZENE	51000	ug/kg	160		89		230		260		5	U
SW8260	108-90-7	CHLOROBENZENE	760000	ug/kg	95	U	69	U	89	U	430		5	U
SW8260	75-00-3	CHLOROETHANE	2100000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	60-29-7	ETHYL ETHER	10000000	ug/kg	95	U	69	U	89	U	70	U	5	U
SW8260	100-41-4	ETHYLBENZENE	250000	ug/kg	810		330		1500		670		5	U
SW8260	127-18-4	TETRACHLOROETHENE	170000	ug/kg	100		110		89	U	70	U	5	U
SW8260	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	470	U	340	U	450	U	350	U	14	
SW8260	108-88-3	TOLUENE	820000	ug/kg	440		120		91		140		5	U
SW8260	79-01-6	TRICHLOROETHENE	19000	ug/kg	47	U	34	U	45	U	35	U	5	U
SW8260	95-47-6	XYLENE, O-	430000	ug/kg	540		100		85		170		5	U
SW8260	XYLMP	XYLENES, M & P-	NS	ug/kg	890		190		130		420		10	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-9
Subsurface Soil (Monitoring Well) Analytical Results, September 2016 to March 2017

				Sample ID	MW08SD-SO-161007		MW08DS-SO-160929		MW08D-SO-160929		MW08DD-SO-161007		MW09SS-SO-160929	
				Location	MW08S		MW08D		MW08D		MW08D		MW09S	
				SDG	5001183231		5001178781		5001178781		5001183231		5001178781	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	21		2		7		13		3	
				End Depth (ft)	22		3		8		14		4	
				Date Sampled	10/7/2016		9/29/2016		9/29/2016		10/7/2016		9/29/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES														
SW8270	120-82-1	1,2,4-TRICHLOROBENZENE	260000	ug/kg	210	U	190	U	200	U	74	J	1000	U
SW8270	95-50-1	1,2-DICHLOROBENZENE	380000	ug/kg	210	U	190	U	200	U	240		1000	U
SW8270	541-73-1	1,3-DICHLOROBENZENE	NS	ug/kg	210	U	190	U	200	U	230		1000	U
SW8270	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	210	U	190	U	200	U	1600		1000	U
SW8270	88-06-2	2,4,6-TRICHLOROPHENOL	820000	ug/kg	420	U	370	U	400	U	410	U	2100	U
SW8270	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	210	U	190	U	310		210	U	1000	U
SW8270	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	840		1000		1200		1900		130	J
SW8270	83-32-9	ACENAPHTHENE	45000000	ug/kg	65		31	J	42		670		1300	
SW8270	208-96-8	ACENAPHTHYLENE	NS	ug/kg	42	U	37	U	40	U	41	U	1100	
SW8270	120-12-7	ANTHRACENE	100000000	ug/kg	240		87		120		160		1200	
SW8270	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	320		150		210	J+	210		3200	J+
SW8270	50-32-8	BENZO(A)PYRENE	2900	ug/kg	310		150	J+	190	J+	230		**6400**	J+
SW8270	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	500		240	J+	240	J+	270		4600	J+
SW8270	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	76		71	J+	74	J+	71		3600	J+
SW8270	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	200		60	J+	110	J+	120		8100	J+
SW8270	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	2400		120	J	200	UJ	3800		1000	UJ
SW8270	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	210	U	190	U	200	UJ	210	U	1000	UJ
SW8270	86-74-8	CARBAZOLE	NS	ug/kg	210	U	190	U	200	U	210	U	1000	U
SW8270	218-01-9	CHRYSENE	2900000	ug/kg	310		190		270	J+	250		5300	J+
SW8270	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	42	U	28	J+	40	UJ	41	U	630	J+
SW8270	132-64-9	DIBENZOFURAN	1000000	ug/kg	250		250		300		520		480	J
SW8270	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	160	J	190	U	200	U	210		1000	U
SW8270	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	1300		190	U	200	U	210	U	1000	U
SW8270	206-44-0	FLUORANTHENE	30000000	ug/kg	580		220		260		320		4900	
SW8270	86-73-7	FLUORENE	30000000	ug/kg	42	U	41		62		200		790	
SW8270	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	76		61	J+	40	UJ	50		4100	J+
SW8270	91-20-3	NAPHTHALENE	170000	ug/kg	440		430		480		4100		140	J
SW8270	85-01-8	PHENANTHRENE	NS	ug/kg	740		550		750		680		980	
SW8270	129-00-0	PYRENE	23000000	ug/kg	640		460		490	J+	350		15000	J+

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB01S-SO-160818		SB01M-SO-160818		SB01D-SO-160818		SB02S-SO-160812		SB02M-SO-160812		SB02D-SO-160812	
				Location	SB01		SB01		SB01		SB02		SB02		SB02	
				SDG	5001159021		5001159021		5001159731		5001156611		5001156611		5001156611	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	13		18		55		0		13		26	
				End Depth (ft)	15		20		57		2		15		28	
				Date Sampled	8/18/2016		8/18/2016		8/18/2016		8/12/2016		8/12/2016		8/12/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	14000		12000		19000		16000		14000		5200	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	1.9	J	5.2		1	J	0.61	J	4.1	J	2.5	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	9.1		7.6		9.1		5.9		12		15	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	290		240		110		270		670		380	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.78		1.9		1.7		0.7		0.87		0.3	J
SW6010C	7440-43-9	CADMIUM	980	mg/kg	2.5		2.6		0.76		1		3.1		1.6	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	20000		16000		53000		11000		29000		16000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	45		40		58		46		61		180	
SW6010C	7440-48-4	COBALT	350	mg/kg	9.5		8.5		9.6		6.9		9.4		10	
SW6010C	7440-50-8	COPPER	47000	mg/kg	430		260		330		120		460		120	
SW6010C	7439-89-6	IRON	100000	mg/kg	31000		23000		16000		20000		37000		**490000**	
SW6010C	7439-92-1	LEAD	800	mg/kg	140		130		110		69		190		19	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	11000		12000		35000		4200		7600		2200	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	720		570		430		270		430		1400	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	48		43		35		30		120		92	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	2100		1900		2700		1400		900		890	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	0.75	J	1.2	J	0.61	J	1.2	J	1.7	J	1.8	
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.62	J	4		0.55	U	0.64	U	0.59	J	0.68	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	320		360		1500		4500		1100		1700	
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	30		25		21		25		28		16	
SW6010C	7440-66-6	ZINC	100000	mg/kg	520		590		330		270		1000		47	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.52	J	0.52		0.015	J	0.21		1.5		0.2	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.36	J	0.33	J	0.39	J	0.65	J	0.61	J	2.1	
SW9045D	PH	pH	NS	ph units	7.8		7.9		9.2		8		7.5		8.6	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB01S-SO-160818		SB01M-SO-160818		SB01D-SO-160818		SB02S-SO-160812		SB02M-SO-160812		SB02D-SO-160812	
				Location	SB01		SB01		SB01		SB02		SB02		SB02	
				SDG	5001159021		5001159021		5001159731		5001156611		5001156611		5001156611	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	13		18		55		0		13		26	
				End Depth (ft)	15		20		57		2		15		28	
				Date Sampled	8/18/2016		8/18/2016		8/18/2016		8/12/2016		8/12/2016		8/12/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	12	U	8.8	J	10	U	47	U	67	U	49	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	460	U	250	U	89		470	U	660	U	240	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	4300		2100		20	U	**9800**		4100		4200	
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	2100		1200		20	U	1600		3600		2800	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	460	U	250	U	18	J	470	U	660	U	240	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	410	U	490	U	300	U	550	U	750	U	450	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	420		490	U	300	U	1800		3500		470	
SW8260B	71-43-2	BENZENE	51000	ug/kg	21	U	24	U	110		25	J	38	U	1700	
SW8260B	75-15-0	CARBON DISULFIDE	740000	ug/kg	160	U	190	U	120	U	220	U	300	U	180	U
SW8260B	108-90-7	CHLOROBENZENE	760000	ug/kg	82	U	97	U	60	U	170		200		89	U
SW8260B	60-29-7	ETHYL ETHER	10000000	ug/kg	82	U	97	U	60	U	110	U	150	U	89	U
SW8260B	100-41-4	ETHYLBENZENE	250000	ug/kg	27		42		320		1100		480		2300	
SW8260B	127-18-4	TETRACHLOROETHENE	170000	ug/kg	82	U	97	U	60	U	110	U	150	U	89	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	410	U	490	U	300	U	550	U	750	U	450	U
SW8260B	108-88-3	TOLUENE	820000	ug/kg	21	U	24	U	330		76		77		2300	
SW8260B	79-01-6	TRICHLOROETHENE	19000	ug/kg	41	U	49	U	30	U	55	U	280		45	U
SW8260B	95-47-6	XYLENE, O-	430000	ug/kg	21	U	24	U	170		540		240		1700	
SW8260B	XYLMP	XYLENES, M & P-	NS	ug/kg	61		66		500		1200		580		4100	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB01S-SO-160818		SB01M-SO-160818		SB01D-SO-160818		SB02S-SO-160812		SB02M-SO-160812		SB02D-SO-160812	
				Location	SB01		SB01		SB01		SB02		SB02		SB02	
				SDG	5001159021		5001159021		5001159731		5001156611		5001156611		5001156611	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	13		18		55		0		13		26	
				End Depth (ft)	15		20		57		2		15		28	
				Date Sampled	8/18/2016		8/18/2016		8/18/2016		8/12/2016		8/12/2016		8/12/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	12000	U	260	U	200	U	890	J	3400	J	2500	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	12000	U	260	U	200	U	2400	U	3500	U	2500	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	2300	J	340		1200		1500		2000		730	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	NS	ug/kg	12000	U	260	U	180	J	2400	U	3500	U	2500	U
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	2000	J	390	J	990		470	U	690	U	490	U
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	2300	U	51	U	280		470	U	690	U	490	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	920	J	350		2100		470	U	690	U	490	U
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	2300	U	560		2100		500		730		490	U
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	1400	J	620		2000	J+	470	U	690	U	490	U
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	2300	U	980		3300	J+	470	U	950		490	U
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	2300	U	280		630	J+	470	U	690	U	490	U
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	2300	U	360		1000	J+	470	U	690	U	490	U
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	120000	U	2600	U	2000	U	24000	U	35000	U	25000	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	250000		160000		1200		190000		240000		110000	
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	12000	U	1000	J	92	J	460000		640000		2500	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	12000	U	160	J	1700		2400	UJ	3500	UJ	2500	UJ
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	2300	U	650		2000		470	U	750		490	U
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	2300	U	72	J	200	J+	470	U	690	U	490	U
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	12000	U	380		500		2400	U	3500	U	2500	U
SW8270D	84-66-2	DIETHYL PHTHALATE	100000000	ug/kg	12000	U	260	U	200	U	2900		3500	U	870	J
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/kg	12000	U	260	U	200	U	2400	U	3500	U	2500	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	12000	U	420		200	U	2400	U	3500	U	2500	U
SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	17000		7200		200	U	2400	U	34000		2500	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	2400		1100		6800		1100		1900		490	U
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	1700	J	480		1800		470	U	690	U	490	U
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	2300	U	290		850	J+	470	U	690	U	490	U
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	1400	J	420		4000		1900		3800		1200	
SW8270D	621-64-7	N-NITROSODI-N-PROPYLAMINE	3300	ug/kg	4700	U	100	U	79	U	960	U	1400	U	990	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	3700		1500		200	U	1700		2000		750	
SW8270D	108-95-2	PHENOL	100000000	ug/kg	12000	U	260	U	200	U	2400	U	3500	U	2500	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	2900		1100		200	U	470	U	690	U	490	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB03S-SO-160803		SB03M-SO-160803		SB03D-SO-160809	
				Location	SB03		SB03		SB03	
				SDG	5001152351		5001152351		5001154731	
				Sample Type	REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	5		15.5		48	
				End Depth (ft)	7		16		50	
				Date Sampled	8/3/2016		8/3/2016		8/9/2016	
				Matrix	SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q
METALS & CYANIDE										
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	3700		470		21000	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	1.5	J	2.6		2.3	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	1.8		2.9		2.8	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	93		8.5		110	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.18	J	0.46	U	1.2	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	0.52		0.12	J	1.7	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	22000		2800		73000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	120		360		120	
SW6010C	7440-48-4	COBALT	350	mg/kg	9.9		8		2.5	
SW6010C	7440-50-8	COPPER	47000	mg/kg	18		890		760	
SW6010C	7439-89-6	IRON	100000	mg/kg	26000		57000		16000	
SW6010C	7439-92-1	LEAD	800	mg/kg	190		11		130	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	36000		670		60000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	1600		310		940	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	120		550		48	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	640		160		9200	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	1.1	U	0.84	J	2	
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.58		0.19	J	0.63	
SW6010C	7440-23-5	SODIUM	NS	mg/kg	330		130		10000	
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	27		2.4		14	
SW6010C	7440-66-6	ZINC	100000	mg/kg	450		42		770	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.047		0.02		0.15	
SW9014	57-12-5	CYANIDE	150	mg/kg	0.49	U	0.5	U	0.29	J
SW9045D	PH	pH	NS	ph units	7.7		8.6		8.3	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB03S-SO-160803		SB03M-SO-160803		SB03D-SO-160809	
				Location	SB03		SB03		SB03	
				SDG	5001152351		5001152351		5001154731	
				Sample Type	REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	5		15.5		48	
				End Depth (ft)	7		16		50	
				Date Sampled	8/3/2016		8/3/2016		8/9/2016	
				Matrix	SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q
PESTICIDES										
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	21	U	21	U	22	U
PCBS										
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	210	U	200	U	220	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	210	U	200	U	220	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	210	U	200	U	130	J
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	210	U	200	U	220	U
VOLATILES										
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	560	U	310	U	390	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	590		310	U	1700	
SW8260B	71-43-2	BENZENE	51000	ug/kg	51		73		200	
SW8260B	75-15-0	CARBON DISULFIDE	740000	ug/kg	230	U	120	U	160	U
SW8260B	108-90-7	CHLOROBENZENE	760000	ug/kg	130		38	J	78	U
SW8260B	60-29-7	ETHYL ETHER	10000000	ug/kg	110	U	62	U	100	
SW8260B	100-41-4	ETHYLBENZENE	250000	ug/kg	180		20		570	
SW8260B	127-18-4	TETRACHLOROETHENE	170000	ug/kg	110	U	62	U	78	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	560	U	310	U	450	
SW8260B	108-88-3	TOLUENE	820000	ug/kg	34		15	U	1500	
SW8260B	79-01-6	TRICHLOROETHENE	19000	ug/kg	56	U	31	U	39	U
SW8260B	95-47-6	XYLENE, O-	430000	ug/kg	97		33		690	
SW8260B	XYLMP	XYLENES, M & P-	NS	ug/kg	180		62		2000	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB03S-SO-160803		SB03M-SO-160803		SB03D-SO-160809	
				Location	SB03		SB03		SB03	
				SDG	5001152351		5001152351		5001154731	
				Sample Type	REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	5		15.5		48	
				End Depth (ft)	7		16		50	
				Date Sampled	8/3/2016		8/3/2016		8/9/2016	
				Matrix	SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q
SEMIVOLATILES										
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	1400		1000		4200	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	1000	U	620	J	4200	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	6900		2500		9100	
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	NS	ug/kg	1000	U	1000	U	2300	J
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	620		1800		32000	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	200	U	200	U	830	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	170	J	340		38000	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	380		450		**40000**	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	310		230		**32000**	
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	520		490		**43000**	
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	200	U	200	U	11000	
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	200		130	J	18000	
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	10000	U	10000	U	12000	J
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	5100		500	J	4200	UJ
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	1000	U	1000	U	4200	UJ
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	1000	U	1000	U	32000	
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	400		560		43000	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	200	U	200	U	**3600**	J
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	570	J	1400		29000	
SW8270D	84-66-2	DIETHYL PHTHALATE	100000000	ug/kg	1000	U	850	J	4200	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/kg	1000	U	1000	U	4200	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	490	J	1000	U	4200	U
SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	1000	U	1000	U	4200	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	980		2200		140000	J
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	1000		1300		52000	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	120	J	93	J	14000	J
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	2800		5700		7200	
SW8270D	621-64-7	N-NITROSODI-N-PROPYLAMINE	3300	ug/kg	400	U	410	U	1700	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	2200		2900		210000	J
SW8270D	108-95-2	PHENOL	100000000	ug/kg	1000	U	1000	U	8600	
SW8270D	129-00-0	PYRENE	23000000	ug/kg	690		1200		110000	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB04S-SO-160809		SB04M-SO-160809		SB04D-SO-160811		SB104D-SO-160811	
				Location	SB04		SB04		SB04		SB04	
				SDG	5001155511		5001155511		5001156161		5001156161	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Start Depth (ft)	5		18		81		81	
				End Depth (ft)	7		20		83		83	
				Date Sampled	8/9/2016		8/9/2016		8/11/2016		8/11/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE												
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	7400		14000		11000		11000	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	1.3	J	0.7	J	2.2	U	0.48	J
SW6010C	7440-38-2	ARSENIC	30	mg/kg	4.4		7.1		9		4.9	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	140		200		60		47	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.5	J	0.66		0.68		0.65	
SW6010C	7440-43-9	CADMIUM	980	mg/kg	1		0.89		0.24		0.13	J
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	42000		36000		48000		49000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	58		130		19		19	
SW6010C	7440-48-4	COBALT	350	mg/kg	6.1		9.1		13		11	
SW6010C	7440-50-8	COPPER	47000	mg/kg	76		64		27		17	
SW6010C	7439-89-6	IRON	100000	mg/kg	31000		35000		20000		18000	
SW6010C	7439-92-1	LEAD	800	mg/kg	130		59		21	J	10	J
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	13000		13000		25000		24000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	680		1900		480		350	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	29		40		33		28	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	1200		1500		3200		3100	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	0.73	J	1	J	1.1	U	1	U
SW6010C	7440-22-4	SILVER	5800	mg/kg	0.52	J	4.3		0.34	J	0.5	U
SW6010C	7440-23-5	SODIUM	NS	mg/kg	430		590		790		740	
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	15		26		20		19	
SW6010C	7440-66-6	ZINC	100000	mg/kg	260		170		64		52	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.37		0.32		0.019		0.022	
SW9014	57-12-5	CYANIDE	150	mg/kg	1		0.8		0.6	U	0.53	U
SW9045D	PH	pH	NS	ph units	8		8.6		8.6		8.9	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB04S-SO-160809		SB04M-SO-160809		SB04D-SO-160811		SB104D-SO-160811	
				Location	SB04		SB04		SB04		SB04	
				SDG	5001155511		5001155511		5001156161		5001156161	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Start Depth (ft)	5		18		81		81	
				End Depth (ft)	7		20		83		83	
				Date Sampled	8/9/2016		8/9/2016		8/11/2016		8/11/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES												
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	38	J	25	U	20	U	19	U
PCBS												
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	440	U	250	U	20	U	19	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	440	U	250	U	20	U	19	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	2900		150	J	20	U	19	U
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	1600		250	U	20	U	19	U
VOLATILES												
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	420	U	480	U	4.3	U	4	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	420	U	480	U	17	U	16	U
SW8260B	71-43-2	BENZENE	51000	ug/kg	41		24	U	4.3	U	4	U
SW8260B	75-15-0	CARBON DISULFIDE	740000	ug/kg	170	U	190	U	4.3	U	4	U
SW8260B	108-90-7	CHLOROBENZENE	760000	ug/kg	85	U	270		4.3	U	4	U
SW8260B	60-29-7	ETHYL ETHER	10000000	ug/kg	85	U	96	U	4.3	U	4	U
SW8260B	100-41-4	ETHYLBENZENE	250000	ug/kg	82		100		4.3	U	4	U
SW8260B	127-18-4	TETRACHLOROETHENE	170000	ug/kg	85	U	96	U	4.3	U	4	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	420	U	480	U	4.3	U	4	U
SW8260B	108-88-3	TOLUENE	820000	ug/kg	59		27		4.3	U	4	U
SW8260B	79-01-6	TRICHLOROETHENE	19000	ug/kg	42	U	48	U	4.3	U	4	U
SW8260B	95-47-6	XYLENE, O-	430000	ug/kg	73		99		4.3	U	4	U
SW8260B	XYLMP	XYLENES, M & P-	NS	ug/kg	180		190		8.7	U	8.1	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB04S-SO-160809		SB04M-SO-160809		SB04D-SO-160811		SB104D-SO-160811	
				Location	SB04		SB04		SB04		SB04	
				SDG	5001155511		5001155511		5001156161		5001156161	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Start Depth (ft)	5		18		81		81	
				End Depth (ft)	7		20		83		83	
				Date Sampled	8/9/2016		8/9/2016		8/11/2016		8/11/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES												
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	510	J	400		200	U	200	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	2800		1600		42	J	42	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	NS	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	2100		580		14	J	16	J
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	230	U	47	U	40	U	39	U
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	3900	J	690	J	10	J	11	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	7100	J	570	J	16	J	22	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	**6100**	J+	390	J+	17	J	41	J
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	9400	J+	570	J+	26	J	52	J
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	2300	J+	170	J+	26	J	41	
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	3300	J+	230	J+	40	U	22	J
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	12000	U	2400	U	2000	U	2000	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	17000		40000		200	U	72	J
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	3100		370		200	U	200	U
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	7000		510		63	J	37	J
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	690	J+	60	J+	40	U	39	U
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	1200	U	430		200	U	200	U
SW8270D	84-66-2	DIETHYL PHTHALATE	100000000	ug/kg	1200	U	89	J	200	U	200	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	1200	U	100	J	200	U	200	U
SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	16000	J	1100	J	37	J	45	
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	2200	J	580	J	14	J	17	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	2700	J+	190	J+	40	U	33	J
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	2900		3900		34	J	26	J
SW8270D	621-64-7	N-NITROSODI-N-PROPYLAMINE	3300	ug/kg	460	U	540		81	U	79	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	14000	J	1900	J	98		71	
SW8270D	108-95-2	PHENOL	100000000	ug/kg	1200	U	240	U	200	U	200	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	18000		2000		44		48	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB05S-SO160819		SB05M-SO160819		SB05D-SO-160822		SB06S-SO-160819		SB06M-SO-160819		SB06D-SO-160822	
				Location	SB05		SB05		SB05		SB06		SB06		SB06	
				SDG	5001159731		5001159731		5001160581		5001159731		5001159731		5001160291	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	10		19		62		4		12		45	
				End Depth (ft)	12		21		64		6		14		47	
				Date Sampled	8/19/2016		8/19/2016		8/22/2016		8/19/2016		8/19/2016		8/22/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
METALS & CYANIDE																
SW6010C	7429-90-5	ALUMINUM	100000	mg/kg	42000		15000		11000		6000		11000		8400	
SW6010C	7440-36-0	ANTIMONY	470	mg/kg	5.4		14		6.6		200		9.9		2.6	U
SW6010C	7440-38-2	ARSENIC	30	mg/kg	8.4		30		6.2		15		8.9		4.6	
SW6010C	7440-39-3	BARIUM	100000	mg/kg	630		640		44		450		560		68	
SW6010C	7440-41-7	BERYLLIUM	2300	mg/kg	0.29	J	0.64		0.66		0.36	J	0.65		0.32	J
SW6010C	7440-43-9	CADMIUM	980	mg/kg	6.2		16		0.28		9		12		0.65	
SW6010C	7440-70-2	CALCIUM	NS	mg/kg	110000		40000		47000		30000		47000		35000	
SW6010C	7440-47-3	CHROMIUM	NS	mg/kg	46		170		18		75		120		21	
SW6010C	7440-48-4	COBALT	350	mg/kg	11		28		13		7.5		11		3.6	
SW6010C	7440-50-8	COPPER	47000	mg/kg	510		1200		27		1200		820		56	
SW6010C	7439-89-6	IRON	100000	mg/kg	50000		**260000**		19000		49000		74000		16000	
SW6010C	7439-92-1	LEAD	800	mg/kg	750		**820**		13		**2400**		**890**		120	
SW6010C	7439-95-4	MAGNESIUM	NS	mg/kg	9000		11000		24000		10000		11000		13000	
SW6010C	7439-96-5	MANGANESE	26000	mg/kg	500		1900		330		580		940		970	
SW6010C	7440-02-0	NICKEL	22000	mg/kg	52		300		34		240		120		34	
SW6010C	7440-09-7	POTASSIUM	NS	mg/kg	3200		1300		2900		440		1700		2300	
SW6010C	7782-49-2	SELENIUM	5800	mg/kg	1.3		0.97	J	0.85	J	1.1	J	1.6		0.79	J
SW6010C	7440-22-4	SILVER	5800	mg/kg	1.8		1.4		0.56	U	0.91		0.93		0.2	J
SW6010C	7440-23-5	SODIUM	NS	mg/kg	4600		1300		410		370		2100		3300	
SW6010C	7440-62-2	VANADIUM	5800	mg/kg	15		67		19		13		27		11	
SW6010C	7440-66-6	ZINC	100000	mg/kg	3700		2500		92		5700		3500		1000	
SW7471B	7439-97-6	MERCURY	3.1	mg/kg	0.18		1.3		0.017	J	0.96		0.54		0.072	J
SW9014	57-12-5	CYANIDE	150	mg/kg	1.2		1		0.57	U	3.1		0.44	J	0.59	J
SW9045D	PH	pH	NS	ph units	8.2		8.3		8.1		8.1		8.5		8.8	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB05S-SO160819		SB05M-SO160819		SB05D-SO-160822		SB06S-SO-160819		SB06M-SO-160819		SB06D-SO-160822	
				Location	SB05		SB05		SB05		SB06		SB06		SB06	
				SDG	5001159731		5001159731		5001160581		5001159731		5001159731		5001160291	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	10		19		62		4		12		45	
				End Depth (ft)	12		21		64		6		14		47	
				Date Sampled	8/19/2016		8/19/2016		8/22/2016		8/19/2016		8/19/2016		8/22/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
PESTICIDES																
SW8081B	60-57-1	DIELDRIN	1400	ug/kg	120	U	26	U	10	U	130	U	120	U	11	U
PCBS																
SW8082A	53469-21-9	PCB-1242 (AROCLOR 1242)	9500	ug/kg	**16000**		**14000**		20	U	7100		1800		21	U
SW8082A	12672-29-6	PCB-1248 (AROCLOR 1248)	9500	ug/kg	8800		**10000**		20	U	5700		2200		21	U
SW8082A	11097-69-1	PCB-1254 (AROCLOR 1254)	9700	ug/kg	2100		1000	U	20	U	2300		240	U	98	
SW8082A	11096-82-5	PCB-1260 (AROCLOR 1260)	9900	ug/kg	980	U	1000	U	20	U	490	U	240	U	21	U
VOLATILES																
SW8260B	78-93-3	2-BUTANONE	28000000	ug/kg	530	U	430	U	4.2	U	670	U	1400		4.8	U
SW8260B	67-64-1	ACETONE	100000000	ug/kg	900		470		17	U	670	U	760		32	
SW8260B	71-43-2	BENZENE	51000	ug/kg	26	U	21	U	4.2	U	33	U	69		4.8	U
SW8260B	75-15-0	CARBON DISULFIDE	740000	ug/kg	97	J	170	U	4.2	U	270	U	180	U	4.8	U
SW8260B	108-90-7	CHLOROBENZENE	760000	ug/kg	110	U	86	U	4.2	U	850		99		4.8	U
SW8260B	60-29-7	ETHYL ETHER	10000000	ug/kg	110	U	86	U	4.2	U	130	U	91	U	4.8	U
SW8260B	100-41-4	ETHYLBENZENE	250000	ug/kg	1400		120		4.2	U	110		400		4.8	U
SW8260B	127-18-4	TETRACHLOROETHENE	170000	ug/kg	110	U	86	U	4.2	U	130	U	43	J	4.8	U
SW8260B	109-99-9	TETRAHYDROFURAN	94000000	ug/kg	560		580		4.2	U	670	U	1300		17	
SW8260B	108-88-3	TOLUENE	820000	ug/kg	250		74		4.2	U	79		1100		4.8	U
SW8260B	79-01-6	TRICHLOROETHENE	19000	ug/kg	53	U	43	U	4.2	U	67	U	45	U	4.8	U
SW8260B	95-47-6	XYLENE, O-	430000	ug/kg	1700		130		4.2	U	47		310		4.8	U
SW8260B	XYLMP	XYLENES, M & P-	NS	ug/kg	3700		280		8.5	U	130		1100		9.6	U

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-10
Subsurface Soil (Landfill Soil Boring) Analytical Results, August 2016

				Sample ID	SB05S-SO160819		SB05M-SO160819		SB05D-SO-160822		SB06S-SO-160819		SB06M-SO-160819		SB06D-SO-160822	
				Location	SB05		SB05		SB05		SB06		SB06		SB06	
				SDG	5001159731		5001159731		5001160581		5001159731		5001159731		5001160291	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Start Depth (ft)	10		19		62		4		12		45	
				End Depth (ft)	12		21		64		6		14		47	
				Date Sampled	8/19/2016		8/19/2016		8/22/2016		8/19/2016		8/19/2016		8/22/2016	
				Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
Method	CAS No	Analyte	2017 IDEM Commercial/ Industrial Soil Criteria	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
SEMIVOLATILES																
SW8270D	106-46-7	1,4-DICHLOROBENZENE	110000	ug/kg	4800	U	5000	U	200	U	2800	J	2600		220	U
SW8270D	606-20-2	2,6-DINITROTOLUENE	15000	ug/kg	4800	U	5000	U	200	UJ	5000	U	2600	U	220	U
SW8270D	91-57-6	2-METHYLNAPHTHALENE	3000000	ug/kg	3400		2400		13	J	1000	J	7000		240	J
SW8270D	MEPH3MEPH4	3 & 4-METHYLPHENOL	NS	ug/kg	4800	U	5000	U	200	U	3300	J	2600	U	220	U
SW8270D	83-32-9	ACENAPHTHENE	45000000	ug/kg	1100		1800		40	U	1700		11000		360	
SW8270D	208-96-8	ACENAPHTHYLENE	NS	ug/kg	950	U	990	U	40	U	980	U	250	J	140	
SW8270D	120-12-7	ANTHRACENE	100000000	ug/kg	1600		2800		40	U	2800		21000		1100	J
SW8270D	56-55-3	BENZO(A)ANTHRACENE	29000	ug/kg	2500		9200		7.8	J	4200		**40000**		1600	J
SW8270D	50-32-8	BENZO(A)PYRENE	2900	ug/kg	2200	J+	**10000**	J+	8.5	J	**4200**	J+	**37000**	J+	1300	J+
SW8270D	205-99-2	BENZO(B)FLUORANTHENE	29000	ug/kg	3000	J+	18000	J+	40	U	5200	J+	**44000**	J+	1900	J+
SW8270D	191-24-2	BENZO(G,H,I)PERYLENE	NS	ug/kg	670	J+	5300	J+	40	U	1700	J+	15000	J+	470	J+
SW8270D	207-08-9	BENZO(K)FLUORANTHENE	290000	ug/kg	1500	J+	17000	J+	40	U	2600	J+	21000	J+	590	J+
SW8270D	65-85-0	BENZOIC ACID	100000000	ug/kg	48000	UJ	50000	UJ	2000	U	50000	UJ	26000	U	2200	U
SW8270D	117-81-7	BIS(2-ETHYLHEXYL) PHTHALATE	1600000	ug/kg	170000		280000		200	U	85000		110000		1600	
SW8270D	85-68-7	BUTYLBENZYLPHTHALATE	12000000	ug/kg	11000		2400	J	200	U	6800		2600	U	100	J
SW8270D	86-74-8	CARBAZOLE	NS	ug/kg	4800	U	5000	U	200	U	2600	J	7500		1000	
SW8270D	218-01-9	CHRYSENE	2900000	ug/kg	2700		11000		40	U	4000		33000		1700	
SW8270D	53-70-3	DIBENZ(A,H)ANTHRACENE	2900	ug/kg	950	UJ	890	J+	40	U	980	UJ	**4500**	J+	140	J+
SW8270D	132-64-9	DIBENZOFURAN	1000000	ug/kg	1100	J	1200	J	200	U	5000	U	4800		520	
SW8270D	84-66-2	DIETHYL PHTHALATE	100000000	ug/kg	4800	U	5000	U	200	U	5000	U	2600	U	220	U
SW8270D	131-11-3	DIMETHYL PHTHALATE	NS	ug/kg	4800	U	5000	U	200	U	8300		2600	U	220	U
SW8270D	84-74-2	DI-N-BUTYL PHTHALATE	82000000	ug/kg	1700	J	5000	U	200	U	2300	J	2600	U	220	U
SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	8200000	ug/kg	54000		45000		200	U	16000		2600	U	190	J
SW8270D	206-44-0	FLUORANTHENE	30000000	ug/kg	6500		24000		13	J	14000		110000		4000	J
SW8270D	86-73-7	FLUORENE	30000000	ug/kg	1700		2400		40	U	1800		11000		1000	J
SW8270D	193-39-5	INDENO(1,2,3-C,D)PYRENE	29000	ug/kg	1200	J+	7600	J+	40	U	1700	J+	20000	J+	550	J+
SW8270D	91-20-3	NAPHTHALENE	170000	ug/kg	4000		2800		40	U	1900		8900		300	
SW8270D	621-64-7	N-NITROSODI-N-PROPYLAMINE	3300	ug/kg	1900	U	2000	U	82	U	2000	U	1000	U	86	U
SW8270D	85-01-8	PHENANTHRENE	NS	ug/kg	7300		17000		29	J	12000		83000		5700	J
SW8270D	108-95-2	PHENOL	100000000	ug/kg	4800	U	5000	U	200	U	5000	U	2600	U	220	U
SW8270D	129-00-0	PYRENE	23000000	ug/kg	4500		24000		17	J	14000		85000		3600	

Bold/highlight: above IDEM Screening Level

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	AS01-20161205		AS02-20160914		AS03-20161205		AS103-20161205		AS04-20161205		AS05-20160914	
				Location	AS01		AS02		AS03		AS03		AS04		AS05	
				SDG	5001210281		320218281		5001210281		5001210281		5001210281		320218281	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	12/5/2016		9/14/2016		12/5/2016		12/5/2016		12/5/2016		9/14/2016	
				Matrix	SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
D1946	74-82-8	METHANE	NS	%v/v	0.00095		71	J	73	J	73	J	0.00083		82	J
TO15	71-55-6	1,1,1-TRICHLOROETHANE	2200000	ug/m3	0.69	J	200	U	120	U	77	U	1.6	U	3000	U
TO15	79-34-5	1,1,2,2-TETRACHLOROETHANE	210	ug/m3	2.7	U	340	U	200	U	130	U	2.7	U	5100	U
TO15	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	13000000	ug/m3	3.1	U	380	U	220	U	140	U	3.1	U	5600	U
TO15	75-34-3	1,1-DICHLOROETHANE	7700	ug/m3	1.2	U	150	U	89	U	57	U	1.2	U	2200	U
TO15	95-63-6	1,2,4-TRIMETHYLBENZENE	3100	ug/m3	3.9	U	160	J	290	U	44	J	3.9	U	**6400**	J
TO15	76-14-2	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NS	ug/m3	16		350	U	200	U	130	U	2.9		5100	U
TO15	95-50-1	1,2-DICHLOROBENZENE	88000	ug/m3	2.4	U	100	J	180	U	110	U	2.4	U	4400	U
TO15	108-67-8	1,3,5-TRIMETHYLBENZENE	NS	ug/m3	2	U	240	U	140	U	93	U	2	U	3100	J
TO15	106-46-7	1,4-DICHLOROBENZENE	1100	ug/m3	2.4	U	660		180	U	110	U	2.4	U	4400	U
TO15	78-93-3	2-BUTANONE	2200000	ug/m3	2.4	U	290	U	170	U	110	U	2	J	4300	U
TO15	591-78-6	2-HEXANONE	13000	ug/m3	1.6	U	200	U	120	U	77	U	1.6	U	3000	U
TO15	622-96-8	4-ETHYLTOLUENE	NS	ug/m3	2	U	240	U	140	U	93	U	2	U	1800	J
TO15	108-10-1	4-METHYL-2-PENTANONE	1300000	ug/m3	1.4	J	200	U	120	U	77	U	1.6	U	3000	U
TO15	67-64-1	ACETONE	14000000	ug/m3	1.7	J	54	J	72	J	83	J	6.2	J	22000	U
TO15	71-43-2	BENZENE	1600	ug/m3	0.73	J	**3300**		880		930		1.3	U	**260000**	
TO15	75-15-0	CARBON DISULFIDE	310000	ug/m3	1.5	J	310	U	180	U	120	U	1.3	J	4600	U
TO15	56-23-5	CARBON TETRACHLORIDE	2000	ug/m3	5	U	620	U	370	U	240	U	5	U	9300	U
TO15	108-90-7	CHLOROBENZENE	22000	ug/m3	0.85	J	1800		250		260		1.4	U	2900	
TO15	75-45-6	CHLORODIFLUOROMETHANE	22000000	ug/m3	2.8	U	840		210	U	130	U	2.8	U	1500	J
TO15	75-00-3	CHLOROETHANE	4400000	ug/m3	2.1	U	260	U	150	U	100	U	2.1	U	33000	
TO15	67-66-3	CHLOROFORM	530	ug/m3	1.1	J	180	U	110	U	69	U	0.75	J	2700	U
TO15	74-87-3	CHLOROMETHANE	39000	ug/m3	1.7	U	200	U	120	U	78	U	1.7	U	3000	U
TO15	156-59-2	CIS-1,2-DICHLOROETHYLENE	NS	ug/m3	1.6	U	200	U	120	U	75	U	1.6	U	2900	U
TO15	75-71-8	DICHLORODIFLUOROMETHANE	44000	ug/m3	3.5		250	U	140	U	93	U	3.6		3600	U
TO15	100-41-4	ETHYLBENZENE	4900	ug/m3	2.8		490		59	J	55	J	0.39	J	**6500**	

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	AS01-20161205		AS02-20160914		AS03-20161205		AS103-20161205		AS04-20161205		AS05-20160914	
				Location	AS01		AS02		AS03		AS03		AS04		AS05	
				SDG	5001210281		320218281		5001210281		5001210281		5001210281		320218281	
				Sample Type	REGULAR		REGULAR		REGULAR		FIELD DUPLICATE		REGULAR		REGULAR	
				Date Sampled	12/5/2016		9/14/2016		12/5/2016		12/5/2016		12/5/2016		9/14/2016	
				Matrix	SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TO15	142-82-5	HEPTANE	NS	ug/m3	0.41	J	4200		720		750		3.3	U	91000	
TO15	110-54-3	HEXANE	310000	ug/m3	0.45	J	8300		2200		2300		2.8	U	120000	
TO15	540-84-1	ISOOCTANE	NS	ug/m3	1.9	U	1500		180		180		1.9	U	67000	
TO15	98-82-8	ISOPROPYLBENZENE (CUMENE)	180000	ug/m3	1.3	J	3900		300		310		3.9	U	13000	
TO15	75-09-2	METHYLENE CHLORIDE	260000	ug/m3	0.34	J	170	U	100	U	66	U	1.4	U	2600	U
TO15	111-65-9	OCTANE	NS	ug/m3	1.9	U	1500		130	J	88	U	1.9	U	23000	
TO15	109-66-0	PENTANE	440000	ug/m3	2.4	U	17000		5700		6000		2.4	U	84000	
TO15	127-18-4	TETRACHLOROETHENE	18000	ug/m3	11		340	U	200	U	130	U	1.7	J	5000	U
TO15	108-88-3	TOLUENE	2200000	ug/m3	2.2		130	J	41	J	35	J	0.87	J	1600	J
TO15	75-69-4	TRICHLOROFLUOROMETHANE	NS	ug/m3	1.6	J	280	U	160	U	110	U	1.1	J	4100	U
TO15	75-01-4	VINYL CHLORIDE	2800	ug/m3	1	U	130	U	100		95		1	U	1900	U
TO15	95-47-6	XYLENE, O-	44000	ug/m3	0.63	J	160	J	38	J	32	J	0.51	J	3600	
TO15	XYLMP	XYLENES, M & P-	NS	ug/m3	1.1	J	650		90	J	160	U	1.3	J	24000	

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	AS06-20161205		AS07-20161206		AM01-20160915		AM02-20161205		GV02-20160915		GV06-20160915	
				Location	AS06		AS07		AM01		AM02		GV02		GV06	
				SDG	5001210281		5001210281		320218441		5001210281		320218441		320218441	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	12/5/2016		12/6/2016		9/15/2016		12/5/2016		9/15/2016		9/15/2016	
				Matrix	SOIL GAS		SOIL GAS		AMBIENT AIR		AMBIENT AIR		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
D1946	74-82-8	METHANE	NS	%v/v	0.0011		0.34		0.00064		0.0057		0.13		79	J
TO15	71-55-6	1,1,1-TRICHLOROETHANE	2200000	ug/m3	0.58	J	1.6	U	1.6	U	1.6	U	1.6	U	73	U
TO15	79-34-5	1,1,2,2-TETRACHLOROETHANE	210	ug/m3	2.7	U	2.7	U	2.7	U	2.7	U	1.3	J	120	U
TO15	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	13000000	ug/m3	3.1	U	3.1	U	3.1	U	3.1	U	3.1	U	140	U
TO15	75-34-3	1,1-DICHLOROETHANE	7700	ug/m3	1.2	U	1.2	U	1.2	U	1.2	U	0.35	J	13	J
TO15	95-63-6	1,2,4-TRIMETHYLBENZENE	3100	ug/m3	3.9	U	3.9	U	0.84	J	3.9	U	2.6	J	110	J
TO15	76-14-2	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NS	ug/m3	2.8	U	6.1		2.8	U	2.8	U	1.6	J	79	J
TO15	95-50-1	1,2-DICHLOROBENZENE	88000	ug/m3	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	60	J
TO15	108-67-8	1,3,5-TRIMETHYLBENZENE	NS	ug/m3	2	U	2	U	2	U	2	U	3.9		37	J
TO15	106-46-7	1,4-DICHLOROBENZENE	1100	ug/m3	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U	460	
TO15	78-93-3	2-BUTANONE	2200000	ug/m3	1.4	J	2.4	U	3.1		2.4	U	2.5		100	U
TO15	591-78-6	2-HEXANONE	13000	ug/m3	1.6	U	1.6	U	0.5	J	1.6	U	1.6	U	73	U
TO15	622-96-8	4-ETHYLTOLUENE	NS	ug/m3	2	U	2	U	2	U	2	U	2.3		63	J
TO15	108-10-1	4-METHYL-2-PENTANONE	1300000	ug/m3	1.6	U	1.6	U	0.69	J	1.6	U	1.6	U	73	U
TO15	67-64-1	ACETONE	14000000	ug/m3	5.7	J	2.1	J	11	J	3.7	J	14		55	J
TO15	71-43-2	BENZENE	1600	ug/m3	0.58	J	0.74	J	0.48	J	0.6	J	2.9		670	
TO15	75-15-0	CARBON DISULFIDE	310000	ug/m3	1.7	J	1.4	J	2.5	U	2.5	U	0.31	J	150	
TO15	56-23-5	CARBON TETRACHLORIDE	2000	ug/m3	5	U	5	U	0.48	J	5	U	0.51	J	220	U
TO15	108-90-7	CHLOROBENZENE	22000	ug/m3	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	150	
TO15	75-45-6	CHLORODIFLUOROMETHANE	22000000	ug/m3	2.8	U	1.7	J	39		2.8	U	33		170	
TO15	75-00-3	CHLOROETHANE	4400000	ug/m3	2.1	U	2.1	U	2.1	U	2.1	U	7.1		94	U
TO15	67-66-3	CHLOROFORM	530	ug/m3	1.5	U	1.5	U	1.5	U	1.5	U	0.81	J	65	U
TO15	74-87-3	CHLOROMETHANE	39000	ug/m3	1.7	U	1.7	U	1.1	J	1	J	33		73	U
TO15	156-59-2	CIS-1,2-DICHLOROETHYLENE	NS	ug/m3	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	22	J
TO15	75-71-8	DICHLORODIFLUOROMETHANE	44000	ug/m3	2.2		1.3	J	2.9		2.2		3.2		88	U
TO15	100-41-4	ETHYLBENZENE	4900	ug/m3	2.3		1.2	J	1.1	J	0.32	J	1.4	J	55	J

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	AS06-20161205		AS07-20161206		AM01-20160915		AM02-20161205		GV02-20160915		GV06-20160915	
				Location	AS06		AS07		AM01		AM02		GV02		GV06	
				SDG	5001210281		5001210281		320218441		5001210281		320218441		320218441	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		REGULAR		REGULAR	
				Date Sampled	12/5/2016		12/6/2016		9/15/2016		12/5/2016		9/15/2016		9/15/2016	
				Matrix	SOIL GAS		SOIL GAS		AMBIENT AIR		AMBIENT AIR		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TO15	142-82-5	HEPTANE	NS	ug/m3	1.4	J	2.2	J	0.31	J	0.34	J	59		1200	
TO15	110-54-3	HEXANE	310000	ug/m3	1.8	J	2.7	J	0.43	J	1	J	42		2800	
TO15	540-84-1	ISOOCTANE	NS	ug/m3	1.5	J	1.4	J	1.9	U	1.9	U	4.9		320	
TO15	98-82-8	ISOPROPYLBENZENE (CUMENE)	180000	ug/m3	3.9	U	3.9	U	3.9	U	3.9	U	3.9	U	730	
TO15	75-09-2	METHYLENE CHLORIDE	260000	ug/m3	1.4	U	1.4	U	0.3	J	0.31	J	0.33	J	62	U
TO15	111-65-9	OCTANE	NS	ug/m3	1.3	J	1.9	U	0.41	J	1.9	U	18		480	
TO15	109-66-0	PENTANE	440000	ug/m3	5.1		5.8		2.4	U	0.97	J	34		5500	
TO15	127-18-4	TETRACHLOROETHENE	18000	ug/m3	0.89	J	1.8	J	2.7	U	2.7	U	2.7	U	120	U
TO15	108-88-3	TOLUENE	2200000	ug/m3	10		13		1.8		2.6		7.7		120	
TO15	75-69-4	TRICHLOROFLUOROMETHANE	NS	ug/m3	3.1		1.7	J	1.2	J	1.3	J	1.3	J	100	U
TO15	75-01-4	VINYL CHLORIDE	2800	ug/m3	1	U	1	U	1	U	1	U	8.7		71	
TO15	95-47-6	XYLENE, O-	44000	ug/m3	1.3	J	1.2	J	0.81	J	0.31	J	18		190	
TO15	XYLMP	XYLENES, M & P-	NS	ug/m3	4		3.6		3.1	J	0.9	J	36		370	

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	GV14-20160914		GV15-20160914		GV16-20160915		GV17-20160915		GV117-20160915	
				Location	GV14		GV15		GV16		GV17		GV17	
				SDG	320218281		320218281		320218441		320218441		320218441	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	9/14/2016		9/14/2016		9/15/2016		9/15/2016		9/15/2016	
				Matrix	SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
D1946	74-82-8	METHANE	NS	%v/v	79	J	72	J	84	J	72	J	110	J
TO15	71-55-6	1,1,1-TRICHLOROETHANE	2200000	ug/m3	540	U	1200	U	1100	U	450	UJ	440	UJ
TO15	79-34-5	1,1,2,2-TETRACHLOROETHANE	210	ug/m3	910	U	2100	U	1900	U	760	UJ	740	UJ
TO15	76-13-1	1,1,2-TRICHLOROTRIFLUOROETHANE	13000000	ug/m3	1000	U	2300	U	2100	U	650	J	1900	J
TO15	75-34-3	1,1-DICHLOROETHANE	7700	ug/m3	400	U	920	U	840	U	340	UJ	330	UJ
TO15	95-63-6	1,2,4-TRIMETHYLBENZENE	3100	ug/m3	**31000**		**12000**		**13000**		**17000**	J	**50000**	J
TO15	76-14-2	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NS	ug/m3	920	U	2100	U	1900	U	770	UJ	760	UJ
TO15	95-50-1	1,2-DICHLOROBENZENE	88000	ug/m3	330	J	1800	U	1700	U	660	UJ	380	J
TO15	108-67-8	1,3,5-TRIMETHYLBENZENE	NS	ug/m3	14000		6000		6000		7200	J	22000	J
TO15	106-46-7	1,4-DICHLOROBENZENE	1100	ug/m3	**2500**		**2100**		**2000**		**1400**	J	**4600**	J
TO15	78-93-3	2-BUTANONE	2200000	ug/m3	2800		4900		56000		18000	J	57000	J
TO15	591-78-6	2-HEXANONE	13000	ug/m3	540	U	1200	U	1100	U	450	UJ	440	UJ
TO15	622-96-8	4-ETHYLTOLUENE	NS	ug/m3	12000		5900		4900		5100	J	17000	J
TO15	108-10-1	4-METHYL-2-PENTANONE	1300000	ug/m3	2800		1200	U	18000		3800	J	13000	J
TO15	67-64-1	ACETONE	14000000	ug/m3	1900	J	8900	J	84000		25000	J	79000	J
TO15	71-43-2	BENZENE	1600	ug/m3	**11000**		**5300**		**24000**		**8000**	J	**23000**	J
TO15	75-15-0	CARBON DISULFIDE	310000	ug/m3	820	U	1900	U	1700	U	690	UJ	210	J
TO15	56-23-5	CARBON TETRACHLORIDE	2000	ug/m3	1700	U	3800	U	3500	U	1400	UJ	1400	UJ
TO15	108-90-7	CHLOROBENZENE	22000	ug/m3	710		1200		800	J	1300	J	3700	J
TO15	75-45-6	CHLORODIFLUOROMETHANE	22000000	ug/m3	700	J	4100		6500		1200	J	3500	J
TO15	75-00-3	CHLOROETHANE	4400000	ug/m3	700	U	1600	U	1500	U	580	UJ	570	UJ
TO15	67-66-3	CHLOROFORM	530	ug/m3	480	U	1100	U	1000	U	400	UJ	400	UJ
TO15	74-87-3	CHLOROMETHANE	39000	ug/m3	550	U	1300	U	1100	U	460	UJ	450	UJ
TO15	156-59-2	CIS-1,2-DICHLOROETHYLENE	NS	ug/m3	250	J	810	J	1400		200	J	590	J
TO15	75-71-8	DICHLORODIFLUOROMETHANE	44000	ug/m3	650	U	1500	U	1400	U	260	J	720	J
TO15	100-41-4	ETHYLBENZENE	4900	ug/m3	**55000**		**65000**		**49000**		**37000**	J	**110000**	J

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-11
Soil Vapor Analytical Results, September/December 2016

				Sample ID	GV14-20160914		GV15-20160914		GV16-20160915		GV17-20160915		GV117-20160915	
				Location	GV14		GV15		GV16		GV17		GV17	
				SDG	320218281		320218281		320218441		320218441		320218441	
				Sample Type	REGULAR		REGULAR		REGULAR		REGULAR		FIELD DUPLICATE	
				Date Sampled	9/14/2016		9/14/2016		9/15/2016		9/15/2016		9/15/2016	
				Matrix	SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS		SOIL GAS	
Method	CAS No	Analyte	2017 IDEM RISC Indoor Air Commercial Industrial x 100*	Units	Res	Q	Res	Q	Res	Q	Res	Q	Res	Q
TO15	142-82-5	HEPTANE	NS	ug/m3	2900		7200		9500		5500	J	16000	J
TO15	110-54-3	HEXANE	310000	ug/m3	3200		21000		13000		6500	J	19000	J
TO15	540-84-1	ISOOCTANE	NS	ug/m3	360	J	440	J	810	J	1100	J	3000	J
TO15	98-82-8	ISOPROPYLBENZENE (CUMENE)	180000	ug/m3	15000		5500		4700		5000	J	14000	J
TO15	75-09-2	METHYLENE CHLORIDE	260000	ug/m3	460	U	1100	U	960	U	380	UJ	90	J
TO15	111-65-9	OCTANE	NS	ug/m3	4400		13000		14000		14000	J	41000	J
TO15	109-66-0	PENTANE	440000	ug/m3	4600		5800		4800		5000	J	14000	J
TO15	127-18-4	TETRACHLOROETHENE	18000	ug/m3	900	U	2100	U	1900	U	750	UJ	99	J
TO15	108-88-3	TOLUENE	2200000	ug/m3	42000		99000		120000		43000	J	130000	J
TO15	75-69-4	TRICHLOROFLUOROMETHANE	NS	ug/m3	740	U	1700	U	1600	U	620	UJ	610	UJ
TO15	75-01-4	VINYL CHLORIDE	2800	ug/m3	120	J	1600		610	J	210	J	560	J
TO15	95-47-6	XYLENE, O-	44000	ug/m3	**46000**		41000		29000		24000	J	**77000**	J
TO15	XYLMP	XYLENES, M & P-	NS	ug/m3	140000		140000		100000		96000	J	290000	J

Bold/highlight: above IDEM Screening Level

*Attenuation factor of 0.01 from soil gas to indoor air applied per IDEM March 2012 Remediation Closure Guide.

Table shows detected analytes only.

Qualifier Definitions:

U: not detected at the value given
UJ: estimated and not detected
J: estimated at the value given
J+: estimated biased high
J-: estimated biased low
R: unusable

NS = No Standard

Table 4-12
Liquid Waste Sample Results

			Sample ID	TP52-170524	
			Location	TP52	
			SDG	6001487431	
			Sample Type	REGULAR	
			Date Sampled	5/24/2017	
			Matrix	Oil/Liquid Waste	
Method	CAS No	Analyte	Units		
METALS					
SW6010	7429-90-5	ALUMINUM	mg/kg	**32**	
SW6010	7440-38-2	ARSENIC	mg/kg	**0.35**	**J**
SW6010	7440-39-3	BARIUM	mg/kg	**1.7**	
SW6010	7440-70-2	CALCIUM	mg/kg	**190**	**J**
SW6010	7440-47-3	CHROMIUM	mg/kg	**19**	
SW6010	7440-50-8	COPPER	mg/kg	**2.1**	
SW6010	7439-89-6	IRON	mg/kg	**180**	
SW6010	7439-92-1	LEAD	mg/kg	**2.8**	
SW6010	7439-95-4	MAGNESIUM	mg/kg	**87**	**J**
SW6010	7439-96-5	MANGANESE	mg/kg	**2.6**	
SW6010	7440-02-0	NICKEL	mg/kg	**0.58**	**J**
SW6010	7440-09-7	POTASSIUM	mg/kg	**99**	
SW6010	7440-23-5	SODIUM	mg/kg	**170**	**J**
SW6010	7440-62-2	VANADIUM	mg/kg	**0.44**	**J**
SW6010	7440-66-6	ZINC	mg/kg	**180**	**J**
PESTICIDES (non detected)					
PCBS					
SW8082	12672-29-6	PCB-1248 (AROCLOR 1248)	µg/kg	**79000**	
SW8082	11096-82-5	PCB-1260 (AROCLOR 1260)	µg/kg	**8100**	
VOLATILES					
SW8260	75-09-2	METHYLENE CHLORIDE	µg/kg	**4100**	**J**
SEMIVOLATILES					
SW8270	83-32-9	ACENAPHTHENE	µg/kg	**850000**	**J**
SW8270	205-99-2	BENZO(B)FLUORANTHENE	µg/kg	**260000**	**J**
SW8270	206-44-0	FLUORANTHENE	µg/kg	**960000**	
SW8270	86-73-7	FLUORENE	µg/kg	**740000**	**J**
SW8270	85-01-8	PHENANTHRENE	µg/kg	**690000**	**J**
SW8270	129-00-0	PYRENE	µg/kg	**800000**	**J**

Qualifier Definitions:

J The result is an estimated quantity (approximate concentration of the analyte in the sample).

5.0 ENVIRONMENTAL FATE AND TRANSPORT

This section addresses the fate and transport of chemical constituents that exceed one or more IDEM or USEPA screening criteria. The primary potential transport processes include:

- Downward movement of water infiltrating through the unsaturated landfill waste and upon encountering saturated conditions, moving radially from the center of the landfill;
- Partitioning of constituents in wetland sediment to groundwater through either infiltration or groundwater flowing through the sediments;
- Desorption of constituents from wetland sediment into surface water;
- Advection of dissolved constituents in groundwater along groundwater flow paths; and,
- Migration of constituents in the unsaturated zone in the gaseous phase (soil vapor).

In general, surface soils had only limited instances in which detected chemicals exceeded criteria. Furthermore, the surface soils are not prone to erosion and migration due to pervasive, heavy vegetative growth.

Subsurface soils also had minimal occurrences of chemical constituents greater than the criteria. Partitioning to water infiltrating though the soil will be limited by the nature of these chemicals. However, this is the primary pathway for any potential migration of constituents in the surface or subsurface soil.

The northern pond area contains PCBs and PAHs in the sediments. Based on surface water sampling results, there is no indication that these chemical groups are partitioning to surface water, and the closed depression contains the sediment, preventing migration.

Although sediments in the southern wetland contain PCBs, PAHs, and certain metals at concentrations greater than criteria, these constituents were not observed at comparable levels in site soils during the RI. However, while the landfill is known to have accepted oily wastes, there is limited information regarding these waste types and ultimate disposal location within the landfill. While the available data suggest that the river is a source for these constituents, the landfill has not been ruled out as a contributor. Currently, there is insufficient data to conclusively determine if there is a sole source of contamination, and it is not cost effective to perform additional investigations which may not yield the data necessary to clearly identify a sole source.

Benzene and ethylbenzene were detected at concentrations exceeding the criteria in soil vapor samples. The potential for migration of soil vapor to potential receptors is limited by the shallow depth to groundwater that is observed at the margins of the landfill waste area. The nearest occupied buildings are at the metal recycling facility approximately 400 feet west of the western Site boundary, and a building at the airport approximately 850 feet

northeast of the eastern boundary. Both buildings are used for industrial/commercial purposes.

Shallow groundwater flow is radially outward from the center of the landfill. However, the groundwater flow velocity is relatively low (ranging between approximately 1.3 ft/yr and 2.9 ft/yr), which limits the flux of dissolved phase chemical transport. In the deeper groundwater zone, the flow is southerly, but at even lower velocities. The surficial material is underlain by a glacial till, which acts as a confining layer to minimize vertical downward migration between the surficial sand unit and the underlying bedrock.

5.1 Persistence and Transport in Soils

Based on the analytical results for soil samples, the primary analytes exceeding criteria included one metal (lead), and PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene).

The primary process affecting lead concentrations in soil is dissolution into water, either in the vadose zone or in the saturated zone. The solubility of lead in water is dependent on several factors, including the valence state of the metal, the specific compound (lead is rarely in metallic form in the environment), the pH of the water, the DO content, and the ORP of the soil and water. Lead in soils has a low solubility in water (Agency for Toxic Substances and Disease Registry [ATSDR] [2017] indicates that lead is insoluble); thus, any partitioning to the aqueous phase will be minimized. Wind-blown transport of soil particles is expected to be minimal, based on the heavy vegetation cover throughout the Site.

As a class of compounds, PAHs are characterized by a low solubility in water and a low vapor pressure (ATSDR Toxic Substances Portal [2017]). The low vapor pressure prevents volatilization from being a significant factor in the fate of these compounds in soil. The low solubility will limit the rate of partitioning to the aqueous phase. Bacterial degradation is not known to be a significant process in the breakdown of PAHs, which are generally stable.

Erosion and runoff are potential factors in the fate and transport of chemicals in surface and shallow subsurface soil. The heavy vegetation throughout the Site has been observed to hold surface soils in place, minimizing the potential for erosion. Constituents within subsurface soils greater than two feet in depth have limited potential for movement, other than partitioning to the aqueous phase.

5.2 Persistence and Transport in Northern Pond Sediments and Water

Analysis of sediment samples from the northern pond indicated that the primary analytes greater than criteria included SVOCs (mainly PAHs) and several metals, although both PAHs and metals were within the regional background concentrations (except SD25 for metals and SD30M for PAHs).

PAHs exceeding criteria in multiple samples included acenaphthene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene,

and naphthalene. Naphthalene, however, was the only constituent in the pond surface water to exceed its screening criteria, and this occurred only in one sample. The screening criteria is based on the IDEM residential tap water screening level. The water in the northern pond is neither a drinking water source nor a probably occasional exposure pathway, even for a trespasser.

The metals detected in the pond sediments generally have a low solubility in water; thus, any partitioning to the aqueous phase will be minimized. Because the sediments are saturated, the porewater surrounding the sediments is probably in balance with the factors influencing the solubility of the metals. Metals concentrations in the pond surface water were not found to be above their respective criteria, which is evidence of the lack of excessive partitioning from the solid to the water phase.

The low solubility of SVOCS, including PAHs, will limit the rate of partitioning to the aqueous phase. This is evidenced by the lack of PAHs in the pond surface water samples. Naphthalene, detected in only one pond surface water sample, is only moderately volatile. It is unlikely that volatilization will significantly impact the concentrations in the surface water. Bacterial degradation is not a significant process in the breakdown of SVOCs, which are generally stable.

The most likely transport mechanism for constituents found in the pond sediment and surface water would be overland migration. However, the northern pond occupies a topographic depression with no surface water outlet. Thus, any disturbance of the sediment would remain in the pond along with the pond water. However, it is possible that water in the pond could migrate through the sediments into the groundwater flow system (see groundwater migration in Section 5.4).

5.3 Persistence and Transport in Southern Wetland Sediment

Analyses of sediment samples from the wetland indicated that the primary analytes exceeding screening criteria include metals, PAHs, and PCBs. NAPL was also found in test pits near the southern wetland area. Antimony, chromium, and zinc were detected at concentrations greater than criteria in several samples. PAHs exceeding screening criteria in some samples included acenaphthene, benzo(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, and pyrene. PCBs (primarily Aroclor 1248 and Aroclor 1254) exceeded criteria in several samples.

The heavy vegetation that is currently present limits the migration of sediments from the main body of the landfill toward the southern wetland, although this vegetation would not have been present during the active life of the landfill. The probable source of the PCBs, PAHs, metals, and NAPL in or near the wetland area is either contaminant sources within the landfill or previous river flooding events. Migration of river constituents to the wetland could have occurred by four primary mechanisms. Currently, there is insufficient data to conclusively determine if there is a sole source of contamination; both the river and the landfill are potential sources. Migration of chemical constituents to the wetland could have occurred by four primary mechanisms:

1. Sediments deposited in the wetland during periodic flooding of the river;

2. Documented periodic groundwater flow reversals during high river levels, resulting in flow from the river toward the Site (see Section 3.1.2);
3. The presumed inward hydraulic gradient produced during years of sand and gravel quarry dewatering activities from 1973 to 1989 (see Section 1.3.1); and
4. Previous releases from the landfill related to the operation and disposal of wastes, including spills, discharge of pumped water/leachate (from the creation of an inward gradient).

Total PCB concentrations in composite samples collected from the river immediately upstream of the Site (not a part of this RI) averaged 13.5 milligrams per kilogram (mg/kg). Comparatively, concentrations in river sediments adjacent to the Site averaged 8.22 mg/kg, and concentrations in river sediments immediately downstream of the Site are 1.5 mg/kg (CH2MHill 2013). Similarly, total PAHs in composite samples of river sediment upstream of the Site averaged over 29,000 mg/kg, compared to 540 mg/kg in samples adjacent to the Site, and 990 mg/kg downstream.

NAPL was observed in test pits near the river (Parsons 2017a), and based on the delineation work conducted in May 2017, and historical data, the river is a source, although the landfill contents and prior activities are also a potential source. In addition to high PAH, PCB, and metals concentrations, petroleum odors, oily sheens, and hydrocarbon sheens were also documented for sediment samples collected from the river upstream of the Site (CDM Smith 2014).

As stated in Section 4.3.2, PCB concentrations from RI sediment samples in the 2 to 5-foot depth zone were lower relative to the shallow samples. At SD21, the 2 to 5-foot sample was more than an order of magnitude lower than either 0 to 1 or 1 to 2-foot sample. This further supports a surficial deposition of impacted sediments from the river, overlying deeper, native material. Erosion and transport of soils containing PCBs from other portions of the Site to the southern wetland is not a significant process because of the pervasive, heavy vegetation that inhibits soil erosion and transport.

Wetland surface water samples collected in October 2017 and surface water samples from the river adjacent to the Site did not exhibit constituents above screening criteria (except manganese and benzo(a)pyrene in one wetland surface water sample). The lack of constituents greater than the screening criteria suggest limited partitioning from the solid to the aqueous phase. As with PCBs and PAHs, metals concentrations in sediments from the river, both upstream of and adjacent to the Site, are comparable to or greater than those found in the southern wetland.

It is possible that some of the detected constituents will slowly partition to the groundwater flow system at low concentrations that would likely be less than the screening criteria. Possible migration in groundwater is discussed in Section 5.4. Groundwater flow direction, gradient and velocity are described in Section 3.

5.4 Persistence and Transport in Groundwater

Analysis of groundwater samples from monitoring wells indicates that certain metals, benzene, 1,4-dioxane, and naphthalene exceeded screening criteria in several wells. The metals with multiple exceedances included arsenic and hexavalent chromium. Chromium in its trivalent form did not exceed screening criteria.

Transport and partitioning of arsenic in water is controlled by the oxidation state and the counter ion. Arsenic may adsorb onto sediments or soils, particularly clays, iron oxides, aluminum hydroxides, manganese compounds, and organic material (ATSDR 2017). There are limited quantities of clays and organic material for arsenic to adsorb to within the sandy material beneath the Site. Adsorption is further limited by the generally uniform reducing conditions indicated by the consistently negative ORP measurements in monitoring wells (see Appendix A, Field Sampling Logs).

Chromium in groundwater is primarily in the trivalent oxidation state relative to the hexavalent state. The ratio of the concentration of the two states varies, but averages approximately 10 to 1. However, only hexavalent chromium had exceedances of the screening criterion. The overall reducing conditions of the groundwater would lead to the potential for hexavalent chromium to be reduced to the trivalent form, but the rate at which this might occur would be low.

Benzene is present at concentrations above the screening criterion in several wells. Benzene can be substantially degraded by biological activity. Microbial degradation is significantly greater under aerobic conditions than under anaerobic conditions. The DO measurements of the monitoring well samples indicate that DO is present in most wells. This suggests there is potential for microbial degradation. Monitoring wells MW06S and MW05S (northeast corner of the Site) consistently contained benzene at concentrations higher than other monitoring wells. These wells had substantial DO concentrations in the July and October 2017 sampling events. DO concentrations recorded during the November 2016 and March 2017 sampling events were generally lower across all wells. This would indicate the possibility for microbial degradation to be occurring near these elevated benzene concentrations.

A BIOSCREEN one-dimensional solute transport model analysis was performed to estimate the potential movement of benzene from a potential source (vertical tanks identified on aerial photographs as late as 1992) toward the northeast. Detailed model input and output parameters are provided in Appendix K. The model indicates that based on conservative assumptions, benzene at or above the screening criteria (5 µg/L) may currently extend approximately 70 feet beyond the property boundary toward the northeast. The extent at this concentration does not approach any receptors, including the nearest buildings to the northeast, nor the Grand Calumet River to the south. If the benzene were to reach surface water, it would be expected to have a large loss to volatilization and photodegradation.

1,4-dioxane was present above the screening criterion in all 16 monitoring wells. 1,4-dioxane is considered recalcitrant in water and soils. It has a vapor pressure of 38.1

millimeters of mercury (mm/hg) and is considered moderately volatile (ATSDR 2017). If the 1,4-dioxane were to reach surface water, it would be expected to have a large loss to volatilization and photodegradation.

Naphthalene is present above the screening criterion in several monitoring wells. Biodegradation can be a moderate process, particularly under aerobic conditions. Naphthalene that reaches surface water may volatilize and biodegrade at a moderate rate.

Chemical constituents in groundwater will migrate primarily through advection. Groundwater flow direction and rates are presented in Section 3.2. Shallow groundwater flow is radial, away from the center of the landfill. It is likely that the radial outward shallow flow in the immediate vicinity of the Site dissipates into the overall southward regional groundwater flow with distance away from the hydraulic mound resulting from the landfill topography. The movement of chemical constituents in the groundwater will also be affected by diffusion and dispersion.

The potentiometric surface in the shallow groundwater shows a pattern that indicates radial flow away from the topographic high at the center of the landfill. Based on the observed gradients and the measured hydraulic conductivity, shallow groundwater velocities ranged from approximately 1.3 ft/yr in an eastward direction to 2.9 ft/yr in the westward direction, with intermediate velocities to the north and south. In addition, there is a downward component of groundwater flow from the shallow to the deeper flow system. The deeper flow system has a slower, southerly flow relative to the shallow zone, estimated to be 0.3 ft/yr. Although certain constituents in groundwater were found above screening criteria, the transport of these constituents (flux) is expected to be limited by the slow groundwater velocities (defined above) and gradients that flatten away from the Site. Also, groundwater flow, although radially outward from the landfill in the shallow zone, is expected to turn southerly toward the river on both the east and west sides of the Site. A glacial till layer forms a confining unit below the sand unit, preventing downward migration to the underlying bedrock.

5.5 Persistence and Transport in Soil Vapor

Benzene, ethylbenzene and methane were detected in soil vapor at multiple locations greater than the screening criteria. As stated in Section 4.8, only two soil vapor probes (AS02, western side, and AS05, northeast) had detections above criteria, and the remaining detections were in gas vents, which existed within the landfill prior to the RI and were expressly constructed for extraction. Methane does not have a screening criterion based on health impacts but is a concern due to the risk of fire or explosion. The lower explosive limit of methane is 5 percent by volume and the upper explosive limit is 14 percent by volume (Airgas, Inc. 2018). None of the concentrations observed fell within the explosive range, which is defined as a concentration above the lower explosive limit but below the upper explosive limit. Because the depth to groundwater is shallow, particularly approaching the property boundaries, the thickness of unsaturated soil (vadose zone) through which the soil vapor could migrate laterally is limited. The nearest buildings are approximately 400 feet to the west (recycling facility) and 850 feet to the northeast

(airport). Soil vapor would need to travel significant horizontal distances to approach these buildings. Along these flow paths, it would undergo diffusion, dispersion, and vadose zone biodegradation that would lower resulting concentrations. There would also be loss of these VOCs across the soil/air interface, further limiting the potential for soil vapor to reach potential receptors at adverse concentrations. In addition, as described above, shallow groundwater flow, although radially outward from the landfill, is expected to turn southerly toward the river on both the east and west sides of the Site, before approaching the buildings.

6.0 RISK ASSESSMENT SUMMARY

A risk assessment was conducted in accordance with the presumptive remedy guidance (USEPA February 1991 Guidance "Conducting RI/FS for CERCLA Municipal Landfill Sites") and was streamlined by:

- Using the conceptual site model (CSM) and RI-generated data to perform a qualitative risk assessment that identifies the constituents of potential concern (COPCs) in affected media, their concentrations, and their properties that may pose a risk through various exposure routes; and
- Identifying pathways that are a threat to human health or the environment by comparing RI-derived chemical concentrations to standards that are potential chemical-specific applicable or relevant and appropriate requirements (ARARs) for the action.

A risk assessment approach document was developed (Parsons 2017b) and submitted to USEPA prior to conducting the human health and ecological risk assessments. The document specified the risk assessment approach, outlining the primary guidance, assumptions, and methods, and presented updated CSMs (Figures 6-1 through 6-4).

The samples described in the RI tasks were the primary data sources used to support both the ecological and human health risk assessments, although historical and background data collected by others was also considered. Summaries of the human health risk assessment (HHRA) and screening level ecological risk assessment (SLERA) are presented in the following subsections. The full risk assessments, with supporting tables and calculations, are presented in Appendices L and M, respectively. A preliminary remedial action objectives memorandum, presenting remedial action objectives by media, risk type, and exposure area, is provided as Appendix N.

Key findings of the streamlined HHRA, supported in Section 6.1, are as follows:

- In accordance with the presumptive remedy guidance (assuming capping/containment as the remedy) and a Central Tendency Exposure (CTE) scenario, there were no constituents or exposure pathways with a calculated risk above USEPA's upper bound target risk of 1E-04. The only receptor/pathway with a target risk above an Indiana point of departure of 1E-05 for carcinogenic risk is the hypothetical ingestion of PCBs in fish from the northern pond by a future trespasser.
- Most of the cancer risk for future trespassers was associated with ingestion of fish caught from the northern pond; however, a sustainable game fish population in the pond is unlikely due to its nature as a closed system, low DO levels, and high pH.
- Site trespassers are unlikely to be in contact with the detected constituents in sediments of the northern pond, given their depth and location (over 2.5 feet underwater nearshore and approximately 30 feet deep towards the center of the pond).

- For off-site recreational users of the river, cancer risk is primarily associated with direct contact with PAHs in sediments. Various constituents, particularly PAHs and PCBs, are present at similar or higher concentrations (relative to the southern wetland) in the nearby and upstream sediments of the river. Under the presumptive remedy approach, little effort was undertaken to characterize the wastes within the landfill, and landfill operations included documented discharges to the southern wetland. At this time, there is insufficient information to conclusively identify the source of the contamination, although both the river and landfill are potential sources.
- For direct contact with surface soils, inorganic constituents driving the estimated risk/hazard in soil include arsenic, hexavalent chromium, and lead. Organic chemical constituents driving the estimated risk in soil via direct contact are primarily PCBs. However, exposure to chemical constituents in soil is assumed to be incomplete under future conditions per the presumptive remedy guidance as direct contact exposures can be eliminated.
- Hexavalent chromium was identified as an initial COPC in soil based on using total chromium concentrations as surrogate concentrations for hexavalent; however, review of chromium speciation data for the Site indicates that chromium primarily exists in the trivalent form, which exhibits much lower toxicity. Thus, the calculated risks attributed to chromium VI (hexavalent chromium) (using USEPA default ratios) are likely overestimated by an order of magnitude. Additionally, exposure to chemical constituents in soil is incomplete if a capping remedy were implemented, in accordance with the presumptive remedy guidance.
- Exposure to utility or construction workers to shallow groundwater (groundwater with a depth to water of 12 feet or less) in a trench includes direct contact with and inhalation of chromium (VI), 1,4-dioxane, naphthalene and cyanide in localized areas where these constituents occur at elevated concentrations near the ground surface. No other identified COPCs in shallow groundwater had a target cancer risk greater than 1E-06 or an HQ greater than 1. Construction/ utility worker risks/hazards can be mitigated by work permits, air monitoring, and use of personal protective equipment.

Key findings of the SLERA, supported in Section 6.2, are as follows:

- Surface water is generally unimpacted and contributes little to the overall risk to receptors.
- Most of the identified future hazards if the presumptive remedy is implemented are associated with food chain transfers (>80%). However, for the northern pond, a sustainable fish population is unlikely because it is a closed system with low DO levels and high pH.
- The concentrations of constituents of potential ecological concern (COPECs) in the southern wetland sediments are generally greater in the 1 to 2-foot depth samples relative to the 0 to 1-foot depth. Thus, concentrations in the bioavailable

portion (upper 6 inches) may be less than those used to model concentrations in biota. The risk may therefore be over-estimated.

- Exposure to COPECs in surface soils is an incomplete future pathway in accordance with the presumptive remedy guidance as direct contact exposures with soil can be eliminated.
- Various constituents, particularly PAHs and PCBs, are present at similar or higher concentrations (relative to the southern wetland) in the nearby and upstream sediments of the river. Under the presumptive remedy approach, little effort was undertaken to characterize the wastes within the landfill, and landfill operations included documented discharges to the southern wetland. At this time, there is insufficient information to conclusively identify the source of the contamination, although both the river and landfill are potential sources.
- The elevated COPEC concentrations are generally co-located and isolated to a few locations (i.e., SD26 and SD30 for PAHs in northern pond sediments and SD14, SD16, SD17 and SD18 for metals in the southern wetland sediments). Thus, population level effects due to intake and contact with the COPECs in the sediments are likely overestimated due to the limited extent of the elevated detections.
- Detections of COPECs in the southern wetland sediment were generally lower than or comparable to the concentrations detected in the upstream sediments of the river and lower than the concentrations detected in surface soil. These upstream concentrations and the vertical distribution in the RI samples (i.e., lower concentrations in deeper sediments), provides additional evidence of river flooding and deposition as a potential source for the COPECs in the wetland sediments. The landfill is another potential source of these COPECs.
- Overall, the assumptions used in this SLERA are conservative (i.e., maximum detected concentrations as the exposure point concentrations, 100 percent bioavailability and upper bound estimates of uptake), such that adverse effects on ecological receptors are more likely to be overestimated than underestimated. Thus, further evaluation of the ecological risks for the southern wetland and northern pond may be necessary depending on the remedies being considered (or potential end-use) to refine the list of COPECs using more realistic exposure assumptions.

6.1 Human Health Risk Assessment

The primary objective of the HHRA was to quantitatively characterize the human health risk associated with current and potential future exposures to COPCs detected in various media in accordance with the presumptive remedy guidance.

6.1.1 Data Evaluation and Hazard Identification

The soil, groundwater, sediment, surface water and soil vapor data collected in 2016 and 2017 were used in the HHRA. The RI samples were analyzed for a broad range of constituents, including inorganics, PCBs, pesticides, VOCs, and SVOCs. The HHRA data

set was supplemented with the most recently collected sediment samples from the river (CDM-Smith 2014).

COPCs were initially identified for each medium by comparing maximum detected concentrations to established screening criteria using a target cancer risk level of 1E-06 and a HQ of 0.1. COPCs were eliminated from further consideration if they were not detected in a medium or if the maximum detected concentration was below its risk-based screening criterion. Fish tissue concentrations were estimated based on maximum detections of inorganics in surface water and organics in sediments.

Based on this conservative screening process, the COPCs identified for further evaluation in the HHRA included: PAHs, PCBs and metals in surface soils; benzene, ethylbenzene, xylenes, PAHs, PCBs and metals in subsurface soils; VOCs, including methane, in ambient air and soil gas; VOCs, SVOCs, PAHs, and metals in groundwater (drinking scenario); VOCs, SVOCs, and metals in shallow groundwater (trench scenario); metals in surface waters of the northern pond; PAHs and metals in the surface water of the southern wetland and the river; and PAHs, PCBs and metals in northern pond, southern wetland and river sediments.

Although asbestos was not detected in Site soil, other sampling techniques may be better suited for analyzing asbestos in soil, particularly respirable fibers. Thus, any future construction activities, including remedy construction, should address the potential for encountering asbestos (as well as potentially other unknown contaminants) as part of health and safety measures.

6.1.2 Toxicity Assessment

Toxicity values used to calculate potential cancer risks and non-cancer hazards include cancer slope factors (SFs) and inhalation unit risks (IURs) and non-cancer reference doses (RfDs) and concentrations (RfCs). Sources of toxicity information included, but were not limited to, the Integrated Risk Information System (IRIS), Provisional Peer-Reviewed Toxicity Values (PPRTVs) and minimal risk levels developed by the Agency for Toxic Substances and Disease Registry. The sources were used in the order of priority consistent with USEPA's hierarchy of preferential use (USEPA 2018).

6.1.3 Exposure Assessment

Potential receptors include on-site maintenance/outdoor workers, on-site construction/ utility workers, trespassers, and off-site recreational river users. The exposure pathways evaluated in the risk assessment are as shown in the updated CSMs (Figures 6-1 and 6-2) and include the following:

- Ingestion and dermal contact with surface soil and inhalation of particulates and VOCs in ambient air for potential on-site maintenance/outdoor workers
- Incidental ingestion and dermal contact with shallow groundwater, surface soil, subsurface soil, and wetland sediments, and inhalation of particulates and VOCs from surface and subsurface soil and in trench air by a construction/excavation worker

- Incidental ingestion of and dermal contact with surface soil, wetland sediments and surface water, and pond sediments and surface water, inhalation of dust and particulates from surface soil, inhalation of VOCs in ambient air, and ingestion of fish from the northern pond by a site trespasser
- Incidental ingestion and dermal contact with river sediments and surface water for off-site recreational users of the river

Estimated intakes were not calculated for air concentrations. Only four COPCs, including methane, were identified in ambient air; none of the four has a published toxicity screening level for air concentrations.

Likewise, estimated exposure to COPCs in indoor air was not quantified. The pathway is currently incomplete because there are no continuously occupied buildings on-site, and it is assumed that construction of buildings will be prohibited in the future in accordance with the presumptive remedy guidance, and an anticipated capping remedy. There is also a limited potential for VOCs to move into adjacent buildings either to the west or east due to the shallow depth to water in these areas and the distances to occupied industrial/commercial use buildings (approximately 400 feet to the west and 850 feet to the northeast). On the western side of the Site, the depth to groundwater approaches the ground surface, with essentially no vadose zone present. In addition, shallow groundwater flow, although radially outward from the landfill, is expected to turn southerly toward the river on both the east and west sides of the Site, before approaching the buildings.

Similarly, estimated intake of COPCs in drinking groundwater was not quantified because installation of water wells (except those used solely for monitoring groundwater) is assumed to be prohibited in the future. Currently, exposure to drinking groundwater is incomplete because no drinking water wells were identified within a one-mile radius and a City of Gary 2006 ordinance (No. 7930) prohibits new potable water supply wells that withdraw water from the shallow unconfined groundwater zone and requires connection to the City's water supply.

Because a fish advisory is in place for the river, ingestion of fish caught from the river was not evaluated quantitatively for a river recreational user. Table 6-1 presents a summary of the exposure pathways selected for evaluation in the risk assessment.

6.1.4 Risk Characterization

Following the initial screening to identify COPCs, the incremental probability of an individual developing cancer over a lifetime was calculated from the estimated intakes and chemical-specific carcinogenic potency factors. To characterize potential noncarcinogenic effects, comparisons were made between projected intakes of substances and RfDs or RfCs. Both a cancer risk and a HQ estimate (for non-cancer risk) were calculated for each COPC that had available toxicity values based on a reasonable maximum exposure (RME) scenario. A target risk range of 1E-06 to 1E-04 was used to identify chemical constituents for which further evaluation was completed, with 1E-06 used as the point of

departure for identifying these constituents. For noncarcinogens, the point of departure was based on a cumulative hazard index greater than 1.

Most of the calculated risks/hazards were associated with PCBs and PAHs in the sediments of the northern pond and southern wetland, as summarized in Tables 6.2 and 6.3 for current and future land use scenarios for the RME scenario.

Following the identification of the constituents of concern under an RME scenario, the CTE scenario was then evaluated to provide information regarding a typical, or average, exposure for a receptor. Findings of this CTE evaluation showed that there were no constituents with an estimated target risk above USEPA's upper bound target risk of 1E-04 for on-site receptors.

6.2 Ecological Risk Assessment

A SLERA was also conducted. As with the HHRA, the assessment was based on the CSM and RI-generated data. The primary objective of the SLERA was to quantitatively characterize the ecological risk associated with potential future exposures to COPECs in accordance with the presumptive remedy guidance.

6.2.1 Environmental Setting

The three major current habitats include a 4.8-acre, closed-system former retention pond (northern pond), a 2.2-acre Common Reed (*Phragmites australis*) dominated wetland along the northern bank of the river (southern wetland), and the *Phragmites*-dominated former landfill area, which comprises approximately 55 acres of the 62-acre Site. Photographs, including the wetland area and wetland test pits, are included as Attachment 4 in Appendix F (the wetland test pit photographs are included as photographs 11 through 14). No state or federally endangered species were documented based on literature review and observations as detailed in Appendix F. Of the nine invasive plant species observed, eight are noted as being highly invasive (IISC 2013), with Common Reed noted as comprising 70 to 90% of the total vegetation.

6.2.2 Data Evaluation and Hazard Identification

The soil, groundwater, sediment, and surface water data collected in 2016 and 2017 in accordance with the approved RI/FS work plan were used in the SLERA. The RI samples were analyzed for inorganics, PCBs, pesticides, VOCs, and SVOCs. The SLERA data set was supplemented with the most recently collected sediment samples from the river (CDM-Smith 2014). The combination of these field investigations provided the data set used in the SLERA.

COPECs were identified for each media by comparing maximum detected concentrations of constituents to established screening levels in accordance with the 2017 Risk Assessment Approach Memorandum (Parsons 2017b) and USEPA guidance (USEPA 1997, 2018). COPECs were eliminated from further consideration if they were not detected in a medium or if the maximum detected concentration was below its screening level. Based on this screening process, the COPECs identified for further evaluation in the

SLERA included: VOCs, SVOCs (mostly PAHs), PCBs, dieldrin, endrin, metals and cyanide in surface soils; PAHs and metals in the surface water of the southern wetland; metals in the surface water of the river; VOCs, PAHs, metals and cyanide in shallow groundwater near the river; VOCs, SVOCs, PCBs, dieldrin, metals and cyanide in northern pond sediments; and VOCs, SVOCs, dieldrin, DDD, endrin, PCBs, metals and cyanide in southern wetland and river sediments. Metals and cyanide were also identified as COPECs in surface waters of the northern pond; however, the pond does not meet the definition of waters of the state as defined in Indiana Code 13-11-2-265 as the pond is isolated, has no surface water connections to surrounding water bodies and originated during quarry operations and subsequently used as a surface water retention pond to control landfill runoff. Thus, use of the Indiana water quality standards for screening is a conservative measure as the criteria are not applicable for the northern pond.

Many of the constituents identified as COPECs in the sediments are present at similar or higher concentrations in the upstream sediment of the river, particularly PAHs and PCBs. These constituents, based on this information and RI data, may have their source in the river. Fish tissue concentrations were estimated based on detections of inorganics in surface water and organics in sediments.

6.2.3 Toxicity Assessment

The objective of the toxicity assessment is to weigh available evidence regarding the potential for particular chemicals to cause adverse effects in exposed organisms and to provide, where possible, an estimate of the relationship between the extent of exposure and the increased possibility and/or severity of adverse effects. Toxicity information pertinent to identified receptors was gathered for those analytes identified as COPECs. Preference was given to chronic studies noting concentrations at which no adverse effects were observed and ones for which the lowest concentrations associated with adverse effects were observed. Since calculation of intakes are not applicable for terrestrial plants, invertebrates or aquatic life, sediment concentrations were compared directly to sediment toxicity reference values (TRVs) developed specifically for these receptors.

6.2.4 Exposure Assessment

Potential key ecological receptors are shown on Figures 6-3 and 6-4, and include terrestrial plants and invertebrates, avian and mammalian herbivores, omnivores, invertivores and carnivores, and aquatic life. Identification and selection of key receptors species were detailed in the 2017 Risk Assessment Approach Memorandum (Parsons 2017). The following exposure pathways were evaluated in the ecological risk assessment:

- Uptake and direct contact with southern wetland sediments and surface water
- Incidental ingestion of wetland sediments and surface water
- Food chain transfers from biota inhabiting the southern wetland
- Uptake and direct contact with the sediments and surface water in the northern pond

- Food chain transfers from fish to piscivorous birds for the northern pond

Exposure to surface soils and perimeter groundwater was not evaluated beyond the screening level comparison in accordance with the presumptive remedy guidance because it is assumed that the future remedy will prevent exposure to these media. Likewise, estimated intakes were not quantified for potential receptors for the river beyond the initial screening stage. The risks associated with impacted sediments of the river are being addressed on a watershed basis via the Grand Calumet River Area of Concern (AOC). Dredging of the river stretch adjacent to the Site is tentatively scheduled to occur from 2020 to 2022, along with efforts to restore degraded habitats along the riverbanks and address point and non-point sources of pollution to the river (Citizens Advisory Committee for the Remediation of the Environment [CARE] 2017).

Estimated intakes of the COPECs were calculated by medium and receptor for the identified COPECs using the maximum detected concentrations as the exposure point concentrations (EPCs). Literature-derived uptake and accumulation factors were used to model concentrations of the COPECs into various food items to estimate exposure via food chain transfers. Since calculation of intakes are not applicable for terrestrial plants/invertebrates and aquatic life, EPCs were compared directly to media-derived TRVs developed specifically for these receptors.

6.2.5 Risk Characterization

The potential for adverse ecological effects was evaluated by comparing an exposure level or intake over a specified period with a TRV derived for a similar exposure period. This ratio, the HQ, equals the intake divided by the corresponding reference value, or:

$$HQ = \text{Total Intake} / TRV$$

HQs greater than 1 will be generated when intake for a COPEC exceeds its TRV. For direct comparison of media concentrations, the HQ is the concentration in the medium divided by the media-derived TRV concentration.

Most of the hazards identified for the key ecological receptors are PAHs, PCBs and metals in the sediments, primarily via food chain transfers. Table 6-4 summarizes the COPECs for each receptor under future conditions.

6.2.6 SLERA Scientific/Management Decision Point

Based on the results of the SLERA, further evaluation may be necessary depending on the remedies being considered (or potential end-use) for the southern wetland and northern pond habitats. Maximum detections of COPECs in these habitats, particularly PAHs, PCBs and metals in the sediment, have been identified as having potential unacceptable risk for multiple receptors. Further evaluation of potential population level effects and refinement of the COPECs in the sediment using more realistic exposure assumptions (e.g., 95% upper confidence limits, bioavailabiity and area use factors) may be useful as the detections of many of the identified COPECs are limited to a few locations across the site and many of the COPECs with HQs greater than 1 are co-located.

6.3 Risk Assessment Summary

- For the HHRA, in accordance with the presumptive remedy guidance and assuming a Central Tendency Exposure scenario, there were no constituents or exposure pathways with a calculated risk greater than USEPA's upper bound target risk of 1E-04 and or HQ greater than 1. The only receptor/pathway with a target risk greater than an Indiana point of departure of 1E-05 for carcinogenic risk is the hypothetical ingestion of PCBs in fish from the northern pond by a future trespasser. However, a sustainable game fish population in the pond is unlikely due to its nature as a closed system, generally anoxic conditions (based on low DO levels), and high pH.
- For the SLERA, most of the identified hazards for future conditions assuming a presumptive remedy has been implemented are associated with food chain transfers (>80%). However, for the northern pond, a sustainable fish population is unlikely because it is a closed system with low DO levels and high pH. Additionally, elevated COPEC concentrations are generally co-located and isolated to a few locations (i.e., PAHs in northern pond sediment at SD26 and SD30, metals in southern wetland sediment at SD14, SD16, SD17 and SD18). Thus, population level effects due to intake and contact with the COPECs in the sediment are unlikely due to the limited extent of the elevated detections.
- For both the HHRA and SLERA, the assumptions used are designed to be conservative, such that resultant risks are correspondingly overestimated.
- Further ecological risk evaluation may be necessary depending on the remedies being considered (or potential end-use) for the southern wetland and northern pond habitats. Detections of PAHs, PCBs and metals in sediment may present a potential limited risk for ecological receptors inhabiting these areas. Further evaluation using site-specific and more realistic exposure assumptions may better assess the potential ecological risks.

Figure 6-1
Human Health Conceptual Site Model – Current Conditions

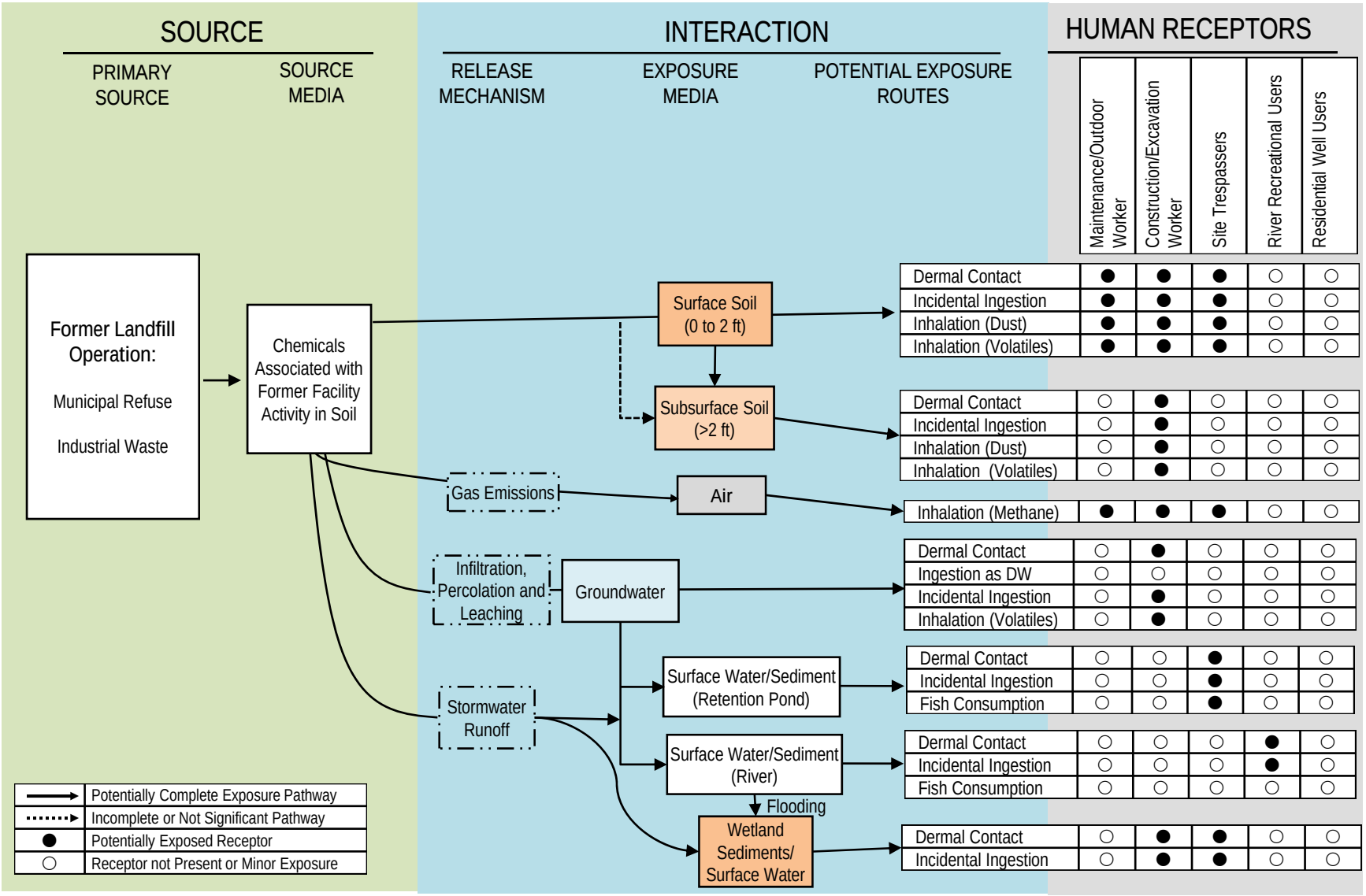


Figure 6-2
Human Health Conceptual Site Model – Future Conditions – Assuming Presumptive Remedy Conditions

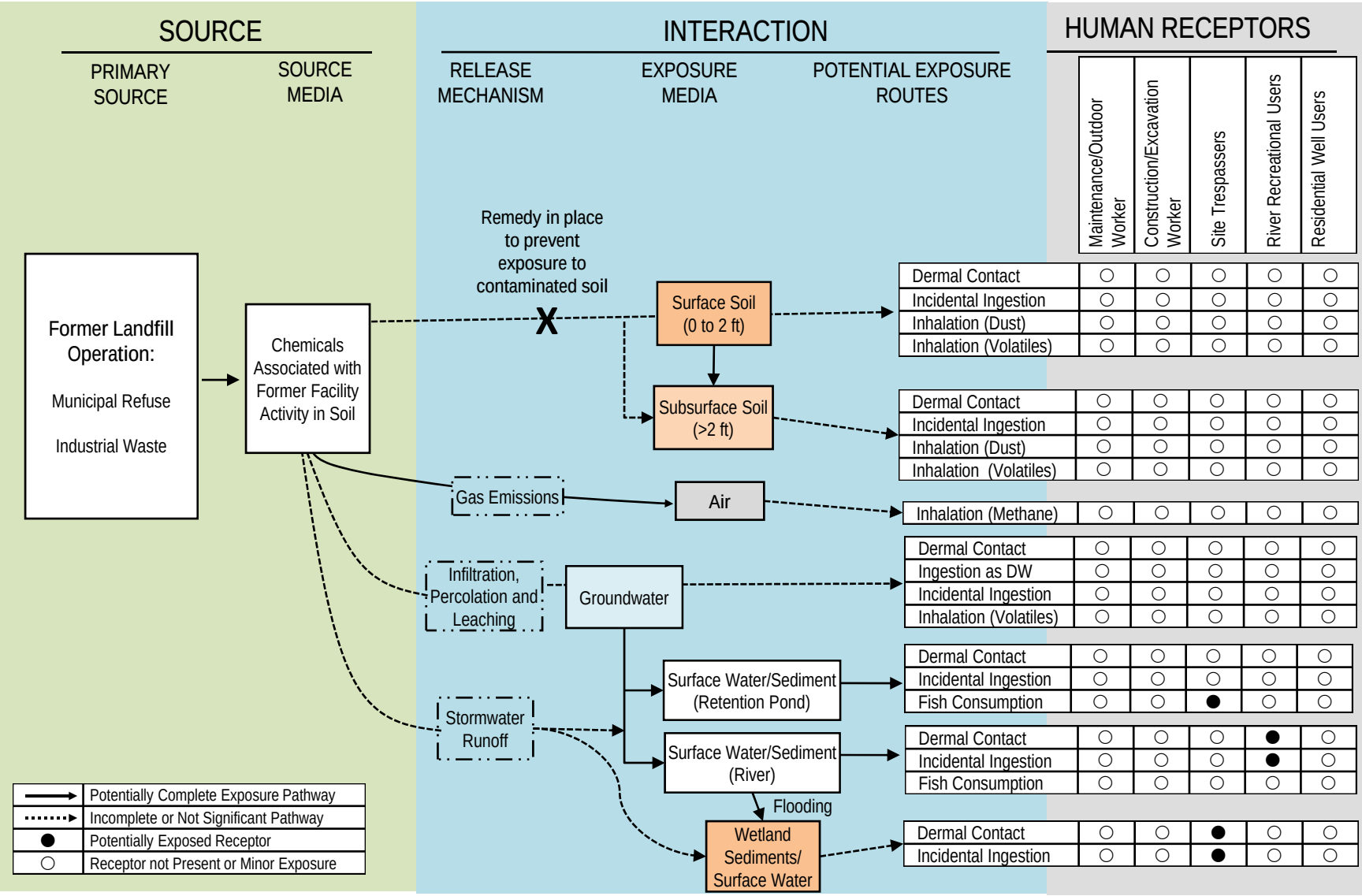


Figure 6-3
Ecological Conceptual Site Model – Current Conditions

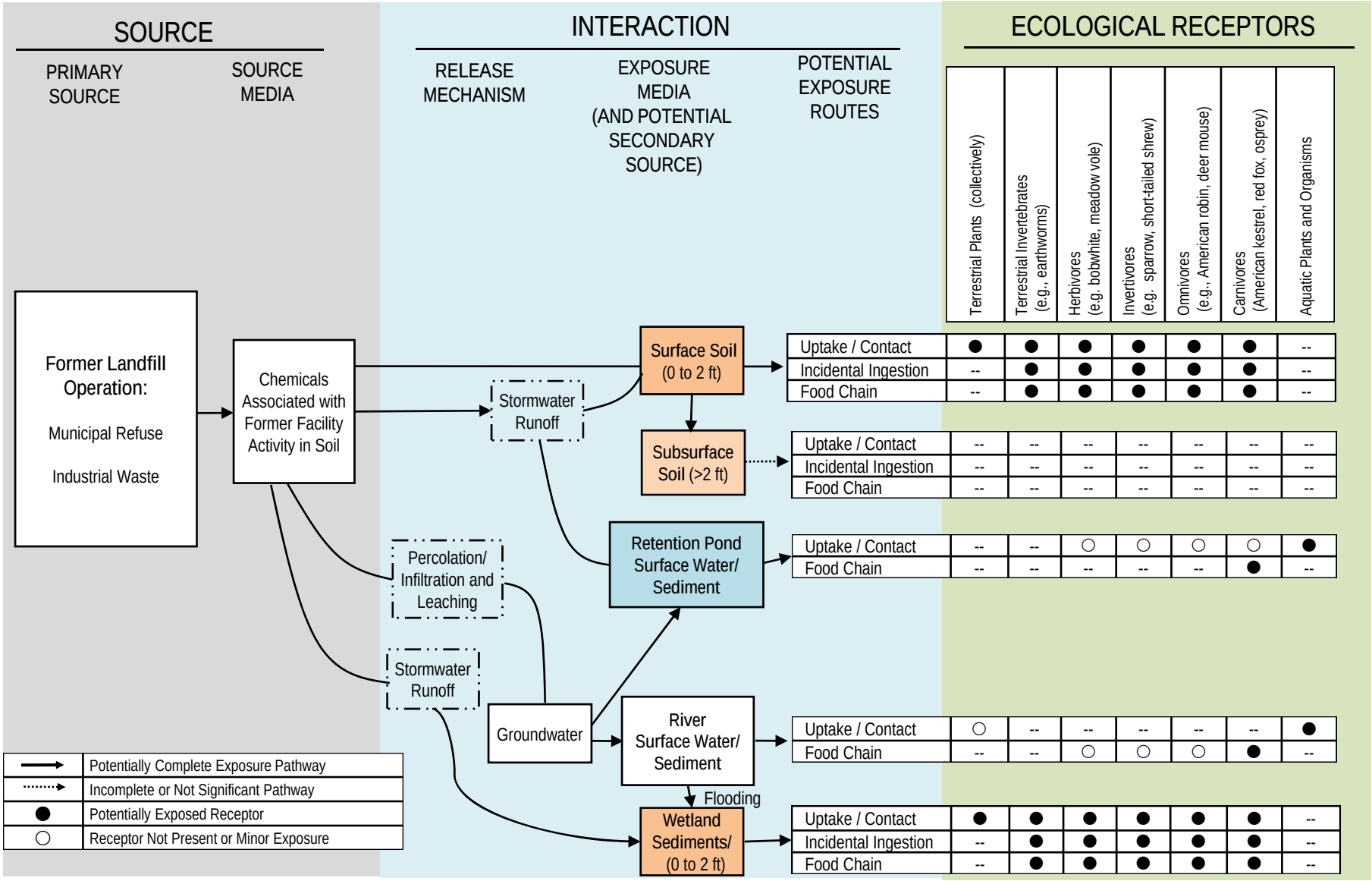


Figure 6-4
Ecological Conceptual Site Model – Future Conditions – Assuming Presumptive Remedy Conditions

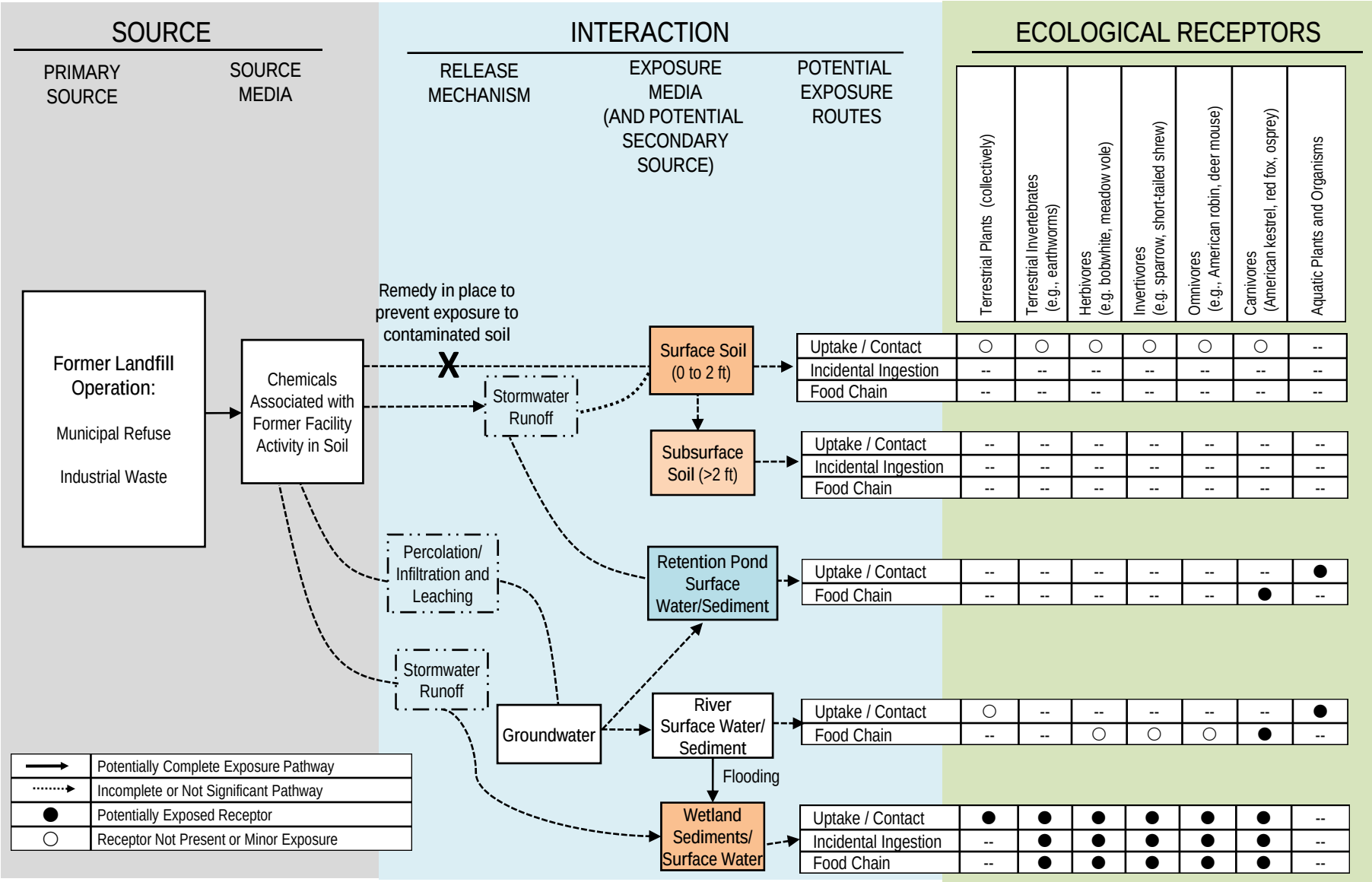


TABLE 6-1

SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Soil	Surface Soil	On-Site	Maintenance/Outdoor Worker	Adult	Incidential Ingestion	Quant	Landfill maintenance, and mowing operations
						Dermal Contact	Quant	Landfill maintenance, and mowing operations
						Inahlation	Quant	Landfill maintenance, and mowing operations
				Construction/Utility Worker	Adult	Incidential Ingestion	Quant	Periodic maintenance/repair of on-site utilities
						Dermal Contact	Quant	Periodic maintenance/repair of on-site utilities
						Inhalation	Quant	Periodic maintenance/repair of on-site utilities
				Site Trespasser	Adult and Adolescent (11-20)	Incidential Ingestion	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Dermal Contact	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Inhalation	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
		Subsurface Soil	On-Site	Construction/Utility Worker	Adult	Incidential Ingestion	Quant	Periodic maintenance/repair of on-site utilities
						Dermal Contact	Quant	Periodic maintenance/repair of on-site utilities
						Inhalation	Quant	Periodic maintenance/repair of on-site utilities
	Air	Ambient Air	On-Site	Maintenance/Outdoor Worker	Adult	Inahlation	Qual	Landfill maintenance, and mowing operations
				Construction/Utility Worker	Adult	Inhalation	Qual	Periodic maintenance/repair of on-site utilities
				Site Trespasser	Adult and Adolescent (11-20)	Inhalation	Qual	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties

TABLE 6-1

SELECTION OF EXPOSURE PATHWAYS

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current and Future	Groundwater	Volatiles in Trench	On-Site	Construction/Utility Worker	Adult	Inhalation	Quant	Periodic maintenance/repair of on-site utilities
						Dermal Contact	Quant	Periodic maintenance/repair of on-site utilities
	Surface Water	Water	Northern Pond	Site Trespasser	Adult and Adolescent (11-20)	Incidential Ingestion	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Dermal Contact	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
			Southern Wetlands	Site Trespasser	Adult and Adolescent (11-20)	Incidential Ingestion	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Dermal Contact	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
			Grand Calumet River	Recreational User	Adult and Child	Incidential Ingestion	Quant	River recreatonal users may fish or boat on the river
						Dermal Contact	Quant	River recreatonal users may fish or boat on the river
		Biota	Northern Pond	Site Trespasser	Adult and Child	Ingestion of Fish	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
			Grand Calumet River	Recreational User	Adult and Child	Ingestion of Fish	Qual	River recreatonal users may fish or boat on the river
	Sediment	Sediment	Northern Pond	Site Trespasser	Adult and Adolescent (11-20)	Incidential Ingestion	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Dermal Contact	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
			Southern Wetlands	Site Trespasser	Adult and Adolescent (11-20)	Incidential Ingestion	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
						Dermal Contact	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
				Construction/Utility Worker	Adult	Incidential Ingestion	Quant	Periodic maintenance/repair of on-site utilities
						Dermal Contact	Quant	Periodic maintenance/repair of on-site utilities
			Grand Calumet River	Recreational User	Adult and Child	Incidential Ingestion	Quant	River recreatonal users may fish or boat on the river
						Dermal Contact	Quant	River recreatonal users may fish or boat on the river
		Biota	Northern Pond	Site Trespasser	Adult and Child	Ingestion of Fish	Quant	Site trespassers may periodically access the site to fish or use as a shortcut to adjacent properties
			Grand Calumet River	Recreational User	Adult and Child	Ingestion of Fish	Qual	River recreatonal users may fish or boat on the river

TABLE 6-2

Constituents of Concern for Each Receptor by Medium - Current Land Use - RME Scenario

Medium	Maintenance/Outdoor Worker	Construction/Excavation Worker	Site Trespasser	River Recreational User
Surface Soil	Aroclor 1248 Aroclor 1260 Arsenic Chromium (VI) Lead	Aroclor 1248 Chromium (VI) Aroclor 1254 Copper Manganese Thallium	Chromium (VI)	-
Subsurface Soil	-		-	-
Shallow Groundwater in a Trench	-	1.4-Dioxane Naphthalene **Cyanide**	-	-
Wetland Sediment	-	Aroclor 1242 Aroclor 1248 Arsenic Benzo(a)pyrene Chromium (VI) Aroclor 1254 Iron Manganese Thallium	Aroclor 1242 Aroclor 1248 Benzo(a)pyrene Chromium (VI)	-
Northern Pond Sediment	-	-	Benzo(a)pyrene Benzo(b)fluoranthene Chromium (VI)	-
Wetland Surface Water	-	-	Chromium (VI)	-
Northern Pond Surface Water	-	-	Chromium (VI)	-
Fish from the Northern Pond	-	-	-	-
Grand Calumet River Surface Water	-	-	-	Chromium (VI)
Grand Calumet River Sediment*	-	-	-	Aroclor 1248 Arsenic Benzo(a)anthracene **Benzo(a)pyrene** Benzo(b)fluoranthene Chromium (VI) Dibenz(ah)anthracene Indeno(123-cd)pyrene Lead 2-Methylnaphthalene Naphthalene

Notes:

"-" No constituents identified for the receptor in this medium or no exposure by the receptor to this medium.

Constituents of concern have calculated risks greater than 1E-06 for carcinogens and calculated HIs greater than 1 for noncarcinogens for similar target organs for the identified receptor.

Constituents highlighted in **bold** exceed the target risk range for carcinogens or have an individual HQ >1.

*Constituents of concern for the Grand Calumet River sediment are based on data collected in 2013 by others.

TABLE 6-3

Constituents of Concern for Each Receptor by Medium - Future Land Use Under the Presumptive Remedy - RME Scenario

Medium	Maintenance/Outdoor Worker	Construction/Excavation Worker	Site Trespasser	River Recreational User
Surface Soil	-	-	-	-
Subsurface Soil	-		-	-
Shallow Groundwater in a Trench	-	-	-	-
Wetland Sediment	-	-	Aroclor 1242 Aroclor 1248 Benzo(a)pyrene Chromium (VI)	-
Northern Pond Sediment	-	-	Benzo(a)pyrene Benzo(b)fluoranthene Chromium (VI)	-
Wetland Surface Water	-	-	Chromium (VI)	-
Northern Pond Surface Water	-	-	Chromium (VI)	-
Fish from the Northern Pond	-	-	Arsenic Chromium (VI) **Benzo(a)pyrene (equiv)** Dieldrin **Total PCBs**	-
Grand Calumet River Surface Water	-	-	-	Chromium (VI)
Grand Calumet River Sediment*	-	-	-	Aroclor 1248 Arsenic Benzo(a)anthracene **Benzo(a)pyrene** Benzo(b)fluoranthene Chromium (VI) Dibenz(ah)anthracene Indeno(123-cd)pyrene Lead 2-Methylnaphthalene Naphthalene

Notes:

"-" No constituents identified for the receptor in this medium or no exposure by the receptor to this medium.

Constituents of concern have calculated risks greater than 1E-06 for carcinogens and calculated HIs greater than 1 for noncarcinogens for similar target organs for the identified receptor.

Constituents highlighted in **bold** exceed the target risk range for carcinogens or have an individual HQ >1.

*Constituents of concern for the Grand Calumet River sediment are based on data collected in 2013 by others.

TABLE 6-4

Constituents of Ecological Concern for Key Receptors by Medium - Future Land Use Under the Presumptive Remedy

Key Receptor	Wetland Sediment	Northern Pond Sediment
Herbivorous Birds (Bobwhite)	PCB-1242 Chromium Lead Zinc	-
Invertivorous Birds (Song Sparrow)	Dieldrin **DDD** **PCB-1242** **PCB-1248** **PCB-1254** Arsenic Cadmium **Chromium** **Copper** **Lead** **Zinc**	-
Omnivorous Birds (American Robin)	**DDD** **PCB-1254** **PCB-1248** **PCB-1254** Arsenic Cadmium **Chromium** **Copper** Lead Thallium **Zinc**	-
Carnivorous Birds (American Kestrel)	Chromium Lead Zinc	-
Piscivorous Birds (Osprey)	-	Total PCBs
Herbivorous Mammals (Meadow Vole)	-	-
Invertivorous Mammals (Short-tail Shrew)	PCB-1242 PCB-1248 PCB-1254 Arsenic Cadmium Copper Lead Zinc	-
Omnivorous Mammals (Deer Mouse)	PCB-1242 PCB-1248 PCB-1254 Arsenic Cadmium Copper Lead Zinc	-
Carnivorous Mammals (Red Fox)	PCB-1254	-

TABLE 6-4

Constituents of Ecological Concern for Key Receptors by Medium - Future Land Use Under the Presumptive Remedy

Key Receptor	Wetland Sediment	Northern Pond Sediment
Terrestrial Plants	High Molecular Weight PAHs **Bis(2-ethylhexyl)phthalate** DDD Arsenic Barium Chromium Copper Lead Manganese Nickel Thallium Zinc Merucry Cyanide	-
Terrestrial Invertebrates	Acetone High Molecular Weight PAHs **Bis(2-ethylhexyl)phthalate** Dibenzofuran **DDD** **Total PCBs** Chromium Copper Manganese Silver Thallium Vanadium Zinc Merucry Cyanide	-
Aquatic Life	-	Anthracene Benzo(a)anthracene Benzo(a)pyrene **Benzo(b)fluoranthene** Benzo(ghi)perylene Benzo(k)fluoranthene Chrysene **Fluoranthene** Fluorene Indeno(123-cd)pyrene Naphthalene **Phenanthrene** Pyrene Bis(2-ethylhexyl)phthalate **Phenol** Total PCBs **Barium**

Notes:

"-" No constituents identified for the receptor in this medium or no exposure by the receptor to this medium.

Constituents highlighted in **bold** have an individual HQ >1 when compared to a Low Observed Adverse Effect Level (LOAEL) TRV and EPCs are mean concentrations.

7.0 SUMMARY AND CONCLUSIONS

The purpose of this streamlined RI was to evaluate the nature and extent of impacts from the Site, assess risks to human health and the environment, and provide data for a subsequent evaluation of remedial alternatives, in the context that a presumptive remedy would be implemented.

The RI was successfully completed. Fieldwork was performed from April 2016 through October 2017 in accordance with the work plan. Supplemental tasks, such as a brush fire evaluation, landfill soil borings, NAPL delineation, and wetland/river surface water sampling were added during the RI implementation.

The following findings and conclusions were drawn through evaluation of the RI data integrated with a review of historical information:

- The GDL Site is in a highly industrialized area, with numerous sources of hazardous substances within a 2-mile radius, including the GDL Site and the river.
- The Site's profile is comprised primarily of surficial fill material, landfill waste, and geology defined by native sands and silts, and an underlying glacial till. The limits of landfill waste were defined through soil borings, monitoring well installations, and test pits.
- The glacial till underlying the Site serves as a confining unit that isolates the unconsolidated sands from the bedrock units below.
- Groundwater flow direction is radially outward in the shallow zone, and southerly in the deeper zone and regionally. Based on topography, regional groundwater flow direction (southerly), the Grand Calumet River functioning as a discharge area, and groundwater flow direction reported on the Gary Airport property, shallow flow is expected to turn southerly towards the river on both the east and west sides of the Site.
- Groundwater velocities range between approximately 0.3 ft/yr (deep) and 2.9 ft/yr (shallow) based on hydraulic conductivity testing and measured hydraulic gradients.
- The nature and extent of impacts were defined both vertically and horizontally through an extensive drilling, test pit, and environmental sampling program.
- Minimal chemical impacts were observed in surface soil, subsurface soil, and surface water.
- Soil borings installed within the landfill limits to evaluate potential hot-spots did not indicate the presence of NAPL or impacts greater than perimeter borings, and thus did not meet criteria for hot-spot identification.
- Data sets from the river integrated with RI data do not conclusively identify a specific source for the contamination found in the southern wetland during the investigation. Both the river and the landfill are potential sources for the contamination. The river is the subject of ongoing remediation by USEPA under a

Great Lakes Legacy Act Project Agreement, although remedial construction activities on the portion of the river adjacent to the Site have not yet commenced.

- NAPL was detected in test pits near the river during the RI, but a detailed delineation task conducted in May 2017 indicated that the landfill is not the source, evidenced by lack of NAPL in test pits installed north of the original NAPL observations. The river is a source, based on evidence including historical flooding, and the similarity between chemical constituents found in a test pit NAPL sample and those documented in river sediments. The landfill, however, is also a potential source.
- Metals and several PAHs exceeded screening criteria in multiple samples in the northern pond. The lack of metals and PAHS in pond surface water, however, indicates a lack of partitioning to the water phase. Also, the northern pond occupies a topographic depression with no surface water inlets or outlets, limiting physical migration of pond sediment.
- A limited number of VOCs exceeded the screening criteria in soil vapor, but in only two soil vapor probes. Methane was also detected but does not have a screening criterion based on health impacts, and none of the detected results fell within the explosive range, which is defined as a concentration above the lower explosive limit and below the upper limit. There is minimal potential for VOCs or methane to migrate into adjacent buildings either to the west or east of the Site due to (1) the shallow depth to groundwater, (2) the anticipated southerly groundwater flow after exiting the property boundaries, and (3) distance to the buildings.
- The primary pathway for potential off-site impacts is limited to a small number of constituents detected in groundwater. Groundwater velocity is less than 3 ft/yr, which would limit off-site migration. BIOSCREEN solute transport model results indicated that based on conservative assumptions, benzene at or above the screening criteria (5 µg/L) does not approach any receptors, including the nearest buildings to the northeast, nor the Grand Calumet River to the south.
- For the HHRA, in accordance with the presumptive remedy guidance and assuming a Central Tendency Exposure scenario, there were no constituents or exposure pathways with a calculated risk greater than USEPA's upper bound target risk of 1E-04 or HQ greater than 1. The only receptor/pathway with a target risk greater than an Indiana point of departure of 1E-05 for carcinogenic risk is the hypothetical ingestion of PCBs in fish from the northern pond by a future trespasser. However, a sustainable game fish population in the pond is unlikely due to its nature as a closed system, generally anoxic conditions (based on low DO levels), and high pH.
- For the SLERA, most of the identified future hazards are associated with food chain transfers (>80%). However, for the northern pond, a sustainable fish population is unlikely because it is a closed system with generally anoxic conditions (based on low DO levels) and high pH and population level effects are unlikely due to the limited extent of the elevated detections.

- For both human health and ecological risks, the assumptions are conservative, such that resultant risks are correspondingly over-estimated and potential pathways are eliminated or minimized under the presumptive remedy.
- Further ecological risk evaluation may be necessary depending on the remedies being considered (or potential end-use) for the southern wetland and northern pond habitats. Maximum detections of PAHs, PCBs and metals in the sediment may pose a potential limited risk for multiple receptors inhabiting these areas.
- The results of the RI, integrated with historical information, support capping/containment as an appropriate remedy. In addition to reducing human health and ecological risks through elimination of multiple exposure pathways, the remedy would be expected to minimize infiltration and reduce the current hydraulic gradient, further reducing groundwater velocities and the potential for off-site migration of chemical constituents. Reducing infiltration would also reduce partitioning from soil to water in the vadose zone.

8.0 REFERENCES

AECOM, 2017. Groundwater Characterization Report, Continuing Obligation Agreement between IDEM, the State of Indiana, and the Gary/Chicago International Airport Authority. January 30, 2017.

Airgas, Inc., 2018. Safety Data Sheet for Methane. dated June 15, 2018. Accessed at www.airgas.com/msds/001033.pdf.

ATSDR, 2017. Toxic Substances Portal.

ATEC Associates, 1981. Geotechnical Investigation for Indiana Toll Road Improvement, Gary, Indiana, Lake County. June 24, 1981.

Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

Brown, S.B., Thompson, 2005. Geologic Map of Glacial and Post-Glacial Deposits, Northern Lake County, Indiana.

Calumet Ecotoxicology Roundtable, 2006. Statistical Analysis of Background Sediment Concentrations, Calumet Area. July 2006.

CARE, 2017. Citizens Advisory Committee for the Remediation of the Environment (CARE), 2017. 2017 Annual Grand Calumet River Area of Concern Seminar, October 26, 2017.

CDM Smith, 2014. Data Summary Report. Evaluating the Feasibility of placing dredged sediments from the East Branch of the Grand Calumet River in the Ralston Street Lagoon. August 2014.

CH2M Hill, 2013. Draft Final Analytical Data Summary, May 2012 Sediment Investigation of the Gary Airport Reach of the E. Branch of the Grand Calumet River, Gary, Indiana. February 2013.

Environmental Laboratory, 1987. Wetland Delineation Manual.

IEPA, 2007. Background Soil Concentrations for the Chicago Metropolitan Area. Appendix A, Table G (Tiered Approach to Corrective Action Objectives)

IISC, 2013. Indiana Invasive Species Council, Indiana Invasive Species List, 10/11/13.

IDEM, 2011. HRS Documentation Record, March 2011.

Palin, 2010. Affidavit for Bruce Palin, former Indiana State Board of Health inspector dated December 14, 2010.

Parsons, 2014. Historical Data Technical Memorandum. March.

Parsons, 2016. RI/FS Work Plan for the Gary Development Landfill Superfund Site, Gary, Indiana. January.

Parsons, 2017a. Liquid Waste Delineation Results, Gary Development Landfill Superfund Site, Gary, Indiana. June.

Parsons, 2017b. Risk Assessment Approach Memorandum, May 26, 2017, and Responses to USEPA Comments.

Piwoni, M., T. Chow, G. Bordson, J. Talbott, L. Wiededmann, M. Wilcoxon, and W. Bogner, 2006. Chicago Area Background Contaminants in Wetland Sediments and Surface Waters: Supporting the Calumet Wetlands Ecotoxicological Assessment. Illinois Waste Management and Research Center and Illinois State Water Survey. Draft. September.

Rosenshein, J.S., 1962. Geology of Pleistocene Deposits of Lake County, Indiana.

USACE, 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region (Version 2.0). January.

USEPA, 1989. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A).

USEPA, 1993. *Presumptive Remedy for CERCLA Municipal Landfill Sites*. EPA 540-F-93-035. September 1993.

USEPA, 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments “ERAGS”.

USEPA, 2018. Region 4 Ecological Risk Assessment Supplemental Guidance, March 2018 Update.

USGS, 2002. Surface-Water and Ground-Water Hydrology and Contaminant Detections in Ground Water for a Natural Resource Damage Assessment of the Indiana Harbor Canal and Nearshore Lake Michigan Watersheds, Northwestern Indiana, June 2002.

APPENDICES

(A through N, provided separately)