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PRE-DESIGN REPORT

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

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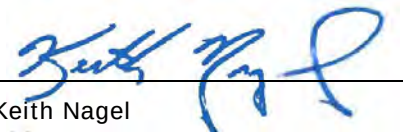
ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
ArcelorMittal	ArcelorMittal USA LLC (ArcelorMittal West)
bgs	below ground surface
BP	British Petroleum
cm	centimeter
cm/sec	centimeters per second
CMS	Corrective Measures Study
COC	chain-of-custody
COD	chemical oxygen demand
CSM	Conceptual Site Model
cSt	centistoke
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DQO	data quality objective
ENVIRON	ENVIRON International Corporation
ESL	Ecological Screening Level
g/day	gallons per day
g/kg	grams per kilogram
g/mL	grams per milliliter
GAC	granular activated carbon
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
HRSC	High Resolution Site Characterization
IDEM	Indiana Department of Environmental Management
ISCO	*in-situ* chemical oxidation
ISG-IH	ISG-Indiana Harbor
ITRC	Interstate Technology and Regulatory Council Guidance
IW	injection well
LCS/LCSD	laboratory control samples/laboratory control sample duplicates
LIF	laser-induced fluorescence
LNAPL	light non-aqueous phase liquid
MCL	maximum contaminant level
MDL	method detection limit
Method API RP40	Residual Saturation by Water Drive Test
µg/L	micrograms per liter
mg/kg	milligram per kilogram
mg/L	milligrams per liter
Microbac	Microbac Laboratories, Inc.
mL/min	milliliters per minute
MSL	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
MW	monitoring well
NAS	National Academy of Sciences
NAPL	non-aqueous phase liquid
ORP	oxygen-reduction potential

PAH	polycyclic aromatic hydrocarbon
PCE	tetrachloroethene
PID	photoionization detector
ppm	parts per million
PRG	Preliminary Remediation Goal
PTS	PTS Laboratories
PVC	polyvinyl chloride
PZ	piezometer
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
Ramboll	Ramboll US Corporation
Ramboll Environ	Ramboll Environ US Corporation
RBCs	Risk Based Concentrations
RCRA	Resource Conservation and Recovery Act
Resolution Partners	Resolution Partners, LLC
RISC	Risk Integrated System of Closure
RL	reporting limit
RPD	relative percent difference
SB	soil boring
SLERA	Screening Level Ecological Risk Assessment
SM	Standard Method
STS	STS Consultants, Ltd.
SVOC	semi-volatile organic compound
TarGOST®	Tar-specific Green Optical Screening Tool
Tecumseh	Tecumseh Redevelopment, Inc.
TOC	total organic carbon
TOD	total oxidant demand
UCL	upper confidence limit
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UV	ultra-violet
UVOST®	Ultra-Violet Optical Screening Tool
VOC	volatile organic compound
1,1,1-TCA	1,1,1-trichloroethane
1,1-DCA	1,1-dichloroethane
1,2-DCA	1,2-dichloroethane

CERTIFICATION

I certify that the information contained in or accompanying this submission is true, accurate, and complete (to the best of our knowledge).



December 21, 2018

Keith Nagel
VP, Environmental Affairs and Real Estate
Tecumseh Redevelopment

Date

EXECUTIVE SUMMARY

In 2003, the United States Environmental Protection Agency (USEPA) issued a Resource Conservation and Recovery Act (RCRA) 3013 Order requiring sampling, testing, and monitoring at 14 identified units and one Area of Concern (AOC) at what is now the West Mill of the ArcelorMittal USA LLC facility (ArcelorMittal). The West Mill, including the former Coke Plant property, is located at 3001 Dickey Road in East Chicago, Lake County, Indiana. The former Coke Plant property includes one of the 14 identified units (SWMU 65) and the AOC. The former Coke Plant property has been recently redeveloped and is currently leased to British Petroleum (BP) for use as a construction staging area.

Pursuant to the RCRA 3013 Order, an initial assessment of the West Mill was conducted in 2005 and 2006 and reported to the USEPA in four report volumes (soil, sediment, hydrogeologic conditions, and groundwater). Data presented in these four reports were used to prepare a Work Plan for further evaluation at the former Coke Plant property, the findings of which were documented in a July 2008 Supplemental Site Investigation Report prepared by STS Consultants, Ltd. (STS). The pertinent results from these initial investigations at the former Coke Plant property culminated in the preparation and execution of a Work Plan to further delineate the extent of impacted soil, groundwater, and less dense than water light non-aqueous phase liquid (LNAPL) in the vicinity of the former Coke Plant.

In January 2014, an Additional Site Investigation Report (Revision 0) for the former Coke Plant was prepared by ENVIRON International Corporation (ENVIRON)[1], and submitted to the USEPA. In a USEPA letter dated April 28, 2015, the USEPA indicated that the following additional activities need to be included in a Pre-Design Work Plan to address the following data gaps related to the former Coke Plant area:

- sampling and evaluation of the uppermost 2 feet, not just the uppermost 6 inches, of soil, particularly at areas with surface soil quality data objective (DQO) exceedances;
- sampling to confirm that soil between 2 to 8 feet below ground surface (bgs) at boring MW-824D does not contain DQO exceedances;
- advancement of a soil boring (SB) in the immediate vicinity of boring MW-826M, in an effort to delineate the vertical extent of polycyclic aromatic hydrocarbons (PAHs) contamination in this area; and
- steps to confirm and document that the aquitard is continuous across the site.

A Pre-Design Work Plan (Revision 0) was submitted to the USEPA on November 30, 2015. In a letter dated March 22, 2016, the USEPA provided comments to the November 2015 Pre-Design Work Plan. The USEPA subsequently provided approval of Revision 2 of the Pre-Design Work Plan in a letter dated September 9, 2016. This Pre-Design Report was prepared to present the results of the Pre-Design investigation work completed in 2017 and 2018 as proposed in the September 2016 Pre-Design Work Plan.

The Pre-Design investigation activities included further evaluation of previously-identified LNAPL in the vicinity of the former benzol storage area using Ultra-Violet Optical Screening Tool (UVOST®) technology. The UVOST® investigation findings are consistent with the presence of more weathered petroleum product in the southern and western portion of the investigation area, which may be indicative of older releases that have historically migrated from the upgradient former benzol storage area and are no longer mobile (based on the absence of measurable LNAPL in nearby monitoring wells

[1] Effective May 15, 2015, the legal name of ENVIRON International Corporation became Ramboll Environ US Corporation, which subsequently became Ramboll US Corporation, effective January 1, 2018.

(MWs). Based on the additional well installations, measurable LNAPL is only present in monitoring wells MW-820S and MW-821S, and only LNAPL sheens were observed on sampling equipment submerged in injection wells (IW) IW-2, IW-3, and IW-4. Based on the results of this additional investigation, the extent of LNAPL has been defined. The LNAPL is a source for benzene impacts detected in groundwater.

Soil impacts above DQOs in the vicinity of the LNAPL include benzene, arsenic, lead and PAH compounds. The results of the Pre-Design Investigation have defined the extent of these soil impacts above migration to groundwater and default closure Indiana Department of Environmental Management (IDEM) DQOs in the vicinity of the former benzol storage area. As such, no further soil investigation is required.

None of the soil samples obtained from 0 to 2 feet bgs contained detectable volatile organic compound (VOC), semi-volatile organic compound (SVOC), or metals concentrations above their respective direct contact DQOs. Only seven of the soil samples analyzed from 0 to 2 feet bgs detected PAH concentrations that were greater than direct contact DQOs; however, only benzo(a)pyrene was detected at concentrations greater than IDEM Screening Levels. An upper confidence limit (UCL) of 11.7 milligrams per kilogram (mg/kg) was calculated for benzo(a)pyrene based on all available direct contact surface soil data for 2012 and 2017. The site UCL is lower than the IDEM Direct Contact Screening Level of 21 mg/kg for benzo(a)pyrene, which indicates that direct contact risks are within acceptable levels.

Based on September 2017 groundwater quality data, the locations of DQO exceedances near the former benzol storage area are illustrated on Figures 10, 11, and 12. The primary contaminant of concern near the former benzol storage area is benzene. The northern, western, and southern extents of shallow and deep benzene-impacted groundwater have been defined. Although the extent of impacts to the east has not been fully defined, installation of additional monitoring wells further to the east is precluded by the presence of the railway corridor and numerous utilities located adjacent east of the former Coke Plant area.

An expanded Screening Level Ecological Risk Assessment (SLERA) for the former Coke Plant was submitted to the USEPA in November 2015. An addendum to the SLERA is provided herein (Appendix H), which applies the more recent groundwater quality data obtained as part of the Pre-Design Investigation. The 2017 groundwater sampling data confirm the previous conclusion that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.

A focused Human Health Risk Assessment (HHRA) for the former Coke Plant was submitted to the USEPA in November 2015. An addendum to the HHRA is provided herein (Appendix I), which applies the more recent groundwater quality data obtained as part of the Pre-Design Investigation. Consistent with the conclusions of the 2015 HHRA, these analyses indicated that consumption of 50 meals per year of fish that have bioaccumulated constituents from groundwater that has migrated to the Ship Canal would not represent an unacceptable human health risk.

LNAPL saturation was analyzed on soil cores where LNAPL has been measured on the water table in the vicinity of the former benzol storage area. The samples were subjected to petrophysical laboratory analysis as part of the Residual Saturation by Water Drive Test (Method API RP40). None of the samples revealed reductions in LNAPL saturation in response to the test, which indicates that the LNAPL is immobile as defined by the Interstate Technology and Regulatory Council Guidance (ITRC) (2009) under saturated conditions. These laboratory results indicate that physical recovery methods may not recover significant LNAPL from the subsurface.

Total oxidant demand (TOD) bench scale tests were conducted to obtain information necessary to evaluate the feasibility of *in-situ* chemical oxidation (ISCO) as a possible remedial technology to treat soil and groundwater impacted with LNAPL near the former benzol storage area. The TOD results are consistent with the conclusion that oxidizing pure phase contaminant can require a significant amount of oxidant to meet clean-up goals. If adequate contact and rapid non-aqueous phase liquid (NAPL) destruction is to be achieved, the NAPL will need to be desorbed off of the soil matrix or solubilized into the aqueous phase. Based on these bench-scale test results, ISCO will be retained for further evaluation as part of the Corrective Measures Study (CMS).

Based on information contained in ITRC guidance, applicable remedial technologies for the identified LNAPL at the former Coke Plant include surfactant-enhanced recovery (including co-solvent supplement if needed). A surfactant-enhanced LNAPL recovery pilot test was therefore conducted in October 2017 to evaluate the feasibility of this remedial technology. After completion of the October 2017 surfactant-enhanced recovery test, groundwater monitoring of monitoring well MW-820S was conducted on a monthly basis from November 2017 to May 2018. Based on the results of the surfactant-enhanced recovery test, further evaluation of surfactant enhanced LNAPL recovery as a possible full-scale remedial alternative will be conducted as part of the CMS.

The Pre-Design investigative information documented in this Pre-Design Report has defined the magnitude and extent of impacts and is therefore sufficient to complete a CMS for the site. The purpose of the CMS will be to identify, evaluate, and recommend corrective measures to remove LNAPL identified at the site. Several applicable LNAPL remedial technologies have been preliminarily evaluated. Although the scope of the RCRA 3013 Order is limited to monitoring, testing, analysis, and reporting, completion of a CMS Report is recommended.

1. INTRODUCTION

The former Coke Plant property (the “site”) is owned by Tecumseh Redevelopment, Inc. (Tecumseh). The site is within the West Mill property of the ArcelorMittal facility located at 3001 Dickey Road in East Chicago, Lake County, Indiana. The West Mill location can be further described as being situated in Township 37 North, Range 9 West, Section 16. The former Coke Plant property was historically associated with the larger steel making complex. It has been recently redeveloped and is currently leased to BP for use as a construction staging area. The location of the former Coke Plant property is shown on Figure 1.

On October 23, 2003, the USEPA issued a RCRA Section 3013 Administrative Order (USEPA Docket No. R 3013-5-03-002) to ISG-Indiana Harbor (ISG-IH) and Tecumseh. The Administrative Order required both parties to prepare a proposal for monitoring, testing, analysis, and reporting to ascertain the nature and extent of hazards posed by hazardous wastes that are present or may have been released at 14 identified units and one AOC at the West Mill property. ISG-IH and Tecumseh do not have information that indicates that hazardous wastes regulated by the USEPA or the IDEM are present or have been released at any of the 14 units or the one AOC identified in the Administrative Order.

Proposed monitoring, testing, analysis, and reporting activities for the West Mill property were contained in four Work Plans and a Quality Assurance Project Plan (QAPP), as follows:

- Soil Sampling and Analysis Work Plan, Volume 1 of 5, (Revision 2);
- Sediment Sampling and Analysis Work Plan, Volume 2 of 5, (Revision 2);
- Hydrogeologic Conditions Work Plan, Volume 3 of 5 (Revision 2);

- Groundwater Sampling and Analysis Work Plan, Volume 4 of 5, (Revision 2); and
- Quality Assurance Project Plan, Volume 5 of 5, (Revision 2).

These plans were prepared and subsequently approved by the USEPA on May 12, 2005. Field implementation of the work plans began shortly after USEPA approval. Soil boring advancement and the installation of groundwater monitoring wells occurred between March 14 and May 6, 2005. A second phase of monitoring well installations was completed in November 2005, followed by groundwater monitoring of these wells and select previously installed wells in May 2006. The results of the investigative activities conducted under the approved Work Plans for the West Mill property were presented in the following four reports:

- Soil Sampling and Analysis Report, Volume 1 (Revision 1), dated November 2008;
- Sediment Sampling and Analysis Report, Volume 2 (Revision 1), dated November 2008;
- Hydrogeologic Conditions Report, Volume 3 (Revision 1), dated November 2008; and
- Groundwater Sampling and Analysis Report, Volume 4 (Revision 1), dated November 2008.

Subsequent to completion of these reports, additional monitoring wells were installed, and data was collected in 2007 and 2008 at the former Coke Plant property in conjunction with a Supplemental Site Investigation. The results of the Supplemental Site Investigation were provided in a Supplemental Site Investigation Report (Revision 0), dated July 2008 and prepared by STS/AECOM. The results of the previous site investigations conducted from 2005 to 2008 at the former Coke Plant are summarized in Section 2. Based on these investigation results, additional investigation was recommended to further evaluate the magnitude and extent of previously identified soil, groundwater, and LNAPL impacts.

The additional investigations were conducted in 2012 and 2013 to further evaluate soil, groundwater, and LNAPL impacts at the former Coke Plant. This additional investigative work scope was presented in the USEPA-approved Additional Investigation/Source Evaluation Work Plan (Revision 1) dated March 2011, prepared by AECOM. In January 2014, an Additional Site Investigation Report (Revision 0) for the former Coke Plant was prepared by ENVIRON and submitted to the USEPA. The USEPA provided comments to the January 2014 Additional Site Investigation Report in a letter dated February 21, 2014 (the “February 2014 USEPA letter”). ArcelorMittal provided responses to USEPA’s February 2014 comments in a letter dated July 14, 2014. In a USEPA letter dated April 28, 2015 (the “April 2015 USEPA letter”), the USEPA provided comments to the July 2014 ArcelorMittal letter and indicated that the following additional activities need to be included in a Pre-Design Work Plan to address data gaps related to the former Coke Plant area:

- sampling and evaluation of the uppermost 2 feet, not just the uppermost 6 inches, of soil, particularly at areas with surface soil DQO exceedances;
- sampling to confirm that soil between 2 to 8 feet bgs at boring MW-824D does not contain DQO exceedances;
- advancement of a soil boring in the immediate vicinity of boring MW-826M, in an effort to delineate the vertical extent of PAH contamination in this area; and
- steps to confirm and document that the aquitard is continuous across the site.

In addition, the USEPA indicated that concerns regarding the proposed 5-step process for evaluating risks to aquatic organisms and human health in the Indiana Harbor Ship Canal will need to be addressed in order for the USEPA to approve the Additional Site Investigation Report. The April 2015

USEPA letter further requested that a revised Additional Site Investigation Report, which addresses the April 2015 USEPA comments, and a Pre-Design Work Plan, be submitted to the USEPA.

In a letter dated August 7, 2015, ArcelorMittal provided final responses to the April 2015 USEPA letter. In an e-mail communication dated August 28, 2015, the USEPA indicated that it was in general agreement with the August 7, 2015 ArcelorMittal response letter and requested that: 1) the revised Additional Site Investigation Report be submitted to the USEPA within 30 days, and 2) the Pre-Design Work Plan be submitted to the USEPA within 90 days. The revised Additional Site Investigation Report was submitted to the USEPA on September 25, 2015, and the Pre-Design Work Plan was submitted to the USEPA on November 30, 2015. In an e-mail communication dated October 30, 2015, the USEPA provided responses to the revised Additional Site Investigation Report dated September 25, 2015. In a correspondence dated January 8, 2016, ArcelorMittal provided responses to the October 30, 2015 USEPA e-mail communication. In an e-mail communication dated February 16, 2016, the USEPA provided comments to the January 8, 2016 ArcelorMittal correspondence. In a letter dated June 16, 2016, Tecumseh submitted a response to the February 16, 2016 USEPA comments, along with Revision 3 of the Additional Site Investigation Report.

In a letter dated March 22, 2016, the USEPA provided comments to the November 30, 2015 Pre-Design Work Plan. A Tecumseh letter dated May 20, 2016, was prepared to provide responses to the March 22, 2016 USEPA correspondence, along with an amended Pre-Design Work Plan (Revision 1). USEPA's comments to Revision 1 of the Pre-Design Work Plan were provided in a letter dated August 8, 2016. In response, Revision 2 of the Pre-Design Work Plan was submitted to the USEPA on September 7, 2016. The USEPA subsequently provided approval of Revision 2 of the Pre-Design Work Plan in a letter dated September 9, 2016. The purpose of this report is to present the results of the Pre-Design investigation work completed in 2017 and 2018 as proposed in the September 2016 Pre-Design Work Plan.

2. BACKGROUND

The West Mill property is located at 3001 Dickey Road in East Chicago, Lake County, Indiana. The property covers approximately 1,200 acres along the southern shore of Lake Michigan and the Indiana Harbor Ship Canal. The West Mill operations have been producing steel since the 1910s, with the earliest operations occupying the mainland areas of the property. The former Coke Plant property was historically associated with the larger steel making complex. It has been recently redeveloped and is currently leased to BP for use as a construction staging area.

The steel making complex originally commenced operations around 1912 as the Mark Steel Company. It was later operated by Youngstown Sheet and Tube Company (Youngstown, Pennsylvania), Jones and Laughlin Steel Corporation (Pittsburgh, Pennsylvania), and LTV Steel (Cleveland, Ohio). In April 2002, International Steel Group, Inc. was formed and acquired the majority of the former LTV Indiana Harbor Works facility. The remaining portions of the former LTV Indiana Harbor Works facility were acquired by Tecumseh. The ISG and Tecumseh properties were subsequently acquired by Mittal Steel USA and ultimately ArcelorMittal.

2.1 Prior Manufacturing Operations

The location of the former Coke Plant property is inland from the peninsula, along the Indiana Harbor Ship Canal just south of the main east-west railroad corridor (Figure 1). The Coke Plant, which encompassed approximately 50 acres, was developed in the early 1920s with two coke ovens and an ancillary byproduct recovery system. Two additional coke ovens were constructed during the 1960s, and one of the original two coke ovens was razed at that time. The Coke Plant operations ceased in

April 1982 and the aboveground portions of the former Coke Plant buildings and structures were demolished in the early 1990s. The coal bin within the western portion of the Coke Plant property was subsequently filled with slag to produce a level surface. Process sewers and underground piping were also capped and/or decommissioned as part of the demolition process. Some utilities serving other steel production facilities are still present and active to the south of the former Coke Plant.

Production of coke from coal produced byproducts that were reclaimed and used in other steel production facilities or sold for commercial value. These byproducts included benzol (light oil), ammonium salts, phenol, and naphthalene. Tar was also recovered and stored in holding tanks until it was sold or used for fuel. Coke oven gas was recycled to the coke ovens and to other steel mill facilities for use in reheat furnaces. Approximately 40% of the coke gas was returned to the coke ovens and used for heat production.

Scaled facility drawings depicting the former layout of the former Coke Plant were not available, but a former site layout depicting key site operations was located in archive and is reproduced on Figure 2. The locations of soil borings and monitoring wells installed to date are also shown on Figure 2.

As indicated on Figure 2, the soil borings/monitoring wells have been installed in areas where historical operations occurred that included storage of the byproducts produced by the former Coke Plant. In some areas of the site, the placement of soil borings/monitoring wells has been precluded by the presence of underground utilities that are currently active or buried foundations that prevented advancement of the drill bit. Utility drawings are not available for inclusion on Figure 2 because the site is no longer an active coking facility. The former facility utility drawings consist of multiple drawings of varying ages and scales, and the drawings have not been updated. The facility engineer clears new soil boring and monitoring well locations using these multiple drawings and personal knowledge.

It should be noted that Figure 2 was created by overlaying an historic layout drawing over the existing site plan. The existing site plan was created from aerial photography combined with ground survey control. The historic plan, while a scaled drawing, did not align exactly over the existing site plan; therefore, the exact location of the former key site features cannot be scaled to provide exact coordinates to be used in the field for locating wells. Because manufacturing has not been conducted since 1982 at the site, small, point source areas are unlikely to exist. The results of investigations conducted to date support this assumption. However, to facilitate review of selected boring and well locations, specific areas have been annotated on Figure 2.

Sampling and Analysis Prior to the RCRA 3013 Order

On July 11 and 12, 2000, Techlaw Inc., a USEPA contractor, collected groundwater samples from the former Coke Plant. The groundwater samples were collected by a direct-push drilling rig that was used to penetrate the water table, which occurred at a depth of approximately 6 feet bgs. Dedicated tubing was used at each sampling location to reduce the possibility of cross-contamination. Between each sampling location, the well screen was decontaminated with an Alconox® solution and distilled water rinse. Samples were collected through the dedicated tubing without filtering. Although turbidity was not measured, the unfiltered grab samples from the temporary well-points likely had high levels of turbidity. Visual observations made by Arthur D. Little personnel (August 2000) indicated that a groundwater sample from location GW-2 was particularly sediment-laden.

Laboratory analysis of split groundwater samples indicated the presence of barium, cadmium, chromium, lead, silver, acenaphthene, and naphthalene at some locations. However, the presence of these constituents does not necessarily indicate a release. Cadmium (329 micrograms per liter [µg/L]) was reported in the field blank, which was obtained after collection of sample GW-3; no SVOCs

were detected in the blank. The USEPA indicated in the RCRA Section 3013 Order that analytical results of groundwater samples analyzed by the USEPA from the area indicated the presence of phenol, naphthalene, pyrene, fluorene, and several other organic compounds.

A review of the analytical data from the Arthur D. Little groundwater sample splits indicated that only concentrations of two constituents exceeded the USEPA Region 9 Preliminary Remediation Goals (PRGs) (cadmium at wells GW No. 1, GW No. 4, and GW No. 6, and naphthalene at wells GW No. 2 and GW No. 6). A copy of the Arthur D. Little report was included as an appendix to the initial Groundwater Sampling and Analysis Work Plan, Volume 4 of 5 (STS, 2004).

2.2 RCRA 3013 Investigation Results

Sampling and analysis conducted for compliance with the RCRA 3013 Order has been conducted in a series of phased investigations. The results of the laboratory analytical testing conducted are summarized in Sections 2.2.1 and 2.2.2. The investigation phases and the well location rationale were as follows:

May 2005: Five water table monitoring wells (MW-801S through MW-805S) and three deep monitoring wells (MW-801D, MW-803D, and MW-805D) were installed by STS to confirm the constituents detected during USEPA RCRA assessment activities. MW-801S and MW-801D were installed near the former location of aboveground storage tanks that held tar for recycling (USEPA sample locations GW-1 and GW-2). MW-802S and MW-804S were installed north and south (respectively) of the USEPA sample locations GW-4 and GW-5. MW-803S and MW-803D were placed to the east of USEPA sample location GW-6. MW-805S and MW-805D were installed in the vicinity of USEPA sample location GW-3.

Soil samples were collected from the near surface (0 to 2 feet bgs) and from the 2-foot interval above the water table (2 to 4 feet bgs or 3 to 5 feet bgs). Additionally, a soil sample was collected from the bottom 2-foot interval of the Calumet sand from the three deep monitoring well boring locations (MW-801D, MW-803D, and MW-805D). Soil samples were analyzed for VOCs, SVOCs, PAHs, 19 metals, cyanide, sulfide, total organic carbon (TOC), and phenol.

July 2005: Groundwater samples were collected from the eight wells and analyzed for VOCs, SVOCs, PAHs, 19 metals, cyanide, sulfide, TOC, phenol alkalinity, chloride, ammonia, and chemical oxygen demand (COD).

November 2005: Three water table (MW-806S, MW-807S, and MW-808S) and three deep (MW-806D, MW-807D, and MW-808D) monitoring wells were installed to further define the extent of benzene-impacted groundwater detected at monitoring wells MW-803S and MW-803D.

January 2006: Groundwater samples were collected from the 14 monitoring wells and analyzed for all or a subset of the parameters tested for in July 2005.

June 2007: Ten water table monitoring wells (MW-809S through MW-818S) and five deep monitoring wells (MW-809D, MW-810D, MW-815D, MW-816D, and MW-817D) were installed to further evaluate the magnitude and extent of impacted groundwater.

Monitoring wells MW-811S, MW-812S, and MW-814S were installed in the former coal bin south of the concrete wall that formed the northern boundary of the coal storage area. MW-813S was installed near the north side of the concrete wall to evaluate groundwater quality within the former coal bin that may be less impacted than groundwater within the northern portion of the property where the

operational units were formerly located. Two piezometers (PZs) (PZ-890 and PZ-891) were installed to evaluate groundwater levels north and south of the concrete wall that separated the former coal bin from the production area to evaluate whether the concrete wall forms a barrier to groundwater flow.

Monitoring wells MW-809S, MW-809D, MW-810S, MW-810D, MW-817S, and MW-818S were installed adjacent to the canal wall to evaluate downgradient perimeter groundwater quality.

Monitoring wells MW-815S, MW-815D, MW-816S, and MW-816D were installed to define the western extent of the impacts observed in MW-803, MW-807, and MW-808.

July 2007: Groundwater samples were collected from the 18 water table wells and 11 deep wells. Groundwater samples from newly installed monitoring wells were analyzed for the full list of parameters (VOCs, SVOCs, PAHs, metals, and general chemistry anions and cations) and existing monitoring wells were analyzed for analytical parameters detected in prior rounds of sampling.

June 2008: Three water table monitoring wells (MW-819S through MW-821S) and two deep monitoring wells (MW-819D and MW-821D) were installed to evaluate groundwater quality within the former benzol storage area. One 6-inch diameter well for use as an extraction well as part of a proposed aquifer pumping test and three piezometers (PZ-894, PZ-895, and PZ-896) were installed north of MW-809 to evaluate aquifer characteristics to aid in the evaluation of potential remedial actions. The associated boring logs and monitoring well construction forms for the June 2008 investigations were provided in the March 2011 Additional Investigation/Source Evaluation Work Plan (Revision 1).

Soil samples were collected from the 2-foot interval above the water table (2 to 4 feet bgs) in the three water table well borings (MW-819S, MW-820S, and MW-821S). In addition, a soil sample was collected from the bottom 2-foot interval of the Calumet sand from the two deep monitoring wells (MW-819D and MW-821D). These soil samples were analyzed for VOCs, SVOCs, PAHs, 19 metals, cyanide, sulfide, TOC, and phenol.

July 2008: Groundwater samples were collected from 21 water table wells and 13 deep wells. The groundwater samples from the newly installed monitoring wells were analyzed for the full list of parameters and existing monitoring wells were analyzed for analytical parameters detected during prior sampling events.

2.2.1 Pre-2017 Soil Sample Results

A discussion of the laboratory results and conclusions regarding soil samples obtained prior to 2009 are provided below.

Soil Samples 2005-2007

Four VOCs including benzene, ethylbenzene, toluene, and 1,1,1-trichloroethane (1,1,1-TCA) were detected in soil samples collected in 2005/2006. The detected VOC concentrations did not exceed DQOs. Methylene chloride was detected in one or more soil samples. The detected methylene chloride concentrations were below the reporting limit (RL), were likely a laboratory artifact and did not exceed DQOs. Tetrachloroethene (PCE) was detected in one soil sample below the RL in a sample that demonstrated a high bias on the analytical laboratory matrix spike/matrix spike duplicate

(MS/MSD) evaluation. The PCE concentration did not exceed DQOs and the single detection is considered a laboratory artifact.

The following three SVOCs were detected in the soil samples: 2,4-dimethylphenol, bis(2-ethylhexyl) phthalate, and phenol. The detected SVOC concentrations did not exceed DQOs.

Nine different PAH analytes were detected in slag-fill at the former Coke Plant above DQOs. Three PAHs (benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene) exceeded the IDEM default closure DQO and industrial/commercial direct contact DQO in surface slag-fill samples. One location (benzo(a)pyrene) exceeded the construction worker DQO. Since these samples were collected, the site has been redeveloped for industrial use and geotextile fabric and 2 to 6 feet of clean, compacted granular fill has been placed at the site to provide a level and stable surface for material storage. Thus, the direct contact DQOs exceedances are no longer applicable to these samples because the associated sample depths are no longer within the direct contact zone (i.e., from ground surface to a depth of 2 feet). The remaining PAHs that were detected above DQOs exceeded the migration to groundwater DQO. With one exception, these PAHs were not detected in the groundwater. The exception, phenanthrene, was detected in groundwater, but well below applicable groundwater DQOs.

Three metals were detected in slag-fill samples from the former Coke Plant. Two of the metals (hexavalent chromium in two samples and lead in one sample) concentrations exceeded migration to groundwater DQOs but were not detected in the groundwater. The two detected hexavalent chromium concentrations represent a suspected laboratory artifact. Interferences in the analytical method by carbonate, chloride, organic matter, and common metals such as aluminum and iron have been shown to overestimate the hexavalent chromium concentration in soil samples. The slag-fill material contains both carbonate and relatively high carbon concentrations; it is therefore likely to be associated with over-estimation of the hexavalent chromium concentration. Hexavalent chromium was not detected in the groundwater sample from the well at the location of the hexavalent chromium DQO exceedances. Arsenic was detected slightly above the IDEM default closure criteria DQO for one soil sample (22 mg/kg versus DQO of 20 mg/kg), but the average arsenic concentration for the Coke Plant slag-fill samples is well below the DQO.

Soil samples were not collected during the 2007 groundwater monitoring well installations because no staining, odors or elevated photoionization detector (PID) readings were noted in the soils in the unsaturated zone. Elevated PID readings were noted at some of the groundwater monitoring well locations, but because the wells were located within areas of documented impacted groundwater, the elevated PID readings are likely attributable to the groundwater impacts.

Soil Samples 2008

Three VOCs including benzene, ethylbenzene, and toluene were detected in soil samples obtained in 2008. The detected benzene concentrations in the deep soil samples from the deep well borings exceeded the direct contact and migration to groundwater DQOs. However, these were saturated soil samples collected from a location of impacted groundwater. The detected concentrations in the soil samples were less than the concentrations detected in the groundwater. It is likely that the detected soil concentrations are attributable to the impacted groundwater. The detected concentrations of ethylbenzene and toluene did not exceed DQOs. Chlorobenzene and methylene chloride were also detected in one or more soil samples. These concentrations were below RLs and likely represent laboratory artifacts. The detected concentrations of these two analytes did not exceed DQOs.

The following three SVOCs were detected in the soil samples: 1,2-dichlorobenzene (1,2-DCA), bis(2-ethyl-hexyl)phthalate, and nitrobenzene. Each of these detected concentrations was below RLs,

but above the analytical method detection limit (MDL). The detected concentrations did not exceed DQOs.

PAHs were detected in all soil samples except for the sample from the piezometer MW-896. Only one PAH (dibenz(a,h)anthracene) exceeded the direct contact and default closure DQOs. Metals were detected in the soil samples. None of the detected metals concentrations exceeded DQOs.

Soil Samples 2012-2013

A total of 13 soil borings and 12 monitoring wells were installed in August 2012 as part of the Additional Site Investigation. Slag-fill/soil samples were obtained from these soil borings and monitoring well borings for varied laboratory analyses to evaluate constituent concentrations. Concentrations of VOCs greater than IDEM Default Closure DQOs in the slag-fill/soil samples were only associated with toluene (soil sample from boring SB-876, 9 to 10 feet bgs), and for benzene, as follows: MW-809M (8 to 9 feet), MW-823D (40 to 41 feet), MW-824D (38.5 to 39.5 feet), SB-875 (6.5 to 7.5 feet), SB-876 (6 to 7 and 9 to 10 feet), SB-880 (1 to 2, 5 to 6, and 7 to 8 feet), and SB-881 (7 to 8 feet).

The following slag-fill/soil samples contained PAH concentrations greater than IDEM Default Closure DQOs: MW-803M (1 to 2 feet bgs), MW-822D (1 to 2 and 4 to 5 feet), MW-823D (1 to 2 feet), MW-825S (1 to 2 feet), MW-826M (1 to 2 feet), SB-880 (1 to 2 and 5 to 6 feet), and SB-881 (1 to 2 feet).

The following slag-fill/soil samples contained arsenic concentrations greater than the IDEM Default Closure DQO: MW-824D (1 to 2 feet bgs), MW-827S (10 to 11 feet), SB-872 (1 to 2 feet), SB-875 (6.5 to 7.5 feet), SB-877 (1 to 2 feet), SB-878 (8 to 9 feet), SB-879 (1 to 2 feet), SB-882 (1 to 2 feet), and SB-883 (4.5 to 5.5 feet). The detected arsenic concentrations in these slag-fill/soil samples ranged from 6.1 to 9.8 mg/kg.

With respect to analysis of slag-fill/soil samples for total cyanides, only one sample contained cyanides at a concentration that slightly exceeded the IDEM Default Closure DQO of 9.6 mg/kg for total cyanides (this IDEM Default Closure DQO for total cyanides is based upon the IDEM Migration to Groundwater DQO). Total cyanides were detected in slag-fill sample SB-881 (1 to 2 feet bgs), at a concentration of 11 mg/kg.

Conclusions

The results of site investigations and slag-fill/soil sampling Pre-2017 further defined the extent of slag-fill/soil impacts above IDEM DQOs in the vicinity of the LNAPL plume. These soil impacts include benzene and PAH compounds. The soil impacts do not extend off site. Up to 6 feet of clean granular fill materials and a geotextile material were placed over the site in 2009. This redevelopment activity has eliminated the direct contact exposure pathway, as previously-identified impacted slag/soil is no longer present within the typical contact zone (i.e., within the uppermost 2 feet of soil/fill at grade) where the clean granular fill materials are present.

2.2.2 Pre-2017 Groundwater Sample Results

Each monitoring well was sampled on one occasion in 2008 for the full suite of analytes (VOCs, SVOCs, PAHs, metals, and general chemistry anions and cations). Subsequent sampling events conducted on existing wells included analysis for a subset of analytes including VOCs, two SVOCs (2,4-dimethylphenol and phenol), arsenic, antimony, calcium, iron, magnesium, manganese, potassium, sodium, chloride, alkalinity, ammonia, hardness, and sulfate. The reported results were compared to DQOs that were derived from the Indiana Risk-Integrated System of Closure, specifically

the Federal/IDEM maximum contaminant level (MCL), the IDEM Risk Integrated System of Closure (RISC) Industrial criteria and the IDEM default closure criteria.

Detected VOCs included 1,2-DCA, benzene, bromomethane, chlorobenzene, chloromethane, ethylbenzene, and toluene. Three of these VOCs (bromomethane, chlorobenzene, and chloromethane) were detected at concentrations generally near the MDL and in all cases did not exceed any DQO. 1,2-DCA was detected on one occasion at MW-803D and MW-807D above DQOs but was not detected based on data from subsequent sampling events. Thus, the primary VOCs of concern at the site were preliminarily identified as benzene, ethylbenzene, and toluene. Of these three VOCs, only benzene had exceeded the DQOs.

Benzene concentrations above DQOs in groundwater samples obtained in 2008 from the water table monitoring wells ranged from 0.01 milligrams per liter (mg/L) to 65 mg/L. The detected concentrations above DQOs in groundwater analyzed from the deep monitoring wells ranged from 0.035 to 180 mg/L.

Five SVOCs (bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, 4-dimethylphenol and phenol) were detected in the groundwater samples. The three phthalates were detected below the RL and in some cases were also detected in the method blank. The other two SVOCs (2,4-dimethylphenol and phenol) were detected in groundwater samples from multiple monitoring wells. The concentrations of 2,4-dimethylphenol exceeded DQOs in three wells (MW-807D, MW-808D, and MW-808S). The concentrations of phenol exceeded DQOs in four wells (MW-807D, MW-808S, MW-808D, and MW-809D).

PAHs were detected in a number of monitoring wells; however, the detected PAH concentrations were generally less than DQOs. The single exception was two detections of naphthalene that exceeded DQOs in two separate groundwater sampling events in two different wells. Naphthalene was detected in 2006 at 2.2 mg/L in MW-808S, which is slightly above the DQO of 2 mg/L; this sample was qualified as biased high due to matrix effect. The second DQO exceedance of naphthalene occurred in MW-818S in 2007; however, the naphthalene concentration in the subsequent (2008) groundwater sample did not reveal a DQO exceedance. Naphthalene was detected just slightly above the MDL in the 2008 groundwater sample and was qualified as it was also detected in the method blank.

The following 24 metals were analyzed in the initial groundwater sample collected from each monitoring well: antimony, arsenic, beryllium, boron, cadmium, calcium, chromium, hexavalent chromium, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, tin, vanadium, and zinc. Two metals (beryllium and hexavalent chromium) were not detected in any of these groundwater samples. Of the remaining 22 metals, only two metals (antimony and arsenic) exceeded DQOs at any location. Antimony exceeded the MCL DQO at three monitoring well locations (MW-803S, MW-803D, and MW-804S) for only the initial sampling event for each well in 2005 or 2006. Subsequent analyses (2007 and 2008) did not indicate antimony concentrations greater than DQOs in these monitoring wells.

Arsenic was detected in all monitoring wells and exceeds the DQOs at a number of locations. Arsenic is ubiquitous in the Calumet aquifer in northwestern Indiana. In general, lower arsenic concentrations have been detected in the water table wells, in particular the water table wells within the western portion of the former Coke Plant. In 2008, detected arsenic concentrations in the water table wells ranged from 0.00038 to 0.057 mg/L, and in the deep wells ranged from 0.0027 to 0.31 mg/L. Two of 29 groundwater samples (not including Quality Control [QC] samples) were below the industrial DQO for arsenic. Higher concentrations of arsenic have been detected within the eastern portion of the site.

Elevated ammonia and chloride concentrations, associated with former secondary recovery processes on the site, were identified in the groundwater samples from the deep monitoring wells. Detected ammonia concentrations in 2008 from the water table wells ranged from 0.5 to 15 mg/L and in the deep wells ranged from 14 to 1,400 mg/L. There are no DQOs established for ammonia. Detected chloride concentrations in 2008 from the water table wells ranged from 2.5 to 65 mg/L and in the deep wells ranged from 30 to 1,600 mg/L. There are no DQOs established for chloride. The ammonia and chloride impacts are primarily contained within the eastern portion of the former Coke Plant near former operations. The wells installed in 2007 defined the extent of ammonia and chloride impacts to the north and south and an on-site sheet pile wall forms a boundary within the eastern portion of the former Coke Plant.

LNAPL was detected in two water table monitoring wells installed in 2008 (MW-820S and MW-821S), within the former benzol storage area. In monitoring well MW-820S, LNAPL was detected 2 months after well installation and development and was approximately 2.5 inches in measured thickness. LNAPL was detected upon well installation in MW-821S and initially fluctuated from 1.5 to 2 inches in measured thickness.

In August 2012, 12 new monitoring wells were installed as part of the Additional Site Investigation. The combined 46 monitoring wells include 27 shallow wells, 3 intermediate wells, and 16 deep wells. In October/November 2012 and July 2013, groundwater samples were collected from the 12 new monitoring wells and 34 existing monitoring wells.

Benzene, toluene, and methylene chloride were the only VOCs detected at concentrations that exceeded the IDEM Default Closure DQOs. Benzene concentrations in excess of the DQO (0.052 mg/L) were detected in groundwater samples obtained from the following monitoring wells: MW-802S, MW-803D, MW-803M, MW-803S, MW-805S, MW-806D, MW-807D, MW-808D, MW-808S, MW-809D, MW-809M, MW-816D, MW-817D, MW-817S, MW-819D, MW-819S, MW-820S, MW-821D, MW-821S, MW-823D, MW-823S, MW-824D, and MW-824S. Toluene was detected in excess of the DQO (8.2 mg/L) in a groundwater sample obtained from monitoring well MW-819S. Methylene chloride was detected at concentrations in excess of the DQO (0.38 mg/L) at samples obtained from monitoring wells MW-808D, MW-809D, and MW-820S.

With respect to SVOCs, only phenol and 2,4-dimethylbenzene were repeatedly detected at concentrations that exceeded the IDEM Default Closure DQOs of 31 mg/L and 2 mg/L, respectively. The phenol DQO was exceeded at monitoring wells MW-807D and MW-808D, and the 2,4-dimethylbenzene DQO was exceeded at monitoring wells MW-808S, MW-808D, and MW-809D.

With regard to PAHs, benzo(a)pyrene was detected in the October/November 2012 and July 2013 groundwater samples from MW-817S and the July 2013 sample from MW-820S at concentrations that exceed the IDEM Default Closure DQO of 0.00039 mg/L. The detected naphthalene concentrations in the October/November 2012 and July 2013 groundwater samples from MW-820S exceeded the IDEM Default Closure DQO of 2 mg/L.

Of the metals analyzed, only total arsenic was detected at concentrations that exceed its IDEM Default Closure DQO (0.01 mg/L). These detected arsenic concentrations ranged from 0.011 to 0.20 mg/L, and occurred in the October/November 2012 and/or July 2013 samples collected from the following wells: MW-801S, MW-803D, MW-804S, MW-805S, MW-805D, MW-806S, MW-806D, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-812S, MW-815S, MW-816S, MW-816D, MW-817D, MW-818S, MW-820S, MW-821D, MW-822D, MW-823D, and MW-826S.

Higher arsenic concentrations were detected in the deep wells, based on higher arithmetic mean arsenic concentrations in groundwater samples obtained from the deep wells. The higher arsenic concentrations detected in the deep well samples, relative to the shallow wells, are attributed to more reducing conditions associated with the depth of these wells and their proximity to historic Lake Michigan bottom sediments (as the relic shoreline approximately coincides with the railway adjacent to the north of the former Coke Plant). Arsenic, like other oxidation-reduction sensitive metals, tends to accumulate at higher concentrations under reducing conditions. More importantly, the arsenic concentrations detected in the deep well samples are concluded to be related to background arsenic concentrations in the unconsolidated surface sediments of Lake Michigan, not the LNAPL or the former Coke Plant.

It is important to note that, within the former Coke Plant site, aquatic organisms are not directly exposed to groundwater. Exposure to aquatic organisms only occurs as groundwater discharges to the Indiana Harbor Ship Canal. The former Coke Plant monitoring wells are located a distance away from the Indiana Harbor Ship Canal shoreline upgradient of the sheet pile wall breach. Groundwater impacted with constituent concentrations greater than applicable groundwater standards will undergo dilution, dispersion, and attenuation prior to arrival at the groundwater/surface water boundary at the Indiana Harbor Ship Canal. Substantial additional dilution occurs at the groundwater/surface water boundary.

Conclusions

The results of subsurface investigations and groundwater sampling conducted prior to 2017 at the former Coke Plant indicated the following:

- The water table within the former Coke Plant area is generally encountered at depths of 6 to 15 feet below grade (approximate elevation of 578.8 to 588.2 feet relative to mean sea level [MSL]). Groundwater flow (both shallow and deep) is toward the southeast. A clay layer below the shallow aquifer represents an aquitard and defines the vertical extent of impacted groundwater.
- The groundwater elevation data near the sheet pile barrier are approximately 3 to 4 feet greater than in the shoreline area of the sheet pile barrier breach. The observed groundwater mounding near the sheet pile barrier relative to groundwater levels near the breach leads to the conclusion that groundwater is discharging to the Canal through breaches in the sheet pile wall, rather than to bottom sediments in the Indiana Harbor Ship Canal.
- LNAPL has been identified in two water table wells (MW-820S and MW-821S) in the vicinity of the former benzol storage area but does not extend offsite and has not been detected in groundwater samples obtained from monitoring wells located hydraulically downgradient of monitoring wells MW-820S and MW-821S. The LNAPL consists of a heavier fuel oil comprised of petroleum VOC, PAH, and SVOC constituents. The LNAPL is a source of contamination, and further investigation is necessary in this area to define the extent of the LNAPL.

Based on laboratory results of groundwater samples collected from the on-site monitoring wells, chemicals of potential concern in groundwater include benzene, toluene, methylene chloride, phenol, 2,4-dimethylphenol, benzo(a) pyrene, naphthalene and arsenic. Higher arsenic concentrations were detected in deep on-site monitoring wells and are attributed to more reducing conditions associated with the depth of these wells and their proximity to historic Lake Michigan bottom sediments. Ammonia and chloride ions are the residual products from the production of coke, and their presence will be considered as part of CMS evaluations.

2.3 Conceptual Site Model

The Conceptual Site Model (CSM) for environmental investigation of the former Coke Plant is composed of three elements. The first element is a description of operations that historically occurred within the former Coke Plant area. The second element is a physical description of the geology and hydrogeology of the project area. Third, the CSM diagram indicates the potential releases to environmental media, the potential exposure pathways for these environmental media, and the potential receptors.

The CSM diagram for the former Coke Plant area (Figure 3) was developed using examples provided in Data Quality Objectives Process for Hazardous Waste Site Investigations, USEPA QA/G-4HW, January 2000. The West Mill is a heavily industrialized facility and will continue to be in the foreseeable future. Groundwater on the peninsula is not used as drinking water. A groundwater use restriction will be implemented for the entire facility. In addition, a deed restriction will be implemented to ensure that, should ArcelorMittal vacate the site, future users of the property will understand site risks and use appropriate protection during intrusive construction activities. The vapor intrusion pathway is incomplete based on the absence of site buildings. The vapor intrusion pathway will be evaluated in the event of future site construction. Triggers for, and timing of, a vapor intrusion pathway risk evaluation will be detailed in the proposed deed restriction. A final CSM will be prepared as part of the CMS Report.

3. PHYSICAL SETTING

3.1 Topography

The former Coke Plant is located within the northwest portion of Lake County, Indiana, on the shoreline of the Indiana Harbor Ship Canal, which flows into Lake Michigan. The site is located in an area of low relief within the bed of ancient glacial Lake Chicago (ancestral Lake Michigan). Lake Chicago was situated at an elevation of approximately 640 feet (Fullerton, 1980). Sediments deposited from Lake Chicago accumulated to form the relatively thin Lake Border sequence. Southerly lake currents transported large volumes of fine glacial sand into this area. Much of the sand was reworked into numerous, distinct, low dune-beach ridges.

In some areas, as much as 40 feet of variation of elevation exists between the present shoreline of Lake Michigan and the relic shorelines. The relic shorelines are capped by sand dunes that trend in an east to west arc. The relic shoreline approximately coincides with the east-west trending railroad grade along the south end of the Peninsula.

Locally, the ground surface is relatively flat and varies from 589 to 592 feet MSL. The level of Lake Michigan varies from 576 to 582 feet MSL. Locally, the groundwater elevation varies from 1 to 10 feet above the surface water level of Lake Michigan.

Two distinct land features are present at the West Mill steel making complex. These land features include the made-land or Peninsula area and the urban fill covered beach deposit area. The made-land or Peninsula area is hereinafter referred to as the Peninsula, whereas the urban fill covered beach deposit area is hereinafter referred to as the landward portion of the complex. The Peninsula is bordered on two sides by Lake Michigan and on one side by Indiana Harbor. The landward side of the Peninsula is bordered by an east-west trending railroad grade that is located near the relic shoreline. The landward side is bordered to the north by the east-west trending railroad grade, to the east by Indiana Harbor Canal, and to the west and southwest by the BP Whiting Oil Refinery. Urban/ commercial facilities border the landward side to the southeast. The former Coke Plant is located on the landward side of the Peninsula (Figure 1).

3.2 Hydrology

3.2.1 Surface Water

Regionally, surface water flow is towards Lake Michigan, Indiana Harbor, and the Indiana Harbor Canal. The surface material at the former Coke Plant almost entirely consists of highly permeable slag fill, such that precipitation rapidly infiltrates into the slag fill.

3.2.2 Lake Michigan Levels

Although the surface water flow in the Indiana Harbor Canal is typically toward Lake Michigan, if surface water levels in Lake Michigan rise relative to those in the canal, backwater effects and flow reversals can occur. With no other outlets, normal flow accumulates within the canal until equilibrium between the lake and canal surface water levels is re-established. Flow reversals are typically short in duration, whereas backwater (gradient) effects on surface water levels can persist for longer periods of time.

In addition to long-term lake level fluctuations, seiches (temporary buildups of lake water near the shore caused by local atmospheric pressure and wind) can cause short-term fluctuations of more than 3 feet within a few hours along the southern lakeshore. Long-term surface water level changes in Lake Michigan affect levels in portions of the Indiana Harbor and the canal, but seiche fluctuations are not fully transported upstream. Short-term seiche fluctuations are damped by the interaction of surface water and groundwater. Lake Michigan surface water levels recorded from six gauges in Lakes Michigan and Huron and reported as a monthly average (in feet MSL) between 1960 and 2018, indicate a record low of 576.02 occurring in January 2013 and a record high of 582.35 recorded in October 1986 (Appendix A).

3.2.3 Meteorology

The climate of northwestern Indiana is continental and is characterized by hot, humid summers and cold winters. The nearest United States Geological Survey (USGS) precipitation recording station is located at Hobart, Indiana, which is located approximately 13 miles to the southeast of the site. The region receives an average of approximately 37 inches of precipitation and 20 inches of snowfall annually (National Oceanic and Atmospheric Administration, 1992).

3.3 Geology

3.3.1 Regional Geology

The former Coke Plant is located within the northwestern portion of the Calumet Lacustrine Plain. The overburden geology of the northwestern portion of the Calumet Lacustrine Plain consists of glacial and post-glacial deposits. The uppermost materials are unconsolidated slag-fill and native deposits (predominantly Calumet sands). Slag-fill, consisting mainly of sand and gravel grain size materials, has been deposited over the natural sands.

The slag-fill thickness increases across the Peninsula from the relic shoreline toward the lake. The top of the Calumet sand and the top of the clay slope downward, toward the lake. Below the Calumet sands are sediments of glacial and lacustrine origin that are referred to as the glacial clay till/ lacustrine clay or clay unit. Silurian bedrock is present below the clay unit.

3.3.2 Site-Specific Geology

The slag-fill encountered at the former Coke Plant can be characterized as a granular material that ranges from fine sand to coarse gravel in size and from brown to black in color. The slag is medium dense to extremely dense as measured by standard penetration tests during drilling and varies in thickness from 1 to 14 feet. In 2009, up to 6 feet of clean granular fill materials and a geotextile material were placed over the entire site to level and improve the load bearing capacity of the site.

This redevelopment activity has likely eliminated the direct contact exposure pathway, as previously-identified impacted slag/soil is no longer present within the typical contact zone (i.e., within the uppermost 2 feet of soil/fill at grade) where the clean granular fill materials are present.

The original slag-fill is underlain by approximately 33 to 40 feet of fine to medium sand, silty sand, and silt. Fine gravel layers have been encountered in some site soil borings at depths of 20 to 30 feet bgs. At borings installed within the eastern portion of the former Coke Plant, the lower portion of the Calumet aquifer consists of dense silt (approximately 4 to 11 feet thick). Silty clay soils are encountered below the sand or silt soils. Geologic cross-sections depicting soil conditions are presented in Figures 4 and 5.

3.3.3 Regional Hydrogeology

The regional hydrogeology includes a shallow Quaternary-age aquifer referred to as the Calumet Aquifer, and bedrock Cambrian and Ordovician aquifers. No hydraulic connections between the Calumet Aquifer and the underlying bedrock aquifers are documented. The Calumet aquifer is a beach deposit consisting of eolian and water-deposited fine sands (with some silt). The Calumet Aquifer is underlain by an aquitard that consists of low permeability clay and till sediments.

Regionally, groundwater flow is somewhat controlled by relic sand dunes that originally comprised the aquifer. Thus, in the area between the Little Calumet River and the Grand Calumet River, a small groundwater divide is present and groundwater flow is either north or south, toward one of the rivers. North of the Grand Calumet River local groundwater mounds result in variable groundwater flow directions. Adjacent to Lake Michigan and the Indiana Harbor Ship Canal, the direction of groundwater flow is toward the lake or the canal, respectively.

3.3.4 Site-Specific Hydrogeology

The Calumet Aquifer is a water table or unconfined aquifer with a saturated thickness of approximately 33 feet (at the location of monitoring MW-810D) at the former Coke Plant. At borings installed within the eastern portion of the former Coke Plant, the lower portion of the Calumet aquifer consists of dense silt (approximately 4 to 11 feet thick). As indicated on geologic cross-sections presented on Figures 4 and 5, silty clay soils are encountered below the sand or silt soils. The silty clay soils are present at depths ranging from approximately 37.5 beet bgs at the location of well MW-817D, to 44 feet bgs at the location of well MW-821D. These silty clay soils represent an aquitard and define the vertical extent of impacted groundwater. Based on regional soil boring information, the thickness of the clay and silt layer overlying the carbonate bedrock near the Former Coke Plant ranges from 80 to 100 feet.

The water table is generally encountered at elevations ranging from 582.7 to 586.92 feet MSL (September 2017 data), which corresponds to a water table depth of approximately 5 to 9 feet bgs. The groundwater flow direction based on September 2017 water table elevations in the shallow monitoring wells is generally toward the south to southeast, toward the Indiana Harbor Ship Canal (as illustrated on Figure 6). Consistent with previous groundwater elevation measurements, the September 2017 shallow groundwater contours (Figure 6) indicate the presence of a potential localized groundwater mound centered on monitoring well MW-825S, with radial outward flow from that location; however, the overall shallow groundwater flow at the former Coke Plant site is to the south to southeast as indicated above.

Relatively high horizontal hydraulic gradients are present near the extreme southern portion of the site, in the vicinity of the breach in the upper portion of the sheet pile wall (Figure 2). The breached area only includes the upper 25 feet of the sheet pile wall. The lower portion of the existing sheet pile

wall remains in place at the breach location. The lower portion of the sheet pile wall extends vertically into the clay layer (aquitard) encountered around 40 feet bgs.

Similar to shallow groundwater flow, the groundwater flow direction based on September 2017 piezometric elevations in the deep wells (screened near the base of the aquifer) was generally toward the southeast (Figure 7); however, a southwest component of deep groundwater flow is present across the northern portion of the former Coke Plant site.

The clean granular fill materials and geotextile fabric that were placed over the site's ground surface in 2009 were placed as a visible marker for delineation between the previous ground surface and the new fill materials, not as an impermeable barrier. As such, based on the geotextile's location above the groundwater table and the permeable nature of geotextile fabrics, the placement of the geotextile fabric and fill material have not affected groundwater flow at the former Coke Plant. This is confirmed based on a comparison of groundwater elevation data obtained prior to and subsequent to 2009, which shows relatively consistent groundwater flow patterns and hydraulic gradients.

Based on September 2017 groundwater elevations (Table 1), horizontal hydraulic gradients associated with shallow groundwater ranged from 0.0018 to 0.0065 feet per foot between water table monitoring wells in the direction of groundwater flow. Horizontal hydraulic gradients associated with deep groundwater ranged from 0.0017 to 0.0041 feet per foot between deep monitoring wells in the direction of groundwater flow.

Vertical hydraulic gradients were evaluated based on groundwater elevation data from 14 monitoring well pairs at the former Coke Plant (Table 2). In nine of the monitoring well pairs (MW-801S&D, MW-803S&D, MW-805S&D, MW-806S&D, MW-807S&D, MW-808S&D, MW-809S&D, MW-817S&D, and MW-822S&D), the hydraulic gradient was downward and ranged from 0.0003 to 0.010 feet per foot in September 2017. In eight well pairs (MW-810S&D, MW-815S&D, MW-816S&D, and MW-824S&D), the hydraulic gradient was upward and ranged from 0.001 to 0.050 feet per foot in September 2017. No vertical gradient was measured at well pair MW-822S&D.

In-situ hydraulic conductivity tests (slug tests) were previously conducted (during 2005 and 2007) in ten shallow monitoring wells and eight deep monitoring wells. The results of these *in-situ* hydraulic conductivity tests are documented in the July 2008 Supplemental Site Investigation Report for the former Coke Plant. The geometric mean of the in-situ hydraulic conductivity test results in the water table wells completed in the upper portion of the Calumet aquifer at the former Coke Plant range from 9.4×10^{-1} to 6.7×10^{-4} centimeters per second (cm/sec). The geometric mean of the *in-situ* hydraulic conductivity test results in the deep monitoring wells completed in the lower portion of the Calumet sand ranges from 7.1×10^{-3} to 8.5×10^{-5} cm/sec.

4. PRE-DESIGN INVESTIGATIONS

4.1 Introduction and Technical Approach

As indicated in the Additional Site Investigation Report (Revision 1) dated September 28, 2015, a CMS Report is recommended for the former Coke Plant, subsequent to submittal of this Pre-Design Report. The CMS Report will present the site conceptual model (including discussion of source areas, pathways, and potential receptors), the nature and extent of contamination (including the lateral and vertical extent of impacts, concentration trends, factors affecting plume movement, and contaminant fate and transport). Although the scope of the RCRA 3013 Order is limited to monitoring, testing, analysis, and reporting, the CMS will identify remedial objectives and identify, develop, and evaluate potential remedial alternatives for removal, containment, and/or treatment of contamination.

The Additional Site Investigation Report (Revision 1) dated September 28, 2015, presented additional soil, groundwater, and LNAPL data obtained in 2012 and 2013. Based on these data, the magnitude and extent of LNAPL, impacted soil, and impacted groundwater were further defined. The objectives of the Pre-Design activities were summarized in the Additional Site Investigation Report as follows:

1. The February 2014 and April 2015 USEPA letters identified specific data gaps related to the investigations conducted to date associated with to the former Coke Plant. The completed Pre-Design activities identified in Section 4.2 are intended to mitigate these remaining data gaps.
2. The April 2015 USEPA letter indicated that "the remedial objective is remove the source and the accumulated NAPL as part of the remedy." The completed Pre-Design activities identified in Section 4.3 included collection of site-specific data needed for comprehensive evaluation of remedial alternatives (as part of the future CMS) that are appropriate in terms of remediation of the LNAPL near the former benzol storage area.
3. The February 2014 USEPA letter indicated that "Further action may be necessary to mitigate risks for those constituents that exceed modified groundwater ecological screening levels (ESLs) in wells immediately upgradient of the sheet pile wall breach." A Focused Ecological and Human Health Tiered Risk Assessment was therefore conducted in conjunction with Pre-Design Work Plan preparation. The Focused Ecological and HHRA were included as part of the September 2016 Pre-Design Work Plan. Based on the results of the Focused Ecological and HHRA, significant ecological or human health risks were not predicted for aquatic organisms or human receptors exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall. The Focused Ecological and HHRA were updated based on slag-fill/soil and groundwater data obtained as part of this Pre-Design investigation, and the results of the updated Risk Assessments are documented herein.

4.2 Remaining Investigative Data Gaps

4.2.1 Data Quality Objectives

The DQO process is a series of planning steps designed to verify that the type, quality, and quantity of environmental data used in decision-making are appropriate for the intended application. The DQO process allows decision-makers to define their data requirements and acceptable levels of decision during planning before any data are collected. DQOs are based on the seven-step process described in Guidance for the Data Quality Objectives Process (USEPA, August 2000) document. The general elements of the DQO process are presented in various sections of the QAPP.

Slag-fill/soil and groundwater samples were collected as part of the Pre-Design Investigation and analyzed at a certified laboratory for specific analytes. Laboratory analyses were performed using Level IV Quality Assurance/Quality Control (QA/QC) reporting by the project laboratory in accordance with the QAPP. The laboratory reported the results of the analyses to the MDL. The reported concentration values that occurred between the MDL and RL (also known as the quantification limit) were qualified as estimated concentrations.

4.2.2 Former Benzol Storage Area

The February 2014 USEPA letter indicated that the extent of LNAPL, impacted soil, and impacted groundwater near the former benzol storage area required further delineation. As the LNAPL represents a source of the impacted soil and groundwater, this investigative task was conducted through delineation of the extent of LNAPL, and investigation of the impacted soil and groundwater near the former benzol storage area based on the results of the LNAPL investigation.

4.2.2.1 Extent of LNAPL

The presence of LNAPL has been detected in monitoring wells MW-820S and MW-821S and has not been detected in groundwater samples obtained from the numerous monitoring wells located hydraulically downgradient of monitoring wells MW-820S and MW-821S. The LNAPL consists of a relatively heavy fuel oil comprised of BTEX, PAH, and SVOC constituents.

To further characterize NAPL distribution, High Resolution Site Characterization (HRSC) technologies were implemented as part of the Pre-Design Investigation near the benzol storage area. Laser-induced fluorescence (LIF) is a technique that uses laser light to excite fluorescent molecules that exist in a majority of hazardous NAPLs such as petroleum fuels/oils, coal tars, and creosotes. Direct push logging of the NAPL's inherent fluorescence with depth provides rapid delineation of NAPL. Conducting multiple LIF logs at NAPL sites facilitates development of a NAPL CSM. The methodologies used to implement the LIF investigation are provided in Section 6.1, and the results of the LIF investigation are documented in Section 7.1.

4.2.2.2 Extent of Impacted Soil

Based on the results of the LIF investigation, monitoring well borings MW-828S through MW-833S, MW-832D, MW-838S, and MW-839S were installed at the approximate locations shown on Figure 2. As indicated in the June 2016 Additional Site Investigation Report (Revision 3), DQOs for vadose zone slag-fill/soil samples obtained from the former benzol storage area were exceeded for benzene and PAHs. To further evaluate soil quality within the former benzol storage area, one to three slag-fill/soil samples were obtained from each of the additional monitoring well locations (the shallow nested well MW-832S was blind-drilled) and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters.

4.2.2.3 Extent of Impacted Groundwater

Nine monitoring well borings (MW-828S through MW-833S, MW-832D, MW-838S, and MW-839S) were completed as monitoring wells at the approximate locations shown on Figure 2. As indicated in the June 2016 Additional Site Investigation Report, DQOs for groundwater samples obtained from the former benzol storage area were exceeded for metals, petroleum VOCs, and PAHs. To further evaluate groundwater quality within the former benzol storage area, groundwater samples were obtained from previously-installed monitoring wells and the nine new monitoring wells in September 2017 and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters.

4.2.3 Soil Boring SB-875 Area

The February 2014 USEPA letter indicated that evaluation of the horizontal extent of impacted soil to the north of previously-installed soil boring SB-875 in the southeastern portion of the site was incomplete. Soil boring SB-884 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. As indicated in the June 2016 Additional Site Investigation Report, data quality objectives for vadose zone slag-fill/soil samples obtained from previous soil boring SB-875 were exceeded for benzene and arsenic. Two vadose zone slag-fill/soil samples were obtained from soil boring SB-884 and submitted for laboratory analysis of VOCs, PAHs, and arsenic. One of the two vadose zone slag-fill/soil samples from this soil boring were obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway; the second sample was obtained from a depth of 6 to 8 feet bgs.

4.2.4 Monitoring Well MW-822 Area

The February 2014 USEPA letter indicated that the extent of arsenic and thallium impacted groundwater near monitoring well MW-822 in the northwestern portion of the site was unknown. The

maximum arsenic and thallium concentrations in groundwater samples previously obtained from well nest MW-822 were detected in samples from deep well MW-822D. Therefore, monitoring wells MW-834D and MW-835D were installed at the locations shown on Figure 2, and screened from 35 to 38 feet bgs.

To further evaluate soil quality near monitoring well MW-822, three soil samples were obtained from both of the two additional monitoring well borings (MW-834D and MW-835D) and submitted for laboratory analysis of PAHs, arsenic, and thallium. One of the three soil samples from each of the two additional monitoring well borings was obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway. The second soil sample was obtained from the 2-foot interval above the water table, and the third soil sample was obtained from the bottom 2 feet of the borings. The soil samples from the upper 2 feet of the subsurface were also submitted for laboratory analysis of VOCs.

4.2.5 Monitoring Wells MW-801 and MW-814 Areas

The February 2014 USEPA letter indicated that the western extent of arsenic and benzene impacts in shallow groundwater along the western edge of the property between monitoring wells MW-801 and MW-814 needs to be delineated. Therefore, monitoring wells MW-836S and MW-837S were installed at the locations shown on Figure 2, and screened from approximately 3 to 13 feet below grade. Groundwater samples were obtained from these two new monitoring wells and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters.

4.2.6 Monitoring Well Boring MW-824D Area

The April 2015 USEPA letter indicated that there is no data with which to confirm that soil between 2 and 8 feet bgs at boring MW-824D in the central portion of the site does not contain DQO exceedances for arsenic. Soil boring SB-892 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. One of the two slag-fill/soil from this soil boring was obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway in terms of PAH concentrations. The second slag-fill/soil sample was obtained from a depth of 6 to 8 feet bgs. Both slag-fill/soil samples were submitted for laboratory analysis of arsenic, VOCs, and PAHs.

4.2.7 Monitoring Well Boring MW-826M Area

The April 2015 USEPA letter requested vertical delineation of PAH contamination in the vicinity of boring MW-826M in the southern portion of the site. Soil boring SB-893 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. Slag-fill/soil samples were retained from 0 to 2 feet and 6 to 8 feet bgs, and submitted for laboratory analysis of VOCs, PAHs, and arsenic.

4.2.8 Site-Wide Surficial Slag-Fill/Soil

The April 2015 USEPA letter indicated the following:

> *USEPA reiterates the requirement that ArcelorMittal must show that at least two feet (and up to six feet) of soil has been placed over all areas with surface soil DQO exceedances before the direct contact pathway is confirmed as incomplete. Consequently, the Pre-Design Investigation Plan must include sampling and evaluation of the uppermost two feet, not just the uppermost six inches, of soil, to verify that the direct contact DQO is met. This is especially critical if portions of the former Coke Plant area may be redeveloped for recreational, commercial or other non-industrial purposes in the future.*

To further evaluate the uppermost 2 feet of soil across the site in terms of direct contact and outdoor air quality, soil samples were obtained from the new soil borings and monitoring well borings discussed above, as well as soil borings SB-885 through SB-891 and submitted for laboratory analysis

of PAHs and VOCs. A subset of these soil samples was submitted for laboratory analysis of additional parameters, in conformance with the September 2016 Pre-Design Work Plan.

4.3 LNAPL Remediation Pre-Design Testing

Based on information contained in ITRC Council Guidance (ITRC, 2009), applicable remedial technologies for the identified LNAPL at the former Coke Plant site include surfactant-enhanced recovery (including co-solvent supplement if needed), hydraulic containment, ISCO, air sparging/soil vapor extraction, and thermal methods. The LNAPL observed in monitoring wells near the former benzol storage area is the result of LNAPL draining from pores in the immediate vicinity of the well. LNAPL can drain into a collection point either naturally or due to engineered controls such as pumping, to the extent it remains mobile in the area of the collection point. Once the residual saturation is reached (i.e., the LNAPL saturation under which the LNAPL is immobile under the applied gradient), further hydraulic recovery in the liquid phase, without altering the chemical or physical properties of the residual LNAPL, will not be possible (ITRC, 2009). At residual saturation, the LNAPL cannot move unless the chemical or physical properties of the LNAPL are altered by other LNAPL remediation technologies (USEPA, 2005). Examples of chemical or physical changes that can affect the residual saturation include induced pressure gradients from a soil vapor extraction system, changes in interfacial tension through the use of surfactants, or reduction in viscosity through the addition of heat (Charbeneau, 2000). The scope of pre-design testing that was conducted to further evaluate these remedial technologies is provided as follows.

4.3.1 Surfactant-Enhanced Recovery

Previous LNAPL monitoring events indicated measured apparent LNAPL thicknesses of 0.67 to 1.42 feet at monitoring well MW-820S, and 0.90 to 6.01 feet at monitoring well MW-821S. LNAPL samples were collected from monitoring wells MW-820S and MW-821S in July 2013. The LNAPL samples were analyzed for 27 VOCs, 16 PAHs, 42 SVOCs, viscosity, and density. The measured bulk density of the July 2013 LNAPL samples obtained from monitoring wells MW-820S and MW-821S was 0.90 grams per milliliter (g/mL), for each of the two samples. The measured kinematic viscosity of the LNAPL sample from MW-820S was 15.39 centistokes (cSt), and 15.34 cSt for the LNAPL sample from MW-821S. Fuel oil No. 5A represents an example fluid with a similar range of kinematic viscosities.

With respect to the July 2013 LNAPL sample from monitoring well MW-820S, the predominant detected VOCs were xylenes (190 mg/kg), ethylbenzene (130 mg/kg), benzene (24 mg/kg), and toluene (1 mg/kg). A total of seven PAHs were detected, mainly consisting of naphthalene (27,000 mg/kg). With regard to the LNAPL sample from monitoring well MW-821S, the predominant detected VOCs were benzene (270 mg/kg), xylenes (120 mg/kg), toluene (120 mg/kg), and ethylbenzene (17 mg/kg). A total of 11 PAHs were detected, mainly consisting of acenaphthene (1,100 mg/kg).

Surfactant usage for subsurface petroleum removal dates back to the 1960s, when sulfonate surfactants gained widespread use in the oilfields to enhance oil recovery from geologic formations. Surfactants, or surface-active agents, are chemical compounds that can alter the properties of fluid interfaces. A surfactant reduces the surface tension of a liquid, and a surfactant molecule has a hydrophobic and a hydrophilic portion. This reduction in interfacial tension reduces the capillary trapping of LNAPL in porous materials, which facilitates hydraulic recovery of the mobilized LNAPL. Co-solvent flushing is sometimes applied in tandem with surfactant usage or as a stand-alone technology, to increase the solubility of LNAPL or its constituent compounds. Some co-solvents such as alcohols decrease the viscosity of LNAPL, making it more amenable to hydraulic recovery.

When a sufficient amount of surfactant is added to an aqueous solution, the molecules of the surfactant associate to form small aggregates that are known as micelles. In water, the hydrophobic portions of the surfactant molecules are oriented toward the NAPL phase, and the hydrophilic potions

are oriented toward the water phase. This pseudo-solubilization of NAPL into the water phase allows a significant amount of NAPL to subsequently be removed from the subsurface when groundwater is extracted.

The surfactant extraction process requires direct contact with NAPL-impacted soil and groundwater; as such, injection/extraction methods and well surging activities are performed to enhance such contact. By maximizing subsurface agitation and radius of influence of the injected surfactant solution, the emulsification, solubilization, and recovery of NAPL can be maximized. Due to the volumetric extent of some NAPL zones, multiple injection/extraction events are often required, eventually resulting in complete NAPL capture.

Bioremediation can be implemented to supplement the NAPL recovery process. A key issue with respect to microbial activity in the presence of any petroleum constituent, whether free-phase or dissolved-phase, is the availability of nutrients and electron acceptors that will allow the bacteria to utilize the petroleum as a carbon and energy source. Based on the presence of petroleum hydrocarbon product in the subsurface, naturally-occurring electron acceptors (i.e., oxygen, nitrate, iron, and sulfate) and macronutrients (nitrogen and phosphorus) have often been consumed, resulting in a dormant microbial population that exhibits minimal activity within the NAPL zone.

To stimulate bioremediation, nutrients and electron acceptors are often added at the end of a surfactant injection/extraction event to enhance degradation of dissolved-phase petroleum hydrocarbons. Subsequently, direct evidence can be collected (via inorganic nutrient samples) to confirm that these nutrients and electron acceptors are rapidly and readily utilized by microbes in the subsurface, even in the presence of residual petroleum hydrocarbon NAPL.

Hydraulic control is an important component of any injection/extraction process. As part of the Pre-Design Investigation surfactant-enhanced NAPL recovery testing, the injection/extraction program was designed such that that more fluid was extracted from the site than the volume that was re-injected. This approach is intended to restrict subsurface displacement of NAPL and maintain hydraulic control of the target treatment zone throughout the injection/extraction event. The methodologies used to implement the pre-design testing to evaluate the surfactant-enhanced recovery alternative are documented in Section 6.10, and the results are provided in Section 7.4.

4.3.2 Hydraulic Containment

Ramboll conducted a bench-scale treatability study to evaluate the potential to recover LNAPL from the former Coke Plant. The results of the bench-scale tests were used to evaluate the effectiveness of physical (hydraulic) recovery of the LNAPL through conventional methods (such as interception wells or trenches).

A total of three soil cores were obtained through the LNAPL zone from the remedial wells that were installed as part of the surfactant-enhanced pilot testing described above. The soil cores were subjected to laboratory analysis using Method API RP40. This laboratory method forces water through the sample to displace free NAPL. The test provides porosity, field LNAPL saturation, and residual saturation under water displacement conditions, which is anticipated to be greater than residual saturation under air displacement conditions. The test is conducted at hydraulic gradients that far exceed typical site conditions. Therefore, values for residual saturation measured using this method are conservative when compared with field residual saturation. The methodologies used to implement the pre-design bench-scale testing to evaluate the hydraulic recovery alternative are documented in Section 6.11, and the results are provided in Section 7.5.

4.3.3 *In-Situ* Chemical Oxidation

Remediation of soil and groundwater impacted with LNAPL using ISCO involves injecting or mixing oxidants and potentially co-amendments directly into the impacted media. With chemical oxidation, the substrate loses electrons and is oxidized, while the oxidant gains electrons and is reduced:

$$Cl2C=CHCl + H2O + 3O3 \rightarrow 2CO2 + 3Cl^- + 3H^+ + 3O2$$

Oxidation of Substrate: $Cl2C=CHCl + 4H2O \rightarrow 2CO2 + 3Cl^- + 9H^+ + 6e^-$

Reduction of Oxidant: $O3 + 2H^+ + 2e^- \rightarrow O2 + H2O$

The oxidant chemicals react with the contaminants, producing innocuous substances such as carbon dioxide, water, and, in the case of chlorinated compounds, inorganic chloride. Four commonly-used oxidants for soil and groundwater remediation are permanganate, persulfate, peroxide, and ozone. For treatment of LNAPL-contaminated media, oxidants in concentrated solution or solid form can be delivered using hydraulic injection, *in-situ* soil blending, or hydraulic fracturing techniques. The chemical oxidant can be injected as a liquid or slurry into the capillary fringe and water bearing zone. It is also possible to saturate the vadose zone with a chemical oxidant in localized source areas to address contaminated soil prior to leaching into the water-bearing zone.

The CMS will include evaluation of ISCO technologies, such that bench-scale testing of ISCO of LNAPL was conducted as part of this Pre-Design Investigation. A total of three soil cores were obtained through the LNAPL zone from the remedial wells that were installed as part of the surfactant-enhanced pilot testing described above. TOD testing was conducted on these soil samples. Measurement of TOD allows for an understanding of the appropriate oxidant dosage that would be required to achieve remedial objectives in the event of future implementation of ISCO, for the purpose of completing the CMS. The methodologies used to implement the pre-design bench-scale testing to evaluate the ISCO remedial alternative are documented in Section 6.12, and the results are provided in Section 7.6.

4.3.4 Thermal Methods

A thermal remediation method applicable to enhanced LNAPL recovery within sandy soils, as are present at the former Coke Plant site, includes steam injection. Steam injection facilitates remediation mainly through the enhanced vaporization of the LNAPL. Other factors that contribute to the removal of the LNAPL are increased capillary pressures which, in conjunction with reduction in viscosity, allow the LNAPL to be displaced. Reductions in interfacial tensions also reduce capillary trapping in the porous materials.

Steam enhanced extraction is an applicable remedial alternative for large sites with significant groundwater flow. The steam enhanced extraction technology allows for high net extraction of fluids and displaces large amounts of groundwater towards the extraction wells. As a result, less water needs to be heated to allow the formation to reach target temperatures. In addition, this displacement facilitates hydraulic control of NAPL mobility. The steam sweeps through the formation and the accompanying pressure gradient displace the mobile NAPL and vaporized components as an oil front, which is recovered when it reaches the extraction wells.

Control of the generated vapors and any mobilized LNAPL are significant issues when considering steam injection. Some form of soil vapor extraction system would generally be included as a component of the remediation design. Treatment of the collected vapors would represent a significant cost. The possible mobilization and spread of LNAPL may be addressed according to the setting of the treatment. Where the treatment is focused at or below the water table, hydraulic recovery may be appropriate. However, if the LNAPL is appreciably present above the water table, further downward migration would need to be controlled. Control measures based on the injection of air (as in the case

of dense non-aqueous phase liquids [DNAPLs]) may be appropriate in such a circumstance and perhaps where the LNAPL is present far below the water table. The application of steam injection near ground surface is somewhat problematic. Containment of the steam, collection of the vapors and avoidance of elevated temperatures present logistical challenges, especially in relation to health and safety. The heating from steam injection may also have significant effects on the biological and geochemical properties of the aquifer. A prime consideration would be the suppression of microbiological communities that may be relied on as part of the natural attenuation of the contaminants. The period over which the aquifer is effectively sterilized would need to be evaluated. Finally, steam injection is energy intensive and overall benefits through a lifecycle analysis may need to be confirmed. Pre-design testing of thermal remedial methods is not required for the purpose of the CMS. If the results of the future CMS evaluation lead to the conclusion that thermal remedial methods are preferred for the site, thermal remediation treatability and/or pilot testing will be recommended at that time as appropriate.

5. DATA QUALITY ASSESSMENT

This section assesses the validity and usability of laboratory analytical data generated from soil and water samples collected from the former Coke Plant site in East Chicago, Indiana. The results for the following samples were evaluated as part of this review:

- Sixty-eight (68) groundwater and water QC samples collected between September 11 and September 14, 2017;
- Forty-nine (49) soil and water QC samples collected between July 10 and July 27, 2017; and
- Six groundwater samples collected during each of the months of November 2017, December 2017, January 2018, February 2018, March 2018, and May 2018.

The samples were analyzed for one or more of the following parameters:

- VOCs by USEPA Method 8260B;
- SVOCs by USEPA Method 8270C;
- Metals (total and dissolved) by USEPA Method 6020B;
- Mercury by USEPA Method 7470A/7471B;
- Ammonia by USEPA Method 350.1;
- COD by USEPA Method 410.4;
- Total Recoverable Phenolics by USEPA Method 420.4 or 9066;
- Alkalinity (bicarbonate, carbonate, hydroxide, and total as $CaCO_3$) by Standard Method (SM) 2320B-1997;
- Hardness by SM 2340B-1997;
- Chloride by SM 4500-Cl B-1997 or USEPA Method 9253;
- Total Cyanide by SM4500-CN C/E-1999 or USEPA Method 9012B;
- Sulfide by SM 4500-S2 D-2000 or USEPA Method 9030B modified;
- TOC by SM5310C or ASTM D2974;
- Hexavalent Chromium by USEPA Method 7196A;
- Sulfate by USEPA 9038;

- pH by USEPA 9045D; and
- Percent Solids by USEPA Method 3540C or SM 2540G-1997.

Microbac Laboratories, Inc. (Microbac) located in Merrillville, Indiana, performed the analyses for metals. The analyses for pesticides were performed at the Pace laboratory in Indianapolis, Indiana. Data results were reported in data packages 17G0427, 17I0694, 17J1129, 17K1154, 17L1205, 18A1423, 18B1464, 18C1632, and 18E0074. Table 3 provides a list of the samples and analytes validated.

The data were evaluated in general conformance with project objectives specified in the Quality Assurance Project Plan Volume 5 of 5 (Revision 2) ISG Harbor & Tecumseh Redevelopment (STS, 2004). Ramboll's validation was based on procedures published in the National Functional Guidelines for Organic and Inorganic Data Review (USEPA, 2017). The guidelines provide the criteria to review laboratory and field QC information and apply the appropriate data qualifiers to the laboratory data. The QC information checked by Ramboll included chain-of-custody (COC) forms, holding times, RLs, blanks, laboratory control samples/laboratory control sample duplicates (LCS/LCSD), MS/MSD samples, surrogates, field duplicates, and laboratory duplicates.

The National Functional Guidelines (USEPA, 2017) define the following data validation flags to assign during the data validation process:

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

A summary of the qualified data is presented in Tables 4 through 11. The following sections summarize the qualifications applied during data validation for each analysis based on the data review.

5.1 VOCs

Sample Receipt and Technical Holding Times

The samples were received at the laboratory under COC within the required temperature criteria. Samples that were collected in preserved containers were received at the laboratory within the required criteria for pH, with 16 exceptions. At the time of analysis, samples MW-832D-GW, MW-832D-D-GW, MW-824D-GW, MW-816D-GW, MW-819D-GW, MW-823D-GW, MW-839S-GW, MW-821D-GW, MW-807D-GW, MW-811S-GW, MW-803D-GW, MW-809D-GW, MW-808D-GW, MW-810D-GW, MW-826M-GW, and MW-817D-GW had a pH greater than 2. The samples were analyzed outside the 7-day hold time for unpreserved samples. The associated results were qualified

as estimated “J” or estimated non-detect “UJ” for the hold time exceedance. All other samples were analyzed within the method required holding time within the required criteria for pH.

Blanks

Method and trip blanks were reviewed for any detections. Detections in method blanks were evaluated by the following criteria:

- Sample results that were detected below the RL, and within five times the concentration (10 times for common laboratory contaminants) in the associated blank were qualified “U” as non-detect.
- Sample results that were detected above the RL, and within five times the concentration (10 times for common laboratory contaminants) in the associated blank were qualified “J+” as estimated with a high bias.
- Sample results that were detected above five times the concentration in the associated blank were not qualified.

As part of this data set, 40 results for benzene, methylene chloride, and toluene were qualified non-detect as “U” in water samples associated with method blank contamination. Forty-one (41) soil sample results for methylene chloride were qualified non-detect as “U” and three soil results for methylene chloride were qualified estimated with a high bias as “J+” for associated method blank contamination.

Three trip blanks were submitted for VOC analysis with water samples and eight trip blanks were submitted for VOC analysis with soil samples collected as part of this data set. No analytes were detected in any of the trip blanks, with the following exceptions:

- Benzene was detected below the RL in the trip blank collected on September 14, 2017. The benzene results in the associated samples were either non-detect or detected above five times the concentration in the trip blank; therefore, no data were qualified.
- Acetone was detected below the RL in four trip banks collected on July 10, 2017; July 25, 2017; July 26, 2017; and July 27, 2017. The acetone results in the associated samples were either non-detect or detected above 10 times the concentration in the trip blank; therefore, no data were qualified.
- m,p-Xylene was detected below the RL in one trip blank collected on July 10, 2017. The results for m,p-xylene in the associated samples were either non-detect or detected above five times the concentration in the trip blank; therefore, no data were qualified.
- Methylene Chloride was detected below the RL in all eight trip blanks submitted with soil samples collected during July 10 and July 17, 2017. Thirty-eight (38) associated results were qualified non-detect “U” or estimated with a high bias “J+” due to trip blank contamination. These results were also qualified due to method blank contamination.

LCS / LCSD

LCS and LCSD (when analyzed) summaries were reviewed for each preparation batch. All LCS and LCSD recoveries were within the laboratory control limits, with the following exceptions:

- The recovery for chloroethane in the LCS associated with the trip blank collected on September 13, 2017, was below the laboratory control limit.
- The recovery for chloromethane in the LCS or LCSD associated with groundwater samples MW-801S-GW, MW-837S-GW, MW-837S-D-GW, MW-803D-GW, MW-809M-GW, and MW-808S-GW was below the laboratory control limit.

- The recoveries for PCE and trichlorofluoromethane in the LCSD associated with groundwater sample MW-801S-GW were below the laboratory control limits.
- The recovery for acrylonitrile in the LCS associated with groundwater sample MW820S-GW-050118 was below the laboratory control limit.

In all cases the associated results were non-detect and were qualified "UJ" for a potential low bias. Data were not qualified when an LCS recovery was high and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

MS/MSD

MS/MSDs prepared from project-specific samples were evaluated. The MS/MSD recoveries and relative percent differences (RPDs) were within laboratory control limits, with the following exceptions:

- The recoveries for bromoform were below the laboratory control limit for the MS and MSD prepared from groundwater sample MW-833S-GW. Bromoform was not detected in the sample and the result was qualified "UJ" for a potential low bias.
- The recoveries for 2-chloroethyl vinyl ether were below the laboratory control limit for the MS and MSD prepared from groundwater sample MW-820S-GW. The MS/MSD RPD was also above the control limit. 2-Chloroethyl vinyl ether was not detected in the sample and the result was qualified "UJ" for a potential low bias.

Data were not qualified when an MS/MSD recovery was high, and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

Field Duplicates

The following field duplicates pairs were analyzed for VOCs: MW-810S-GW/MW-810S-D-GW, MW-818S-GW/MW-818S-D-GW, MW-822S-GW/MW-822S-D-GW, MW-830S-GW/MW-830S-D-GW, MW-832D-GW/MW-832D-D-GW, MW-837S-GW/MW-837S-D-GW. No VOCs were detected above the laboratory RLs in any of the field duplicate pairs. RPDs were not calculated.

Surrogates

Surrogates were evaluated for all samples analyzed for VOCs. All surrogate recoveries were within the laboratory control limits, with the following exceptions:

- One VOC surrogate was below the laboratory control limit in soil samples MW 833S (4-6), MW-833S (0-2), SB 884 (0-2), SB 888 (0-2), and SB 893 (0-2). The parameters detected in the samples were qualified "J" or "J-" as estimated and non-detect results were qualified "UJ."
- One VOC surrogate was above the laboratory control limit in soil sample MW-839S (10-12). The parameters detected in the sample above the RL were qualified "J+" as estimated with a high bias. PCE was detected in the sample below the RL and the result was qualified "J" as estimated with no directional bias.
- One VOC surrogate was below the laboratory control limit and one surrogate was above the laboratory control limit in soil samples MW 834D (0-2), MW 835D (0-2), and MW-830S (2-4). The parameters detected in the samples were qualified "J" estimated and non-detect results were qualified "UJ."

Reporting Limits

Results were reported to the laboratory MDLs, adjusted for dilutions. Soil sample results were also adjusted for percent moisture content. Concentrations reported below the laboratory RL were qualified "J" as estimated.

5.2 SVOCs

Sample Receipt and Technical Holding Times

The samples were received at the laboratory under COC within the required temperature criteria. All samples were analyzed within the method required holding times.

Blanks

Method blanks were reviewed for any detections. Detections in method blanks were evaluated by the following criteria:

- Sample results that were detected below the RL, and within five times the concentration in the associated blank were qualified "U" as non-detect.
- Sample results that were detected above the RL, and within five times the concentration in the associated blank were qualified "J+" as estimated with a high bias.
- Sample results that were detected above five times the concentration in the associated blank were not qualified.

As part of this data set, 39 results for anthracene, benzo[a]anthracene, benzo[g,h,i]perylene, dibenz[a,h]anthracene, fluoranthene, isophorone, naphthalene, and pyrene were qualified non-detect as "U" in water samples associated with method blank contamination.

LCS/LCSD

LCS and LCSD (when analyzed) summaries were reviewed for each preparation batch. All LCS and LCSD recoveries were within the laboratory control limits. Data were not qualified when an LCS recovery was high and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

MS/MSD

MS/MSDs were prepared from project-specific samples were evaluated. The MS/MSD recoveries and RPDs were within laboratory control limits, with one exception. The recovery for 3,3´-dichlorobenzidine was below the laboratory control limit for the MS prepared from groundwater sample MW-833S-GW. 3,3´-Dichlorobenzidine was not detected in the sample and the result was qualified "UJ" for a potential low bias. Data were not qualified when an MS/MSD recovery was high, and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

Field Duplicates

The following field duplicates pairs were analyzed for SVOC/PAHs: MW-818S-GW/MW-818S-D-GW, MW-830S-GW/MW-830S-D-GW, MW-832D-GW/MW-832D-D-GW, and MW-837S-GW/MW-837S-D-GW. RPDs were calculated for results detected above the laboratory RLs in both the field sample and field duplicate. The RPDs were within 30%, with two exceptions. The RPD calculated for acenaphthene was 37% and the calculated RPD for naphthalene was 73% in the field duplicate pair MW-830S-GW/ MW-830S-D-GW. The results for acenaphthene and naphthalene were qualified "J" as estimated for a potential bias due to precision.

Surrogates

Surrogates were evaluated for all samples analyzed for SVOCs. All surrogate recoveries were within the laboratory control limits, with four exceptions. Two of acid fraction surrogates were below laboratory control limits in soil samples MW-833S (0-2) and MW 833S (4-6). The associated acid fraction SVOCs were qualified "UJ" as estimated non-detect.

Reporting Limits

Results were reported to the laboratory MDLs, adjusted for dilutions. Soil sample results were also adjusted for percent moisture content. Concentrations reported below the laboratory RL were qualified "J" as estimated. The results for total cresol were reported above the instrument calibration range in groundwater samples MW-803D-GW and MW-809S-GW. The results were qualified "J" as estimated.

5.3 Metals

Sample Receipt and Technical Holding Times

The samples were received at the laboratory under COC within the required temperature criteria. Aqueous samples were received at the laboratory within the required criteria for pH preservation. All samples were analyzed within the method required holding times.

Blanks

Method blanks were reviewed for any detections. Detections in method blanks were evaluated by the following criteria:

- Sample results that were detected below the RL, and within ten times the concentration in the associated blank were qualified "U" as non-detect.
- Sample results that were detected above the RL, and within ten times the concentration in the associated blank were qualified "J+" as estimated with a high bias.
- Sample results that were detected above ten times the concentration in the associated blank were not qualified.

As part of this data set, 75 results for boron, chromium, manganese, mercury, molybdenum, selenium, sodium, thallium, and zinc were qualified estimated "J+" in water samples associated with method blank contamination. One hundred eighty-one (181) for antimony, chromium, iron, manganese, mercury, molybdenum, selenium, thallium, and zinc were qualified non-detect as "U" in water samples associated with method blank contamination. Twenty-six (26) soil sample results for arsenic, chromium, copper, selenium, and tin were qualified estimated "J+" in soil samples associated with method blank contamination. Forty-four (44) soil sample results for antimony, arsenic, chromium, mercury, molybdenum, selenium, thallium, tin, and zinc were qualified non-detect as "U" for associated method blank contamination. The final qualifier may have been adjusted for multiple qualifiers.

LCS/LCSD

LCS and LCSD (when analyzed) summaries were reviewed for each preparation batch. All LCS and LCSD recoveries were within the laboratory control limits, with the following exceptions:

- The recoveries for beryllium and/or silver in the LCS associated with 24 water samples were below the laboratory control limit. Thirty-two (32) affected results were qualified "UJ" as estimated non-detected with a potential low bias.

- The recoveries for beryllium, iron, potassium, sodium, and/or silver in the LCS associated with 12 water samples were below the laboratory control limit. Twenty-two (22) affected results were qualified "J-" as estimated non-detected with a potential low bias.
- The recovery for dissolved sodium in the LCS associated with water sample MW-823S-GW was above the laboratory control limit. The result for dissolved sodium was qualified "J+" as estimated with a high bias.
- The recovery for chromium in the LCS associated with soil samples MW-831S (0-2), MW-831S (4-6), MW-831S (14-16), MW-838S (0-2), and MW-838S (2-4) was above the laboratory control limit. The chromium results in these samples were qualified "J+" as estimated with a high bias.

Data were not qualified when an LCS recovery was high and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

MS/MSD

MS/MSDs prepared from project-specific samples were evaluated. The MS/MSD recoveries and RPDs were within laboratory control limits, with the following exceptions:

- The recoveries were below the laboratory control limits for all metals in the MS and MSD prepared from groundwater sample MW-805S-GW. Associated data were qualified as follows: non-detect results were qualified "UJ," results detected between the MDL and RL were qualified "J" as estimated, and results detected above the RL were qualified "J-" as estimated with a low bias.
- The recoveries for dissolved antimony, dissolved arsenic, dissolved beryllium, dissolved cadmium, dissolved chromium, dissolved copper, dissolved iron, dissolved lead, dissolved manganese, dissolved molybdenum, dissolved nickel, dissolved selenium, dissolved silver, dissolved thallium, dissolved tin, dissolved vanadium, and dissolved zinc were below the control limits in the MS and MSD prepared from groundwater sample MW-820S-GW. Associated data were qualified as follows: non-detect results were qualified "UJ," results detected between the MDL and RL were qualified "J" as estimated, and results detected above the RL were qualified "J-" as estimated with a low bias.
- The recoveries for dissolved potassium and dissolved sodium were above the control limits in the MS and MSD prepared from groundwater sample MW-820S-GW. The results for dissolved potassium and dissolved sodium were qualified "J+" as estimated with a high bias.
- The recovery for dissolved manganese was above the control limits in the MSD prepared from groundwater sample MW-833S-GW. The result was qualified "J+" as estimated with a high bias.
- The recovery for potassium was below the control limits in the MS and MSD prepared from soil sample MW 835D (0-2). The result was qualified "J-" as estimated with a low bias.
- The recoveries for antimony, chromium, copper, lead, molybdenum, nickel, selenium, silver, thallium, and vanadium were outside the control limits in the MS and/or MSD prepared from soil sample MW-830S (0-2). Several MS/MSD RPDs also exceeded the control limit for RPD. Associated results were qualified "J" as estimated or "J-" as estimated with a low bias.
- The recoveries for arsenic, copper, lead, molybdenum, nickel, selenium, silver, tin, and zinc were below the control limits in the MS and/or MSD prepared from soil sample MW-839S (0-2). The RPD for nickel also exceeded the control limit for RPD. Associated detected results were qualified "J" as estimated or "J-" as estimated with a low bias. Arsenic was qualified "UJ" as estimated non-detect.
- The recovery for arsenic was below the control limits in the MS and MSD prepared from soil sample MW 884 (0-2). The result was qualified "J-" as estimated with a low bias.

Data were not qualified when an MS/MSD recovery was high, and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias. MS/MSDs were not evaluated when the parent sample concentration was greater than four times the spike concentration.

Field Duplicates

The following field duplicates pairs were analyzed for metals: MW-810S/MW-810S-D, MW-818S-GW/ MW-818S-D-GW, MW-822S/MW-822S-D, MW-830S-GW/MW-830S-D-GW, MW-832D-GW/MW-832D-D-GW, and MW-837S-GW/MW-837S-D-GW. RPDs were calculated for results detected above the laboratory RLs in both the field sample and field duplicate. The RPDs were within 30%, with the following exceptions:

- The calculated RPD for boron was 32% for field duplicate pair MW-818S-GW/MW-818S-D-GW.
- The calculated RPD for molybdenum was 42% for field duplicate pair MW-822S/MW-822S-D.
- The calculated RPDs for manganese (52%), dissolved manganese (53%), molybdenum (33%), and dissolved molybdenum (61%) for field duplicate pair MW-832D-GW/MW-832D-D-GW.

The associated results in the parent samples and field duplicates were qualified "J" as estimated for a potential bias due to precision.

Reporting Limits

Results were reported to the laboratory MDLs, adjusted for dilutions. Soil sample results were also adjusted for percent moisture content. Concentrations reported below the laboratory RL were qualified "J" as estimated.

5.4 General Chemistry

Sample Receipt and Technical Holding Times

The samples were received at the laboratory under COC within the required temperature criteria. When required, aqueous samples were received at the laboratory within the required criteria for pH preservation. All samples were analyzed within the method required holding times.

Blanks

Method blanks were reviewed for any detections. Detections in method blanks were evaluated by the following criteria:

- Sample results that were detected below the RL, and within ten times the concentration in the associated blank, were qualified "U" as non-detect.
- Sample results that were detected above the RL, and within ten times the concentration in the associated blank, were qualified "J+" as estimated with a high bias.
- Sample results that were detected above ten times the concentration in the associated blank were not qualified.

The results for total phenolics were qualified "J+" as estimated with a potential high bias of "J" as estimated (if the result was qualified for multiple reasons) in samples MW-812S-GW, MW-813S-GW, MW-822D-GW, MW-822S-D-GW, MW-822S-GW, MW-830S-D-GW, MW-831S-GW, MW-834D-GW, and MW-835D-GW.

LCS/LCSD

LCS and LCSD (when analyzed) summaries were reviewed for each preparation batch. All LCS and LCSD recoveries were within the laboratory control limits. Data were not qualified when an LCS recovery was high and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias.

MS/MSD

MS/MSDs prepared from project-specific samples were evaluated. The MS/MSD recoveries and RPDs were within laboratory control limits, with the following exceptions:

- The recoveries for hexavalent chromium were 0% for MS and MSDs prepared from groundwater samples MW-820S-GW, MW-803M-GW, MW-827S-GW, and soil sample MW 833S (14-16). The associated results were qualified "R" as rejected because the recoveries were grossly below the acceptance criteria for accuracy.
- The recoveries for hexavalent chromium were below the control limits for MS and MSDs prepared from groundwater samples MW-803S, MW-804S, MW-806S, and soil sample MW-832D (38-40). The recoveries for total phenolics was also below the control in the MS and MSD prepared from sample MW-804S. The associated results were qualified "J-" as estimated with a low bias or "UJ" as estimated non-detect.
- The recoveries for chloride and COD were above the control limit in the MS prepared from groundwater sample MW-820S-GW. The results were qualified "J+" as estimated with a high bias.
- The recoveries for total cyanide were below the control limits for MS and MSDs prepared from samples MW-839S (0-2), MW-820S-GW and MW-811S-GW. The associated results were qualified "J-" as estimated with a low bias.
- The recovery for total cyanide was above the control limit in the MS and below the control limit in the MSD prepared from groundwater sample MW-825S-GW. The MS/MSD RPD also exceeded the control limit. The result was qualified "J" as estimated.
- The recoveries for ammonia were outside the control limits in the MS and/or MSD prepared from samples MW-816S-GW, MW-827S-GW. Data were qualified "J-" or "J+."
- The recovery for sulfate was below the control limit for the MS prepared from sample MW-822S-GW. The MS/MSD RPD also exceeded the control limit. The result was qualified "J" as estimated.
- The recovery for sulfide was above the control limit for the MS prepared from sample MW-839S (0-2). The result was qualified "J+" as estimated with a high bias.
- The recovery for total phenolics was above the control limit in the MS and below the control limit in the MSD prepared from soil sample MW-832D (4-6). The MS/MSD RPD also exceeded the control limit. The result was qualified "J" as estimated.

Data were not qualified when an MS/MSD recovery was high, and the associated result was non-detect. In these cases, non-detect results are not affected by a high bias. MS/MSDs were not evaluated when the parent sample concentration was greater than four times the spike concentration.

Laboratory and Field Duplicates

The following field duplicates pairs were analyzed for general chemistry methods: MW-810S/MW-810S-D, MW-818S-GW/MW-818S-D-GW, MW-822S/MW-822S-D, MW-830S-GW/MW-830S-D-GW, MW-832D-GW/MW-832D-D-GW, and MW-837S-GW/MW-837S-D-GW. RPDs were calculated for

results detected above the laboratory RLs in both the field sample and field duplicate. The RPDs were within 30%, with the following exceptions:

- The calculated RPD for total phenolics was 59% for field duplicate pair MW-818S-GW/MW-818S-D-GW and 79% for field duplicate pair MW-830S-GW/MW-830S-D-GW.
- The calculated RPD for sulfate was 56% for field duplicate pair MW-832D-GW/MW-832D-D-GW.
- The calculated RPD for total cyanide was 59% for field duplicate pair MW-837S-GW/MW-837S-D-GW.

The associated results in the parent samples and field duplicates were qualified "J" as estimated for a potential bias due to precision.

For method requiring laboratory duplicates, RPDs were reviewed. The RPDs for organic carbon fraction were above the acceptance criteria for soil samples MW-830S (0-2) and MW 833S (14-16). The results were qualified "J" as estimated.

Reporting Limits

Results were reported to the laboratory MDLs, adjusted for dilutions. Soil sample results were also adjusted for percent moisture content. Concentrations reported below the laboratory RL were qualified "J" as estimated.

5.5 Summary

Based on Ramboll's evaluation, the analytical data included in this data set are usable as qualified. Data reported as part of this data set were qualified for improper preservation, method blank and trip blank contamination, LCS/LCSD recoveries, surrogate recoveries, MS/MSD recoveries, field and laboratory duplicate results, results reported below the RL, and results reported above the calibration range. Four results for hexavalent chromium were rejected because the associated MS and MSD recoveries were below the lower rejection point (0%) for accuracy.

6. FIELD AND LABORATORY PROCEDURES

6.1 Ultraviolet Optical Screening Tool Investigation

The presence of LNAPL has been detected in monitoring wells MW-820S and MW-821S near the former benzol storage area and has not been detected in groundwater samples obtained from the numerous monitoring wells located hydraulically downgradient of monitoring wells MW-820S and MW-821S. The LNAPL consists of a relatively heavy fuel oil comprised of BTEX, PAH, and SVOC constituents. To further characterize NAPL distribution, a LIF investigation was implemented as part of the Pre-Design Investigation near the benzol storage area. LIF is a technology that uses laser light to excite fluorescent molecules that exist in a majority of hazardous NAPLs such as petroleum fuels/oils, coal tars, and creosotes. Direct push logging of the NAPL's inherent fluorescence with depth provides rapid delineation of NAPL. Conducting multiple LIF logs at NAPL sites allows for development of a detailed NAPL CSM.

Tar-specific Green Optical Screening Tool (TarGOST®) uses visible wavelength fluorescence spectroscopy, and was developed exclusively for detection of coal tars, creosotes, heavy crudes, and tank bottoms. The TarGOST® system is designed specifically to overcome low signal levels and often non-monotonic response observed related to coal tars and creosotes with current ultra-violet (UV)-based fluorescence systems. TarGOST® does not have the detection limits typically observed with the UV-based UVOST® on the lighter molecular weight NAPLs, rather TarGOST® focuses solely on mapping

higher molecular weight NAPL contamination (with a limit of detection of approximately 100 to 500 mg/kg NAPL on soil). TarGOST® has been confirmed to be useful for logging:

- Coal tar (coking, former manufactured gas plants, etc.);
- Creosote;
- Crude oil;
- Bunker C Fuel oil;
- Heavy distillate;
- Dripolene (olefin plant aromatic byproduct);
- Di(2-ethylhexyl) phthalate/Bis(2-ethylhexyl) phthalate; and
- Biodiesel.

UVOST® is a direct-imaging detection approach for hydrocarbon NAPLs including gasoline, diesel fuel, jet fuel, and hydraulic fluids. The system operates based on the principal of PAH fluorescence using UV light. The fluorescence signal scales proportionally with NAPL concentration and allows for three-dimensional imaging of source area contamination.

Two samples of LNAPL from the former benzol storage area (one LNAPL sample from monitoring well MW-820S and one LNAPL sample from monitoring well MW-821S) were collected on October 17, 2016, and submitted to Dakota Technologies, Inc. for bench-scale evaluation, to determine whether TarGOST® or UVOST® is the appropriate screening tool for LIF investigation of the former benzol storage area LNAPL. The bench-scale evaluation measured the fluorescence response of the NAPL samples using both TarGOST® and UVOST® systems. The fluorescence response measurements were conducted using actual field probes to emulate anticipated in-field measurements. Based on the bench-scale evaluation results, it was concluded that both TarGOST® and UVOST® revealed similar responses to the LNAPL samples. UVOST® was selected for the LIF investigation of the former benzol storage area because the relatively longer lifetimes of the UVOST® waveform were believed to allow for effective differentiation between the LNAPL and sources of possible false positives (such as slag and/or naturally-occurring organic matter, which generally have shorter waveform lifetimes).

Between May 9 and 19, 2017, the selected UVOST® screening tool was advanced using direct push methods at 76 locations at depths ranging from 3.5 to 40.3 feet bgs in the vicinity of the former benzol storage area. The locations and depths of the UVOST® borings were based on real-time fluorescence response measurements obtained in the field. The results of the LIF investigation are provided in Section 7.1.

6.2 Soil Boring and Monitoring Well Locations

A total of 10 soil borings and 13 monitoring wells were installed as part of the Pre-Design Investigation, during July and August 2017. The rationales for the installed well locations are discussed in Section 4.2. The locations of the Pre-Design Investigation and previously-installed soil borings and monitoring wells are provided on Figure 2.

6.3 Fill/Soil Sampling

Fill/soil samples for visual classification and screening were collected in general conformance with the field procedures described in the QAPP using conventional boring equipment. The soil samples were field-screened using a PID. Soil sampling for laboratory analysis was generally conducted at three planned intervals: 0 to 2 feet bgs (clean granular fill samples), 2-foot interval above the water table (subsurface slag-fill samples above the water table), and the bottom 2 feet of the soil boring

(subsurface slag-fill/soil samples below the water table). All soil borings were sampled from 0 to 2 feet bgs except for nested well MW-832S. Soil borings SB-884, SB-892, and SB-893 were sampled from 0 to 2 feet bgs and the 2-foot interval above the water table. Monitoring well borings MW-828S, MW-829S, MW-830S, MW-831S, MW-832D, MW-833S, MW-834D, MW-835D, MW-838S, and MW-839S were sampled at all three depth intervals. Monitoring well boring MW-832S was not sampled during installation based on its proximity to monitoring well boring MW-832D.

Fill/soil samples were collected continuously from the ground surface to the boring terminus using a split-spoon sampler or the direct-push method. Wastes generated during sampling, including decontamination liquids and other debris, were handled in accordance with the procedures specified in Section 4.5 of the QAPP.

6.4 Monitoring Well Installation and Development

Soil borings were completed at each well location prior to groundwater monitoring well installation. The borings were advanced using either hollow stem augers or direct-push drilling techniques. The drilling techniques are described in Section 4.10.2 of the QAPP.

Each monitoring well was constructed inside the drill string after the desired total depth of the well had been reached. Water table monitoring wells (MW-828S, MW-829S, MW-830S, MW-831S, MW-833S, MW-836S, MW-837S, MW-838S, and MW-839S) were constructed with a 10-foot long well screen to intersect the water table (approximately 2 feet of screen above the water table and 8 feet below). Deep monitoring wells (MW-832D, MW-834D, and MW-835D) were constructed with a 3-foot long well screen. The wells were constructed with 2-inch diameter new polyvinyl chloride (PVC) casing and well screen. The well screen was factory cut at 0.010-inch per slot. The filter pack extends one to 2 feet above the top of the screen and a 1-foot fine sand seal was placed above the filter pack. The remaining annular space was sealed with coarse, chipped bentonite to within 1 foot of the surface. A protective pipe and concrete surface seal completed the installation. At locations where the water table is less than 6 feet (MW-828S, MW-829S, MW-830S, MW-831S, MW-833S, MW-836S, MW-837S, MW-838S, and MW-839S), professional judgment was used in the field to position the screen and adjust the filter pack and filter pack seal thicknesses to install the water table monitoring wells. Borehole lithology and well construction details were documented on soil boring log and monitoring well construction diagrams, which are provided in Appendix B.

The monitoring wells were developed after the well was installed by surging and purging the well until the development water cleared, or five well volumes of groundwater had been removed. Monitoring well development forms are provided in Appendix C.

6.5 Groundwater Measurements

Groundwater measurement procedures were conducted in general conformance with the field procedures described in the QAPP. The specific measurements that were collected are described below.

6.5.1 Monitoring Well Location and Elevation Surveying

Monitoring well locations were field-located prior to installation, for purposes of utility clearance by ArcelorMittal. After the monitoring wells were installed, the locations and well casing elevations of new and existing wells, as well as ground surface elevations, were obtained using standard surveying techniques in general conformance with field procedures provided in the QAPP. The monitoring well location and elevation survey was conducted by DLZ of Burns Harbor, Indiana, on September 7, 2017.

6.5.2 Groundwater Levels and LNAPL Measurements

Groundwater levels and LNAPL thicknesses (where LNAPL is present) were measured in all monitoring wells at the site. Measurements were collected from the permanent point indicated at the top of the inner casing (generally the north side of the casing), unless otherwise specified, using an electronic water level measuring device (water level indicator) for wells without LNAPL and an interface probe (a water level meter with an optic sensor and differing audible tones) for wells with LNAPL present.

Water and LNAPL (where present) levels were measured by lowering the probe into the well until the device indicated that a fluid has been encountered, usually with either a constant tone, or a light, or both. Interface probes generally provide a steady tone indicating LNAPL and an intermittent tone for water. The water and LNAPL (where present) levels were recorded to the nearest 0.01-foot using the graduated markings on the water level indicator or interface meter cord. This measurement, when subtracted from the measuring point elevation, yields the elevation of the top of the fluid measured. Fluid levels were measured to the nearest 0.01 foot.

6.6 Groundwater Sampling

Groundwater samples were collected in general conformance with the field procedures described in the QAPP. Prior to sampling, the water level in each well was measured and recorded in the field logbook. Field measured parameters were recorded during sampling activities and include pH, oxidation-reduction potential (ORP), dissolved oxygen (DO), temperature, and conductivity.

Groundwater samples were collected using a peristaltic pump. The procedures used to sample the wells with the peristaltic pump included the following:

1. Opened the well and allowed the water level to equilibrate to atmospheric pressure.
2. Set up and measured the appropriate length of new disposal sample tubing. Inserted new silicone tubing into the pump head of the peristaltic pump.
3. Set up the flow-through cell calibrated the measurement equipment (pH, temperature, conductivity, ORP, and turbidity).
4. Measured the depth to groundwater and LNAPL, if applicable.
5. Lowered the disposable tubing into the well so that the bottom of the tubing was at the approximate center of the saturated interval within the well.
6. Turned on the pump and began purging at a flow rate such that the water level of the well remained near its static water level, to prevent cascading of the water down the well screen so that aeration of the water sample did not occur. The flow rates generally ranged from 200 to 250 milliliters per minute (mL/min).
7. Documented the measured field parameters, pump rate and groundwater level every 3 to 5 minutes. When three consecutive readings were within 10 percent of each other, the well was considered ready for sampling.
8. LNAPL was present in monitoring wells MW-820S and MW-821S. LNAPL was purged prior to sampling to ensure free product was not incorporated into the sample. While inserting sampling tubing into wells with LNAPL, reverse air flow (positive pressure) was imposed through the sample tubing by the peristaltic sampling pump to reduce the potential for tubing contact with LNAPL.
9. Removed sample tubing from the flow-through cell prior to sampling to prevent cross-contamination.

10. Filled each laboratory-supplied, pre-preserved container in the following order: VOCs, SVOCs, PAHs, TOC, other inorganic parameters, total metals, and lastly dissolved metals. The metal samples were field filtered for dissolved metals analyses.

Non-disposable sampling equipment (e.g., water level indicator and interface probe) was decontaminated in accordance with procedures described in Section 6.7. New, clean tubing was used for each monitoring well sampled, such that decontamination of tubing was not necessary. Purge water generated during sampling, decontamination fluids, and other debris, were containerized and disposed as described in Section 4.5 of the QAPP. Groundwater sampling forms are provided in Appendix D.

6.7 Decontamination Procedures

Split-spoon samplers, direct-push drilling equipment, and field analytical equipment that came in direct contact with the sample or sample media, including, but not limited to water level meters, interface probes, pH or specific ion probes, specific conductivity probes, thermometers, and borehole geophysical probes were decontaminated before and after field activities. The equipment was decontaminated as follows:

1. Cleaned with tap water and laboratory detergent using a brush if necessary to remove particulate matter and surface films.
2. Rinsed thoroughly with tap water.
3. Rinsed thoroughly with distilled-de-ionized water and allowed to air dry.

6.8 Calibration and Maintenance Procedures

PID meters and water quality meters were calibrated and maintained daily in general conformance with the manufacturer's recommendations. The field equipment was inspected and checked prior to conducting each field activity to ensure proper operation.

6.9 Calculation of Data Statistics

After completion of laboratory analytical data validation, the data were statistically analyzed using the procedures summarized below and in detail in Volume 5, Section 9.3 of the QAPP.

Basic statistical calculations were conducted on the concentrations of the analytes detected in the slag-fill/soil samples (as shown in Table 4) and groundwater samples (as shown in Table 8). The data were tabulated for statistical analysis. Summary statistics were presented for each of the datasets (soil and groundwater). These summary tables include for each analyte:

a. frequency of detection (as a percentage);
b. range of detected concentrations;
c. mean concentration (arithmetic); and
d. comparison to the DQOs.

The most common method for using data for chemicals detected at least once but not in all samples in a specific dataset is to assign a value of one-half the sample quantitation limit in calculating summary statistics (USEPA, 1989). This procedure was followed for this statistical analysis.

6.10 Pre-Design Testing of Surfactant Enhanced Recovery Alternative

6.10.1 Pre-Design Bench-Scale Testing

As an initial step in evaluation of the surfactant enhanced recovery remedial alternative, Pre-Design bench-scale testing was conducted by applying LNAPL samples obtained from the former benzol storage area with a variety of surfactant solutions to evaluate their ability to create an emulsion. Samples of LNAPL were obtained from monitoring wells MW-820S and MW-821S on September 18, 2017, and shipped via courier under standard COC protocol to ETEC of Washougal, Washington. A commercially-available non-ionic surfactant used for the bench-scale testing is known as PetroSolv™, which is a non-toxic and biodegradable surfactant designed for temporary emulsification of hydrophobic constituents (such as petroleum hydrocarbon compounds). This surfactant has been successfully applied at numerous petroleum hydrocarbon-impacted sites throughout the United States.

The solutions were prepared in Erlenmeyer flasks (1,000 mL) that were equally agitated with the objective of creating emulsions, in accordance with the following sequence:

Control: Water, LNAPL only, no surfactant

Surfactant 3%: Water with 3% surfactant, LNAPL

Surfactant 5%: Water with 5% surfactant, LNAPL

Surfactant 10%: Water with 10% surfactant, LNAPL

The bench-scale testing performed by ETEC is further documented in Appendix E. Based on the result of the bench-scale testing, the Pre-Design field-scale testing was subsequently conducted using a 4 percent surfactant solution, as further described below.

6.10.2 Pre-Design Field-Scale Testing

Between August 25 and 30, 2017, one pilot test extraction well and five pilot test injection wells were installed using hollow-stem auger technology at the locations shown on Figure 8. The wells were constructed of 4-inch diameter PVC casing and screens. The injection wells were screened from approximately 4 to 14 feet bgs, and the extraction well was screened from approximately 9 to 19 feet bgs. Soil boring logs and well details for these six pilot test wells are provided in Appendix B.

To document the intended pilot test injection of PetroSolv™ surfactant solution, an *Underground Discharge System (Class V) Inventory Sheet* was submitted to the USEPA on October 9, 2017. The field-scale surfactant injection/extraction testing was conducted between October 16 and 21, 2017. The pilot testing included injection of the 4 percent PetroSolv™ surfactant solution into the five new injection wells while actively extracting groundwater from the extraction well followed by 24 to 48 hours of contact, and then vacuum extraction of groundwater from the extraction and injection wells. The following specific activities were conducted, based on understanding of the horizontal and vertical extent of LNAPL.

1. A total of 500 gallons of surfactant was mixed with 12,680 gallons of water. This solution was pumped into the new injection wells via direct connection to the well casings. Each new injection well received approximately 2,500 gallons of surfactant solution.
2. Throughout the injection process, groundwater was continuously extracted from the new extraction well using a submersible pump. In-field monitoring for surfactant breakthrough was conducted at the extraction well location. The extracted groundwater was pumped into a poly tank (1,200-gallon capacity) that was located on site. The impacted groundwater was treated with granular activated carbon (GAC) and then used for mixing with the surfactant/products and subsequently re-injected into the impacted zone.

3. The injection wells were periodically surged using surge blocks. The surging events were conducted to enhance contact with surrounding product-saturated ("smear zone") soil, and to increase peripheral distribution of the surfactant solution. After surging the wells multiple times during and after injection, the surfactant solution was provided with 24 hours of contact time within the aquifer.
4. Subsequent to the 24-hour contact time, the surfactant fluid was extracted using a mobile vacuum extraction system. To verify complete recovery of the injected surfactant solution, the total groundwater extraction volume (13,693 gallons) was greater than the volume of surfactant solution that was injected (12,680 gallons). The vacuum extraction events recovered fluid from the injection and extraction wells, which was transported for off-site disposal by US Ecology.
5. After the vacuum extraction events were completed, 20 gallons of hydrocarbon-degrading bacterial consortia, and 1,000 pounds of macro-nutrients (nitrogen, phosphorus, and potassium), micro-nutrients, and secondary electron acceptors (nitrate and sulfate) were mixed with approximately 3,000 gallons of water and injected into the five new injection wells. This activity was designed to promote biological stimulation and degradation of residual dissolved-phase constituents.

The pilot-scale surfactant injection/extraction testing performed by ETEC is further documented in Appendix E. After the field-scale injection/extraction event, the biological amendments were allowed to stimulate biodegradation over a 6-month timeframe. Field data, including LNAPL measurements, pH, DO, ORP, and specific conductivity as well as nutrient (ammonia and nitrate) and VOC/PAH data were collected on a monthly basis from monitoring well MW-820S. The LNAPL measurements were used to evaluate the efficacy of surfactant-enhanced LNAPL recovery from the former benzol storage area as part of the forthcoming CMS, for possible future full-scale application. The monthly monitoring results are discussed in Section 7.4.

6.11 Pre-Design Bench-Scale Testing of Hydraulic Recovery Alternative

Bench scale tests to evaluate physical recovery of site LNAPL were conducted by PTS Laboratories (PTS) of Houston, Texas. PTS is a geotechnical laboratory that specializes in petrophysical analyses of unconsolidated soil cores. A total of 6 feet of soil core was collected from three well borings located near the former benzol storage area where LNAPL is present in the subsurface. A hollow-stem auger rig with a split-spoon sampler with 3-inch diameter acetate liner was used to collect the cores with as little disturbance to the pore structure as possible. The soil cores were collected from across the LNAPL zone from well borings IW-3 (8 to 10 feet bgs), IW-4 (6 to 8 feet bgs), and EW-1 (6 to 8 feet bgs). The 2-foot cores were packed vertically, frozen using dry ice, and shipped with fresh dry ice to PTS on September 9, 2017, for analyses via Method API RP40.

Method API RP40 is conducted without backpressure at as-received condition. The sample is mounted frozen in a core holder with a phase separator to capture NAPL at the top (downstream) end. After thawing, laboratory water is injected from the bottom (all flow is vertical up). Water is injected continuously at three different rates. The first rate is the air displacement (initial saturation) rate to generate a slow piston-like displacement of any gas and to saturate the sample as fully as possible. Once the sample is fully saturated with water (no more gas produced or approximately two pore volume of throughput) the rate is increased. The second rate is the primary flow rate (approximately 2 cubic centimeters per minute, if possible). After an additional two pore volumes of throughput, the flow rate is increased to the final rate. The final rate is designed to flush any mobile NAPL that may be held up in the sample or test apparatus. Visual observations are made during the test and the volume of any visible NAPL produced is recorded.

Following the water drive, the sample is removed from the core holder and distillation extraction via the API Dean-Stark Method is used to determine residual saturations. Once the residual saturations are known, initial NAPL saturation is calculated by adding the volume of produced NAPL to the respective phase of residual saturation. The results of the pre-design bench-scale testing of the hydraulic recovery alternative are provided in Section 7.5.

6.12 Pre-Design Bench-Scale Testing of In-Situ Chemical Oxidation Alternative

TOD bench scale tests were conducted by Resolution Partners, LLC (Resolution Partners) of Madison, Wisconsin. Resolution Partners provides treatability laboratory services that provide information necessary to evaluate the feasibility of ISCO, *in-situ* chemical reduction and *in-situ* stabilization remedial technologies. A total of three soil samples were collected from three well borings located near the former benzol storage area where LNAPL is present in the subsurface. A hollow-stem auger rig with a split-spoon sampler was used to collect the soil samples. The soil cores were collected from across the LNAPL zone from well borings IW-3 (6 to 8 feet bgs), IW-4 (6 to 8 feet bgs), and IW-5 (6 to 8 feet bgs). The soil samples were shipped to Resolution Partners on August 31, 2017, for analyses of 7-day TOD relative to sodium persulfate, in conformance with procedures comparable to those discussed by Haselow et al. (2003) and PeroxyChem's Persulfate Technical Bulletin. Alkaline activation of the sodium persulfate was performed using sodium hydroxide. The results of the pre-design bench-scale testing of the ISCO alternative are provided in Section 7.6.

7. RESULTS AND ANALYSIS

7.1 Ultraviolet Optical Screening Tool Investigation Results

LIF using UVOST® employs laser light to excite fluorescent molecules contained in many NAPLs, including petroleum fuels/oils. Fluorescence is the emission of photons (light) of a longer wavelength relative to the source emission. The release of these photons can be used to detect small amounts of a substance (such as PAHs) in a larger matrix (soil). Direct push logging of the NAPL's inherent fluorescence with depth provides rapid delineation of NAPL. Multiple LIF logs conducted at NAPL release sites can provide a relatively non-subjective basis for a NAPL CSM. However, UVOST® is a screening tool that is best used within the framework of a multiple lines-of-evidence approach (including laboratory analysis of soil cores and LNAPL occurrence in monitoring wells).

The LIF log y-axis is reported in feet bgs, while the x-axis represents fluorescence intensity or Signal %RE. The RE represents Reference Emitter, which normalizes the LIF response similar to the use of 100 parts per million (ppm) isobutylene to normalize the response of a PID. The RE is a clear container filled with a stable fluorescent NAPL that serves both as a single point calibration and as an overall system check. The total area of the waveform is divided by the total area of the RE, which yields the %RE. UVOST® is referred to a semi-quantitative investigative technology because increases in %RE generally correspond to higher LNAPL pore saturation values. However, UVOST® does not differentiate between mobile and immobile fractions, such that LNAPL occurrence in monitoring wells is used to further evaluate LNAPL recoverability.

The waveform returned by the RE fluid consists of four separate waveform peaks, to aid in identification and relative quantity of the compound present. The four colored peaks in the waveform (referred to as channels) reflect different PAH emission wavelengths that are filtered by the UVOST® system into four categories: 350 nanometers (blue), 400 nanometers (green), 450 nanometers (orange), and 500 nanometers (red). UVOST® waveforms from fuels dominated by 2-ring PAHs (such as naphthalenes in kerosene) are heavily weighted toward the first (blue) channel. Diesel fuel has a broad distribution of 2, 3, and 4 ring PAHs, such that it is indicated across all channels (blue, green,

orange, and red). Bunker fuel's fluorescence is dominated by the larger 4 and 5 ring PAHs, such that its fluorescence waveform is right-weighted (high in the orange and red channels).

Between May 9 and 19, 2017, the selected UVOST® screening tool was advanced using direct push methods at 76 locations depths ranging from 3.5 feet to 40.3 feet bgs in the vicinity of the former benzol storage area. The locations and depths of the UVOST® borings were based on real-time fluorescence response measurements obtained in the field. Between July 11 and 18, 2017, seven hydraulic probes were advanced to depths of 12 feet within the UVOST® investigation area, to further evaluate slag-fill/soil conditions and visual indications of NAPL. The results of the UVOST® investigation are provided in Appendix F. The locations of the UVOST® borings are shown on the "GPS Locations Map" provided in Appendix F. The "2D Contour Map" provided in Appendix F represents the maximum signal response (>75% RE) representing LNAPL fluorescence at each location, regardless of depth. As shown on the 2D Contour Map, the northern extent of maximum LNAPL fluorescence is located approximately 60 feet northwest of monitoring well MW-820S. The eastern extent of maximum LNAPL fluorescence is located approximately 40 feet west of monitoring well MW-838S. The southern extent of maximum LNAPL fluorescence is located approximately 100 feet northwest of monitoring well MW-839S. The western extent of maximum LNAPL fluorescence is located approximately 60 feet north of monitoring well MW-828S. The observed fluorescence was mainly located at depths of approximately 3 to 17 feet bgs, with a maximum depth of approximately 28 feet at LIF boring MW-820SSW20, located near monitoring well MW-820S where measurable LNAPL thickness has historically been identified.

Based on evaluation of the LIF boring waveforms provided in Appendix F, the NAPL is predominantly orange-shifted in the northern portion of the area of identified fluorescence, and more red-shifted in the southern and western portion of the identified area. The southern and western portion of the identified area also features lower blue waveform responses. A similar trend of less blue-shifted and more red-shifted responses and decreasing waveform lifetimes are also occasionally observed with increasing depth (e.g., LIF-B0300, LIF-E0400, and LIF-MW820SW5). The red-shifted responses towards the south and west are indicative of larger 4 and 5 ring PAHs, such as Bunker fuel. Heavier petroleum products such as Bunker fuel may have a greater density than water, which may be indicated by the increasing red-shifted responses with depth.

Weathering typically removes the most soluble, volatile, and readily metabolized PAHs first. Large PAHs remain behind, which causes a red-shift in the fluorescence waveform. Simultaneously, there is a loss of solvent aliphatics, which often shortens the waveform lifetime such that a weathered light fuel will begin to resemble oil or even tar. Boring LIF-B0700, located in the extreme southern portion of the LIF investigation area, provides an example of short waveform lifetimes that are indicative of weathered petroleum product.

Based on the foregoing observations, relatively heavier petroleum products may have historically been released in the southern and western portion of the LIF investigation area than in the northern and eastern portion of the investigation area. A portion of the heavier petroleum products were likely more dense than water, which may account for the observed fluorescence to depths as great as 28 feet. The absence of blue-shifted responses in the southern and western portion of the LIF investigation area may also be indicative of the presence of more weathered petroleum product in those areas. The presence of more weathered petroleum product in the southern and western portion of the LIF investigation area is also consistent with older releases that have historically migrated from the upgradient former benzol storage area and are no longer mobile (based on the absence of measurable LNAPL in nearby monitoring wells and visible separate phase LNAPL in nearby soil borings).

Electrical conductivity data were obtained simultaneously with the UVOST® data. Increased electrical conductivity readings were observed within the 4 to 8-foot bgs depth interval within the investigation area. Up to 6 feet of clean granular fill materials and a geotextile material were placed over the site in 2009. The increased electrical conductivity readings may be at least partially attributable to these deposited anthropogenic materials.

7.2 Slag-Fill/Soil Sample Results

Slag-fill and soil samples were retained for laboratory analyses from 10 installed soil borings (SB-884 through SB-893) and 12 installed monitoring wells (MW-828S, MW-829S, MW-830S, MW-831S, MW-832D, MW-833S, MW-834D, MW-835D, MW-836S, MW-837S, MW-838S, and MW-839S). Monitoring well MW-832S was installed adjacent to MW-832D but soil samples were not collected from MW-832S due to the proximity to the analytical samples collected for MW-832D. The soil boring and monitoring well locations are shown on Figure 2. Samples retained for laboratory analysis from soil borings (SB-884 through SB-893) were collected from the upper 2-foot interval above the water table. Three of the ten soil borings (SB-884, SB-892, and SB-893) were extended to the water table and an additional sample was collected from the 2-foot interval above the water table. Samples retained for laboratory analysis from the 12 monitoring wells include the upper 2-foot interval of the subsurface, the 2-foot interval above the water table, and the bottom 2 feet of the soil boring extending below the water table. Slag-fill/soil samples below the upper 2-foot interval of the subsurface from MW-836S and MW-837S were not obtained because the intent of these two wells was to delineate the western extent of arsenic and benzene impacts in shallow groundwater along the western property boundary.

Laboratory analyses collected from the 10 soil borings and 12 monitoring wells included metals, VOCs, PAHs, SVOCs, cyanide, sulfide, TOC, total phenolics, sulfate, sulfide, pH, chloride, and nitrogen. The tabulated laboratory results are presented in Table 4; the statistics included in Table 4 for constituents with a detection frequency greater than 1 percent include the percent detected, the average detected concentrations, the minimum detected concentrations, and the maximum detected concentrations.

Table 5 provides ranges of the analytical MDLs compared against DQOs for the slag-fill/soil samples. Table 6 identifies slag-fill/soil sample results that exceed IDEM DQOs. The locations of these exceedances (based on both 2012 and 2017 slag-fill/soil data) are shown on Figure 9. Level IV analytical laboratory reports are provided in Appendix G.

7.2.1 VOCs

Twenty-nine VOCs were analyzed and seven VOCs were detected above the MDL in the slag-fill/soil samples submitted for laboratory analysis. Specifically, benzene, ethylbenzene, toluene, chlorobenzene, methylene chloride, PCE, and 1,1,1-TCA were detected above the MDL in at least one slag-fill/soil sample. Approximately 20 percent of the detections were estimated concentrations between the MDL and RL. Concentrations of VOCs that exceeded IDEM DQOs were limited to benzene and toluene. None of the samples obtained from 0 to 2 feet bgs revealed benzene or toluene concentrations greater than their respective direct contact DQOs. The IDEM industrial DQO for benzene is 0.35 mg/kg for both migration to groundwater and default closure. Benzene concentrations greater than these IDEM DQOs were detected in slag-fill/soil samples from the following monitoring well borings: MW-828S (8 to 12 feet bgs), MW-830S (10 to 12 feet bgs), MW-831S (14 to 16 feet bgs), MW-832D (38 to 40 feet bgs), MW-838S (2 to 4 feet bgs), and MW-838S (14 to 16 feet bgs). The concentrations of benzene in these samples ranged from 5.6 to 220 mg/kg. The IDEM industrial DQO for toluene is 96 mg/kg for both migration to groundwater and default closure. A toluene concentration greater than these IDEM DQOs was detected in the slag-fill/soil sample from monitoring well boring MW-828S (8 to 12 feet bgs, 380 mg/kg).

7.2.2 PAHs and SVOCs

All 16 PAHs analyzed were detected above the MDL in at least one of the slag-fill/soil samples collected as part of the Pre-Design Investigation. Approximately 10 percent of the detected PAHs were estimated values between their respective MDL and RL. Slag-fill/soil samples from the following monitoring well borings contained PAH concentrations greater than their respective IDEM DQOs: MW-828S (8 to 12 feet bgs), MW-830S (0 to 2 feet bgs), MW-830S (2 to 4 feet bgs), MW-831S (0 to 2 feet bgs), MW-831S (4 to 6 feet bgs), MW-832D (0 to 2 feet bgs), MW-833S (0 to 2 feet bgs), MW-833S (4 to 6 feet bgs), MW-834D (0 to 2 feet bgs), MW-838S (0 to 2 feet bgs), MW-838S (14 to 16 feet bgs), MW-839S (2 to 4 feet bgs), MW-839S (10 to 12 feet bgs), and SB-890 (0 to 2 feet bgs). All seven of the samples identified above that were obtained from 0 to 2 feet bgs exceeded their respective direct contact DQOs for PAHs.

IDEM migration to groundwater DQOs are applicable to samples obtained from above the water table. One of the soil samples obtained from above the water table contained PAH concentrations greater than IDEM migration to groundwater DQO (16 mg/kg for benzo(a)pyrene (MW-831S [0 to 2 feet], 46 mg/kg).

Forty SVOCs were analyzed and two SVOCs were detected above the MDL (dimethylphthalate and phenol) in three slag-fill/soil samples (MW-831S [0 to 2 feet bgs], MW-832D [38 to 40 feet bgs], and MW-838S [0 to 2 feet bgs]). All three of these detections were estimated concentrations between their respective MDL and the RL. None of the SVOC detections exceeded their respective IDEM DQOs.

7.2.3 Metals

All 20 metals analyzed were detected above the MDL in at least one of the slag-fill/soil samples collected as part of the Pre-Design Investigation. Approximately 30 percent of the detected metals were present at estimated concentrations between the MDL and the RL. None of the detected metals concentrations exceeded direct contact DQOs. Of the 20 metals analyzed, only arsenic and lead exceeded the IDEM migration to groundwater and default closure DQO criteria of 5.8 mg/kg and 230 mg/kg, respectively. The following slag-fill/soil samples contained arsenic greater than these IDEM DQOs: MW-830S (2 to 4 feet bgs) at 6.2 mg/kg, MW-831S (0 to 2 feet bgs) at 7.6 mg/kg, MW-832D (0 to 2 feet bgs) at 5.9 mg/kg, MW-833S (14 to 16 feet bgs) at 9.2 mg/kg, and MW-839S (2 to 4 feet bgs) at 6.1 mg/kg. The only slag-fill/soil sample which contained a lead concentration greater than these IDEM DQOs was MW-831S (0 to 2 feet bgs, 290 mg/kg).

7.2.4 Other Slag-Fill/Soil Analytes

Total cyanide was analyzed in 24 slag-fill/soil samples; 20 of these samples contained detectable cyanide concentrations. Approximately 20 percent of these samples contained total cyanide were present at estimated concentrations between the MDL and RL. None of the detected cyanide concentrations exceeded any IDEM DQOs.

IDEM DQOs have not been established for the remaining slag-fill/soil sample analytes, including TOC, sulfide, total phenolics, ammonia, chloride, sulfate, and pH. These analytes are discussed below.

All of the slag-fill/soil samples analyzed for TOC, except MW-831S (14 to 16 feet bgs), MW-832D (4 to 6 feet bgs), and MW-839S (2 to 4 feet bgs), contained TOC concentrations greater than the RL. The detected TOC concentrations ranged from 0.1 mg/kg (MW-829S [14 to 16 feet bgs]) to 28 mg/kg (MW-830S [2 to 4 feet bgs]). Sulfide was detected in 20 of the 24 samples submitted for analysis ranging from 6.1 mg/kg (MW-831S [14 to 16 feet bgs]) to 2,100 mg/kg (MW-828S [0 to 2 feet bgs]). Total phenolics were detected in 14 slag-fill/soil samples ranging from an estimated concentration of 0.31 mg/kg (MW-833S [4 to 6 feet bgs]) to 6.5 mg/kg (MW-830S [2 to 4 feet bgs]). Approximately 20 percent of the samples that contained detected total phenolics were present at estimated

concentrations between the MDL and RL. Ammonia concentrations in the slag-fill/soil samples ranged from non-detect (MW-829S [14 to 16 feet bgs], MW-832D [0 to 2 feet bgs], MW-832D [4 to 6 feet bgs], MW-833S [0 to 2 feet bgs], MW-833S [4 to 6 feet bgs], MW-833S [14 to 16 feet bgs], and MW-839S [0 to 2 feet bgs]) to 25 mg/kg (MW-839S [2 to 4 feet bgs]). Approximately 40 percent of the samples that contained detected ammonia were present at estimated concentrations between the MDL and RL.

Chloride was not detected in any of the slag-fill/soil samples. Sulfate was detected in all slag-fill/soil samples submitted for analysis, ranging from an estimated concentration of 230 mg/kg (MW-833S [0 to 2 feet bgs]) to a detected concentration of 11,000 mg/kg (MW-830S [2 to 4 mg/kg]). Approximately 10 percent of the samples that contained detected sulfate were present at estimated concentrations between the MDL and RL. Values of pH in the slag-fill/soil samples ranged from 7 (MW-830S [2 to 4 feet bgs]) to 12.3 (MW-833S [4 to 6 feet bgs]). The relatively high pH value in the slag-fill/soil sample from monitoring well boring MW-833S is not unexpected at the former Coke Plant, as the water table monitoring wells are screened within slag-fill. Steel slag contains significant concentrations of calcium and magnesium, in the form of silicates, ferrites, aluminates, and oxides. Magnesium oxide, calcium oxide, and calcium silicate act as liming agents and are alkaline.

A CSM diagram of sources, release mechanisms, contact media, exposure routes, and receptors is provided on Figure 3. As shown on Figure 3, no terrestrial or aquatic receptors have been identified associated with the slag-fill/soil. Although Region 5 ESL criteria are included on Table 4, USEPA Region 5 ESLs are not applicable to the former Coke Plant slag-fill/soil and are not evaluated herein.

7.3 Groundwater Sample Results

Groundwater quality within the former Coke Plant area was evaluated through the collection of groundwater samples from 45 previously-installed monitoring wells and 13 monitoring wells installed as part of the Pre-Design Investigation. The combined 58 monitoring wells include 36 shallow wells, 3 intermediate wells, and 19 deep wells. Groundwater samples were collected from the monitoring wells between September 11 and September 14, 2017. Monitoring well MW-802S was scheduled to be sampled during the Pre-Design Investigation groundwater sampling event; however, the above grade well casing for well MW-802S was discovered to be destroyed such that sample collection was not possible. Monitoring well MW-802S was therefore not sampled as part of the September 2017 groundwater sampling event.

Field parameters (temperature, pH, conductivity, ORP, and turbidity) were measured as part of each sampling event; these data are provided in Table 7. Laboratory analysis of the groundwater samples included 29 VOCs, 39 SVOCs, 16 PAHs, 21 metals, alkalinity, ammonia, hardness, sulfide, total cyanides, total phenolics, TOC, chloride, COD, and sulfate. The tabulated laboratory results are presented in Tables 8A, 8B, 8C, and 8D, and Level IV data quality laboratory reports are provided in Appendix G. The statistics included in all four tables include the percent detected, the average detected concentrations, and the minimum and maximum detected concentrations. Table 9 provides ranges of the laboratory MDLs compared against DQOs and ESLs. Table 10 identifies groundwater sample results that exceed DQOs and ESLs.

7.3.1 Groundwater Data Analysis

Groundwater analytical results are discussed by analytical group (i.e., VOCs, PAHs/SVOCs, metals, and other parameters), and are compared against the DQOs provided in the Pre-Design Work Plan. Estimated concentrations are detected concentrations between the MDL and the RL and are qualified with a “J” identified in Tables 8A though 8D, and Table 10.

As part of the Pre-Design groundwater monitoring event, LNAPL was identified in monitoring wells MW-820S and MW-821S. These observations are consistent with historical observations at these two monitoring wells. LNAPL was not identified in any of the newly installed monitoring wells or previously installed monitoring wells within the former Coke Plant area as part of the September 2017 groundwater sampling event.

7.3.1.1 Volatile Organic Compounds

Of the 29 VOCs analyzed, eight VOCs were detected at concentrations greater than their respective MDL. The detected analytes were 1,1,1-TCA, 1,1-dichloroethane (1,1-DCA), benzene, chlorobenzene, chloroethane, ethylbenzene, methylene chloride, and toluene. VOC concentrations detected in September 2017 groundwater samples are shown in Table 8A.

1,1,1-TCA was detected in four monitoring wells (MW-811S, MW-814S, MW-836S, MW-837S, and MW-837S duplicate) at estimated concentrations ranging from 0.00025 J mg/L (MW-836S) to 0.00057 J mg/L (MW-811S) during the September 2017 sampling event. All of the 1,1,1-TCA estimated concentrations were below IDEM DQOs.

1,1-DCA was detected in 10 monitoring wells (MW-812S, MW-813S, MW-814S, MW-816S, MW-819S, MW-821S MW-825S, MW-831S, MW-836S, and MW-839S) at concentrations ranging from 0.00021 J mg/L (MW-812S) to 0.0077 mg/L (MW-821S). All detected 1,1-DCA concentrations were below the IDEM Groundwater Solubility DQO of 5,100 mg/L, IDEM Default Closure and Industrial DQO of 10 mg/L. An IDEM MCL DQO is not established for 1,1-DCA.

Benzene was detected in 33 monitoring wells during the September 2017 groundwater sampling event. None of the detected benzene concentrations exceeded the IDEM Groundwater Solubility DQO of 1,800 mg/L. The following 28 samples exceeded the benzene IDEM MCL DQO, as well as the IDEM Default Closure and Industrial DQO of 0.052 mg/L: MW-803S (5.7 mg/L), MW-803M (0.65 mg/L), MW-803D (3.3 J mg/L), MW-805S (13 mg/L), MW-806D (0.058 mg/L), MW-807D (5.1 J mg/L), MW-808S (36 mg/L), MW-808D (15 J mg/L), MW-809S (2.2 mg/L), MW-809M (6.1 mg/L), MW-809D (34 J mg/L), MW-816S (0.069 mg/L), MW-816D (12 J mg/L), MW-817D (0.11 J mg/L), MW-819S (57 mg/L), MW-819D (5.7 J mg/L), MW-820S (3.5 J mg/L), MW-821S (5.7 mg/L), MW-821D (300 J mg/L), MW-823S (1.8 mg/L), MW-823D (48 J mg/L), MW-824D (71 J mg/L), MW-828S (40 mg/L), MW-830S Duplicate (0.12 mg/L), MW-832S (0.66 mg/L), MW-832D (110 J mg/L), MW-832D Duplicate (100 J mg/L), MW-833S (0.16 mg/L), MW-838S (54 mg/L), and MW-839S (0.12 J mg/L). The following five samples exceeded the benzene IDEM MCL DQO of 0.005 mg/L but not the IDEM Default Closure and Industrial DQO of 0.052 mg/L: MW-801S (0.014 mg/L), MW-807S (0.04 J mg/L), MW-825S (0.032 mg/L), MW-826M (0.0098 J mg/L), and MW-830S (0.011 mg/L). The remaining seven estimated benzene concentrations (MW-814S, MW-817S, MW-824S, MW-827S, MW-834D, MW-836S, MW-837S, and MW-837S duplicate) did not exceed any of the IDEM DQOs.

Chlorobenzene was detected in 11 monitoring wells (MW-805S, MW-808S, MW-809S, MW-819S, MW-821S, MW-824S, MW-828S, MW-831S, MW-832D Duplicate, MW-838S, and MW-839S) at concentrations ranging from 0.0002 J mg/L (MW-824S) to 0.0087 mg/L (MW-838S). All of the detected chlorobenzene concentrations were below the IDEM Groundwater Solubility DQO of 470 mg/L, the IDEM Default Closure and Industrial DQO of 2 mg/L, and the IDEM MCL DQO of 0.1 mg/L.

Chloroethane was detected in two monitoring wells (MW-805S and MW-821S) at concentrations of 0.0019 mg/L and 0.0007 mg/L, respectively. Both chloroethane concentrations were below the IDEM Groundwater Solubility DQO of 5,700 mg/L, and IDEM Default Closure and Industrial DQO of 0.99 mg/L. No other DQOs are established for chloroethane.

Ethylbenzene was detected in groundwater samples obtained from 24 monitoring wells (MW-801S, MW-803S, MW-803M, MW-805S, MW-805D, MW-807S, MW-808S, MW-809S, MW-816S, MW-816D, MW-817S, MW-818S, MW-818S Duplicate, MW-819S, MW-820S, MW-821S, MW-821D, MW-824S, MW-824D, MW-825S, MW-828S, MW-830S, MW-833S, MW-838S, and MW-839S) during the September 2017 sampling event at concentrations ranging from 0.0002 J mg/L (MW-805D and MW-816D) to 1.3 mg/L (MW-819S). Groundwater samples from three (MW-807S, MW-819S, and MW-828S) of the 24 monitoring wells exceeded the IDEM MCL DQO of 0.7 mg/L at the following concentrations: 0.84 mg/L, 1.3 mg/L, and 0.99 mg/L, respectively. None of the groundwater samples exceeded the IDEM Groundwater Solubility DQO (170 mg/L) or the IDEM Default Closure and Industrial DQO (10 mg/L) for ethylbenzene based on the September 2017 sample data.

Methylene chloride was detected in monitoring well MW-805S at an estimated concentration of 0.00069 mg/L during the September 2017 sampling event. This estimated concentration was below the IDEM Groundwater Solubility DQO of 13,000 mg/L, IDEM Default Closure and Industrial DQO of 0.38 mg/L, and IDEM MCL DQO of 0.005 mg/L.

Toluene was detected in 30 monitoring wells (MW-801S, MW-803S, MW-803M, MW-805S, MW-807S, MW-807D, MW-808S, MW-808D, MW-809S, MW-809M, MW-816D, MW-817D, MW-818S, MW-818S Duplicate, MW-819S, MW-820S, MW-821S, MW-821D, MW-823S, MW-824D, MW-824S, MW-826S, MW-828S, MW-830S, MW-830S Duplicate, MW-832D, MW-832D Duplicate, MW-833S, MW-836S, MW-837S, MW-837S Duplicate, MW-838S, and MW-839S). The detected toluene concentrations ranged from 0.00019 J mg/L (MW-826S) to 33 mg/L (MW-828S). Groundwater samples from monitoring wells MW-808S, MW-808D, MW-819S, MW-828S, and MW-833S exceeded the IDEM Default Closure and Industrial DQO of 8.2 mg/L, or IDEM MCL DQO of 1 mg/L at concentrations of 1.2 mg/L, 3.8 mg/L, 17 mg/L, 33 mg/L, and 1.3 mg/L, respectively. None of the samples exceeded the IDEM Groundwater Solubility DQO of 530 mg/L during the September 2017 sampling event.

7.3.1.2 Semi-Volatile Organic Compounds

Of the 39 SVOCs analyzed, five SVOCs were detected above their respective MDLs. In general, the detected SVOC concentrations were substantially less than their respective IDEM DQOs. As discussed below, detected concentrations of 2,4-dimethylphenol, pentachlorophenol, and phenol exceeded their respective IDEM Default Closure and Industrial DQOs in monitoring wells MW-808D, MW-809D, MW-825S, or MW-836S. Detected SVOC concentrations in September 2017 groundwater samples are shown in Table 8B.

Analyte 2,4-dimethylphenol was detected in 15 monitoring wells (MW-805D, MW-807D, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-816S, MW-816D, MW-817D, MW-819D, MW-823S, MW-825S, MW-836S, and MW-838S). The detected 2,4-dimethylphenol concentrations ranged from 0.0011 J mg/L (MW-817D) to 2.5 mg/L (MW-808D). Two monitoring wells (MW-808D and MW-809D) exceeded the IDEM Default Closure and Industrial DQO of 2.0 mg/L at concentrations of 2.5 mg/L and 2.4 mg/L, respectively. All other detected 2,4-dimethylphenol concentrations were below the IDEM DQOs for 2,4-dimethylphenol.

Pentachlorophenol was detected in groundwater samples obtained from monitoring wells MW-825S and MW-836S at estimated concentrations of 0.022 J mg/L and 0.0073 J mg/L. Both estimated concentrations exceeded the IDEM MCL DQO of 0.001 mg/L. The detected concentrations did not exceed the IDEM Groundwater Solubility DQO (2,000 mg/L) or Default Closure DQO (0.024 mg/L).

Phenol was detected in groundwater samples obtained from 31 monitoring wells (MW-801S, MW-803S, MW-803M, MW-805S, MW-806S, MW-806D, MW-807S, MW-807D, MW-808S, MW-808D, MW-809S, MW-811S, MW-812S, MW-814S, MW-816S, MW-819S, MW-819D, MW-820S, MW-821S,

MW-821D, MW-822S, MW-823S, MW-823D, MW-824D, MW-828S, MW-830S, MW-830S Duplicate, MW-832D, MW-832D Duplicate, MW-836S, MW-837S, MW-837S Duplicate, MW-838S, and MW-839S) at concentrations ranging from 0.00044 J mg/L (MW-812S) to 55 mg/L (MW-808D). The detected phenol concentration in the groundwater sample from monitoring well MW-808D (55 mg/L) exceeded the IDEM Default Closure and Industrial DQO of 31 mg/L. None of the phenol samples exceeded the IDEM Groundwater Solubility DQO of 83,000 mg/L. An MCL DQO is not established for phenol.

Bis(2-ethylhexy)phthalate was detected in groundwater samples obtained from three monitoring wells (MW-809D, MW-832D, MW-832 duplicate, and MW-834D) at estimated concentrations of 0.0014 J mg/L, 0.0017 J mg/L, 0.0019 J mg/L, and 0.0013 J mg/L, respectively. None of the detected concentrations exceeded any IDEM DQOs for bis(2-ethylhexy) phthalate.

Diethyl phthalate was detected in the groundwater sample obtained from monitoring well MW-831S at an estimated concentration of 0.014 mg/L. This detected diethyl phthalate concentration is less than the IDEM DQOs for diethyl phthalate.

7.3.1.3 Polynuclear Aromatic Hydrocarbons

Of the 16 PAHs analyzed, benzo(a)pyrene, indeno(1,2,3cd)pyrene, and chrysene exceeded DQOs. Detected PAH concentrations in September 2017 groundwater samples are shown in Table 8B.

Benzo(a)pyrene was detected in seven monitoring wells (MW-817S, MW-818S, MW-818S duplicate, MW-821S, MW-823S, MW-828S, MW-830S, MW-830S duplicate, and MW-834D) above IDEM MCL DQO of 0.0002 mg/L at concentrations ranging from 0.00021 mg/L (MW-823S) to 0.0027 mg/L (MW-821S). Four of these monitoring wells (MW-821S, MW-828S, MW-830S, MW-830S duplicate, and MW-834D) exceeded the IDEM Industrial and Default Closure Level DQOs of 0.00039 mg/L, at concentrations of 0.0027 mg/L, 0.0022 mg/L, 0.0004 mg/L, 0.00045 mg/L, and 0.00043 mg/L, respectively. Monitoring wells MW-821S and MW-828S also exceeded the IDEM Groundwater Solubility DQO of 0.0016 mg/L at concentrations of 0.0027 mg/L and 0.0022 mg/L.

Indeno(1,2,3cd)pyrene was detected in groundwater samples from eight monitoring wells (MW-817S, MW-818S, MW-818S duplicate, MW-819D, MW-823S, MW-825S, MW-828S, MW-830S, MW-830S Duplicate, and MW-834D) at concentrations above the IDEM Groundwater Solubility DQO of 0.000022 mg/L. The detected concentrations ranged from 0.00019 mg/L (MW-823S) to 0.002 mg/L (MW-828S). The detected indeno(1,2,3cd)pyrene concentrations did not exceed any other DQOs.

Chrysene was detected at an estimated concentration of 0.0018 mg/L in the groundwater sample from monitoring well MW-821S, which exceeds the Groundwater Solubility DQO of 0.0016 mg/L. The detected chrysene concentration did not exceed any other DQOs.

7.3.1.4 Select Metals

All 21 metals analyzed were detected above MDLs in the groundwater samples obtained as part of the September 2017 groundwater sampling event. The following total and dissolved metals exceeded at least one of the IDEM DQOs: arsenic, lead, and thallium. Dissolved metals were also analyzed in the groundwater samples obtained as part of the September 2017 sampling event, and 18 of the 20 metals analyzed were detected above MDLs. The two dissolved metals not detected were cadmium and sliver. Detected metals concentrations in September 2017 groundwater samples are shown in Table 8C.

The total and dissolved metal analytical data are discussed in the following sections. Higher arsenic concentrations were detected in the deep monitoring wells, based on higher arithmetic mean arsenic concentrations in the deep wells (mean arsenic value of 0.077 mg/L for those samples that exceeded

the DQO) when compared to the shallow wells (mean arsenic value of 0.024 mg/L for those samples that exceeded the DQO). The higher arsenic concentrations detected in the deep well samples, relative to the shallow wells, are attributed to more reducing conditions associated with the depth of these wells and their proximity to historic Lake Michigan bottom sediments. Arsenic, like other oxidation-reduction sensitive metals, tends to accumulate at higher concentrations under reducing conditions (i.e., specifically in fine grained sediments).

Based on the ORP data provided in Table 7, arithmetic mean ORP values for the intermediate and deep wells are -306 millivolts (mV) and -196 mV, respectively, and -150 mV for the shallow wells. It can be concluded that, based on the average ORP data, the shallow wells screened in closer proximity to the slag-fill are generally characterized by somewhat less reducing conditions than the deep wells screened in closer proximity to historic Lake Michigan bottom sediments (as the relic shoreline approximately coincides with the railway adjacent to the north of the former Coke Plant).

Based on information contained in the National Academy of Sciences (NAS) publication entitled "Arsenic Medical and Biological Effects of Environmental Pollutants" (1977), the arsenic content in unconsolidated surface sediments (0 to 6 centimeters [cm]) of Lake Michigan average more than twice that of sediment at depths greater than 20 cm (12.4 mg/kg versus 5.3 mg/kg). Based on information contained in Table 4, laboratory results of slag-fill/soil samples ranged as high as 9.2 mg/kg arsenic. As such, the available data indicate similar ranges of arsenic concentrations between the slag-fill/soil samples collected in the area of the former Coke Plant and unconsolidated surface sediments of Lake Michigan based on the 1977 NAS data.

7.3.1.4.1 Total Metals

Total arsenic was detected in groundwater samples from 32 monitoring wells (MW-801S, MW-803D, MW-804S, MW-805S, MW-806S, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-810S, MW-810S duplicate, MW-812S, MW-814S, MW-815S, MW-816S, MW-816D, MW-817D, MW-818S, MW-818S duplicate, MW-820S, MW-821D, MW-822D, MW-823D, MW-826S, MW-826M, MW-827S, MW-829S, MW-830S duplicate, MW-832D, MW-832D duplicate, MW-833S, MW-836S, MW-837S, MW-837S duplicate, MW-838S, and MW-839S) above the Industrial DOQ (0.0019 mg/L). The detected concentrations ranged from 0.0019 J mg/L (MW-815S) to 0.24 mg/L (MW-809D). Of the 32 monitoring wells which exceeded the Industrial DQO, 23 of the monitoring wells (MW-801S, MW-803D, MW-806S, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-812S, MW-816S, MW-816D, MW-817D, MW-818S, MW-818S duplicate, MW-820S, MW-821D, MW-823D, MW-826S, MW-826M, MW-827S, MW-833S, MW-837S, MW-837S duplicate, and MW-839S) exceeded the MCL and Default Closure DQO of 0.01 mg/L at concentrations ranging from 0.011 J mg/L (MW-801S, MW-823D, and MW-837S duplicate) to 0.24 mg/L (MW-809D). A groundwater solubility DQO is not established for total arsenic.

Hexavalent chromium was detected in unfiltered groundwater samples from six monitoring wells (MW-803S, MW-806S, MW-811S, MW-826S, MW-826M, and MW-835D) at concentrations that slightly exceeded the MCL DQO of 0.1 mg/L; the detected concentrations ranged from 0.13 mg/L (MW-803S [J], MW-811S and MW-826M) to 0.14 mg/L (MW-806S [J-], MW-826S and MW-835D). None of the detected hexavalent chromium concentrations exceeded the Default Closure or Industrial DQO of 0.31 mg/L.

Total lead was detected in the groundwater sample from monitoring well MW-811S above the IDEM MCL DQO of 0.015 mg/L, at a concentration of 0.024 mg/L. This detected lead concentration is less than the Industrial DQO and Default Closure DQO of 0.042 mg/L. A groundwater solubility DQO is not established for total lead.

Total thallium was detected in groundwater samples from monitoring wells MW-806S and MW-824S at the IDEM MCL DQO of 0.002 mg/L. The detected thallium concentration in these two wells (0.002 mg/L) is less than the Industrial DQO and Default Closure DQO of 0.0072 mg/L. A groundwater solubility DQO is not established for total thallium.

7.3.1.4.2 Dissolved Metals

Dissolved arsenic was detected in groundwater samples from 35 monitoring wells (MW-801S, MW-803D, MW-805S, MW-806S, MW-806D, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-810S, MW-810S duplicate, MW-811S, MW-812S, MW-814S, MW-816S, MW-816D, MW-817S, MW-817D, MW-818S, MW-818S duplicate, MW-820S, MW-821D, MW-823S, MW-823D, MW-824D, MW-825S, MW-826S, MW-826M, MW-827S, MW-828S, MW-832D, MW-832D duplicate, MW-833S, MW-836S, MW-837S, MW-837S duplicate, MW-838S, and MW-839S) above the Industrial DQO of 0.0019 mg/L, at concentrations ranging from 0.002 J mg/L (MW-824D) to 0.27 mg/L (MW-809D). Dissolved arsenic was detected in groundwater samples from 21 of the 35 monitoring wells listed above (MW-801S, MW-803D, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-812S, MW-817S, MW-817D, MW-818S, MW-818S duplicate, MW-820S, MW-821D, MW-823D, MW-826S, MW-827S, MW-826M, MW-833S, MW-836S, MW-837S, MW-837S duplicate, MW-839S) above the MCL and Default Closure DQO of 0.01 mg/L at concentrations ranging from 0.011 J mg/L (MW-820S) to 0.27 mg/L (MW-809D). A groundwater solubility DQO is not established for dissolved arsenic.

Dissolved lead was detected in the groundwater sample from monitoring well MW-811S above the IDEM MCL DQO of 0.015 mg/L, at a concentration of 0.022 mg/L. The detected lead concentration in this sample (0.022 mg/L) is less than the Industrial DQO and Default Closure DQO of 0.042 mg/L for lead. None of the other dissolved metal concentrations detected in groundwater samples obtained as part of the September 2017 sampling event exceeded IDEM DQOs.

7.3.1.5 Other Groundwater Analytes

As indicated in Table 8D, IDEM DQOs have not been established for the following analytes associated with the September 2017 groundwater samples: alkalinity, ammonia-nitrogen, hardness, sulfide, total phenolics, TOD, chloride, COD, sulfate, and total cyanide.

Total cyanide was detected in groundwater samples obtained from 24 monitoring wells (MW-801S, MW-803S, MW-803D, MW-805D, MW-807S, MW-807D, MW-808S, MW-808D, MW-809M, MW-809D, MW-810D, MW-813S, MW-816S, MW-816D, MW-817S, MW-817D, MW-818S, MW-818S Duplicate, MW-821D, MW-826M, MW-828S, MW-829S, MW-836S, MW-837S, MW-837S Duplicate, and MW-839S) at concentrations that ranged from 0.2 mg/L (MW-805D) to 15 mg/L (MW-809D).

Concentration ranges of the other groundwater quality parameters identified above are as follows:

- total alkalinity from 85 mg/L (MW-839S) to 4,700 mg/L (MW-809D);
- ammonia-nitrogen from 0.1 mg/L (MW-832S) to 800 mg/L (MW-817D);
- hardness from 4.1 mg/L (MW-807D) to 5,800 mg/L (MW-808D);
- sulfide from <0.015 mg/L (28 monitoring wells) to 130 mg/L (MW-809D);
- total phenolics from <0.006 mg/L (MW-810D) to 300 (MW-808D);
- TOD from <1.0 mg/L (MW-822S, MW-822S Duplicate, and MW-832S) to 770 mg/L (MW-808D);
- chloride from 2.0 mg/L (MW-820S) to 1,400 mg/L (MW-834D);
- COD from <9.3 mg/L (MW-803M, MW-829S, and MW-832S) to 2,100 mg/L (MW-809D), and
- sulfate from 2.7 mg/L (MW-835D) to 5,800 mg/L (MW-808D).

7.3.2 Applicability of ESLs

As shown on Figure 3, there are no human or biota receptors for ESL comparison for groundwater. In addition, there are no human receptors for ESL comparison for Lake Michigan. Indirect receptors include Lake Michigan for ingestion (terrestrial and aquatic) and direct contact (aquatic). Groundwater data are compared to ESLs in Tables 8A through 8D, and these comparisons are described below. A discussion of ecological risks is provided in Section 7.7.

7.3.2.1 ESLs – VOCs

Three VOCs (benzene, ethylbenzene, and toluene) exceeded their respective USEPA ESLs for groundwater. Benzene was detected in groundwater samples from 24 monitoring wells (MW-803M, MW-803D, MW-805S, MW-807D, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-816D, MW-819S, MW-819D, MW-820S, MW-821S, MW-821D, MW-823S, MW-823D, MW-824D, MW-828S, MW-830S Duplicate, MW-832S, MW-832D, MW-832D Duplicate, MW-833S, MW-838S, MW-839S) above the ESL of 0.114 mg/L. The detected concentrations ranged from 0.12 mg/L (MW-830S duplicate and MW-839S [J]) to 300 J mg/L (MW-821D). No other benzene detections exceeded the benzene ESL.

Ethylbenzene was detected in groundwater samples from 12 monitoring wells (MW-803M, MW-807S, MW-808S, MW-816S, MW-818S, MW-818S duplicate, MW-819S, MW-820S, MW-821S, MW-828S, MW-833S, MW-838S, MW-839S) above the ESL of 0.014 mg/L. The detected concentrations ranged from 0.014 J mg/L (MW-818S Duplicate) to 1.3 mg/L (MW-819S). No other ethylbenzene detections exceeded the ESL.

Toluene was detected in groundwater samples from six monitoring wells (MW-807D, MW-808S, MW-808D, MW-819S, MW-828S, and MW-833S) above the ESL of 0.253 mg/L at concentrations of 0.6 mg/L, 1.2 mg/L, 3.8 mg/L, 17 mg/L, 33 mg/L, and 1.3 mg/L, respectively. No other toluene detections exceeded the ESL.

7.3.2.2 ESLs – SVOCs

Three SVOCs (2,4-dimethylphenol, pentachlorophenol, and phenol) exceeded the USEPA ESL for groundwater. 2,4-dimethylphenol was detected in groundwater samples from seven monitoring wells (MW-807D, MW-808S, MW-808D, MW-809D, MW-832S, MW-832D Duplicate, and MW-834D) above the ESL of 0.1 mg/L at concentrations of ranging from 0.38 mg/L (MW-807D) to 2.5 mg/L (MW-808D). No other 2,4-dimethlyphenol detections exceeded the ESL.

Pentachlorophenol was detected in groundwater samples from monitoring wells MW-825S and MW-836S above the ESL of 0.004 mg/L, at concentrations of 0.022 mg/L and 0.0073 mg/L. Pentachlorophenol was not detected in any other groundwater samples.

Phenol was detected in groundwater samples from three monitoring wells (MW-808D, MW-807D, and MW-808S) above the ESL of 0.180 mg/L, at concentrations of 55 mg/L, 21 mg/L, and 3.3 mg/L, respectively. No other phenol detections exceeded the ESL.

7.3.2.3 ESLs – PAHs

Nine PAHs (acenaphthene, anthracene, benzo[a]anthracene, benzo[a]pyrene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene) exceeded their respective USEPA ESLs for groundwater. Acenaphthene was detected in groundwater samples and their duplicate samples from two monitoring wells (MW-818S, MW-818S duplicate, MW-830S and MW-830S duplicate) above the ESL of 0.038 mg/L. The detected concentrations were 0.08 mg/L, 0.083 J mg/L, 0.04 J mg/L and 0.058 J mg/L, respectively. No other acenaphthene detections exceeded the ESL.

Anthracene was detected in groundwater samples from 39 monitoring wells (MW-801S, MW-803S, MW-803D, MW805S, MW-806S, MW-806D, MW-809S, MW-809M, MW-810S, MW-811S, MW-812S, MW-813S, MW-814S, MW-816S, MW-816D, MW-817S, MW-817D, MW-818S, MW-818S Duplicate, MW-819S, MW-819D, MW-820S, MW-821S, MW-821D, MW-823S, MW-823D, MW-824S, MW-824D, MW-825S, MW-826S, MW-826M, MW-827S, MW-828S, MW-829S, MW-830S, MW-830S Duplicate, MW-831S, MW-834D, MW-836S, MW-837S Duplicate, MW-838S, and MW-839S) above the ESL of 0.000035 mg/L. The detected concentrations ranged from 0.00014 J mg/L (MW-805S) to 0.0088 mg/L (MW-830S). No other anthracene detections exceeded the ESL.

Benzo[a]anthracene was detected in groundwater samples from 26 monitoring wells (MW-801S, MW-803S, MW-803D, MW-805S, MW-806S, MW-809S, MW-811S, MW-816S, MW-816D, MW-817S, MW-817D, MW-818S, MW-818S duplicate, MW-820S, MW-821S, MW-822D, MW-823S, MW-824D, MW-825S, MW-826M, MW-828S, MW-830S, MW-830S Duplicate, MW-831S, MW-834D, MW-836S, MW-837S, MW-837S duplicate, MW-838S, and MW-839S) above the ESL of 0.000025 mg/L. The detected concentrations ranged from 0.000022 J mg/L (MW-836S) to 0.0013 mg/L (MW-821S). No other benzo[a]anthracene detections exceeded the ESL.

Benzo[a]pyrene was detected in groundwater samples from eight monitoring wells (MW-817S, MW-817D, MW-818S, MW-818S Duplicate, MW-821S, MW-823S, MW-828S, MW-830S, MW-830S duplicate, and MW-834D) above the ESL of 0.000014 mg/L. The detected concentrations ranged from 0.00018 mg/L (MW-817D) to 0.0027 mg/L (MW-821S). No other benzo[a]pyrene detections exceeded the ESL.

Fluoranthene was detected in groundwater samples from nine monitoring wells (MW-801S, MW-816S, MW-818S, MW-818S duplicate, MW-820S, MW-821S, MW-830S, MW-830S duplicate, MW-837S, MW-837S duplicate, and MW-838S) above the ESL of 0.0019 mg/L. The detected concentrations ranged from 0.002 mg/L (MW-837S) to 0.013 mg/L (MW-830S duplicate). No other fluoranthene detections exceeded the ESL.

Fluorene was detected in groundwater samples from two monitoring wells (MW-818S, MW-818S duplicate, MW-830S and MW-830S duplicate) above the ESL of 0.019 mg/L. The detected concentrations were 0.032 mg/L, 0.034 mg/L, 0.028 mg/L, and 0.034 mg/L, respectively. No other fluorene detections exceeded the ESL.

Naphthalene was detected in groundwater samples from 17 monitoring wells (MW-801S, MW-803M, MW-805S, MW-807S, MW-808S, MW-816S, MW-818S, MW-818S duplicate, MW-819S, MW-820S, MW-821S, MW-825S, MW-828S, MW-833S, MW-836S, MW-837S, MW-837S duplicate, MW-838S, and MW-839S) above the ESL of 0.013 mg/L. The detected concentrations ranged from 0.024 mg/L (MW-805S) to 2.0 mg/L (MW-828S). No other naphthalene detections exceeded the ESL.

Phenanthrene was detected in groundwater samples from 11 monitoring wells (MW-801S, MW-816S, MW-818S, MW-818S duplicate, MW-820S, MW-821S, MW-828S, MW-830S, MW-830S duplicate, MW-836S, MW-837S, MW-837S duplicate, MW-838S, and MW-839S) above the ESL of 0.0036 mg/L. The detected concentrations ranged from 0.0044 J mg/L(MW-836SS) to 0.51 mg/L (MW-838S). No other phenanthrene detections exceeded the ESL.

Pyrene was detected in groundwater samples from 17 monitoring wells (MW-801S, MW-811S, MW-816S MW-817S, MW-818S, MW-818S duplicate, MW-820S, MW-821S, MW-823S, MW-825S, MW-828S, MW-830S, MW-830S duplicate, MW-831S, MW-834D, MW-836S, MW-837S, MW-837S duplicate, MW-838S, MW-839S) above the ESL of 0.0003 mg/L. The detected concentrations ranged

from 0.0005 J mg/L (MW-834D) to 0.0081 mg/L (MW-830S). No other pyrene detections exceeded the ESL.

7.3.2.4 ESLs - Total Metals

Eight total metals (cadmium, copper, lead, mercury, selenium, silver, vanadium, and zinc) exceeded their respective USEPA ESLs for groundwater. Total cadmium was detected in three monitoring wells (MW-821D, MW-826M, and MW-836S) above the ESL of 0.00015 mg/L, at concentrations of 0.00034 J mg/L, 0.0014 mg/L, and 0.00032 J mg/L. No other total cadmium detections exceeded the ESL based on the September 2017 groundwater data.

Total copper was detected in groundwater samples from 32 monitoring wells (MW-801S, MW-801D, MW-803S, MW-803D, MW-804S, MW-807S, MW-807D, MW-808S, MW-808D, MW-809S, MW-809D, MW-811S, MW-8013S, MW-814S, MW-815S, MW-815D, MW-816S, MW-819S, MW-819D, MW-820S, MW-821D, MW-823S, MW-25S, MW-829S, MW-831S, MW-832S, MW-832D, MW-832D duplicate, MW-833S, MW-834D, MW-836S, MW-837S, MW-837S duplicate, and MW-839S) above the copper ESL of 0.00158 mg/L. The detected concentrations ranged from 0.0016 mg/L (MW-804S [J] and MW-832S) to 0.025 mg/L (MW-809D). No other total copper detections exceeded the copper ESL.

Total lead was detected in groundwater samples from six monitoring wells (MW-811S, MW-819S, MW-820S, MW-832D duplicate, MW-834D, MW-836S, and MW-839S) above the ESL of 0.00117 mg/L, at concentrations that ranged from 0.0013 mg/L (MW-820S) to 0.024 mg/L (MW-811S). No other total lead detections exceeded the ESL.

Total mercury was detected in groundwater samples from four monitoring wells (MW-807S, MW-808S, MW-834D, and MW-836S) above the ESL of 0.0000013 mg/L, at concentrations of 0.00021 J mg/L, 0.000025 J mg/L, 0.00032 J mg/L, and 0.00024 mg/L (respectively). No other total mercury detections exceeded the mercury ESL.

Total selenium was detected in groundwater samples from 10 monitoring wells (MW-807D, MW-808S, MW-808D, MW-809D, MW-811S, MW-815D, MW-821D, MW-827S, MW-837S, MW-837S Duplicate, and MW-838S) above the ESL of 0.005 mg/L. The detected concentrations ranged from 0.0051 J mg/L (MW-808D) to 0.0099 mg/L (MW-815D). No other total selenium detection exceeded the USEPA ESL.

Total silver was detected in groundwater samples from two monitoring wells (MW-826M and MW-836S) above the ESL of 0.00012 mg/L, at concentrations of 0.00063 mg/L and 0.00028 mg/L (respectively). Total silver was not detected in any other groundwater samples as part of the September 2017 groundwater sampling event.

Total vanadium was detected in groundwater samples from 12 monitoring wells (MW-801S, MW-803D, MW-807D, MW-808D, MW-809D, MW-814S, MW-816D, MW-817D, MW-820S, MW-821D, MW-825S, MW-837S, and MW-837S duplicate) above the ESL of 0.012 mg/L. The detected concentrations ranged from 0.012 mg/L (MW-816D and MW-820S) to 0.062 mg/L (MW-837S). No other total vanadium detections exceeded the vanadium ESL.

Total zinc was detected in the duplicate groundwater sample from monitoring well MW-830S above the ESL of 0.0657 mg/L, at a concentration of 0.2 mg/L. No other total zinc detections exceeded the zinc ESL.

7.3.2.5 ESLs – Dissolved Metals

Four dissolved metals (copper, lead, selenium, and vanadium) exceeded their respective ESLs for groundwater. Dissolved copper was detected in eight monitoring wells (MW-803S, MW-806D,

MW-807D, MW-811S, MW-815D, MW-823S, MW-834D, MW-837S, and MW-837S duplicate) above the ESL of 0.00158 mg/L. The detected concentrations ranged from 0.0016 mg/L (MW-815D) to 0.012 mg/L (MW-811S). No other dissolved copper detections exceeded the ESL.

Dissolved lead was detected in the groundwater sample from monitoring well MW-811S above the ESL of 0.00117 mg/L, at a concentration of 0.022 mg/L. No other dissolved lead detections exceeded the lead ESL.

Dissolved selenium was detected in the groundwater sample from monitoring well MW-809D above the ESL of 0.005 mg/L, at a concentration of 0.0059 mg/L. No other dissolved selenium detections exceeded the ESL.

Dissolved vanadium was detected in groundwater samples from nine monitoring wells (MW-803D, MW-807D, MW-808D, MW-809D, MW-814S, MW-817D, MW-821D, MW-825S, MW-837S, and MW-837S duplicate) at or above the vanadium ESL of 0.012 mg/L. The detected concentrations ranged from 0.012 mg/L (MW-817D) to 0.072 mg/L (MW-808D). No other dissolved vanadium detections exceeded the vanadium ESL.

7.3.2.6 ESLs – Other Parameters

USEPA ESLs are established for total cyanides (0.0052 mg/L), total phenolics (0.18 mg/L), and sulfate (0.18 mg/L). With the exception of the groundwater sample collected from monitoring well MW-834D, total cyanides were detected in all groundwater samples at or above the ESL of 0.0052 mg/L. The detected total cyanide concentrations ranged from 0.0052 mg/L (MW-803M) to 5.3 mg/L (MW-808D).

Total phenolics were detected in groundwater samples from 17 monitoring wells (MW-801S, MW-803D, MW-807D, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-811S, MW-816S, MW-816D, MW-817D, MW-818S, MW-819S, MW-821D, MW-823D, and MW-824D) above the ESL of 0.18 mg/L. The detected concentrations ranged from 0.21 mg/L (MW-819S) to 300 mg/L (MW-808D). No other total phenolics detections exceeded the ESL.

Sulfate was detected in all groundwater samples above the ESL of 0.18 mg/L. The detected concentrations ranged from an estimated concentration of 2.7 J mg/L (MW-835D) to a detected concentration of 5,800 mg/L (MW-808D). USEPA ESLs are not established for the other parameters shown on Table 8D.

7.4 Results of Pilot-Scale Testing of Surfactant-Enhanced Recovery Alternative

Field-scale surfactant injection/extraction testing was conducted between October 16 and 21, 2017. The pilot testing included injection of the 4 percent PetroSolv™ surfactant solution into five new injection wells while actively extracting groundwater from the extraction well followed by 24 hours of contact time, and then vacuum extraction of groundwater from the extraction and injection wells. Surfactant-enhanced recovery is capable of removing LNAPL and can reduce dissolved-phase concentrations by desorbing/solubilizing adsorbed petroleum hydrocarbons and removing the mobilized contaminants. After the vacuum extraction events were completed, 20 gallons of hydrocarbon-degrading bacterial consortia, and 1,000 pounds of macro-nutrients (nitrogen, phosphorus, and potassium), micro-nutrients, and secondary electron acceptors (nitrate and sulfate) were mixed with approximately 3,000 gallons of water and injected into the five new injection wells. This activity was designed to promote biological stimulation and degradation of residual dissolved-phase constituents.

Field data, including LNAPL measurements, pH, DO, ORP and specific conductivity as well as nutrient (ammonia, nitrate) and VOC/PAH data were collected on a monthly basis from monitoring well

MW-820S. The LNAPL measurements were used to evaluate the efficacy of surfactant-enhanced LNAPL recovery from the former benzol storage area as part of the CMS, for possible future full-scale application.

LNAPL thicknesses at monitoring well MW-820S were monitored on 16 occasions between July 2013 and September 2017. Measurable LNAPL was encountered at monitoring well MW-820S during each of those monitoring events. The measured LNAPL thickness ranged from a minimum of 0.67 feet in October 2013, to a maximum of 1.42 feet in August 2013. Prior to the October 2017 surfactant-enhanced recovery test, the most recent (September 12, 2017) monitoring event yielded a measured LNAPL thickness of 1.20 feet at monitoring well MW-820S.

After completion of the October 2017 surfactant-enhanced recovery test, groundwater monitoring of monitoring well MW-820S was conducted on November 20, 2017; December 20, 2017; January 26, 2018; February 27, 2018; March 28, 2018; and May 1, 2018 (as shown on Table 11). Based on the post-pilot test monitoring, LNAPL was only detected at MW-820S during one of the six monthly sampling events (at a measured thickness of 0.97 feet on February 27, 2018). LNAPL was not detected in November or December 2017, or in January, March, or May 2018. The February 27, 2018 monitoring event revealed the presence of LNAPL at a depth of 5.21 to 6.18 feet below top of PVC well casing. The pre-test (September 2017) monitoring event had indicated the presence of LNAPL at a depth of 7.85 to 9.05 feet below top of PVC well casing. The post-test measured depths to the water table below top of PVC well casing were as follows: 5.33 feet in November 2017, 7.19 feet in December 2017, 7.54 feet in January 2018, 6.72 feet in March 2018, and 6.90 feet in May 2018. Based on these groundwater level measurements, it is possible that the relatively high water table measured in February 2018 mobilized LNAPL present within the capillary fringe that had not been removed as part of the 5-day surfactant-enhanced recovery test in October 2017. When the groundwater level declined after February 2018, the LNAPL may have again been entrained within the capillary fringe and was not detected based on its absence below the water table within the pilot test area.

The pilot-test groundwater field analyses revealed the following findings. The September 2017 measured pH value was 10.8, and the post-test pH values ranged from 9.4 to 11.5. The measured pH values are relatively high when compared with data from most other former Coke Plant site monitoring wells and are indicative of alkaline conditions. Such alkaline conditions are not unexpected at the former Coke Plant, as the water table monitoring wells are screened within slag-fill. Steel slag contains significant concentrations of calcium and magnesium, in the form of silicates, ferrites, aluminates, and oxides. Magnesium oxide, calcium oxide, and calcium silicate act as liming agents and are alkaline. The resulting high pH values inhibit rates of biodegradation.

The September 2017 measured DO concentration was 0.64 mg/L, and the post-test DO concentrations ranged from 0 to 2.12 mg/L. The September 2017 measured ORP value was -124 mV, and the post-test ORP values ranged from -161 to -257 mV. The generally low DO values are indicative of anaerobic conditions, likely as a result of microbial utilization of the large mass of petroleum hydrocarbons in the subsurface that is consuming the available oxygen. The reduction in ORP values after the October 2017 pilot test is consistent with consumption of other secondary electron acceptors (in addition to available oxygen).

With respect to pilot-test laboratory analyses, nitrate values were non-detect in September 2017 (prior to the October 2017 pilot test) and remained non-detect during the post-test monitoring period from November 2017 to May 2018. The September 2017 ammonia-nitrogen concentration was 2.2 mg/L and ranged from 1.0 to 2.8 mg/L from November 2017 to May 2018. These data indicate that the 1,000 pounds of macro-nutrients (including nitrogen) and secondary electron acceptors

(including nitrate) that were injected at the conclusion of the October 2017 surfactant-enhanced recovery pilot test were likely rapidly consumed via microbial utilization of the large mass of petroleum hydrocarbons in the subsurface within this portion of the site.

The detected concentrations of VOCs and PAHs in groundwater samples obtained from monitoring well MW-820S between September 2017 and May 2018 are also shown on Table 11. Based on concentration, the predominant constituents were benzene and naphthalene. The September 2017 (pre-pilot test) benzene concentration was 3.5 mg/L, and the November 2017 through May 2018 (post-pilot test) benzene concentrations ranged from 1.8 to 5.1 mg/L. The September 2017 naphthalene concentration was 1.7 mg/L, and the November 2017 through May 2018 naphthalene concentrations ranged from 2.0B[2] to 2.8 mg/L. The detected concentrations of naphthalene (relative to its aqueous solubility) is consistent with the presence of residual LNAPL. As indicated above, microbial utilization of the residual mass of petroleum hydrocarbon LNAPL in the subsurface likely rapidly consumed the macro-nutrients and secondary electron acceptors that were added as part of the pilot test, resulting in a dormant microbial population that exhibits minimal activity within the NAPL zone. As indicated in the ecological and human health risk assessment addendums provided as Appendices H and I, respectively, the detected VOC and PAH concentrations in site groundwater (and including the pilot test groundwater samples from monitoring well MW-820S) are not predicted to result in significant ecological or human health risks for aquatic organisms or human receptors exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.

7.5 Results of Bench-Scale Testing of Hydraulic Recovery Alternative

LNAPL saturation was analyzed on soil cores collected from three of the surfactant-enhanced pilot test well borings (identified as IW-3, IW-4, and EW-1) in the immediate vicinity of monitoring well MW-820S where LNAPL is present in the subsurface. The samples were subjected to petrophysical laboratory analysis as part of Method API RP40, the results of which are provided in Appendix J. This physical recovery test method provides the field LNAPL saturation and the residual LNAPL saturation. The sample is driven to residual saturation by water displacing LNAPL to demonstrate product mobility. The difference between the field LNAPL saturation and residual LNAPL saturation is the recoverable fraction of LNAPL through physical recovery methods (e.g., via collection trenches or pumping wells). The test is conducted at hydraulic gradients that far exceed typical field conditions. As such, values for residual LNAPL saturation measured using this method are conservative when compared with field residual saturation.

As indicated in Appendix J, initial LNAPL saturation values and residual LNAPL saturation values ranged from 8.3 to 14.0 percent. None of the samples revealed reductions in LNAPL saturation in response to the test, which indicates that the LNAPL is immobile as defined by the ITRC (2009) under saturated conditions. These laboratory results indicate that physical recovery methods may not recover significant LNAPL from the subsurface.

7.6 Results of Bench-Scale Testing of In-Situ Chemical Oxidation Alternative

Persulfate oxidation has been demonstrated to provide a high degree of treatment of non-halogenated aromatic hydrocarbons. A common analysis conducted for persulfate ISCO treatability studies is TOD. TOD bench scale tests were therefore conducted to obtain information necessary to evaluate the feasibility of ISCO as a possible remedial technology to treat soil and groundwater impacted with LNAPL near the former benzol storage area. A total of three soil samples were collected from across the LNAPL zone from well borings IW-3 (6 to 8 feet bgs), IW-4 (6 to 8 feet bgs), and IW-5 (6 to 8 feet

[2] Estimated result based on analyte detection in laboratory method blank.

bgs). The soil samples were analyzed for TOD relative to sodium persulfate, the results of which are provided in Appendix K.

TOD is defined as the mass of persulfate consumed over the 7-day test per mass of soil. Because the cost of sodium persulfate is relatively high, a TOD of greater than 10 grams per kilogram (g/kg) is generally considered too costly for field applications (Petri et al., 2011). Soil organic matter often comprises a significant fraction of the TOD (Haselow et al., 2003).

As indicated in Appendix K, the 7-day sodium persulfate TOD results were 13.1 g/kg at IW-3 (8 to 10 feet bgs), 87.8 g/kg at IW-4 (6 to 8 feet bgs) and 95.7 g/kg at IW-5 (6 to 8 feet bgs). These results are consistent with the conclusion that oxidizing pure phase contaminant can require a significant amount of oxidant to meet clean-up goals. As the pore space becomes filled with NAPL, the amount of persulfate needed to remediate the contaminant significantly increases. Oxidation will take place at the surface of NAPL only, resulting in a slow rate of NAPL destruction. If adequate contact and rapid NAPL destruction is to be achieved, the NAPL will need to be desorbed off of the soil matrix or solubilized into the aqueous phase.

7.7 Expanded Screening Level Ecological Risk Assessment Addendum

The February 2014 USEPA letter indicated that “Further action may be necessary to mitigate risks for those constituents that exceed modified groundwater ESLs in wells immediately upgradient of the sheet pile wall breach.” Focused Ecological and HHRA were therefore conducted in conjunction with Pre-Design Work Plan preparation.

An expanded SLERA for the former Coke Plant was submitted to the USEPA in November 2015. The assessment concluded that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall. Since the submission and acceptance of the SLERA, additional groundwater samples were collected and analyzed in September 2017 as part of this Pre-Design Investigation. An addendum to the SLERA is provided as Appendix H, which applies these more recent groundwater quality data to the Tier 3 risk analysis with the objective of determining whether the new data change the overall conclusions of the SLERA.

As indicated in Appendix H, the Tier 3 methodologies utilized therein are virtually identical to those used in the 2015 SLERA (other than using the updated dataset). For the constituents considered in the refined risk analysis, Tier 3 concentrations are generated based on the 95% UCL (or maximum) concentrations from the nine wells (2012, 2013, and 2017 data combined) divided by the estimated dilution factor of 3,250.

Table 1 of Appendix H lists the Tier 3 modeled surface water concentrations. Hazard Quotients (HQs) are calculated in Table 1 as the ratios of the Tier 3 surface water concentrations to the refined screening values. HQs could not be calculated for bis(2-chloroethoxy)methane or methyl chloride because screening values were not identified for these two constituents. HQs do not exceed 1 for the remaining 17 constituents, indicating that adverse effects are unlikely and no further ecological evaluation is warranted. Both bis(2-chloroethoxy)methane and methyl chloride are evaluated qualitatively as described in the 2015 SLERA. In summary, the 2017 groundwater sampling data confirm the previous conclusion that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.

7.8 Focused Human Health Risk Assessment Addendum

As indicated above, both the Focused Ecological and HHRA were conducted in conjunction with Pre-Design Work Plan preparation. A Focused HHRA for the former Coke Plant was submitted to the USEPA in November 2015. The November 2015 HHRA did not identify any constituents in groundwater that pose an unacceptable risk for human receptors.

Since the submission and acceptance of the HHRA, an additional groundwater sampling and analysis event was completed in September 2017 as part of this Pre-Design Investigation. An addendum to the HHRA is provided as Appendix I, which applies these more recent groundwater quality data to the HHRA with the objective of determining whether the new data change the overall conclusions of the HHRA.

As in the 2016 analysis, this updated HHRA included seven steps: Step 1: identification of non-detected constituents in groundwater, which are not considered further; Steps 2 and 3: comparison of maximum detected constituent concentrations with MCLs, and Risk Based Concentrations (RBCs)[3], respectively; and Step 4: comparison of the 95 percent UCL on-site groundwater concentrations with their respective MCLs, or RBCs. Site groundwater concentrations included data from 2012, 2013, and 2017 and were considered first based on maximum concentrations (Steps 1 to 3) and then based on a 95 percent UCL on the mean (UCL) (Step 4).

The UCL used in Step 4 was based on wells most proximate to the breach in the sheet piling (i.e., MW-827S, MW-810S, MW-826S, MW-826M, MW-809S, and MW-809M), and wells which were used to define the UCLs for arsenic, benzene, and sodium (i.e., MW-803S, MW-808S, MW-808D, MW-809D, and MW-817S). In these first four steps, the dilution of groundwater constituents in migration from groundwater to surface water was represented through application of a 10-fold dilution factor that was applied to the MCL and RBCs for non-bioaccumulative constituents. Step 5 was conducted for arsenic, benzene, and sodium and included comparison of the their respective UCLs calculated based on a more representative set of nine wells (i.e., excluding deep wells MW-808D and MW-809D) and a site-specific dilution factor of 3,250. As indicated in Appendix I, no constituents had UCLs greater than their respective screening levels in Step 5 indicating risks were within acceptable levels.

Potential risks related to consumption of fish that bioaccumulate constituents from groundwater were considered in Steps 6 and 7 through comparison with RBCs calculated using the USEPA (2018) RSL calculator and assuming 32 gallons per day (g/day), for 350 days per year for 26 years, which is equivalent to 50 eight-ounce meals per year. In Step 6, RBCs for fish consumption were compared with estimated fish tissue concentrations derived using the 95 percent UCL on the mean calculated based on the 11 wells described in Step 4, above. This analysis determined that arsenic concentrations in fish tissue would exceed the screening RBC for fish consumption.

Only arsenic was considered further in Step 7, which included comparison of the arsenic tissue concentration derived based on the UCL from nine wells and the site-specific dilution factor. Consistent with the findings of the 2016 HHRA, these analyses indicated that consumption of 50 meals per year of fish that have bioaccumulated constituents from the Ship Canal would not represent an unacceptable human health risk.

[3] RBCs for surface water and for fish tissue were updated for this assessment using the USEPA Regional Screening Level calculator and the same assumptions as applied in the 2016 HHRA.

In addition to the groundwater quality evaluation presented above, the Pre-Design Work Plan also indicated that the Pre-Design Investigation will include further evaluation of the clean granular fill layer overlying slag-fill/soil at the site. As indicated in Appendix I, slag-fill data obtained in 2012 and in 2017 were compared with DQOs and Screening Levels. In this comparison, the data for the shallowest slag-fill interval (<2 feet bgs) and the DQOs and Screening Levels for direct contact with slag-fill are the most relevant for consideration at this site. While several PAHs had concentrations in at least one location that were greater than the 2009 direct contact values, only benzo(a)pyrene had a concentration greater than the 2018 IDEM Screening Levels. A UCL of 11.7 mg/kg was calculated for benzo(a)pyrene based on all available surface soil data for 2012 and 2017. This site UCL is lower than the 2018 IDEM screening value of 21 mg/kg for benzo(a)pyrene, indicating that risks are within acceptable levels.

Despite the use of numerous health protective assumptions, the HHRA addendum provided in Appendix I did not identify any constituents in groundwater or slag-fill/soil that pose an unacceptable risk for human receptors. In addition, based on relatively high estimated advective groundwater flow rates at the site, the future LNAPL source remedial action should result in reduction in downgradient constituent concentrations within a reasonable timeframe. As such, the HHRA overestimates site concentrations and risks and, therefore, is considered to be highly health protective of site users.

8. EVALUATION OF PREVIOUS DATA GAPS

8.1 Former Benzol Storage Area

The February 2014 USEPA letter had indicated that the extent of LNAPL, impacted soil, and impacted groundwater near the former benzol storage area required further delineation. As the LNAPL represents a source of the impacted soil and groundwater, this investigative task was conducted through delineation of the extent of LNAPL, and investigation of the impacted soil and groundwater near the former benzol storage area based on the results of the LNAPL investigation.

8.1.1 Extent of LNAPL

To further characterize NAPL distribution, HRSC technologies were implemented as part of the Pre-Design Investigation near the former benzol storage area. Between May 9 and 19, 2017, the selected UVOST® screening tool was advanced using direct push methods at 76 locations depths ranging from 3.5 feet to 40.3 feet bgs in the vicinity of the former benzol storage area. The “2D Contour Map” provided in Appendix F represents the maximum signal response (>75% RE) representing LNAPL fluorescence at each location, regardless of depth. As shown on the 2D Contour Map, the northern extent of maximum LNAPL fluorescence is located approximately 60 feet northwest of monitoring well MW-820S. The eastern extent of maximum LNAPL fluorescence is located approximately 40 feet west of monitoring well MW-838S. The southern extent of maximum LNAPL fluorescence is located approximately 100 feet northwest of monitoring well MW-839S. The western extent of maximum LNAPL fluorescence is located approximately 60 feet north of monitoring well MW-828S. The observed fluorescence was mainly located at depths of approximately 3 to 17 feet bgs, with a maximum depth of approximately 28 feet at LIF boring MW-820SSW20, located near monitoring well MW-820S.

UVOST® does not differentiate between mobile and immobile fractions, such that LNAPL occurrence in monitoring wells is used to further evaluate LNAPL recoverability. As such, UVOST® is a screening tool that is best used within the framework of a multiple lines-of-evidence approach (including evaluation of soil cores and LNAPL occurrence in monitoring wells). Based on such evaluations, the inferred extent of LNAPL is shown on Figure 8. Pilot test injection wells IW-2, IW-3, and IW-4 revealed

indications of LNAPL sheens on interface probes and bailers submerged in these wells. However, only monitoring wells MW-820S and MW-821S have historically contained measurable LNAPL. Moreover, LNAPL has not been detected at MW-820S during five of six monthly monitoring events since the October 2017 surfactant-enhanced recovery pilot test. Based on the results of this additional investigation, the extent of LNAPL in groundwater has been defined.

8.1.2 Extent of Impacted Soil

As indicated in the June 2016 Additional Site Investigation Report (Revision 3), DQOs for vadose zone soil samples obtained from the former benzol storage area were exceeded for benzene and PAHs. To further evaluate soil quality within the former benzol storage area, one to three soil samples were obtained from each of the additional monitoring well locations MW-828S through MW-833S, MW-832D, MW-838S and MW-839S (the shallow nested well MW-832S was blind-drilled) and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters. Based on the results of this additional investigation, identified soil impacts above DQOs in the vicinity of the LNAPL include benzene, arsenic, lead and PAH compounds. The results of the Pre-Design Investigation have defined the extent of these soil impacts above migration to groundwater and default closure IDEM DQOs in the vicinity of the former benzol storage area (Figure 9).

In terms of the direct contact pathway, none of the soil samples obtained from 0 to 2 feet bgs contained detectable VOC, SVOC, or metals concentrations that exceeded their respective direct contact DQOs. Only seven of the 2017 soil samples analyzed from 0 to 2 feet bgs contained detectable PAH concentrations that were greater than the 2009 direct contact values (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3)pyrene). In conformance with the Pre-Design Work Plan, further evaluations of the extent of impacted soil at specific locations of interest are provided below in Sections 8.2, 8.5, 8.6, and 8.7.

8.1.3 Extent of Impacted Groundwater

As indicated in the June 2016 Additional Site Investigation Report, DQOs for groundwater samples obtained from the former benzol storage area were exceeded for metals, petroleum VOCs and PAHs. To further evaluate groundwater quality within the former benzol storage area, groundwater samples were obtained from nine new monitoring wells (MW-828S through MW-833S, MW-832D, MW-838S and MW-839S) in September 2017 and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters. Based on September 2017 groundwater quality data from these wells, the locations of DQO exceedances near the former benzol storage area are illustrated on Figures 10 and 12 (for shallow and deep groundwater, respectively). Figure 11 provides intermediate depth groundwater quality exceedances of DQOs.

Based on concentration, mobility in the groundwater environment, and frequency of detection, the primary contaminant of concern near the former benzol storage area is benzene. Benzene iso-concentration maps based on the shallow, intermediate and deep groundwater quality data are provided on Figures 13, 14, and 15, respectively. As shown on these figures, the northern (hydraulically upgradient), western and southern extents of benzene-impacted groundwater have been defined. With respect to shallow groundwater, the eastern extent of benzene-impacted groundwater has not been defined in the vicinity of monitoring well MW-832S (Figure 13). With regard to deep groundwater, the eastern extent of benzene-impacted groundwater has not been defined in the vicinity of monitoring wells MW-832D and MW-806D (Figure 15). Although the extent of impacts to the east has not been fully defined, installation of additional monitoring wells further to the east of these monitoring wells is precluded by the presence of the railway corridor located adjacent east of the former Coke Plant.

8.2 Soil Boring SB-875 Area

The February 2014 USEPA letter indicated that evaluation of the horizontal extent of impacted soil to the north of previously-installed soil boring SB-875 in the southeastern portion of the site was incomplete. As indicated in the June 2016 Additional Site Investigation Report, DQOs for vadose zone soil samples obtained from previous soil boring SB-875 were exceeded for benzene and arsenic. Soil boring SB-884 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. Two vadose zone slag-fill/soil samples were obtained from soil boring SB-884 and submitted for laboratory analysis of VOCs, PAHs, and arsenic. One of the two vadose zone slag-fill/soil samples from this soil boring were obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway; the second sample was obtained from a depth of 6 to 8 feet bgs. Neither of these two soil samples revealed exceedances of any DQOs. Delineation of the horizontal extent of impacted soil to the north of previously-installed soil boring SB-875 is therefore complete.

8.3 Monitoring Well MW-822 Area

The February 2014 USEPA letter indicated that the extent of arsenic and thallium impacted groundwater near monitoring well MW-822 in the northwestern portion of the site was unknown. The maximum arsenic and thallium concentrations in groundwater samples previously obtained from well nest MW-822 were detected in samples from deep well MW-822D. Therefore, monitoring wells MW-834D and MW-835D were installed at the locations shown on Figure 2, and screened from 35 to 38 feet bgs. As shown in Table 8C, neither of the September 2017 groundwater samples from monitoring wells MW-834D and MW-835D contained detectable concentrations of arsenic or thallium.

To further evaluate soil quality near monitoring well MW-822, three soil samples were obtained from both of the two additional monitoring well borings (MW-834D and MW-835D) and submitted for laboratory analysis of PAHs, arsenic, and thallium. One of the three soil samples from each of the two additional monitoring well borings was obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway. The second soil sample was obtained from the 2-foot interval above the water table, and the third soil sample was obtained from the bottom 2 feet of the borings. The soil samples from the upper 2 feet of the subsurface were also submitted for laboratory analysis of VOCs. As shown in Table 6, none of the soil samples obtained from monitoring well borings MW-834D and MW-835D revealed exceedances of any DQOs.

8.4 Monitoring Wells MW-801 and MW-814 Areas

The February 2014 USEPA letter indicated that the western extent of arsenic and benzene impacts in shallow groundwater along the western edge of the property between monitoring wells MW-801 and MW-814 needs to be delineated. Therefore, monitoring wells MW-836S and MW-837S were installed at the locations shown on Figure 2 and screened from approximately 3 to 13 feet below grade. Groundwater samples were obtained from these two new monitoring wells and submitted for laboratory analysis of VOCs, SVOCs, PAHs, metals, and general chemistry parameters.

As shown on Figure 10, the groundwater samples from monitoring wells MW-836S and MW-837S did not reveal exceedances of benzene DQOs. The groundwater sample from monitoring well MW-836S detected 0.0082 mg/L of arsenic, which exceeds the IDEM Industrial DQO of 0.0019 mg/L but does not exceed any other DQOs. The groundwater sample from monitoring well MW-837S detected 0.014 mg/L of arsenic, which slightly exceeds three DQOs (IDEM MCL [0.010 mg/L], IDEM Industrial [0.0019 mg/L], and IDEM Default Closure [0.010 mg/L]). Installation of additional wells substantially further to the west would be located beyond the former Coke Plant property boundary.

Based on information contained in the NAS publication entitled “Arsenic Medical and Biological Effects of Environmental Pollutants” (1977), the arsenic content in unconsolidated surface sediments (0 to 6 cm) of Lake Michigan average more than twice that of sediment at depths greater than 20 cm

(12.4 mg/kg versus 5.3 mg/kg). Based on information contained in Table 4, laboratory results of slag-fill/soil samples ranged as high as 9.2 mg/kg. As such, the available data indicate similar ranges of arsenic concentrations between the slag-fill/soil samples collected in the area of the former Coke Plant and unconsolidated surface sediments of Lake Michigan based on the 1977 NAS data. These relatively high concentrations of naturally-occurring arsenic in the site vicinity may contribute to the arsenic concentrations detected in groundwater samples obtained from monitoring wells MW-836S and MW-837S.

8.5 Monitoring Well MW-824D Area

The April 2015 USEPA letter indicated that there is no data with which to confirm that slag-fill/soil between 2 and 8 feet bgs at boring MW-824D in the central portion of the site does not contain DQO exceedances for arsenic. Soil boring SB-892 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. One of the two slag-fill/soil from this soil boring was obtained from the upper 2 feet of the subsurface, to evaluate the direct contact exposure pathway in terms of PAH concentrations. The second slag-fill/soil sample was obtained from a depth of 6 to 8 feet bgs. Both slag-fill/soil were submitted for laboratory analysis of arsenic, VOCs, and PAHs. As indicated in Table 4, neither of these slag-fill/soil samples revealed exceedances of any DQOs.

8.6 Monitoring Well MW-826M Area

The April 2015 USEPA letter requested vertical delineation of PAH contamination in the vicinity of boring MW-826M in the southern portion of the site. Soil boring SB-893 was therefore installed to a depth of 10 feet bgs at the location shown on Figure 2. Slag-fill/soil samples were retained from 0 to 2 feet and 6 to 8 feet bgs, and submitted for laboratory analysis of VOCs, PAHs, and arsenic. As indicated in Table 4, neither of these slag-fill/soil samples revealed exceedances of any DQOs.

8.7 Site-Wide Surficial Slag-Fill/Soil

The April 2015 USEPA letter indicated the following:

> *USEPA reiterates the requirement that ArcelorMittal must show that at least two feet (and up to six feet) of soil has been placed over all areas with surface soil DQO exceedances before the direct contact pathway is confirmed as incomplete. Consequently, the Pre-Design Investigation Plan must include sampling and evaluation of the uppermost two feet, not just the uppermost six inches, of soil, to verify that the direct contact DQO is met. This is especially critical if portions of the former Coke Plant area may be redeveloped for recreational, commercial or other non-industrial purposes in the future.*

To further evaluate the uppermost 2 feet of soil across the site in terms of direct contact and outdoor air quality, soil samples were obtained from the new soil borings and monitoring well borings discussed above, as well as soil borings SB-885 through SB-891 and submitted for laboratory analysis of PAHs and VOCs. A subset of these soil samples was submitted for laboratory analysis of additional parameters, in conformance with the September 2016 Pre-Design Work Plan.

As indicated in Section 7.8, the available surficial (less than 2 feet bgs) slag-fill data were compared with DQOs. Specifically, the surficial slag-fill data were compared both with the IDEM screening levels for direct contact with commercial or industrial soils that were in place in 2009 and were identified as DQOs, and also with updated IDEM commercial industrial screening values. While several PAHs had concentrations in at least on location that were greater than the 2009 direct contact values (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3)pyrene), only benzo(a)pyrene had a concentration greater than its IDEM Direct Contact Screening Level. A UCL of 11.7 mg/kg was calculated for benzo(a)pyrene based on all available surficial slag-fill data for samples collected in 2012 and 2017. The site UCL for benzo(a)pyrene is

11.7 mg/kg, which is lower than the IDEM Direct Contact Screening Level of 21 mg/kg for benzo(a)pyrene, indicating that risks are within acceptable levels.

9. CONCLUSIONS

The primary purpose of this Pre-Design Investigation at the former Coke Plant was to further define the magnitude and extent of previously identified soil and groundwater impacts, and collect site-specific data needed for comprehensive evaluation of remedial alternatives (as part of the future CMS) that are appropriate in terms of remediation of the LNAPL near the former benzol storage area. Specific objectives together with the conclusions presented in the Report are summarized below:

- **Further evaluation of the extent of LNAPL in groundwater at the former benzol storage area:** Based on the results of the UVOST® investigation, relatively heavier petroleum products may have historically been released in the southern and western portion of the investigation area than in the northern and eastern portion of the investigation area. Based on the additional well installations, measurable LNAPL is only present in wells MW-820S and MW-821S, and only LNAPL sheens were observed on sampling equipment submerged in wells IW-2, IW-3, and IW-4. A portion of the heavier petroleum products were likely more dense than water, which may account for observed fluorescence to depths as great as 28 feet. The UVOST® investigation findings are also consistent with the presence of more weathered petroleum product in the southern and western portion of the investigation area, which may be indicative of older releases that have historically migrated from the upgradient former benzol storage area and is no longer mobile (based on the absence of measurable LNAPL in nearby monitoring wells and visible separate phase LNAPL in nearby soil borings). Based on the additional investigation, the extent of LNAPL in groundwater has been defined.
- **Evaluation of potential soil impacts in the vicinity of the LNAPL:** Soil impacts above DQOs in the vicinity of the LNAPL include benzene, arsenic, lead, and PAH compounds. The results of the Pre-Design Investigation have defined the extent of these soil impacts above migration to groundwater and default closure IDEM DQOs in the vicinity of the former benzol storage area. As such, no further soil investigation is required.
- **Evaluation of Direct Contact Exposure Pathway in Surface Soil (0 to 2 feet):** None of the soil samples obtained from 0 to 2 feet bgs contained detectable VOC, SVOC, or metals concentrations above their respective direct contact DQOs. Only seven of the soil samples analyzed from 0 to 2 feet bgs detected PAH concentrations that were greater than direct contact DQOs; however, only benzo(a)pyrene was detected at concentrations greater than IDEM Screening Levels. A UCL of 11.7 mg/kg was calculated for benzo(a)pyrene based on all available direct contact surface soil data for 2012 and 2017. The site UCL is lower than the IDEM Direct Contact Screening Level of 21 mg/kg for benzo(a)pyrene, which indicates that direct contact risks are acceptable.
- **Further definition of the magnitude and extent of impacted groundwater for chemicals of concern:** Based on September 2017 groundwater quality data, the locations of DQO exceedances near the former benzol storage area are illustrated on Figures 10 and 12 (for shallow and deep groundwater, respectively). Figure 11 provides intermediate depth groundwater quality exceedances of DQOs. The primary constituent of concern near the former benzol storage area is benzene. Benzene iso-concentration maps based on shallow, intermediate, and deep groundwater quality data are provided on Figures 13, 14, and 15, respectively. As shown on these figures, the northern, western and southern extents of shallow and deep benzene-impacted groundwater have been defined. Although the extent of impacts to the east has not been fully defined, installation of

additional monitoring wells further to the east would be precluded by the presence of the railway corridor located adjacent east of the former Coke Plant.

- **Expanded SLERA:** A SLERA for the former Coke Plant was submitted to the USEPA in November 2015. An addendum to the SLERA is provided as Appendix H, which applies the more recent groundwater quality data obtained as part of the Pre-Design Investigation to the risk analysis with the objective of determining whether the new data change the overall conclusions of the SLERA. The 2017 groundwater sampling data confirm the previous conclusion that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.
- **Focused HHRA:** A HHRA for the former Coke Plant was submitted to the USEPA in November 2015. An addendum to the HHRA is provided as Appendix I, which applies the more recent groundwater quality data obtained as part of the Pre-Design Investigation to the risk analysis with the objective of determining whether the new data change the overall conclusions of the HHRA. Consistent with the conclusions of the 2015 HHRA, these analyses indicated that consumption of 50 meals per year of fish that have bioaccumulated constituents from groundwater that has migrated to the Ship Canal would not represent an unacceptable human health risk.
- **Hydraulic Recovery Bench Scale Test:** LNAPL saturation was analyzed on soil cores obtained near the former benzol storage area, where LNAPL has been measured on the water table. The samples were subjected to petrophysical laboratory analysis as part of Method API RP40. None of the samples revealed reductions in LNAPL saturation in response to the test, which indicates that the LNAPL is immobile as defined by the ITRC (2009) under saturated conditions. These laboratory results indicate that physical recovery methods may not recover significant LNAPL from the subsurface.
- **ISCO Bench Scale Test:** TOD bench scale tests were conducted to obtain information necessary to evaluate the feasibility of ISCO as a possible remedial technology to treat soil and groundwater impacted with LNAPL near the former benzol storage area. Sodium persulfate TOD results for three soil samples obtained from 6 to 10 feet bgs ranged from 13.1 to 95.7 g/kg. These results are consistent with the conclusion that oxidizing pure phase contaminant will require a significant amount of oxidant to meet clean-up goals. Oxidation will take place at the surface of NAPL only, resulting in a slow rate of NAPL destruction. If adequate contact and rapid NAPL destruction is to be achieved, the NAPL will need to be desorbed off of the soil matrix or solubilized into the aqueous phase. Based on these bench-scale test results, ISCO will be retained for further evaluation as part of the CMS.
- **Surfactant-Enhanced LNAPL Recovery Pilot Test:** After completion of the October 2017 surfactant-enhanced recovery test, groundwater monitoring of monitoring well MW-820S was conducted on a monthly basis from November 2017 to May 2018. Based on the post-pilot test monitoring, LNAPL was only detected at MW-820S during one of the six monthly sampling events (in February 2018). Based on groundwater level measurements, it is possible that the relatively high water table measured in February 2018 mobilized LNAPL present within the capillary fringe that had not been removed as part of the 5-day surfactant-enhanced recovery test in October 2017. When the groundwater level declined after February 2018, the LNAPL may have again been entrained within the capillary fringe and was not detected based on its absence below the water table within the pilot test area. Based on the results of the surfactant-enhanced recovery test, further evaluation of surfactant enhanced LNAPL recovery as a possible full-scale remedial alternative should be conducted as part of the CMS.

10. RECOMMENDATIONS

The Pre-Design investigative information documented in this Pre-Design Report has defined the magnitude and extent of impacts and is therefore sufficient to complete a CMS for the site. The purpose of the CMS will be to identify, evaluate and recommend corrective measures to remove LNAPL identified at the site. Additional corrective measure alternatives, such as the use of institutional controls, will also be evaluated as part of the CMS. The CMS will consist of the following two major components:

Background and Supporting Information

An Executive Summary of the CMS Report will be prepared and presented as the first section in the document. In the subsequent section, the following information will be provided as part of the CMS Report:

- site description and history;
- summary of prior investigations and conclusions;
- summary of completed Focused Ecological and HHRA; and
- discussion of Corrective Action Objectives and criteria.

Development and Detailed Analysis of Potential Corrective Measures

The second component of the CMS Report will present several potential Corrective Measures retained following a Preliminary Screening of Corrective Measures. The surviving Corrective Measures will be evaluated with respect to the following criteria:

- protection of human health and the environment;
- compliance with ARARs;
- long-term reliability and effectiveness;
- reduction in toxicity, mobility, or volume of wastes;
- short-term effectiveness;
- implementability, and
- cost.

In the conclusions, Ramboll will recommend a Corrective Measure or combination of Corrective Measures based on the findings of this detailed analysis. Although the scope of the RCRA 3013 Order is limited to monitoring, testing, analysis, and reporting, the CMS will identify remedial objectives and identify, develop, and evaluate potential remedial alternatives for removal, containment, and/or treatment of contamination.

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TABLES

Table 1
Measured Groundwater Elevations

Well ID	MW-801D		MW-801S		MW-802S		MW-803D		MW-803M		MW-803S		MW-804S		MW-805D		MW-805S		MW-806D		MW-806S		MW-807D		MW-807S	
Ground Surface Elevation (ft msl)	589.7		589.6		590.1		590.9		591.6		590.9		590.2		590.4		590.2		591.7		591.6		590.8		590.6	
Top of PVC Casing Elevation (ft)	592.48		592.24		592.66		593.26		593.52		593.48		592.70		593.28		592.87		594.18		594.27		593.29		593.34	
Well Depth (Feet from TOC)[A]	42.32		15.91		16.50		43.16		31.30		19.03		16.50		42.25		16.40		43.45		16.50		41.35		20.04	
Date	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)
6/2/05	8.45	584.03	8.15	584.09	9.27	583.39	10.71	582.55	NI	--	10.85	582.63	8.35	584.35	10.31	582.97	10.35	582.52	NI	--	NI	--	NI	--	NI	--
6/13/05	8.47	584.01	8.20	584.04	NM	--	NM	--	NI	--	NM	--	NM	--	NM	--	NM	--	NI	--	NI	--	NI	--	NI	--
7/ 11-13 / 05	8.89	583.59	8.65	583.59	10.25	582.41	11.03	582.23	NI	--	11.11	582.37	8.86	583.84	8.81	584.47	8.41	584.46	NI	--	NI	--	NI	--	NI	--
8/1/05	8.64	583.84	8.40	583.84	10.19	582.47	11.09	582.17	NI	--	11.16	582.32	NM	--	8.57	584.71	8.22	584.65	NI	--	NI	--	NI	--	NI	--
9/14/05	9.27	583.21	9.03	583.21	10.71	581.95	11.46	581.80	NI	--	11.54	581.94	9.31	583.39	9.30	583.98	8.92	583.95	NI	--	NI	--	NI	--	NI	--
12/29/05	8.66	583.82	8.39	583.85	10.54	582.12	11.42	581.84	NI	--	11.51	581.97	9.00	583.70	8.88	584.40	8.19	584.68	12.32	581.86	12.34	581.93	11.00	582.29	11.00	582.34
1/ 18-20 / 06	8.23	584.25	7.95	584.29	10.04	582.62	11.02	582.24	NI	--	11.11	582.37	10.04	582.66	8.17	585.11	7.79	585.08	11.95	582.23	11.95	582.32	10.55	582.74	10.53	582.81
6/ 14-16 / 06	7.65	584.83	7.35	584.89	9.03	583.63	10.24	583.02	NI	--	10.29	583.19	7.85	584.85	7.55	585.73	7.09	585.78	11.31	582.87	11.32	582.95	9.67	583.62	9.63	583.71
5/1/07	6.81	585.67	6.44	585.8	7.78	584.88	8.88	584.38	NI	--	8.91	584.57	6.21	586.49	6.37	586.91	5.79	587.08	9.89	584.29	9.89	584.38	8.12	585.17	8.05	585.29
7/18-20/07	8.43	584.05	8.19	584.05	9.7	582.96	10.53	582.73	NI	--	10.64	582.84	8.21	584.49	8.30	584.98	7.90	584.97	11.48	582.70	11.49	582.78	10.15	583.14	10.12	583.22
9/24/07	7.9	584.58	7.63	584.61	8.87	583.79	10.11	583.15	NI	--	10.07	583.41	7.61	585.09	7.71	585.57	7.27	585.60	11.02	583.16	11.03	583.24	9.44	583.85	9.4	583.94
7/1/08	7.23	585.25	6.93	585.31	8.32	584.34	9.48	583.78	NI	--	9.54	583.94	7.19	585.51	7.15	586.13	6.69	586.18	10.48	583.70	10.6	583.67	8.86	584.43	8.83	584.51
9/1/08	8.13	584.35	7.85	584.39	9.11	583.55	10.11	583.15	NI	--	10.22	583.26	7.90	584.80	7.98	585.30	7.52	585.35	11.17	583.01	11.2	583.07	9.66	583.63	9.62	583.72
2/6/09	NM	--	8.16	584.08	9.36	583.30	10.36	582.90	NI	--	10.46	583.02	7.88	584.82	8.27	585.01	7.70	585.17	11.36	582.82	11.42	582.85	9.84	583.45	9.81	583.53
8/6/12	8.84	583.64	8.31	583.93	9.73	582.93	11.37	581.89	NI	--	11.42	582.06	8.9	583.80	8.81	584.47	8.35	584.52	NM	---	12.25	582.02	10.52	582.77	10.47	582.87
10/29/12	8.32	584.16	8.11	584.13	10.11	582.55	12.25	581.01	12.48	581.04	12.15	581.33	9.16	583.54	8.6	584.68	8.24	584.63	12.79	581.39	12.89	581.38	11.05	582.24	11	582.34
7/15/13	7.42	585.06	7.19	585.05	8.14	584.52	10.03	583.23	10.31	583.21	10.08	583.40	7.02	585.68	7.01	586.27	6.63	586.24	10.92	583.26	11.02	583.25	8.98	584.31	8.95	584.39
9/7/17	7.90	584.58	7.61	584.63	NM	NM	9.49	583.77	9.84	583.68	9.59	583.89	7.41	585.29	7.99	585.29	7.57	585.30	10.58	583.60	10.59	583.68	9.09	584.20	8.89	584.45

Notes:

ft msl = Elevation referenced to feet above mean sea level using the National Geodetic Vertical Datum of 1929 (NGVD29)

TOC = Top of PVC Casing

ft = feet

[A] = as measured inside well

NM = Not Measured

NI = Not Installed

-- No Elevation

Table 1
Measured Groundwater Elevations

Well ID	MW-808D		MW-808S		MW-809D		MW-809M		MW-809S		MW-810D		MW-810S		MW-811S		MW-812S		MW-813S		MW-814S		MW-815D		MW-815S	
Ground Surface Elevation (ft msl)	591.8		592.1		591.44		591.20		591.30		591.62		591.69		589.59		591.40		591.75		591.64		590.80		590.69	
Top of PVC Casing Elevation (ft)	594.29		594.69		594.29		593.49		594.34		594.53		594.50		592.37		594.37		594.73		594.55		593.93		593.62	
Well Depth (Feet from TOC)[A]	42.61		19.33		41.60		31.51		19.43		42.04		20.30		16.57		18.74		17.31		17.06		41.80		16.76	
Date	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)
6/2/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/13/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/ 11-13 / 05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
8/1/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
9/14/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
12/29/05	13.51	580.78	13.67	581.02	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
1/ 18-20 / 06	13.10	581.19	13.23	581.46	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/ 14-16 / 06	12.20	582.09	12.34	582.35	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
5/1/07	11.03	583.26	10.96	583.73	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/18-20/07	12.66	581.63	12.89	581.80	13.7	580.59	NI	--	13.81	580.53	14.15	580.38	14.08	580.42	11.23	581.14	13.69	580.68	12.18	582.55	10.83	583.72	9.21	584.72	8.83	584.79
9/24/07	12.19	582.10	12.34	582.35	13.86	580.43	NI	--	14.00	580.34	14.47	580.06	14.38	580.12	11.03	581.34	13.65	580.72	11.63	583.10	10.06	584.49	8.56	585.37	8.21	585.41
7/1/08	11.44	582.85	11.57	583.12	12.96	581.33	NI	--	13.17	581.17	13.55	580.98	13.44	581.06	10.24	582.13	12.74	581.63	10.89	583.84	9.55	585.00	8.16	585.77	7.81	585.81
9/1/08	12.08	582.21	12.3	582.39	13.21	581.08	NI	--	13.36	580.98	13.77	580.76	13.65	580.85	10.64	581.73	13.07	581.30	11.57	583.16	10.29	584.26	8.83	585.10	8.48	585.14
2/6/09	12.47	581.82	12.71	581.98	13.95	580.34	NI	--	14.09	580.25	14.41	580.12	14.37	580.13	11.08	581.29	13.77	580.60	11.95	582.78	10.51	584.04	8.88	585.05	8.53	585.09
8/6/12	12.93	581.36	13.18	581.51	14.09	580.20	NI	--	14.18	580.16	14.48	580.05	14.44	580.06	11.18	581.19	13.91	580.46	12.26	582.47	10.83	583.72	9.84	584.09	11.58	582.04
10/29/12	13.50	580.79	13.7	580.99	14.63	579.66	14.63	578.86	14.72	579.62	14.5	580.03	14.45	580.05	11.51	580.86	13.97	580.40	12.56	582.17	11.21	583.34	10.23	583.70	11.99	581.63
7/15/13	11.67	582.62	11.83	582.86	13.24	581.05	13.24	580.25	13.39	580.95	13.69	580.84	13.69	580.81	10.15	582.22	12.98	581.39	10.91	583.82	9.26	585.29	8.1	585.83	9.82	583.80
9/7/17	11.00	583.29	11.26	583.43	11.58	582.71	11.49	582.00	11.61	582.73	11.81	582.72	11.80	582.70	8.41	583.96	11.42	582.95	10.58	584.15	9.62	584.93	8.34	585.59	9.45	584.17

Notes:
ft msl = Elevation referenced to feet al
TOC = Top of PVC Casing
ft = feet
[A] = as measured inside well
NM = Not Measured
NI = Not Installed
-- No Elevation

Table 1
Measured Groundwater Elevations

Well ID	MW-816D		MW-816S		MW-817D		MW-817S		MW-818S		MW-819D		MW-819S		MW-820S				MW-821D		MW-821S				MW-822D	
Ground Surface Elevation (ft msl)	591.08		590.99		589.33		589.45		591.39		589.44		589.50		594.10				589.80		589.90				590.2	
Top of PVC Casing Elevation (ft)	594.20		594.21		592.40		592.21		594.29		591.88		592.03		596.41				592.31		592.15				592.56	
Well Depth (Feet from TOC)[A]	44.14		17.41		39.78		16.98		17.08		43.36		15.00		15.00				45.77		17.65				40.71	
Date	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to LNAPL from TOC (ft)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	LNAPL Thickness (ft)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to LNAPL from TOC (ft)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	LNAPL Thickness (ft)	Depth to GW from TOC (ft)	GW Elevation (ft msl)
6/2/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
6/13/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
7/ 11-13 / 05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
8/1/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
9/14/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
12/29/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
1/ 18-20 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
6/ 14-16 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
5/1/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
7/18-20/07	9.73	584.47	9.75	584.46	8.27	584.13	8.40	583.81	11.57	582.72	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
9/24/07	8.88	585.32	8.91	585.30	8.29	584.11	7.65	584.56	11.12	583.17	NI	--	NI	--	NI	NI	--	--	NI	--	NI	NI	--	--	NI	--
7/1/08	8.32	585.88	8.33	585.88	7.7	584.70	7.43	584.78	10.38	583.91	6.22	585.66	6.36	585.67	None	6.99	589.42	0.00	6.76	585.55	6.58	6.76	585.39	0.18	NI	--
9/1/08	9.15	585.05	9.18	585.03	8.38	584.02	7.71	584.50	11.00	583.29	7.06	584.82	7.20	584.83	7.81	7.85	588.56	0.04	7.50	584.81	7.35	7.46	584.69	0.11	NI	--
2/6/09	9.28	584.92	9.31	584.90	8.7	583.70	8.05	584.16	11.28	583.01	7.22	584.66	7.39	584.64	7.91	8.12	588.29	0.21	7.69	584.62	7.54	7.66	584.49	0.12	NI	--
8/6/12	10.03	584.17	10.38	583.83	9.52	582.88	8.88	583.33	11.90	582.39	7.97	583.91	8.09	583.94	8.60	9.82	586.59	1.22	8.59	583.72	8.34	9.22	582.93	0.88	NI	--
10/29/12	10.29	583.91	10.67	583.54	10.36	582.04	9.85	582.36	12.46	581.83	7.98	583.90	8.15	583.88	8.68	10.11	586.30	1.43	8.71	583.60	8.47	9.12	583.03	0.65	7.91	584.65
7/15/13	8.26	585.94	8.59	585.62	8.22	584.18	7.29	584.92	10.59	583.70	6.19	585.69	6.30	585.73	6.77	8.05	588.36	1.28	6.79	585.52	6.26	8.73	583.42	2.47	6.59	585.97
9/7/17	8.79	585.41	9.13	585.08	7.75	584.65	6.94	585.27	10.03	584.26	7.14	584.74	7.32	584.71	7.85	9.05	587.36	1.20	7.68	584.63	7.35	9.05	583.10	1.70	7.46	585.10

Notes:
ft msl = Elevation referenced to feet al
TOC = Top of PVC Casing
ft = feet
[A] = as measured inside well
NM = Not Measured
NI = Not Installed
-- No Elevation

Table 1
Measured Groundwater Elevations

Well ID	MW- 822S		MW-823D		MW-823S		MW-824D		MW-824S		MW-825S		MW-826M		MW-826S		MW-827S		MW-828S		MW-829S		MW-830S		MW-831S		MW-832D	
Ground Surface Elevation (ft msl)	590.2		590.6		590.6		590.9		590.9		591.9		590.8		590.9		591.2		589.9		589.9		590.1		591.8		590.9	
Top of PVC Casing Elevation (ft)	592.59		593.03		593.15		593.06		593.33		594.25		592.97		593.43		593.67		591.99		592.00		592.20		593.78		593.42	
Well Depth (Feet from TOC)[A]	17.82		43.73		17.65		40.49		18.1		15.84		31.51		20.88		20.72		576.90		577.00		577.30		578.95		551.90	
Date	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)
6/2/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/13/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/ 11-13 / 05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
8/1/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
9/14/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
12/29/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
1/ 18-20 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/ 14-16 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
5/1/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/18-20/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
9/24/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/1/08	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
9/1/08	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
2/6/09	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
8/6/12	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
10/29/12	7.96	584.63	9.49	583.54	9.50	583.65	9.11	583.95	9.39	583.94	6.66	587.59	15.30	577.67	15.74	577.69	14.52	579.15	NI	--	NI	--	NI	--	NI	--	NI	--
7/15/13	6.61	585.98	7.24	585.79	7.35	585.80	7.18	585.88	7.53	585.80	6.00	588.25	14.01	578.96	14.65	578.78	13.81	579.86	NI	--	NI	--	NI	--	NI	--	NI	--
9/7/17	7.49	585.10	7.91	585.12	8.02	585.13	7.99	585.07	8.36	584.97	7.33	586.92	11.59	581.38	12.18	581.25	12.06	581.61	7.09	584.90	7.22	584.78	7.28	584.92	8.62	585.16	8.12	585.30

Notes:
ft msl = Elevation referenced to feet al
TOC = Top of PVC Casing
ft = feet
[A] = as measured inside well
NM = Not Measured
NI = Not Installed
-- No Elevation

Table 1
Measured Groundwater Elevations

Well ID	MW-832S		MW-833S		MW-834D		MW-835D		MW-836S		MW-837S		MW-838S		MW-839S		PZ-890		PZ-891		MW-893		MW-894		MW-895		MW-896	
Ground Surface Elevation (ft msl)	590.9		592.1		589.9		590.0		591.2		592.7		591.5		590.2		590.44		589.92		590.70		590.60		591.00		591.40	
Top of PVC Casing Elevation (ft)	593.39		594.27		591.80		593.77		593.99		595.55		593.64		592.31		593.38		592.82		592.86		592.31		593.01		593.27	
Well Depth (Feet from TOC)[A]	578.00		579.20		551.90		551.50		578.20		579.70		578.65		577.30		16.82		16.72		26.00		18.00		18.00		18.00	
Date	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)	Depth to GW from TOC (ft)	GW Elevation (ft msl)
6/2/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/13/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/ 11-13 / 05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
8/1/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
9/14/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
12/29/05	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
1/ 18-20 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
6/ 14-16 / 06	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
5/1/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--
7/18-20/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NM	--	NM	--	NI	--	NI	--	NI	--	NI	--
9/24/07	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	9.17	583.14	9.08	583.07	NI	--	NI	--	NI	--	NI	--
7/1/08	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	--	--	--	--	11.78	580.53	11.14	581.01	12.04	580.27	12.44	579.71
9/1/08	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	9.39	582.92	9.25	582.90	12.28	580.03	11.67	580.48	12.52	579.79	12.89	579.26
2/6/09	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	9.64	582.67	9.41	582.74	12.85	579.46	12.25	579.90	13.11	579.20	13.48	578.67
8/6/12	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
10/29/12	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
7/15/13	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NI	--	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--
9/7/17	8.08	585.31	9.12	585.15	7.06	584.74	8.83	584.94	9.72	584.27	11.58	583.97	8.76	584.88	7.74	584.57	NM	--	NM	--	NM	--	NM	--	NM	--	NM	--

Notes:
ft msl = Elevation referenced to feet al
TOC = Top of PVC Casing
ft = feet
[A] = as measured inside well
NM = Not Measured
NI = Not Installed
-- No Elevation

Table 2
Estimated Horizontal and Vertical Hydraulic Gradients
Horizontal Gradients

Wells		Date	Results			Calculation Data				
From Well (# 1)	To Well (# 2)		Horizontal Gradient	Linear Velocity[A] (feet/year)	Hydrogeologic Unit	Hydraulic Conductivity (cm/sec)[B]	Distance between wells (feet)	GW Elevation Well #1 (msl)	GW Elevation Well #2 (msl)	Effective Porosity[C]
MW-804S	MW-803S	9/24/2007	0.0021	220	Calumet	2.48E-02	787.5	585.09	583.41	0.25
MW-804S	MW-803S	9/1/2008	0.0020	200				584.80	583.26	
MW-804S	MW-803S	2/6/2009	0.0023	230				584.82	583.02	
MW-804S	MW-803S	10/29/2012	0.0028	290				583.54	581.33	
MW-804S	MW-803S	7/15/2013	0.0029	300				585.68	583.40	
MW-804S	MW-803S	9/7/2017	0.0018	180				585.29	583.89	
			Average	**240**						
MW-805S	MW-802S	9/24/2007	0.0017	170	Calumet	2.48E-02	1062.5	585.60	583.79	0.25
MW-805S	MW-802S	9/1/2008	0.0017	170				585.35	583.55	
MW-805S	MW-802S	2/6/2009	0.0018	180				585.17	583.30	
MW-805S	MW-802S	10/29/2012	0.0020	200				584.63	582.55	
MW-805S	MW-802S	7/15/2013	0.0016	170				586.24	584.52	
MW-805S	MW-802S	9/7/2017	--	--				585.30	NM	
			Average	**180**						
MW-804S	MW-809S	9/24/2007	0.0044	960	Calumet	5.34E-02	1090	585.09	580.34	0.25
MW-804S	MW-809S	9/1/2008	0.0035	770				584.80	580.98	
MW-804S	MW-809S	2/6/2009	0.0042	930				584.82	580.25	
MW-804S	MW-809S	10/29/2012	0.0036	790				583.54	579.62	
MW-804S	MW-809S	7/15/2013	0.0043	960				585.68	580.95	
MW-804S	MW-809S	9/7/2017	0.0023	520				585.29	582.73	
			Average	**820**						
MW-802S	MW-812S	9/24/2007	0.0060	1200	Calumet/Slag-fill	4.64E-02	510	583.79	580.72	0.25
MW-802S	MW-812S	9/1/2008	0.0044	850				583.55	581.30	
MW-802S	MW-812S	2/6/2009	0.0053	1000				583.30	580.60	
MW-802S	MW-812S	10/29/2012	0.0042	810				582.55	580.40	
MW-802S	MW-812S	7/15/2013	0.0061	1200				584.52	581.39	
MW-802S	MW-812S	9/7/2017	--	--				NM	582.95	
			Average	**1000**						
MW-812S	MW-810S	9/24/2007	0.0048	3800	Slag-fill	1.92E-01	125	580.72	580.12	0.25
MW-812S	MW-810S	9/1/2008	0.0036	2900				581.30	580.85	
MW-812S	MW-810S	2/6/2009	0.0038	3000				580.60	580.13	
MW-812S	MW-810S	10/29/2012	0.0028	2200				580.40	580.05	
MW-812S	MW-810S	7/15/2013	0.0046	3700				581.39	580.81	
MW-812S	MW-810S	9/7/2017	0.0020	1600				582.95	582.70	
			Average	**2900**						
MW-808S	MW-809S	9/24/2007	0.0118	1300	Calumet	2.70E-02	170	582.35	580.34	0.25
MW-808S	MW-809S	9/1/2008	0.0083	930				582.39	580.98	
MW-808S	MW-809S	2/6/2009	0.0102	1100				581.98	580.25	
MW-808S	MW-809S	10/29/2012	0.0081	900				580.99	579.62	
MW-808S	MW-809S	7/15/2013	0.0112	1300				582.86	580.95	
MW-808S	MW-809S	9/7/2017	0.0041	500				583.43	582.73	
			Average	**1000**						
MW-813S	MW-809S	9/24/2007	0.0125	3500	Calumet	6.73E-02	220	583.10	580.34	0.25
MW-813S	MW-809S	9/1/2008	0.0099	2800				583.16	580.98	
MW-813S	MW-809S	2/6/2009	0.0115	3200				582.78	580.25	
MW-813S	MW-809S	10/29/2012	0.0116	3200				582.17	579.62	
MW-813S	MW-809S	7/15/2013	0.0130	3600				583.82	580.95	
MW-813S	MW-809S	9/7/2017	0.0065	1800				584.15	582.73	
			Average	**3000**						
MW-815S	MW-817S	9/24/2007	0.0015	110	Calumet	1.72E-02	560	585.41	584.56	0.25
MW-815S	MW-817S	9/1/2008	0.0011	80				585.14	584.50	
MW-815S	MW-817S	2/6/2009	0.0017	120				585.09	584.16	
MW-815S	MW-817S	10/29/2012	0.0013	90				581.63	582.36	
MW-815S	MW-817S	7/15/2013	0.0020	140				583.80	584.92	
MW-815S	MW-817S	9/7/2017	0.0020	140				584.17	585.27	
			Average	**110**						
MW-815D	MW-817D	9/24/2007	0.0022	30	Calumet	4.67E-03	560	585.37	584.11	0.35
MW-815D	MW-817D	9/1/2008	0.0019	30				585.10	584.02	
MW-815D	MW-817D	2/6/2009	0.0024	30				585.05	583.70	
MW-815D	MW-817D	10/29/2012	0.0030	40				583.70	582.04	
MW-815D	MW-817D	7/15/2013	0.0029	40				585.83	584.18	
MW-815D	MW-817D	9/7/2017	0.0017	20				585.59	584.65	
			Average	**30**						
MW-816D	MW-809D	9/24/2007	0.0074	130	Calumet	5.97E-03	665	585.32	580.43	0.35
MW-816D	MW-809D	9/1/2008	0.0060	110				585.05	581.08	
MW-816D	MW-809D	2/6/2009	0.0069	120				584.92	580.34	
MW-816D	MW-809D	10/29/2012	0.0064	110				583.91	579.66	
MW-816D	MW-809D	7/15/2013	0.0074	130				585.94	581.05	
MW-816D	MW-809D	9/7/2017	0.0041	70				585.41	582.71	
			Average	**110**						
MW-816D	MW-810D	9/24/2007	0.0067	1400	Calumet	7.15E-02	790	585.32	580.06	0.35
MW-816D	MW-810D	9/1/2008	0.0054	1100				585.05	580.76	
MW-816D	MW-810D	2/6/2009	0.0061	1300				584.92	580.12	
MW-816D	MW-810D	10/29/2012	0.0049	1000				583.91	580.03	
MW-816D	MW-810D	7/15/2013	0.0065	1400				585.94	580.84	
MW-816D	MW-810D	9/7/2017	0.0034	700				585.41	582.72	
			Average	**1200**						

Notes:

[A] Linear velocity represents the average rate at which water moves between two points: $V=Ki/n_e$, where V= linear velocity (ft/yr), K=hydraulic conductivity (cm/sec), i=gradient, and n_e=effective porosity. Estimated arithmetic mean groundwater flow rates are identified in bold font and rounded to two significant figures.

[B] Hydraulic conductivity values listed are the geometric mean of the hydraulic conductivity test results provided in the July 2008 "Supplemental Site Investigation Report" for the former Coke

[C] Effective porosity values estimated from soil textures listed in *Groundwater* by Freeze and Cherry (1979)

NM = Not Measured

Table 2
Estimated Horizontal and Vertical Hydraulic Gradients
Vertical Gradients

Well Pair IDs	Date	Water Table Well Groundwater elevation (ft msl)	Deep Well Groundwater elevation (ft msl)	Elevation of Mid-point of water table well screen (ft msl)	Elevation of Mid-point of deep well screen (ft msl)	Vertical Gradient (positive is up, negative is down)	Hydrogeologic Unit
MW-801S/MW-801D	9/24/07	584.61	584.58	581.33	551.66	-0.001	Calumet
	9/1/2008	584.39	584.35	581.33	551.66	-0.001	
	2/6/2009	584.08	NM	581.33	551.66	--	
	10/29/2012	584.13	584.16	581.33	551.66	0.001	
	7/15/2013	585.05	585.06	581.33	551.66	0.0003	
	9/7/2017	584.63	584.58	581.33	551.66	-0.0017	
MW-803S/MW-803D	9/24/07	583.41	583.15	579.45	551.60	-0.009	Calumet
	9/1/2008	583.26	583.15	579.45	551.60	-0.004	
	2/6/2009	583.02	582.90	579.45	551.60	-0.004	
	10/29/2012	581.33	581.01	579.45	551.60	-0.011	
	7/15/2013	583.40	583.23	579.45	551.60	-0.006	
	9/7/2017	583.89	583.77	579.45	551.60	-0.004	
MW-805S/MW-805D	9/24/07	585.60	585.57	581.47	552.53	-0.001	Calumet
	9/1/2008	585.35	585.30	581.47	552.53	-0.002	
	2/6/2009	585.17	585.01	581.47	552.53	-0.006	
	10/29/2012	584.63	584.68	581.47	552.53	0.002	
	7/15/2013	586.24	586.27	581.47	552.53	0.001	
	9/7/2017	585.30	585.29	581.47	552.53	-0.0003	
MW-806S/MW-806D	9/24/2007	583.24	583.16	582.77	552.23	-0.0026	Calumet
	9/1/2008	583.07	583.01	582.77	552.23	-0.0020	
	2/6/2009	582.85	582.82	582.77	552.23	-0.0010	
	10/29/2012	581.38	581.39	582.77	552.23	0.0003	
	7/15/2013	583.25	583.26	582.77	552.23	0.0003	
	9/7/2017	583.68	583.60	582.77	552.23	-0.0026	
MW-807S/MW-807D	9/24/07	583.94	583.85	578.30	553.44	-0.0036	Calumet
	9/1/2008	583.72	583.63	578.30	553.44	-0.0036	
	2/6/2009	583.53	583.45	578.30	553.44	-0.0032	
	10/29/2012	582.34	582.24	578.30	553.44	-0.0040	
	7/15/2013	584.39	584.31	578.30	553.44	-0.0032	
	9/7/2017	584.45	584.20	578.30	553.44	-0.0101	
MW-808S/MW-808D	9/24/07	582.35	580.43	580.36	553.18	-0.071	Calumet
	9/1/2008	582.39	581.08	580.36	553.18	-0.048	
	2/6/2009	581.98	580.34	580.36	553.18	-0.060	
	10/29/2012	580.99	579.66	580.36	553.18	-0.049	
	7/15/2013	582.86	581.05	580.36	553.18	-0.067	
	9/7/2017	583.43	583.29	580.36	553.18	-0.005	
MW-809S/MW-809D	9/24/07	580.34	580.43	579.91	554.19	0.003	Calumet
	9/1/2008	580.98	581.08	579.91	554.19	0.004	
	2/6/2009	580.25	580.34	579.91	554.19	0.003	
	10/29/2012	579.62	579.66	579.91	554.19	0.002	
	7/15/2013	580.95	581.05	579.91	554.19	0.004	
	9/7/2017	582.73	582.71	579.91	554.19	-0.001	
MW-810S/MW-810D	9/24/07	580.12	580.06	579.20	553.99	-0.002	Calumet
	9/1/2008	580.85	580.76	579.20	553.99	-0.004	
	2/6/2009	580.13	580.12	579.20	553.99	-0.0004	
	10/29/2012	580.05	580.03	579.20	553.99	-0.001	
	7/15/2013	580.81	580.84	579.20	553.99	0.001	
	9/7/2017	582.70	582.72	579.20	553.99	0.001	
MW-815S/MW-815D	9/24/07	585.41	585.37	581.86	553.63	-0.001	Calumet
	9/1/2008	585.14	585.10	581.86	553.63	-0.001	
	2/6/2009	585.09	585.05	581.86	553.63	-0.001	
	10/29/2012	581.63	583.70	581.86	553.63	0.073	
	7/15/2013	583.80	585.83	581.86	553.63	0.072	
	9/7/2017	584.17	585.59	581.86	553.63	0.050	
MW-816S/MW-816D	9/24/07	585.30	585.32	581.80	551.56	0.001	Calumet
	9/1/2008	585.03	585.05	581.80	551.56	0.001	
	2/6/2009	584.90	584.92	581.80	551.56	0.001	
	10/29/2012	583.54	583.91	581.80	551.56	0.012	
	7/15/2013	585.62	585.94	581.80	551.56	0.011	
	9/7/2017	585.08	585.41	581.80	551.56	0.011	
MW-817S/MW-817D	9/24/07	584.56	584.11	580.23	554.12	-0.017	Calumet
	9/1/2008	584.50	584.02	580.23	554.12	-0.018	
	2/6/2009	584.16	583.70	580.23	554.12	-0.018	
	10/29/2012	582.36	582.04	580.23	554.12	-0.012	
	7/15/2013	584.92	584.18	580.23	554.12	-0.028	
	9/7/2017	585.27	584.65	580.23	554.12	-0.024	
MW-822S/MW-822D	10/29/12	584.63	584.65	579.77	553.35	0.001	Calumet
	7/15/2013	585.98	585.97	579.77	553.35	-0.0004	
	9/7/2017	585.10	585.10	579.77	553.35	0.0000	
MW-823S/MW-823D	10/29/12	583.65	583.54	580.50	550.80	-0.004	Calumet
	7/15/2013	585.80	585.79	580.50	550.80	-0.0003	
	9/7/2017	585.13	585.12	580.50	550.80	-0.0003	
MW-824S/MW-824D	10/29/12	583.94	583.95	580.23	554.07	0.00038	Calumet
	7/15/2013	585.80	585.88	580.23	554.07	0.003	
	9/7/2017	584.97	585.07	580.23	554.07	0.004	

Notes:
Elevations are referenced to feet above NGVD29 mean sea level datum (ft msl)
NM = Not Measured

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Soil Sample Data Validated				
17G0427	01	SB 892 (0-2)	7/10/2017	VOCs, SVOCs, Percent Solids
17G0427	02	SB 892 (8-10)	7/10/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	03	SB 888 (0-2)	7/10/2017	VOCs, SVOCs, Percent Solids
17G0427	04	Trip Blank	7/10/2017	VOCs
17G0427	05	MW-830S (0-2)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	06	MW-830S (2-4)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	07	MW-830S (10-12)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	08	MW-828S (0-2)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	09	MW-828S (2-4)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	10	MW-828S (8-12)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	11	MW-829S (0-2)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	12	MW-829S (3-4)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	13	MW-829S (14-16)	7/12/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	14	Trip Blank	7/12/2017	VOCs
17G0427	15	MW-839S (0-2)	7/13/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	16	MW-839S (2-4)	7/13/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	17	MW-839S (10-12)	7/13/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	18	SB 886 (0-2)	7/13/2017	VOCs, SVOCs, Percent Solids
17G0427	19	MW 836S (0-2)	7/13/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	20	MW 837S (0-2)	7/13/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	21	SB 887 (0-2)	7/13/2017	VOCs, SVOCs, Percent Solids
17G0427	22	SB 889 (0-2)	7/13/2017	VOCs, SVOCs, Percent Solids
17G0427	23	SB 885 (0-2)	7/13/2017	VOCs, SVOCs, Percent Solids
17G0427	24	Trip Blank	7/13/2017	VOCs
17G0427	25	SB 884 (0-2)	7/14/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	26	SB 884 (6-8)	7/14/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	27	SB 891 (0-2)	7/14/2017	VOCs, SVOCs, Percent Solids
17G0427	28	SB 890 (0-2)	7/14/2017	VOCs, SVOCs, Percent Solids
17G0427	29	SB 893 (0-2)	7/14/2017	VOCs, SVOCs, Percent Solids
17G0427	30	SB 893 (6-8)	7/14/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	31	Trip Blank	7/14/2017	VOCs

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Soil Sample Data Validated				
17G0427	32	MW-831S (0-2)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	33	MW-831S (4-6)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	34	MW-831S (14-16)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	35	MW-838S (0-2)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	36	MW-838S (2-4)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	37	MW-838S (14-16)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	38	MW-833S (0-2)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	39	MW 833S (4-6)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	40	MW 833S (14-16)	7/17/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	41	Trip Blank	7/17/2017	VOCs
17G0427	42	MW 834D (0-2)	7/25/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	43	MW 834D (2-4)	7/25/2017	SVOCs, Metals, Percent Solids
17G0427	44	MW 834D (37-39)	7/25/2017	SVOCs, Metals, Percent Solids
17G0427	45	Trip Blank	7/25/2017	VOCs
17G0427	46	MW 835D (0-2)	7/26/2017	VOCs, SVOCs, Metals, Percent Solids
17G0427	47	MW 835D (2-4)	7/26/2017	SVOCs, Metals, Percent Solids
17G0427	48	MW 835D (36-38)	7/26/2017	SVOCs, Metals, Percent Solids
17G0427	49	Trip Blank	7/26/2017	VOCs
17G0427	50	MW-832D (0-2)	7/27/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	51	MW-832D (4-6)	7/27/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	52	MW-832D (38-40)	7/27/2017	VOCs, SVOCs, Metals, Mercury, Ammonia, Chloride, Cyanide, Hexavalent Chromium, Sulfate, Sulfide, pH, Total Recoverable Phenolics, TOC, Percent Solids
17G0427	53	Trip Blank	7/27/2017	VOCs
Groundwater Data Validated				
17I0694	01	MW-832S-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	02	MW-832S-GW	9/11/2017	Dissolved Metals
17I0694	03	MW-832D-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	04	MW-832D-GW	9/11/2017	Dissolved Metals
17I0694	05	MW-832D-D-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Groundwater Data Validated				
17I0694	06	MW-832D-D-GW	9/11/2017	Dissolved Metals
17I0694	07	MW-815D-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	08	MW-815D-GW	9/11/2017	Dissolved Metals
17I0694	09	MW-815S-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	10	MW-815S-GW	9/11/2017	Dissolved Metals
17I0694	11	MW-833S-GW	9/11/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	12	MW-833S-GW	9/11/2017	Dissolved Metals
17I0694	13	MW-820S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	14	MW-820S-GW	9/12/2017	Dissolved Metals
17I0694	15	MW-824S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	16	MW-824S-GW	9/12/2017	Dissolved Metals
17I0694	17	MW-824D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	18	MW-824D-GW	9/12/2017	Dissolved Metals
17I0694	19	MW-816S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	20	MW-816S-GW	9/12/2017	Dissolved Metals
17I0694	21	MW-816D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	22	MW-816D-GW	9/12/2017	Dissolved Metals
17I0694	23	MW-825S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	24	MW-825S-GW	9/12/2017	Dissolved Metals
17I0694	25	MW-819S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	26	MW-819S-GW	9/12/2017	Dissolved Metals
17I0694	27	MW-819D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	28	MW-819D-GW	9/12/2017	Dissolved Metals
17I0694	29	MW-805S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	30	MW-805S-GW	9/12/2017	Dissolved Metals
17I0694	31	Trip Blank	9/12/2017	VOCs
17I0694	32	MW-805D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	33	MW-805D-GW	9/12/2017	Dissolved Metals
17I0694	34	MW-829S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	35	MW-829S-GW	9/12/2017	Dissolved Metals

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Groundwater Data Validated				
17I0694	36	MW-828S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	37	MW-828S-GW	9/12/2017	Dissolved Metals
17I0694	38	MW-823S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	39	MW-823S-GW	9/12/2017	Dissolved Metals
17I0694	40	MW-823D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	41	MW-823D-GW	9/12/2017	Dissolved Metals
17I0694	42	MW-821S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	43	MW-821S-GW	9/12/2017	Dissolved Metals
17I0694	44	MW-830S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	45	MW-830S-GW	9/12/2017	Dissolved Metals
17I0694	46	MW-839S-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	47	MW-839S-GW	9/12/2017	Dissolved Metals
17I0694	48	MW-821D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	49	MW-821D-GW	9/12/2017	Dissolved Metals
17I0694	50	MW-830S-D-GW	9/12/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	51	MW-830S-D-GW	9/12/2017	Dissolved Metals
17I0694	52	MW-831S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	53	MW-831S-GW	9/13/2017	Dissolved Metals
17I0694	54	MW-836S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	55	MW-836S-GW	9/13/2017	Dissolved Metals
17I0694	56	MW-813S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	57	MW-813S-GW	9/13/2017	Dissolved Metals
17I0694	58	MW-812S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	59	MW-812S-GW	9/13/2017	Dissolved Metals
17I0694	60	MW-804S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	61	MW-804S-GW	9/13/2017	Dissolved Metals
17I0694	62	MW-814S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	63	MW-814S-GW	9/13/2017	Dissolved Metals

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Groundwater Data Validated				
17I0694	64	MW-807D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	65	MW-807D-GW	9/13/2017	Dissolved Metals
17I0694	66	MW-807S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	67	MW-807S-GW	9/13/2017	Dissolved Metals
17I0694	68	MW-830S-GW	9/13/2017	Hexavalent Chromium
17I0694	69	MW-830S-D-GW	9/13/2017	Hexavalent Chromium
17I0694	70	MW-828S-GW	9/13/2017	Hexavalent Chromium
17I0694	71	MW-822S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	72	MW-822S-GW	9/13/2017	Dissolved Metals
17I0694	73	MW-822S-D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	74	MW-822S-D-GW	9/13/2017	Dissolved Metals
17I0694	75	MW-822D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	76	MW-822D-GW	9/13/2017	Dissolved Metals
17I0694	77	MW-835D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	78	MW-835D-GW	9/13/2017	Dissolved Metals
17I0694	79	MW-834D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	80	MW-834D-GW	9/13/2017	Dissolved Metals
17I0694	81	MW-801D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	82	MW-801D-GW	9/13/2017	Dissolved Metals
17I0694	83	MW-801S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	84	MW-801S-GW	9/13/2017	Dissolved Metals
17I0694	85	MW-803S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	86	MW-803S-GW	9/13/2017	Dissolved Metals
17I0694	87	MW-827S-GW	9/13/2017	VOCs, SVOCs, Ammonia, COD, Cyanide, Hardness, Mercury, Metals, Total Recoverable Phenolics, TOC
17I0694	88	MW-827S-GW	9/13/2017	Dissolved Metals
17I0694	89	MW-811S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	90	MW-817S-GW	9/13/2017	Dissolved Metals
17I0694	91	MW-838S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	92	MW-838S-GW	9/13/2017	Dissolved Metals
17I0694	93	MW-837S-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	94	MW-837S-GW	9/13/2017	Dissolved Metals

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Groundwater Data Validated				
17I0694	95	MW-837S-D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	96	MW-837S-D-GW	9/13/2017	Dissolved Metals
17I0694	97	MW-803M-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	98	MW-803M-GW	9/13/2017	Dissolved Metals
17I0694	99	MW-803D-GW	9/13/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AA	MW-803D-GW	9/13/2017	Dissolved Metals
17I0694	AB	Trip Blank	9/13/2017	VOCs
17I0694	AC	MW-809S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AD	MW-809S-GW	9/14/2017	Dissolved Metals
17I0694	AE	MW-809M-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AF	MW-809M-GW	9/14/2017	Dissolved Metals
17I0694	AG	MW-809D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AH	MW-809D-GW	9/14/2017	Dissolved Metals
17I0694	AI	MW-808D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AJ	MW-808D-GW	9/14/2017	Dissolved Metals
17I0694	AK	MW-808S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AL	MW-808S-GW	9/14/2017	Dissolved Metals
17I0694	AM	MW-818S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AN	MW-818S-GW	9/14/2017	Dissolved Metals
17I0694	AO	MW-818S-D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AP	MW-818S-D-GW	9/14/2017	Dissolved Metals
17I0694	AQ	MW-806S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AR	MW-806S-GW	9/14/2017	Dissolved Metals
17I0694	AS	MW-806D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AT	MW-806D-GW	9/14/2017	Dissolved Metals
17I0694	AU	Trip Blank	9/14/2017	VOCs
17I0694	AV	MW-817S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AW	MW-817S-GW	9/14/2017	Dissolved Metals
17I0694	AX	MW-810S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AY	MW-810S-GW	9/14/2017	Dissolved Metals

Table 3
Summary of Validated Samples and Analytes

Microbac Analytical Lab Order	Laboratory Sample ID	Field Sample ID	Sample Collection Date	Analyte List
Groundwater Data Validated				
17I0694	AZ	MW-810S-D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	AZ	MW-810S-D-GW	9/14/2017	Dissolved Metals
17I0694	BA	MW-810S-D-GW	9/14/2017	Dissolved Metals
17I0694	BB	MW-810D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	BC	MW-810D-GW	9/14/2017	Dissolved Metals
17I0694	BD	MW-826M-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	BE	MW-826M-GW	9/14/2017	Dissolved Metals
17I0694	BF	MW-826S-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	BG	MW-826S-GW	9/14/2017	Dissolved Metals
17I0694	BH	MW-817D-GW	9/14/2017	VOCs, SVOCs, Alkalinity, Ammonia, Chloride, COD, Cyanide, Hardness, Hexavalent Chromium, Mercury, Metals, Total Recoverable Phenolics, Sulfate, Sulfide, TOC
17I0694	BI	MW-817D-GW	9/14/2017	Dissolved Metals
17I0694	BJ	MW-827S-GW	9/14/2017	Alkalinity, Chloride, Hexavalent Chromium, Sulfate, Sulfide
17J1129	01	MW820S-GW-(10-16-17)	10/16/2017	Nitrogen, Nitrate-Nitrite (as N)
17K1154	01	MW-820S-112017	11/20/2017	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)
17L1205	01	MW-820S-172017	12/20/2017	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)
18A1423	01	MW-820S-012618	01/26/2018	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)
18B1464	01	MW820S-GW-022718	02/27/2018	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)
18C1632	01	MW820S-GW-032818	03/28/2018	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)
18E0074	01	MW820S-GW-050118	05/01/2018	VOCs, SVOCs, Ammonia, Nitrogen, Nitrate-Nitrite (as N)

COD = Chemical Oxygen Demand
SVOCs = Semivolatile Organic Compounds
TOC = Total Organic Carbon
VOCs = Volatile Organic Compounds

		IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria											
Parameters	**CAS #**	**IDEM**[1] Construction Worker (mg/kg)	**IDEM**[1] Direct Contact (mg/kg)	**IDEM**[1] Migration to GW (mg/kg)	**IDEM**[1] Default Closure Level (mg/kg)	**EPA**[2] ESLs - Soil (mg/Kg)	**MW-828S (0-2)** 7/12/2017	**MW-828S (2-4)** 7/12/2017	**MW-828S (8-12)** 7/12/2017	**MW-829S (0-2)** 7/12/2017	**MW-829S (3-4)** 7/12/2017	**MW-829S (14-16)** 7/12/2017	**MW-830S (0-2)** 7/12/2017	**MW-830S (2-4)** 7/12/2017	**MW-830S (10-12)** 7/12/2017	**MW-831S (0-2)** 7/17/2017	**MW-831S (4-6)** 7/17/2017
Metals (8020)																	
Antimony[3]	7440-36-0	460	620	37	37	78 SI / 0.29 M	*1.7* B(M)	*1.1* B(M)	*0.79* J B(M)	*0.53* J B(M)	*0.47* J B(M)	*0.38* J B(M)	0.11 J	*12* B(M)	*2.9* B(M)	*1.3* J B(M)	< 0.21 U
Arsenic	7440-38-2	320	20	5.8	5.8	5.7	< 0.065	2.1 J+	1.1 J+	< 0.064	4.6	< 0.81 U	1.2 J+	**6.2** A(GW,CL),B	1 J+	**7.6** A(GW,CL),B	3.9
Beryllium[3]	7440-41-7	2,300	2,900	3,200	2,300	40 SI / 36 M	5.9	0.15 J	0.067 J	8.5	0.16 J	0.072 J	5.5	1.2	0.067 J	1.1	0.58 J
Cadmium[3]	7440-43-9	590	990	77	77	32 P / 140 SI / 1 AV / 0.38 M	*1.7* B(AV,M)	0.29 J	0.091 J	*1* B(M)	0.18 J	0.076 J	*2.4* B(AV,M)	*1.6* B(AV,M)	0.067 J	***9.3*** B(AV,M)	*1.2* B(AV,M)
Chromium	7440-47-3	1,000,000	1,000,000	1,000,000	10,000	0.4	*19* B	*3.6* J+ B	*4.2* J+ B	*13* B	*3.9* J+ B	*3.2* J+ B	*80* J B	*15* B	*4.1* B	*260* J+ B	*240* J+ B
Chromium, hexavalent	18540-29-9	3,400	650	120	120	NE	< 0.57	< 0.6	< 0.61	< 0.57	< 0.6	< 0.58	< 0.57	< 0.59	< 0.6	< 0.59	2.3 J
Copper	7440-50-8	46,000	62,000	2,900	2,900	5.4	3.1	*6* B	1.8	2.3	5.3	1.1	*8.3* J B	*33* B	1.5	*130* B	*27* B
Iron[3]	7439-89-6	NE	NE	NE	NE	NE	2900	7500	3200	4300	4800	3100	12000	15000	3200	88000	47000
Lead[3]	7439-92-1	970	1,300	230	230	110 P / 1,700 SI / 16 AV / 59 M	3	9	1.4	0.66 J	4.5	1.6	*18* J- B(AV)	*59* B(AV)	1.3	***290*** A(GW,CL),B(P,AV,M)	*44* B(AV)
Manganese	7439-96-5	NE	NE	NE	NE	NE	2200	210	100	2200	180	110	4400	130	130	6700	7400
Mercury	7439-97-6	340	470	32	32	0.1	0.054	*0.3* B	< 0.0058	< 0.0064	0.01 J	< 0.0056	*0.54* B	0.09	< 0.0066	*0.35* B	*0.57* B
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.65 J	0.55 J	0.59 J	< 0.38 U	< 0.36 U	< 0.34 U	0.88 J	4.5	1.5	*5*	2.6
Nickel	7440-02-0	23,000	31,000	2,700	2,700	13.6	1	3.8	2.4	0.59 J	3.5	2.1	3 J	11	2.4	*30* B	*16* B
Potassium	7440-09-7	NE	NE	NE	NE	NE	1100	320	120	910	260	160	1200	540	160	510	500
Selenium	7782-49-2	5,700	7,800	53	53	0.0276	*1.2* B	*0.065* J B	< 0.0089	*2.6* B	*0.14* J B	*1.3* B	*1.6* J- B	*2.3* B	0.024 J	< 0.0092	< 0.0082
Silver	7440-22-4	5,700	7,800	87	87	4.04	0.22 J	0.032 J	0.013 J	0.13 J	0.027 J	0.012 J	0.33 J	0.14 J	0.011 J	0.42 J	0.16 J
Thallium	7440-28-0	80	110	10	10	0.0569	0.035 J	0.051 J	0.025 J	0.035 J	0.039 J	0.019 J	*0.12* J B	*0.41* J B	*0.085* J B	< *0.13* U B	< *0.072* U B
Tin	7440-31-5	NE	NE	NE	NE	7.62	1.1 J+	0.97 J+	< 0.61 U	< 0.53 U	< 0.76 U	< 0.52 U	1.6 J+	4.3 J+	< 0.72 U	*290* B	4.4 J+
Vanadium	7440-62-2	NE	NE	NE	NE	1.59	*19* B	*8.3* B	*7.5* B	*15* B	*8.9* B	*7.9* B	*32* J B	*8.9* B	*6.1* B	*210* B	*140* B
Zinc	7440-66-6	340,000	470,000	38,000	10,000	6.62	*15* B	*22* B	*9.5* B	*13* B	*19* B	*7.3* B	*52* B	*250* B	*8.1* B	*370* B	*110* B
Other																	
Total Organic Carbon (TOC)	None	NE	NE	NE	NE	NE	0.72	0.57	0.23	0.57	0.74	0.1	1.9 J	28	0.15	3.1	2.3
Sulfide	18496-25-8	NE	NE	NE	NE	0.00358	*2100* B	< 1.9	*83* B	*1600* B	< 1.9	*8.6* B	*1400* B	< 1.9	*200* B	*230* B	*71* B
Total Cyanides	57-12-5	23,000	31,000	9.6	9.6	1.33	0.81	0.14 J	0.22 J	0.75	0.3	0.24 J	*2* B	*4.4* B	0.24 J	*4.3* B	*2.9* B
Total Phenolics	None	NE	NE	NE	NE	NE	< 0.3	< 0.29	1.1	4.2	2.3	< 0.29	3.2	6.5	< 0.3	3.6	5.1
Ammonia	None	NE	NE	NE	NE	NE	7.7 J	7.8 J	15	10	9.1 J	< 5.2	10	7.6 J	7.4 J	19	22
Chloride	None	NE	NE	NE	NE	NE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulfate	None	NE	NE	NE	NE	NE	870	1400	400	1700	1700	240 J	3500	11000	2200	4300	3800
pH	None	NE	NE	NE	NE	NE	11.1	9.11	9.01	10.7	8.77	8.83	9.13	7	8.42	8.61	9.47
VOCs (8260B)																	
1,1,1-Trichloroethane	74-55-6	34,000	6,700	280	280	29.8	< 0.0011	< 0.0011	< 0.00083	< 0.0012	< 0.00097	< 0.001	< 0.0013	< 0.0017	< 0.001	< 0.0011	0.0054
1,1,2,2-Tetrachloroethane	79-34-5	960	8.7	0.11	0.11	0.127	< 0.0014	< 0.0014	< 0.001	< 0.0014	< 0.0012	< 0.0013	< 0.0016	< 0.002	< 0.0013	< 0.0013	< 0.0013
1,1-Dichloroethane	75-34-3	8,600	1,700	58	58	20.1	< 0.0011	< 0.0011	< 0.00085	< 0.0012	< 0.00099	< 0.0011	< 0.0013	< 0.0017	< 0.0011	< 0.0011	< 0.0011
1,1-Dichloroethylene	75-35-4	2,200	410	42	42	8.28	< 0.0012	< 0.0012	< 0.00091	< 0.0013	< 0.0011	< 0.0011	< 0.0014	< 0.0018	< 0.0011	< 0.0012	< 0.0012
1,2-Dichloroethane	107-06-2	150	5.8	0.15	0.15	21.2	< 0.0016	< 0.0016	< 0.0012	< 0.0017	< 0.0014	< 0.0015	< 0.0018	< 0.0024	< 0.0015	< 0.0015	< 0.0016
1,2-Dichloropropane	78-87-5	99	7.2	0.25	0.25	32.7	< 0.0012	< 0.0012	< 0.00088	< 0.0012	< 0.001	< 0.0011	< 0.0014	< 0.0018	< 0.0011	< 0.0011	< 0.0012
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0015	< 0.0015	< 0.0011	< 0.0016	< 0.0013	< 0.0014	< 0.0017	< 0.0022	< 0.0014	< 0.0014	< 0.0015
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0016	< 0.0016	< 0.0012	< 0.0017	< 0.0014	< 0.0015	< 0.0019	< 0.0024	< 0.0015	< 0.0015	< 0.0016
Acrolein	107-02-8	3.5	0.64	0.25	0.25	5.27	< 0.023	< 0.023	< 0.017	< 0.024	< 0.02	< 0.022	< 0.027	< 0.035	< 0.022	< 0.022	< 0.023
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.0239	< 0.027	< 0.027	< 0.02	< 0.029	< 0.024	< 0.025	< 0.032	< 0.041	< 0.025	< 0.026	< 0.027
Benzene	71-43-2	560	14	0.35	0.35	0.255	0.039	0.0059	***180*** A(DC,GW,CL),B	< 0.00091	< 0.00076	< 0.00081	0.012	0.0034 J	***5.6*** A(GW,CL),B	< 0.00083	0.029
bis (Chloromethyl) ether	542-88-1	NE	NE	NE	NE	NE	< 0.001	< 0.001	< 0.00076	< 0.0011	< 0.00089	< 0.00096	< 0.0012	< 0.0015	< 0.00095	< 0.00097	< 0.001
Bromoform	75-25-2	7,700	580	2.7	2.7	15.9	< 0.0016	< 0.0016	< 0.0012	< 0.0017	< 0.0014	< 0.0015	< 0.0019	< 0.0024	< 0.0015	< 0.0015	< 0.0016
Bromomethane (Methyl Bromide)	74-83-9	69	13	0.7	0.7	0.235	< 0.0015	< 0.0015	< 0.0011	< 0.0016	< 0.0013	< 0.0014	< 0.0018	< 0.0023	< 0.0014	< 0.0015	< 0.0015
Carbon tetrachloride	56-23-5	38	5.2	0.29	0.29	2.98	< 0.0011	< 0.0011	< 0.00081	< 0.0011	< 0.00094	< 0.001	< 0.0013	< 0.0016	< 0.001	< 0.001	< 0.0011
Chlorobenzene	108-90-7	2,600	510	27	27	13.1	< 0.00055	< 0.00055	0.037	< 0.00058	< 0.00048	< 0.00052	< 0.00064	0.0031 J	< 0.00051	< 0.00053	< 0.00054
Chlorodibromomethane	124-48-1	NE	NE	NE	NE	2.05	< 0.001	< 0.001	< 0.00076	< 0.0011	< 0.00089	< 0.00096	< 0.0012	< 0.0015	< 0.00095	< 0.00097	< 0.001
Chloroethane	75-00-3	16,000	120	10	10	NE	< 0.0019	< 0.0019	< 0.0014	< 0.002	< 0.0017	< 0.0018	< 0.0022	< 0.0029	< 0.0018	< 0.0018	< 0.0019
Chloroform	67-66-3	650	4.7	6	4.7	1.19	< 0.00063	< 0.00063	< 0.00047	< 0.00067	< 0.00055	< 0.00059	< 0.00073	< 0.00095	< 0.00059	< 0.0006	< 0.00062
Chloromethane (Methyl Chloride)	74-87-3	NE	NE	NE	NE	10.4	< 0.0012	< 0.0012	< 0.00087	< 0.0012	< 0.001	< 0.0011	< 0.0014	< 0.0017	< 0.0011	< 0.0011	< 0.0011
Dichlorobromomethane[4]	75-27-4	2,100	17	0.51	0.51	0.54	< 0.00085	< 0.00086	< 0.00064	< 0.0009	< 0.00075	< 0.0008	< 0.001	< 0.0013	< 0.0008	< 0.00082	< 0.00084
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	39.5	< 0.0015	< 0.0015	< 0.0011	< 0.0016	< 0.0013	< 0.0014	< 0.0018	< 0.0023	< 0.0014	< 0.0014	< 0.0015
Ethylbenzene	100-41-4	29,000	6,800	200	160	5.16	0.0011 J	< 0.00094	*20* B	< 0.00099	< 0.00082	< 0.00088	< 0.0011	0.0022 J	0.083	< 0.0009	0.0014 J
Methylene chloride	75-09-2	22,000	200	1.8	1.8	4.05	< 0.01 U	< 0.0088 U	< 0.0037 U	< 0.0099 U	< 0.0082 U	< 0.0085 U	< 0.0058 U	< 0.016 U	< 0.0049 U	< 0.01 U	< 0.013 U
Tetrachloroethylene	127-18-4	660	16	0.64	0.64	9.92	< 0.0012	< 0.0012	0.0021 J	< 0.0013	< 0.001	< 0.0011	< 0.0014	< 0.0018	< 0.0011	< 0.0012	< 0.0012
Toluene	108-88-3	49,000	16,000	96	96	5.45	0.026	0.011	***380*** A(GW,CL),B	0.0014 J	0.0011 J	< 0.00075	0.0029 J	0.011 J	0.0061	< 0.00076	0.018
trans-1,2-Dichloroethylene	156-60-5	1,200	230	14	14	0.784	< 0.001	< 0.001	< 0.00075	< 0.0011	< 0.00087	< 0.00094	< 0.0012	< 0.0015	< 0.00093	< 0.00096	< 0.00098
Trichlorofluoromethane	75-69-4	6,900	1,300	540	540	NE	< 0.0012	< 0.0012	< 0.0009	< 0.0013	< 0.001	< 0.0011	< 0.0014	< 0.0018	< 0.0011	< 0.0012	< 0.0012
Vinyl chloride	75-01-4	500	6.4	0.027	0.027	0.646	< 0.0013	< 0.0013	< 0.00098	< 0.0014	< 0.0011	< 0.0012	< 0.0015	< 0.002	< 0.0012	< 0.0012	< 0.0013

		IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria										
Parameters	**CAS #**	**IDEM**[1] Construction Worker (mg/kg)	**IDEM**[1] Direct Contact (mg/kg)	**IDEM**[1] Migration to GW (mg/kg)	**IDEM**[1] Default Closure Level (mg/kg)	**EPA**[2] ESLs - Soil (mg/Kg)	**MW-828S (0-2)** 7/12/2017	**MW-828S (2-4)** 7/12/2017	**MW-828S (8-12)** 7/12/2017	**MW-829S (0-2)** 7/12/2017	**MW-829S (3-4)** 7/12/2017	**MW-829S (14-16)** 7/12/2017	**MW-830S (0-2)** 7/12/2017	**MW-830S (2-4)** 7/12/2017	**MW-830S (10-12)** 7/12/2017	**MW-831S (0-2)** 7/17/2017	**MW-831S (4-6)** 7/17/2017
PAHs (8270C SIM)																	
Acenaphthene	83-32-9	50,000	24,000	1,800	1,800	682	< 0.04	< 0.02	1.3	< 0.02	< 0.02	0.12	0.12 J	< 0.1	3.1	6.6	< 0.099
Acenaphthylene	208-96-8	5,900	2,800	180	180	682	0.05 J	0.027 J	2.8	< 0.021	< 0.021	0.05	1.5	0.65	0.24	1.4	0.42
Anthracene	120-12-7	250,000	120,000	36,000	2,000	1,480	0.036 J	< 0.015	2.9	0.032 J	< 0.014	0.015 J	0.66	1.6	2.1	18	0.38
Benzo(a)anthracene	56-55-3	790	15	62	15	5.21	0.16	0.074	3.2	0.18	0.015 J	< 0.011	3.2	3.8	1.7	***55*** A(DC,CL),B	1.7
Benzo(a)pyrene	50-32-8	79	1.5	16	1.5	1.52	0.16	0.054	***2.4*** A(DC,CL),B	0.18	< 0.011	< 0.012	***3.6*** A(DC,CL),B	***3.1*** A(DC,CL),B	1.1	***46*** A(DC,GW,CL),B	***1.9*** A(DC,CL),B
Benzo(b)fluoranthene	205-99-2	790	15	190	15	59.8	0.26	0.17	3	0.28	0.016 J	< 0.014	5	5.4	1.5	***71*** A(DC,CL),B	2.6
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	119	0.13	0.099	1.2	0.14	< 0.011	< 0.011	2.9	3.1	0.46	24	1.5
Benzo(k)fluoranthene	207-08-9	7,900	150	1,900	150	148	0.07 J	0.06	1.3	0.073	< 0.028	< 0.028	1.9	1.5	0.53	17	0.98
Chrysene	218-01-9	79,000	1,500	6,200	1,500	4.75	0.16	0.082	2.8	0.19	< 0.012	< 0.012	2.7	3.9	1.2	*45* B	1.6
Dibenzo(a,h)anthracene	53-70-3	79	1.5	60	1.5	18.4	< 0.032	< 0.016	0.36 J	0.036 J	< 0.016	< 0.016	< 0.079	< 0.08	0.14	**12** A(DC,CL)	0.14 J
Fluoranthene	206-44-0	33,000	16,000	18,000	2,000	122	0.31	0.14	11	0.33	0.023 J	0.029 J	5.6	9.6	7.4	120	3.1
Fluorene	86-73-7	33,000	16,000	2300	2000	122	< 0.035	< 0.018	7.8	< 0.018	< 0.017	0.023 J	0.18 J	0.3	2.7	8.4	0.14 J
Indeno (1,2,3-c,d) pyrene	193-39-5	790	15	540	15	109	0.11	0.084	1.2	0.11	< 0.0094	< 0.0095	2.5	2.5	0.46	**22** A(DC,CL)	1.1
Naphthalene	91-20-3	17,000	8,000	170	170	0.0994	0.092 J	*0.23* B	*120* B	0.052	< 0.022	0.032 J	*1* B	*1.8* B	*1.5* B	*6* B	*0.61* B
Phenanthrene	85-01-8	2,500	1,200	170	170	45.7	0.13	0.057	12	0.16	< 0.013	< 0.013	1.9	6.3	7.6	*64* B	1.4
Pyrene	129-00-0	25,000	12,000	13,000	2,000	78.5	0.21	0.085	6.5	0.29	0.016 J	0.018 J	4.4	6.6	3.8	*87* B	2.4
SVOCs (8270C)																	
1,2,4-Trichlorobenzene	120-82-1	8,900	4,900	77	77	11.1	< 0.047	< 0.024	< 0.24	< 0.024	< 0.023	< 0.024	< 0.12	< 0.12	< 0.024	< 0.12	< 0.12
1,2-Dichlorobenzene	95-50-1	18,000	3,900	270	220	2.96	< 0.054	< 0.027	< 0.27	< 0.027	< 0.027	< 0.027	< 0.13	< 0.14	< 0.027	< 0.14	< 0.14
1,2-Diphenylhydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.032	< 0.016	< 0.16	< 0.016	< 0.016	< 0.016	< 0.078	< 0.08	< 0.016	< 0.08	< 0.08
1,4-Dichlorobenzene	106-46-7	8,000	73	3.4	3.4	0.546	< 0.037	< 0.019	< 0.19	< 0.019	< 0.019	< 0.019	< 0.092	< 0.094	< 0.019	< 0.094	< 0.093
2,4,6-Trichlorophenol	88-06-2	89	49	0.2	0.2	9.94	< 0.036	< 0.018	< 0.18	< 0.018	< 0.018	< 0.018	< 0.089	< 0.09	< 0.018	< 0.09	< 0.09
2,4-Dichlorophenol	120-83-2	2,700	1,500	3	3	87.5	< 0.037	< 0.019	< 0.19	< 0.019	< 0.018	< 0.019	< 0.091	< 0.093	< 0.019	< 0.093	< 0.092
2,4-Dimethylphenol	105-67-9	18,000	9,800	25	25	0.01	< 0.042	< 0.021	< 0.21	< 0.021	< 0.021	< 0.021	< 0.1	< 0.1	< 0.021	< 0.1	< 0.1
2,4-Dinitrophenol	51-28-5	1,800	980	0.82	0.82	0.0609	< 0.022	< 0.011	< 0.11	< 0.011	< 0.011	< 0.011	< 0.053	< 0.054	< 0.011	< 0.054	< 0.054
2,4-Dinitrotoluene	121-14-2	890	20	0.031	0.031	1.28	< 0.023	< 0.012	< 0.12	< 0.012	< 0.011	< 0.012	< 0.057	< 0.058	< 0.012	< 0.058	< 0.058
2,6-Dinitrotoluene	606-20-2	890	20	0.031	0.031	0.0328	< 0.054	< 0.027	< 0.27	< 0.027	< 0.027	< 0.027	< 0.13	< 0.14	< 0.027	< 0.14	< 0.14
2-Chloronaphthalene	91-58-7	71,000	39,000	560	560	0.0122	< 0.049	< 0.024	< 0.25	< 0.024	< 0.024	< 0.025	< 0.12	< 0.12	< 0.024	< 0.12	< 0.12
2-Chlorophenol	95-57-8	2,200	580	10	10	0.243	< 0.039	< 0.02	< 0.2	< 0.02	< 0.02	< 0.02	< 0.097	< 0.099	< 0.02	< 0.099	< 0.098
2-Nitrophenol	88-75-5	NE	NE	NE	NE	1.6	< 0.049	< 0.024	< 0.25	< 0.024	< 0.024	< 0.025	< 0.12	< 0.12	< 0.024	< 0.12	< 0.12
3,3-Dichlorobenzidine	91-94-1	1,400	31	0.21	0.21	0.646	< 0.038	< 0.019	< 0.19	< 0.019	< 0.019	< 0.019	< 0.095	< 0.096	< 0.019	< 0.096	< 0.096
4,6-Dinitro-2-methylphenol	534-52-1	NE	NE	NE	NE	0.144	< 0.025	< 0.012	< 0.12	< 0.012	< 0.012	< 0.012	< 0.061	< 0.062	< 0.012	< 0.062	< 0.062
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	NE	< 0.045	< 0.023	< 0.23	< 0.023	< 0.023	< 0.023	< 0.11	< 0.11	< 0.023	< 0.11	< 0.11
4-Chloro-3-methylphenol	59-50-7	NE	NE	NE	NE	NE	< 0.031	< 0.016	< 0.16	< 0.016	< 0.015	< 0.016	< 0.076	< 0.078	< 0.016	< 0.078	< 0.078
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.035	< 0.018	< 0.18	< 0.018	< 0.017	< 0.018	< 0.086	< 0.088	< 0.018	< 0.088	< 0.087
4-Nitrophenol	100-02-7	NE	NE	NE	NE	5.12	< 0.025	< 0.012	< 0.12	< 0.012	< 0.012	< 0.012	< 0.061	< 0.062	< 0.012	< 0.062	< 0.062
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 3.2	< 1.6	< 16	< 1.6	< 1.6	< 1.6	< 7.8	< 8	< 1.6	< 8	< 8
bis(2-Chloroethoxy)methane	111-91-1	NE	NE	NE	NE	0.302	< 0.042	< 0.021	< 0.21	< 0.021	< 0.021	< 0.021	< 0.1	< 0.11	< 0.021	< 0.11	< 0.11
bis(2-Chloroethyl)ether	111-44-4	280	3	0.012	0.012	23.7	< 0.046	< 0.023	< 0.23	< 0.023	< 0.023	< 0.023	< 0.11	< 0.12	< 0.023	< 0.12	< 0.12
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	19.9	< 0.047	< 0.024	< 0.24	< 0.024	< 0.023	< 0.024	< 0.12	< 0.12	< 0.024	< 0.12	< 0.12
bis(2-Ethylhexyl)phthalate	117-81-7	18,000	980	120,000	980	0.925	< 0.031	< 0.016	< 0.16	< 0.016	< 0.016	< 0.016	< 0.077	< 0.079	< 0.016	< 0.079	< 0.079
Butylbenzylphthalate	85-68-7	180,000	98,000	6,200	310	0.239	< 0.036	< 0.018	< 0.18	< 0.018	< 0.018	< 0.018	< 0.09	< 0.091	< 0.018	< 0.091	< 0.091
Diethylphthalate	84-66-2	710,000	390,000	1,300	840	24.8	< 0.026	< 0.013	< 0.13	< 0.013	< 0.013	< 0.013	< 0.065	< 0.066	< 0.013	< 0.066	< 0.066
Dimethylphthalate	131-11-3	1,000,000	1,000,000	5,600	1,100	734	< 0.031	< 0.016	< 0.16	< 0.016	< 0.015	< 0.016	< 0.077	< 0.078	< 0.016	< 0.078	< 0.078
Di-n-butylphthalate	84-74-2	89,000	49,000	NE	NE	0.150	< 0.031	< 0.016	< 0.16	< 0.016	< 0.015	< 0.016	< 0.077	< 0.078	< 0.016	< 0.078	< 0.078
Di-n-octylphthalate	117-84-0	36,000	20,000	67,000	2,000	709	< 0.024	< 0.012	< 0.12	< 0.012	< 0.012	< 0.012	< 0.06	< 0.061	< 0.012	< 0.061	< 0.061
Hexachlorobenzene	118-74-1	390	8.6	3.9	3.9	0.199	< 0.029	< 0.015	< 0.15	< 0.015	< 0.014	< 0.015	< 0.072	< 0.073	< 0.015	< 0.073	< 0.073
Hexachlorobutadiene	87-68-3	NE	NE	NE	NE	0.0398	< 0.056	< 0.028	< 0.28	< 0.028	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	< 0.14	< 0.14
Hexachlorocyclopentadiene	77-47-4	5,300	2,900	4,900	720	0.755	< 0.035	< 0.018	< 0.18	< 0.018	< 0.018	< 0.018	< 0.087	< 0.089	< 0.018	< 0.089	< 0.088
Hexachloroethane	67-72-1	660	240	7.7	7.7	0.596	< 0.06	< 0.03	< 0.3	< 0.03	< 0.03	< 0.03	< 0.15	< 0.15	< 0.03	< 0.15	< 0.15
Isophorone	78-59-1	180,000	14,000	18	18	139	< 0.024	< 0.012	< 0.12	< 0.012	< 0.012	< 0.012	< 0.06	< 0.061	< 0.012	< 0.061	< 0.061
Nitrobenzene	98-95-3	440	250	0.34	0.34	1.31	< 0.057	< 0.028	< 0.28	< 0.028	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	< 0.14	< 0.14
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	0.0000321	< 0.051	< 0.026	< 0.26	< 0.026	< 0.026	< 0.026	< 0.13	< 0.13	< 0.026	< 0.13	< 0.13
N-Nitroso-di-n-propylamine	621-64-7	89	2	0.002	0.002	0.544	< 0.056	< 0.028	< 0.28	< 0.028	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	< 0.14	< 0.14
N-Nitrosodiphenylamine	86-30-6	18,000	2,800	32	32	0.545	< 0.034	< 0.017	< 0.17	< 0.017	< 0.017	< 0.017	< 0.085	< 0.087	< 0.017	< 0.087	< 0.086
Pentachlorophenol	87-86-5	3,800	54	0.66	0.66	0.119	< 0.014	< 0.0069	< 0.069	< 0.0069	< 0.0068	< 0.0069	< 0.034	< 0.034	< 0.0069	< 0.034	< 0.034
Phenol	108-95-2	230,000	96,000	160	160	120	< 0.05	< 0.025	< 0.25	< 0.025	< 0.025	< 0.025	< 0.12	< 0.12	< 0.025	0.16 J	< 0.12

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2009 Table A updates

[2]US EPA Region V Ecological Screening Levels (ESLs), August, 2003

[3]US EPA National Ecological Soil Screening Levels, November, 2003

[4]IDEM=Bromodichloromethane

P=Plants

SI=Soil Invertebrates

AV=Avian

M=Mammalian wildlife

A(CW)=IDEM DQO Exceedance of the Construction Worker

A(DC)=IDEM DQO Exceedance of the Direct Contact (Only applicable to samples collected in the 0 to 2 foot interval)

A(GW)=IDEM DQO Exceedance of the Migration to Groundwater

A(CL)=IDEM DQO Exceedance of the Default Closure Level

B=Exceedance of US EPA ESLs

NP=Not Performed

[U]=Laboratory flag indicating analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

[J] =Laboratory flag indicating analyte concentration detected between reporting limit (RL) and method detection limit (MDL).

[J+]=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-]=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ]=Laboratory flag indicating analyte was analyzed for, but was not detected and the value is approximate and may be inaccurate or imprecise.

[R] =Laboratory flag indicating the data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria.

[B] =Laboratory flag indicating analyte concentration detected in the associated method blank above the routine RL.

-Microbac Laboratory Inc. MDLs are updated on an annual basis. Based on these annual MDL studies, MDL and PQLs are subject to change.

-Several of the acceptance limits for LCS, MS/MSDs, are based on statistical studies; these limits are subject to change.

		IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria											
Parameters	**CAS #**	**IDEM**[1] Construction Worker (mg/kg)	**IDEM**[1] Direct Contact (mg/kg)	**IDEM**[1] Migration to GW (mg/kg)	**IDEM**[1] Default Closure Level (mg/kg)	**EPA**[2] ESLs - Soil (mg/Kg)	**MW-831S (14-16)** 7/17/2017	**MW-832D (0-2)** 7/27/2017	**MW-832D (4-6)** 7/27/2017	**MW-832D (38-40)** 7/27/2017	**MW-833S (0-2)** 7/17/2017	**MW 833S (4-6)** 7/17/2017	**MW 833S (14-16)** 7/17/2017	**MW 834D (0-2)** 7/25/2017	**MW 834D (2-4)** 7/25/2017	**MW 834D (37-39)** 7/25/2017	**MW 835D (0-2)** 7/26/2017	**MW 835D (2-4)** 7/26/2017
Metals (8020)																		
Antimony[3]	7440-36-0	460	620	37	37	78 SI | 0.29 M	< 0.025 U	*0.68* J B(M)	< 0.0029	*0.61* J B(M)	< *1* U B(M)	< *0.71* U B(M)	< 0.22 U	NP	NP	NP	NP	NP
Arsenic	7440-38-2	320	20	5.8	5.8	5.7	0.91 J+	***5.9*** A(GW,CL),B	0.94	1.7	1.2	*5.1*	***9.2*** A(GW,CL),B	5.4	2.3 J+	1.5 J+	3.2	0.64 J
Beryllium[3]	7440-41-7	2,300	2,900	3,200	2,300	40 SI | 36 M	0.074 J	2.4	0.0082 J	0.064 J	0.37 J	0.62 J	0.17 J	NP	NP	NP	NP	NP
Cadmium[3]	7440-43-9	590	990	77	77	32 P | 140 SI | 1 AV | 0.38 M	0.12 J	*2* B(AV,M)	0.043 J	0.16 J	*0.79* J B(M)	*1.2* B(AV,M)	0.21 J	NP	NP	NP	NP	NP
Chromium	7440-47-3	1,000,000	1,000,000	1,000,000	10,000	0.4	*3* J+ B	*96* B	< *2.8* U B	*6.5* B	*710* B	*400* B	*8.4* B	NP	NP	NP	NP	NP
Chromium, hexavalent	18540-29-9	3,400	650	120	120	NE	6.9 J	3 J	< 0.59	< 0.58 UJ	3.6 J	< 0.58	< 0.58 R	NP	NP	NP	NP	NP
Copper	7440-50-8	46,000	62,000	2,900	2,900	5.4	1.6	*53* B	0.99 J+	3.3	*13* B	*28* B	*6.1* B	NP	NP	NP	NP	NP
Iron[3]	7439-89-6	NE	NE	NE	NE	NE	3000	41000	2700	5900	120000	100000	16000	NP	NP	NP	NP	NP
Lead[3]	7439-92-1	970	1,300	230	230	110 P | 1,700 SI | 16 AV | 59 M	2	*110* B(AV,M)	1.5	3.5	*31* B(AV)	*71* B(AV,M)	7.9	NP	NP	NP	NP	NP
Manganese	7439-96-5	NE	NE	NE	NE	NE	110	2500	87	230	15000	10000	260	NP	NP	NP	NP	NP
Mercury	7439-97-6	340	470	32	32	0.1	< 0.0061	*0.13* B	< 0.0076 U	< 0.011 U	0.049	0.095	0.024 J	NP	NP	NP	NP	NP
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	< 0.27 U	3.9	< *0.17* U	1.1	2.7	2.9	0.94 J	NP	NP	NP	NP	NP
Nickel	7440-02-0	23,000	31,000	2,700	2,700	13.6	2.6	*25* B	2 J	4.8	11	*26* B	7	NP	NP	NP	NP	NP
Potassium	7440-09-7	NE	NE	NE	NE	NE	230	690	150	500	120	270	360	340	90	380	1100 J- ###	170
Selenium	7782-49-2	5,700	7,800	53	53	0.0276	< 0.0083	*1* J+ B	< 0.0083	0.023 J	< 0.0079	< 0.0092	< 0.0092	NP	NP	NP	NP	NP
Silver	7440-22-4	5,700	7,800	87	87	4.04	0.016 J	0.2 J	0.01 J	0.018 J	0.16 J	0.36 J	0.055 J	NP	NP	NP	NP	NP
Thallium	7440-28-0	80	110	10	10	0.0569	< *0.026* U	< *0.28* U B	< 0.052 U	*0.13* J B	< *0.13* U B	< *0.14* U B	< *0.066* U B	*0.24* J B	*0.19* J B	< *0.087* U B	*0.31* J B	*0.2* J B
Tin	7440-31-5	NE	NE	NE	NE	7.62	< 0.5 U	*10* B	< 0.32 U	0.46 J	*9.6* B	*18* B	1.3 J+	NP	NP	NP	NP	NP
Vanadium	7440-62-2	NE	NE	NE	NE	1.59	*10* B	*43* B	*3.9* B	*13* B	*1000* B	*450* B	*15* B	NP	NP	NP	NP	NP
Zinc	7440-66-6	340,000	470,000	38,000	10,000	6.62	*12* B	*270* B	< *7.5* U B	*22* B	*62* B	*90* B	*26* B	NP	NP	NP	NP	NP
Other																		
Total Organic Carbon (TOC)	None	NE	NE	NE	NE	NE	< 0.1	4.9	< 0.1	0.25	2.4	2.7	0.2 J	NP	NP	NP	NP	NP
Sulfide	18496-25-8	NE	NE	NE	NE	0.00358	*6.1* B	*120* B	< 1.9	*17* B	*74* B	*68* B	*380* B	NP	NP	NP	NP	NP
Total Cyanides	57-12-5	23,000	31,000	9.6	9.6	1.33	0.19 J	*2* B	< 0.097	< 0.098	1.3	*1.6* B	0.44	NP	NP	NP	NP	NP
Total Phenolics	None	NE	NE	NE	NE	NE	< 0.29	< 0.29	3.9 J	2.8	0.35 J	0.31 J	1.7	NP	NP	NP	NP	NP
Ammonia	None	NE	NE	NE	NE	NE	8.5 J	< 5.4	< 5.1	11	< 5.1	< 5.2	< 5.3	NP	NP	NP	NP	NP
Chloride	None	NE	NE	NE	NE	NE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NP	NP	NP	NP	NP
Sulfate	None	NE	NE	NE	NE	NE	440	5800	350 J	570	230 J	490	1400	NP	NP	NP	NP	NP
pH	None	NE	NE	NE	NE	NE	8.53	9.47	8.38	8.49	12.2	12.3	8.42	NP	NP	NP	NP	NP
VOCs (8260B)																		
1,1,1-Trichloroethane	74-55-6	34,000	6,700	280	280	29.8	< 0.0013	< 0.0013	< 0.00095	< 0.00084	< 0.0012 UJ	< 0.00098 UJ	< 0.00091	< 0.001 UJ	NP	NP	0.0016 J	NP
1,1,2,2-Tetrachloroethane	79-34-5	960	8.7	0.11	0.11	0.127	< 0.0016	< 0.0016	< 0.0012	< 0.001	< 0.0014 UJ	< 0.0012 UJ	< 0.0011	< 0.0013 UJ	NP	NP	< 0.0018 UJ	NP
1,1-Dichloroethane	75-34-3	8,600	1,700	58	58	20.1	< 0.0013	< 0.0013	< 0.00097	< 0.00086	< 0.0012 UJ	< 0.00099 UJ	< 0.00093	< 0.0011 UJ	NP	NP	< 0.0015 UJ	NP
1,1-Dichloroethylene	75-35-4	2,200	410	42	42	8.28	< 0.0014	< 0.0014	< 0.001	< 0.00093	< 0.0013 UJ	< 0.0011 UJ	< 0.001	< 0.0012 UJ	NP	NP	< 0.0016 UJ	NP
1,2-Dichloroethane	107-06-2	150	5.8	0.15	0.15	21.2	< 0.0018	< 0.0018	< 0.0012	< 0.0017	< 0.0017 UJ	< 0.0014 UJ	< 0.0013	< 0.0015 UJ	NP	NP	< 0.0021 UJ	NP
1,2-Dichloropropane	78-87-5	99	7.2	0.25	0.25	32.7	< 0.0014	< 0.0014	< 0.001	< 0.0009	< 0.0013 UJ	< 0.001 UJ	< 0.00097	< 0.0011 UJ	NP	NP	< 0.0016 UJ	NP
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0017	< 0.0017	< 0.0013	< 0.0011	< 0.0016 UJ	< 0.0013 UJ	< 0.0012	< 0.0014 UJ	NP	NP	< 0.002 UJ	NP
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0018	< 0.0019	< 0.0014	< 0.0012	< 0.0017 UJ	< 0.0014 UJ	< 0.0013	< 0.0015 UJ	NP	NP	< 0.0021 UJ	NP
Acrolein	107-02-8	3.5	0.64	0.25	0.25	5.27	< 0.027	< 0.027	< 0.02	< 0.018	< 0.025 UJ	< 0.02 UJ	< 0.019	< 0.022 UJ	NP	NP	< 0.03 UJ	NP
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.0239	< 0.031	< 0.032	< 0.023	< 0.021	< 0.029 UJ	< 0.024 UJ	< 0.022	< 0.026 UJ	NP	NP	< 0.036 UJ	NP
Benzene	71-43-2	560	14	0.35	0.35	0.255	***8.1*** A(GW,CL),B	0.0016 J	< 0.00074	***220*** A(DC,GW,CL),B	0.003 J	0.051 J-	0.14	< 0.00082 UJ	NP	NP	< 0.0011 UJ	NP
bis (Chloromethyl) ether	542-88-1	NE	NE	NE	NE	NE	< 0.0012	< 0.0012	< 0.00087	< 0.00077	< 0.0011 UJ	< 0.0009 UJ	< 0.00084	< 0.00096 UJ	NP	NP	< 0.0013 UJ	NP
Bromoform	75-25-2	7,700	580	2.7	2.7	15.9	< 0.0019	< 0.0019	< 0.0014	< 0.0012	< 0.0017 UJ	< 0.0014 UJ	< 0.0013	< 0.0015 UJ	NP	NP	< 0.0021 UJ	NP
Bromomethane (Methyl Bromide)	74-83-9	69	13	0.7	0.7	0.235	< 0.0018	< 0.0018	< 0.0013	< 0.0012	< 0.0016 UJ	< 0.0013 UJ	< 0.0013	< 0.0014 UJ	NP	NP	< 0.002 UJ	NP
Carbon tetrachloride	56-23-5	38	5.2	0.29	0.29	2.98	< 0.0012	< 0.0013	< 0.00093	< 0.00082	< 0.0011 UJ	< 0.00095 UJ	< 0.00089	< 0.001 UJ	NP	NP	< 0.0014 UJ	NP
Chlorobenzene	108-90-7	2,600	510	27	27	13.1	0.0018 J	< 0.00064	< 0.00047	< 0.00042	< 0.00058 UJ	< 0.00048 UJ	0.0018 J	< 0.00052 UJ	NP	NP	< 0.00072 UJ	NP
Chlorodibromomethane	124-48-1	NE	NE	NE	NE	2.05	< 0.0012	< 0.0012	< 0.00087	< 0.00077	< 0.0011 UJ	< 0.0009 UJ	< 0.00084	< 0.00096 UJ	NP	NP	< 0.0013 UJ	NP
Chloroethane	75-00-3	16,000	120	10	10	NE	< 0.0022	< 0.0023	< 0.0017	< 0.0015	< 0.002 UJ	< 0.0017 UJ	< 0.0016	< 0.0018 UJ	NP	NP	< 0.0025 UJ	NP
Chloroform	67-66-3	650	4.7	6	4.7	1.19	< 0.00072	< 0.00074	< 0.00054	< 0.00048	< 0.00067 UJ	< 0.00056 UJ	< 0.00052	< 0.0006 UJ	NP	NP	< 0.00083 UJ	NP
Chloromethane (Methyl Chloride)	74-87-3	NE	NE	NE	NE	10.4	< 0.0013	< 0.0014	< 0.001	< 0.00088	< 0.0012 UJ	< 0.001 UJ	< 0.00095	< 0.0011 UJ	NP	NP	< 0.0015 UJ	NP
Dichlorobromomethane[4]	75-27-4	2,100	17	0.51	0.51	0.54	< 0.00098	< 0.001	< 0.00073	< 0.00065	< 0.00091 UJ	< 0.00075 UJ	< 0.0007	< 0.00081 UJ	NP	NP	< 0.0011 UJ	NP
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	39.5	< 0.0017	< 0.0018	< 0.0013	< 0.0011	< 0.0016 UJ	< 0.0013 UJ	< 0.0012	< 0.0014 UJ	NP	NP	< 0.002 UJ	NP
Ethylbenzene	100-41-4	29,000	6,800	200	160	5.16	< 0.0011	< 0.0011	< 0.0008	< 0.00071	< 0.00099 UJ	0.0016 J	*16* B	< 0.00088 UJ	NP	NP	< 0.0012 UJ	NP
Methylene chloride	75-09-2	22,000	200	1.8	1.8	4.05	< 0.014 U	< 0.016 U	< 0.009 U	< 0.013 U	< 0.016 UJ	< 0.013 UJ	< 0.013 U	< 0.012 UJ	NP	NP	< 0.02 UJ	NP
Tetrachloroethylene	127-18-4	660	16	0.64	0.64	9.92	< 0.0014	< 0.0014	< 0.001	< 0.00091	< 0.0013 UJ	< 0.0011 UJ	< 0.00099	< 0.0011 UJ	NP	NP	< 0.0016 UJ	NP
Toluene	108-88-3	49,000	16,000	96	96	5.45	< 0.00091	< 0.00093	< 0.00068	0.0025 J	0.0024 J	0.0061 J-	3.1	< 0.00075 UJ	NP	NP	< 0.001 UJ	NP
trans-1,2-Dichloroethylene	156-60-5	1,200	230	14	14	0.784	< 0.0011	< 0.0012	< 0.00086	< 0.00076	< 0.0011 UJ	< 0.00088 UJ	< 0.00082	< 0.00094 UJ	NP	NP	< 0.0013 UJ	NP
Trichlorofluoromethane	75-69-4	6,900	1,300	540	540	NE	< 0.0014	< 0.0014	< 0.001	< 0.00091	< 0.0013 UJ	< 0.0011 UJ	< 0.00099	< 0.0011 UJ	NP	NP	< 0.0016 UJ	NP
Vinyl chloride	75-01-4	500	6.4	0.027	0.027	0.646	< 0.0015	< 0.0015	< 0.0011	< 0.00099	< 0.0014 UJ	< 0.0011 UJ	< 0.0011	< 0.0012 UJ	NP	NP	< 0.0017 UJ	NP

		IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria											
Parameters	**CAS #**	**IDEM**[1] Construction Worker (mg/kg)	**IDEM**[1] Direct Contact (mg/kg)	**IDEM**[1] Migration to GW (mg/kg)	**IDEM**[1] Default Closure Level (mg/kg)	**EPA**[2] ESLs - Soil (mg/Kg)	**MW-831S (14-16)** 7/17/2017	**MW-832D (0-2)** 7/27/2017	**MW-832D (4-6)** 7/27/2017	**MW-832D (38-40)** 7/27/2017	**MW-833S (0-2)** 7/17/2017	**MW 833S (4-6)** 7/17/2017	**MW 833S (14-16)** 7/17/2017	**MW 834D (0-2)** 7/25/2017	**MW 834D (2-4)** 7/25/2017	**MW 834D (37-39)** 7/25/2017	**MW 835D (0-2)** 7/26/2017	**MW 835D (2-4)** 7/26/2017
PAHs (8270C SIM)																		
Acenaphthene	83-32-9	50,000	24,000	1,800	1,800	682	0.16	0.27	< 0.02	< 0.02	0.38	0.33	0.15	< 0.099	< 0.039	< 0.02	< 0.039	< 0.02
Acenaphthylene	208-96-8	5,900	2,800	180	180	682	< 0.021	0.88	< 0.021	< 0.021	0.16 J	0.23 J	0.25	1.3	0.12	< 0.021	< 0.041	< 0.021
Anthracene	120-12-7	250,000	120,000	36,000	2,000	1,480	0.062	1.7	< 0.014	< 0.014	1.2	1.1	0.21	1.2	0.14	< 0.015	< 0.029	< 0.014
Benzo(a)anthracene	56-55-3	790	15	62	15	5.21	< 0.011	*6.3* B	< 0.011	< 0.011	3.2	3.1	0.29	4.7	0.99	< 0.011	0.076 J	< 0.011
Benzo(a)pyrene	50-32-8	79	1.5	16	1.5	1.52	< 0.011	***5.7*** A(DC,CL),B	< 0.011	< 0.011	***3.3*** A(DC,CL),B	***3*** A(DC,CL),B	0.23	***4.8*** A(DC,CL),B	1.1	< 0.012	0.086 J	< 0.011
Benzo(b)fluoranthene	205-99-2	790	15	190	15	59.8	< 0.013	8.1	< 0.013	< 0.013	4.6	4.1	0.3	6.7	1.8	< 0.014	0.14	< 0.013
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	119	< 0.011	3.9	< 0.011	< 0.011	1.8	1.9	0.14	3.1	0.84	< 0.011	0.078 J	< 0.011
Benzo(k)fluoranthene	207-08-9	7,900	150	1,900	150	148	< 0.028	2.6	< 0.028	< 0.028	1.2	1.2	0.12	2.3	0.44	< 0.028	< 0.055	< 0.028
Chrysene	218-01-9	79,000	1,500	6,200	1,500	4.75	< 0.012	*6.4* B	< 0.012	< 0.012	3.5	3.4	0.31	4.2	1	< 0.012	0.11	< 0.012
Dibenzo(a,h)anthracene	53-70-3	79	1.5	60	1.5	18.4	< 0.016	1.1	< 0.016	< 0.016	0.63	0.6	0.037 J	0.81	0.21	< 0.016	< 0.031	< 0.016
Fluoranthene	206-44-0	33,000	16,000	18,000	2,000	122	0.46	12	< 0.013	< 0.013	5.6	5.4	0.52	12	1.8	< 0.013	0.12	< 0.013
Fluorene	86-73-7	33,000	16,000	2300	2000	122	0.057	0.38	< 0.017	< 0.017	0.44	0.42	1.9	0.5	< 0.034	< 0.018	< 0.034	< 0.017
Indeno (1,2,3-c,d) pyrene	193-39-5	790	15	540	15	109	< 0.0093	3.6	< 0.0093	< 0.0093	1.8	1.8	0.13	2.9	0.71	< 0.0094	0.073 J	< 0.0093
Naphthalene	91-20-3	17,000	8,000	170	170	0.0994	< 0.022	*0.51* B	< 0.022	< 0.021	*0.3* B	*0.55* B	*2.8* B	*0.17* J B	*0.18* B	< 0.022	< 0.043	< 0.022
Phenanthrene	85-01-8	2,500	1,200	170	170	45.7	0.014 J	5.5	< 0.013	< 0.013	4.5	4.1	0.86	5.6	0.67	< 0.013	0.1	< 0.013
Pyrene	129-00-0	25,000	12,000	13,000	2,000	78.5	0.33	9.8	< 0.013	< 0.013	5.5	5.3	0.51	7.8	1.3	< 0.013	0.1	< 0.013
SVOCs (8270C)																		
1,2,4-Trichlorobenzene	120-82-1	8,900	4,900	77	77	11.1	< 0.023	< 0.12	< 0.023	< 0.023	< 0.12	< 0.12	< 0.023	NP	NP	NP	NP	NP
1,2-Dichlorobenzene	95-50-1	18,000	3,900	270	220	2.96	< 0.027	< 0.14	< 0.027	< 0.027	< 0.13	< 0.13	< 0.027	NP	NP	NP	NP	NP
1,2-Diphenylhydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.016	< 0.08	< 0.016	< 0.016	< 0.078	< 0.079	< 0.016	NP	NP	NP	NP	NP
1,4-Dichlorobenzene	106-46-7	8,000	73	3.4	3.4	0.546	< 0.018	< 0.094	< 0.018	< 0.018	< 0.092	< 0.093	< 0.019	NP	NP	NP	NP	NP
2,4,6-Trichlorophenol	88-06-2	89	49	0.2	0.2	9.94	< 0.018	< 0.09	< 0.018	< 0.018	< 0.088 U	< 0.089 U	< 0.018	NP	NP	NP	NP	NP
2,4-Dichlorophenol	120-83-2	2,700	1,500	3	3	87.5	< 0.018	< 0.093	< 0.018	< 0.018	< 0.091 U	< 0.092 U	< 0.018	NP	NP	NP	NP	NP
2,4-Dimethylphenol	105-67-9	18,000	9,800	25	25	0.01	< 0.021	< 0.1	< 0.021	< 0.021	< 0.1 U	< 0.1 U	< 0.021	NP	NP	NP	NP	NP
2,4-Dinitrophenol	51-28-5	1,800	980	0.82	0.82	0.0609	< 0.011	< 0.054	< 0.011	< 0.011	< 0.053 U	< 0.054 U	< 0.011	NP	NP	NP	NP	NP
2,4-Dinitrotoluene	121-14-2	890	20	0.031	0.031	1.28	< 0.011	< 0.058	< 0.011	< 0.011	< 0.057	< 0.057	< 0.011	NP	NP	NP	NP	NP
2,6-Dinitrotoluene	606-20-2	890	20	0.031	0.031	0.0328	< 0.027	< 0.14	< 0.027	< 0.027	< 0.13	< 0.13	< 0.027	NP	NP	NP	NP	NP
2-Chloronaphthalene	91-58-7	71,000	39,000	560	560	0.0122	< 0.024	< 0.12	< 0.024	< 0.024	< 0.12	< 0.12	< 0.024	NP	NP	NP	NP	NP
2-Chlorophenol	95-57-8	2,200	580	10	10	0.243	< 0.019	< 0.099	< 0.019	< 0.019	< 0.097 U	< 0.098 U	< 0.02	NP	NP	NP	NP	NP
2-Nitrophenol	88-75-5	NE	NE	NE	NE	1.6	< 0.024	< 0.12	< 0.024	< 0.024	< 0.12 U	< 0.12 U	< 0.024	NP	NP	NP	NP	NP
3,3-Dichlorobenzidine	91-94-1	1,400	31	0.21	0.21	0.646	< 0.019	< 0.096	< 0.019	< 0.019	< 0.094	< 0.095	< 0.019	NP	NP	NP	NP	NP
4,6-Dinitro-2-methylphenol	534-52-1	NE	NE	NE	NE	0.144	< 0.012	< 0.062	< 0.012	< 0.012	< 0.061 U	< 0.062 U	< 0.012	NP	NP	NP	NP	NP
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	NE	< 0.022	< 0.11	< 0.023	< 0.022	< 0.11	< 0.11	< 0.023	NP	NP	NP	NP	NP
4-Chloro-3-methylphenol	59-50-7	NE	NE	NE	NE	NE	< 0.015	< 0.078	< 0.015	< 0.015	< 0.076 U	< 0.077 U	< 0.015	NP	NP	NP	NP	NP
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.017	< 0.088	< 0.017	< 0.017	< 0.086 U	< 0.087 U	< 0.017	NP	NP	NP	NP	NP
4-Nitrophenol	100-02-7	NE	NE	NE	NE	5.12	< 0.012	< 0.062	< 0.012	< 0.012	< 0.061 U	< 0.061 U	< 0.012	NP	NP	NP	NP	NP
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 1.6	< 8	< 1.6	< 1.6	< 7.8	< 7.9	< 1.6	NP	NP	NP	NP	NP
bis(2-Chloroethoxy)methane	111-91-1	NE	NE	NE	NE	0.302	< 0.021	< 0.11	< 0.021	< 0.021	< 0.1	< 0.11	< 0.021	NP	NP	NP	NP	NP
bis(2-Chloroethyl)ether	111-44-4	280	3	0.012	0.012	23.7	< 0.023	< 0.12	< 0.023	< 0.023	< 0.11	< 0.12	< 0.023	NP	NP	NP	NP	NP
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	19.9	< 0.023	< 0.12	< 0.023	< 0.023	< 0.12	< 0.12	< 0.023	NP	NP	NP	NP	NP
bis(2-Ethylhexyl)phthalate	117-81-7	18,000	980	120,000	980	0.925	< 0.015	< 0.079	< 0.016	< 0.015	< 0.077	< 0.078	< 0.016	NP	NP	NP	NP	NP
Butylbenzylphthalate	85-68-7	180,000	98,000	6,200	310	0.239	< 0.018	< 0.091	< 0.018	< 0.018	< 0.089	< 0.09	< 0.018	NP	NP	NP	NP	NP
Diethylphthalate	84-66-2	710,000	390,000	1,300	840	24.8	< 0.013	< 0.066	< 0.013	< 0.013	< 0.065	< 0.065	< 0.013	NP	NP	NP	NP	NP
Dimethylphthalate	131-11-3	1,000,000	1,000,000	5,600	1,100	734	< 0.015	< 0.078	< 0.015	< 0.015	< 0.077	< 0.078	< 0.015	NP	NP	NP	NP	NP
Di-n-butylphthalate	84-74-2	89,000	49,000	NE	NE	0.150	< 0.015	< 0.078	< 0.015	< 0.015	< 0.077	< 0.078	< 0.015	NP	NP	NP	NP	NP
Di-n-octylphthalate	117-84-0	36,000	20,000	67,000	2,000	709	< 0.012	< 0.061	< 0.012	< 0.012	< 0.06	< 0.06	< 0.012	NP	NP	NP	NP	NP
Hexachlorobenzene	118-74-1	390	8.6	3.9	3.9	0.199	< 0.014	< 0.073	< 0.014	< 0.014	< 0.072	< 0.073	< 0.015	NP	NP	NP	NP	NP
Hexachlorobutadiene	87-68-3	NE	NE	NE	NE	0.0398	< 0.028	< 0.14	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	NP	NP	NP	NP	NP
Hexachlorocyclopentadiene	77-47-4	5,300	2,900	4,900	720	0.755	< 0.017	< 0.089	< 0.018	< 0.017	< 0.087	< 0.088	< 0.018	NP	NP	NP	NP	NP
Hexachloroethane	67-72-1	660	240	7.7	7.7	0.596	< 0.03	< 0.15	< 0.03	< 0.03	< 0.15	< 0.15	< 0.03	NP	NP	NP	NP	NP
Isophorone	78-59-1	180,000	14,000	18	18	139	< 0.012	< 0.061	< 0.012	< 0.012	< 0.06	< 0.061	< 0.012	NP	NP	NP	NP	NP
Nitrobenzene	98-95-3	440	250	0.34	0.34	1.31	< 0.028	< 0.14	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	NP	NP	NP	NP	NP
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	0.0000321	< 0.025	< 0.13	< 0.026	< 0.025	< 0.13	< 0.13	< 0.026	NP	NP	NP	NP	NP
N-Nitroso-di-n-propylamine	621-64-7	89	2	0.002	0.002	0.544	< 0.028	< 0.14	< 0.028	< 0.028	< 0.14	< 0.14	< 0.028	NP	NP	NP	NP	NP
N-Nitrosodiphenylamine	86-30-6	18,000	2,800	32	32	0.545	< 0.017	< 0.087	< 0.017	< 0.017	< 0.085	< 0.086	< 0.017	NP	NP	NP	NP	NP
Pentachlorophenol	87-86-5	3,800	54	0.66	0.66	0.119	< 0.0067	< 0.034	< 0.0068	< 0.0067	< 0.034 U	< 0.034 U	< 0.0068	NP	NP	NP	NP	NP
Phenol	108-95-2	230,000	96,000	160	160	120	< 0.025	< 0.13	< 0.025	0.36	< 0.12 U	< 0.12 U	< 0.025	NP	NP	NP	NP	NP

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2009 Table A updates

[2]US EPA Region V Ecological Screening Levels (ESLs), August, 2003

[3]US EPA National Ecological Soil Screening Levels, November, 2003

[4]IDEM=Bromodichloromethane

P=Plants

SI=Soil Invertebrates

AV=Avian

M=Mammalian wildlife

A(CW)=IDEM DQO Exceedance of the Construction Worker

A(DC)=IDEM DQO Exceedance of the Direct Contact (Only applicable to samples collected in the 0 to 2 foot interval)

A(GW)=IDEM DQO Exceedance of the Migration to Groundwater

A(CL)=IDEM DQO Exceedance of the Default Closure Level

B=Exceedance of US EPA ESLs

NP=Not Performed

U=Laboratory flag indicating analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J =Laboratory flag indicating analyte concentration detected between reporting limit (RL) and method detection limit (MDL).

J+=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

J-=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

UJ=Laboratory flag indicating analyte was analyzed for, but was not detected and the value is approximate and may be inaccurate or imprecise.

R =Laboratory flag indicating the data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria.

B =Laboratory flag indicating analyte concentration detected in the associated method blank above the routine RL.

-Microbac Laboratory Inc. MDLs are updated on an annual basis. Based on these annual MDL studies, MDL and PQLs are subject to change.

-Several of the acceptance limits for LCS, MS/MSDs, are based on statistical studies; these limits are subject to change.

Parameters	CAS #	IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria	MW 835D (36-38)	MW 836S (0-2)	MW 837S (0-2)	MW-838S (0-2)	MW-838S (2-4)	MW-838S (14-16)	MW-839S (0-2)	MW-839S (2-4)	MW-839S (10-12)	SB 884 (0-2)	SB 884 (6-8)	SB 885 (0-2)
		IDEM[1] Construction Worker (mg/kg)	IDEM[1] Direct Contact (mg/kg)	IDEM[1] Migration to GW (mg/kg)	IDEM[1] Default Closure Level (mg/kg)	EPA[2] ESLs - Soil (mg/Kg)	7/26/2017	7/13/2017	7/13/2017	7/17/2017	7/17/2017	7/17/2017	7/13/2017	7/13/2017	7/13/2017	7/14/2017	7/14/2017	7/13/2017
Metals (8020)																		
Antimony[3]	7440-36-0	460	620	37	37	78 SI / 0.29 M	NP	NP	NP	*1.7* J B(M)	< 0.13 U	< 0.16 U	< *0.58* U B(M)	*11* B(M)	*3.1* B(M)	NP	NP	NP
Arsenic	7440-38-2	320	20	5.8	5.8	5.7	1.6	< 0.063	< 0.059	4.5	3.8	3	< 0.066 UJ	***6.1*** A(GW,CL),B	< 0.78 UJ	< 0.054 UJ	1.4	NP
Beryllium[3]	7440-41-7	2,300	2,900	3,200	2,300	40 SI / 36 M	NP	NP	NP	0.63 J	0.22 J	0.14 J	6.8	0.64 J	0.05 J	NP	NP	NP
Cadmium[3]	7440-43-9	590	990	77	77	32 P / 140 SI / 1 AV / 0.38 M	NP	NP	NP	*2.6* B(AV,M)	0.29 J	0.2 J	*1.8* B(AV,M)	*1.3* B(AV,M)	0.091 J	NP	NP	NP
Chromium	7440-47-3	1,000,000	1,000,000	1,000,000	10,000	0.4	NP	NP	NP	*160* J+ B	*6.1* J+ B	*4.1* J+ B	*350* B	*250* B	*4.3* J+ B	NP	NP	NP
Chromium, hexavalent	18540-29-9	3,400	650	120	120	NE	NP	NP	NP	< 0.59	< 0.59	< 0.6	< 0.57	< 0.6	< 0.58	NP	NP	NP
Copper	7440-50-8	46,000	62,000	2,900	2,900	5.4	NP	NP	NP	*82* B	*6.7* B	5.1	*5.6* J- B	*11* B	0.94	NP	NP	NP
Iron[3]	7439-89-6	NE	NE	NE	NE	NE	NP	NP	NP	43000	7300	4600	55000	41000	2800	NP	NP	NP
Lead[3]	7439-92-1	970	1,300	230	230	110 P / 1,700 SI / 16 AV / 59 M	NP	NP	NP	*140* B(P,AV,M)	11	7.3	3.8 J-	*20* B(AV)	1.4	NP	NP	NP
Manganese	7439-96-5	NE	NE	NE	NE	NE	NP	NP	NP	4800	230	130	9600	6500	110	NP	NP	NP
Mercury	7439-97-6	340	470	32	32	0.1	NP	NP	NP	*0.15* B	*0.26* B	*0.41* B	0.021 J	0.085	0.0074 J	NP	NP	NP
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	NP	NP	NP	3.3	< 0.58 U	< 0.47 U	1.2 J-	3.5	1.3	NP	NP	NP
Nickel	7440-02-0	23,000	31,000	2,700	2,700	13.6	NP	NP	NP	13	4.9	3.3	2.8 J	11	1.9	NP	NP	NP
Potassium	7440-09-7	NE	NE	NE	NE	NE	570	1200	1200	410	270	240	870	460	170	280	290	NP
Selenium	7782-49-2	5,700	7,800	53	53	0.0276	NP	NP	NP	< 0.0084 U	< *0.15* U B	0.014 J	*0.97* J- B	*1.2* B	*0.19* J B	NP	NP	NP
Silver	7440-22-4	5,700	7,800	87	87	4.04	NP	NP	NP	0.19 J	0.04 J	0.029 J	0.27 J	0.21 J	0.012 J	NP	NP	NP
Thallium	7440-28-0	80	110	10	10	0.0569	< *0.11* U B	NP	NP	*0.079* J B	< 0.053 U	< *0.17* U B	< *0.086* U B	*0.33* J B	< *0.082* U B	NP	NP	NP
Tin	7440-31-5	NE	NE	NE	NE	7.62	NP	NP	NP	*39* B	1.2 J+	1.2 J+	1.5 J	3.4 J+	< 0.73 U	NP	NP	NP
Vanadium	7440-62-2	NE	NE	NE	NE	1.59	NP	NP	NP	*130* B	*11* B	*7.7* B	*400* B	*180* B	*6.2* B	NP	NP	NP
Zinc	7440-66-6	340,000	470,000	38,000	10,000	6.62	NP	NP	NP	*170* B	*35* B	*26* B	*27* J- B	*59* B	*7.6* B	NP	NP	NP
Other																		
Total Organic Carbon (TOC)	None	NE	NE	NE	NE	NE	NP	NP	NP	2.1	0.4	1.9	2.6	5.1	< 0.1	NP	NP	NP
Sulfide	18496-25-8	NE	NE	NE	NE	0.00358	NP	NP	NP	*110* B	*19* B	*750* B	*240* J+ B	*27* B	*37* B	NP	NP	NP
Total Cyanides	57-12-5	23,000	31,000	9.6	9.6	1.33	NP	NP	NP	*1.9* B	*1.7* B	*6.5* B	0.52 J-	1.2	0.3	NP	NP	NP
Total Phenolics	None	NE	NE	NE	NE	NE	NP	NP	NP	0.32 J	< 0.3	1.9	< 0.3	< 0.3	< 0.29	NP	NP	NP
Ammonia	None	NE	NE	NE	NE	NE	NP	NP	NP	6.6 J	12	20	< 5.2	25	11	NP	NP	NP
Chloride	None	NE	NE	NE	NE	NE	NP	NP	NP	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NP	NP	NP
Sulfate	None	NE	NE	NE	NE	NE	NP	NP	NP	4200	1700	900	840	430	470	NP	NP	NP
pH	None	NE	NE	NE	NE	NE	NP	NP	NP	9.73	8.55	8.26	8.88	11.2	8.96	NP	NP	NP
VOCs (8260B)																		
1,1,1-Trichloroethane	74-55-6	34,000	6,700	280	280	29.8	NP	< 0.0011	< 0.0011	< 0.0011	< 0.0013	< 0.00093	< 0.0012	< 0.00091	< 0.001	< 0.0011 UJ	< 0.0011	< 0.00094
1,1,2,2-Tetrachloroethane	79-34-5	960	8.7	0.11	0.11	0.127	NP	< 0.0013	< 0.0013	< 0.0014	< 0.0015	< 0.0011	< 0.0015	< 0.0011	< 0.0013	< 0.0014 UJ	< 0.0013	< 0.0012
1,1-Dichloroethane	75-34-3	8,600	1,700	58	58	20.1	NP	< 0.0011	< 0.0011	< 0.0011	< 0.0013	< 0.00095	< 0.0013	< 0.00093	< 0.0011	< 0.0011 UJ	< 0.0011	< 0.00096
1,1-Dichloroethylene	75-35-4	2,200	410	*42*	42	8.28	NP	< 0.0012	< 0.0012	< 0.0012	< 0.0014	< 0.001	< 0.0014	< 0.001	< 0.0011	< 0.0012 UJ	< 0.0012	< 0.001
1,2-Dichloroethane	107-06-2	150	5.8	0.15	0.15	21.2	NP	< 0.0015	< 0.0015	< 0.0016	< 0.0018	< 0.0013	< 0.0018	< 0.0013	< 0.0015	< 0.0016 UJ	< 0.0015	< 0.0013
1,2-Dichloropropane	78-87-5	99	7.2	0.25	0.25	32.7	NP	< 0.0011	< 0.0011	< 0.0012	< 0.0013	< 0.00099	< 0.0013	< 0.00097	< 0.0011	< 0.0012 UJ	< 0.0011	< 0.001
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	NP	< 0.0014	< 0.0014	< 0.0015	< 0.0017	< 0.0013	< 0.0017	< 0.0012	< 0.0014	< 0.0015 UJ	< 0.0014	< 0.0013
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	NP	< 0.0015	< 0.0015	< 0.0016	< 0.0018	< 0.0014	< 0.0018	< 0.0013	< 0.0015	< 0.0016 UJ	< 0.0015	< 0.0014
Acrolein	107-02-8	3.5	0.64	0.25	0.25	5.27	NP	< 0.022	< 0.022	< 0.023	< 0.026	< 0.019	< 0.026	< 0.019	< 0.021	< 0.023 UJ	< 0.022	< 0.02
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.0239	NP	< 0.026	< 0.026	< 0.027	< 0.031	< 0.023	< 0.03	< 0.022	< 0.025	< 0.027 UJ	< 0.026	< 0.023
Benzene	71-43-2	560	14	0.35	0.35	0.255	NP	< 0.00082	< 0.00082	< 0.00088	***5.9*** A(GW,CL),B	***31*** A(DC,GW,CL),B	< 0.00096	< 0.00071	*0.28* J+ B	< 0.00086 UJ	0.013	< 0.00074
bis (Chloromethyl) ether	542-88-1	NE	NE	NE	NE	NE	NP	< 0.00097	< 0.00097	< 0.001	< 0.0012	< 0.00086	< 0.0011	< 0.00084	< 0.00095	< 0.001 UJ	< 0.00096	< 0.00087
Bromoform	75-25-2	7,700	580	2.7	2.7	15.9	NP	< 0.0015	< 0.0015	< 0.0016	< 0.0018	< 0.0014	< 0.0018	< 0.0013	< 0.0015	< 0.0016 UJ	< 0.0015	< 0.0014
Bromomethane (Methyl Bromide)	74-83-9	69	13	0.7	0.7	0.235	NP	< 0.0015	< 0.0014	< 0.0015	< 0.0017	< 0.0013	< 0.0017	< 0.0013	< 0.0014	< 0.0015 UJ	< 0.0014	< 0.0013
Carbon tetrachloride	56-23-5	38	5.2	0.29	0.29	2.98	NP	< 0.001	< 0.001	< 0.0011	< 0.0012	< 0.00091	< 0.0012	< 0.00089	< 0.001	< 0.0011 UJ	< 0.001	< 0.00092
Chlorobenzene	108-90-7	2,600	510	27	27	13.1	NP	< 0.00052	< 0.00052	< 0.00056	< 0.00062	0.032	< 0.00061	< 0.00045	< 0.00051	< 0.00055 UJ	< 0.00052	< 0.00047
Chlorodibromomethane	124-48-1	NE	NE	NE	NE	2.05	NP	< 0.00097	< 0.00097	< 0.001	< 0.0012	< 0.00086	< 0.0011	< 0.00084	< 0.00095	< 0.001 UJ	< 0.00096	< 0.00087
Chloroethane	75-00-3	16,000	120	10	10	NE	NP	< 0.0018	< 0.0018	< 0.0019	< 0.0022	< 0.0016	< 0.0021	< 0.0016	< 0.0018	< 0.0019 UJ	< 0.0018	< 0.0016
Chloroform	67-66-3	650	4.7	6	4.7	1.19	NP	< 0.0006	< 0.0006	< 0.00064	< 0.00072	< 0.00053	< 0.0007	< 0.00052	< 0.00059	< 0.00063 UJ	< 0.0006	< 0.00054
Chloromethane (Methyl Chloride)	74-87-3	NE	NE	NE	NE	10.4	NP	< 0.0011	< 0.0011	< 0.0012	< 0.0013	< 0.00098	< 0.0013	< 0.00095	< 0.0011	< 0.0012 UJ	< 0.0011	< 0.00099
Dichlorobromomethane[4]	75-27-4	2,100	17	0.51	0.51	0.54	NP	< 0.00081	< 0.00081	< 0.00087	< 0.00097	< 0.00072	< 0.00095	< 0.0007	< 0.0008	< 0.00085 UJ	< 0.00081	< 0.00073
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	39.5	NP	< 0.0014	< 0.0014	< 0.0015	< 0.0017	< 0.0013	< 0.0017	< 0.0012	< 0.0014	< 0.0015 UJ	< 0.0014	< 0.0013
Ethylbenzene	100-41-4	29,000	6,800	200	160	5.16	NP	< 0.00089	< 0.00089	< 0.00095	< 0.0011	0.082	< 0.001	< 0.00077	0.44 J+	< 0.00093 UJ	< 0.00089	< 0.0008
Methylene chloride	75-09-2	22,000	200	1.8	1.8	4.05	NP	0.027 J+	< 0.011 U	< 0.012 U	< 0.012 U	< 0.012 U	< 0.012 U	< 0.011 U	< 0.0058 U	< 0.01 UJ	0.026 J+	< 0.0089 U
Tetrachloroethylene	127-18-4	660	16	0.64	0.64	9.92	NP	< 0.0011	< 0.0011	0.0024 J	< 0.0014	< 0.001	< 0.0013	< 0.00099	0.0014 J	< 0.0012 UJ	< 0.0011	< 0.001
Toluene	108-88-3	49,000	16,000	96	96	5.45	NP	< 0.00075	< 0.00075	< 0.0008	0.02	0.012	< 0.00088	< 0.00065	0.034 J+	< 0.00079 UJ	0.0057	< 0.00067
trans-1,2-Dichloroethylene	156-60-5	1,200	230	14	14	0.784	NP	< 0.00095	< 0.00095	< 0.001	< 0.0011	< 0.00084	< 0.0011	< 0.00082	< 0.00093	< 0.001 UJ	< 0.00094	< 0.00085
Trichlorofluoromethane	75-69-4	6,900	1,300	540	540	NE	NP	< 0.0011	< 0.0011	< 0.0012	< 0.0014	< 0.001	< 0.0013	< 0.00099	< 0.0011	< 0.0012 UJ	< 0.0011	< 0.001
Vinyl chloride	75-01-4	500	6.4	0.027	0.027	0.646	NP	< 0.0012	< 0.0012	< 0.0013	< 0.0015	< 0.0011	< 0.0014	< 0.0011	< 0.0012	< 0.0013 UJ	< 0.0012	< 0.0011

		IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria											
Parameters	**CAS #**	**IDEM**[1] Construction Worker (mg/kg)	**IDEM**[1] Direct Contact (mg/kg)	**IDEM**[1] Migration to GW (mg/kg)	**IDEM**[1] Default Closure Level (mg/kg)	**EPA**[2] ESLs - Soil (mg/Kg)	**MW 835D (36-38)** 7/26/2017	**MW 836S (0-2)** 7/13/2017	**MW 837S (0-2)** 7/13/2017	**MW-838S (0-2)** 7/17/2017	**MW-838S (2-4)** 7/17/2017	**MW-838S (14-16)** 7/17/2017	**MW-839S (0-2)** 7/13/2017	**MW-839S (2-4)** 7/13/2017	**MW-839S (10-12)** 7/13/2017	**SB 884 (0-2)** 7/14/2017	**SB 884 (6-8)** 7/14/2017	**SB 885 (0-2)** 7/13/2017
PAHs (8270C SIM)																		
Acenaphthene	83-32-9	50,000	24,000	1,800	1,800	682	< 0.02	< 0.02	< 0.02	3.8	< 0.04	8.6	< 0.02	< 0.2	8.9	< 0.02	< 0.02	< 0.02
Acenaphthylene	208-96-8	5,900	2,800	180	180	682	< 0.021	0.037 J	0.073	0.52	0.3	1.9	0.026 J	0.7	1.3	0.057	< 0.021	0.038 J
Anthracene	120-12-7	250,000	120,000	36,000	2,000	1,480	< 0.015	0.028 J	0.049 J	7.7	0.27	9.5	0.029 J	2.9	5	0.041 J	0.017 J	0.026 J
Benzo(a)anthracene	56-55-3	790	15	62	15	5.21	< 0.011	0.16	0.24	***19*** A(DC,CL),B	0.47	*12* B	0.16	5.2	5.1	0.25	0.064	0.15
Benzo(a)pyrene	50-32-8	79	1.5	16	1.5	1.52	< 0.012	0.19	0.3	***15*** A(DC,CL),B	0.58	***9.5*** A(DC,CL),B	0.17	***5*** A(DC,CL),B	***4*** A(DC,CL),B	0.26	0.037 J	0.2
Benzo(b)fluoranthene	205-99-2	790	15	190	15	59.8	< 0.014	0.31	0.48	**21** A(DC,CL)	0.86	12	0.23	6.9	5.2	0.36	0.16	0.3
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	119	< 0.011	0.17	0.25	10	0.89	5.8	0.12	3.2	1.9	0.21	0.069	0.19
Benzo(k)fluoranthene	207-08-9	7,900	150	1,900	150	148	< 0.028	0.082	0.13	5.7	0.2	4.5	0.082	2	1.7	0.14	0.054	0.087
Chrysene	218-01-9	79,000	1,500	6,200	1,500	4.75	< 0.012	0.16	0.26	*20* B	0.7	*12* B	0.16	*5* B	4.2	0.27	0.097	0.19
Dibenzo(a,h)anthracene	53-70-3	79	1.5	60	1.5	18.4	< 0.016	0.041 J	0.061	**3** A(DC,CL)	0.14	**1.8** A(DC,CL)	0.032 J	0.93	0.61	0.057	0.022 J	0.05
Fluoranthene	206-44-0	33,000	16,000	18,000	2,000	122	< 0.013	0.31	0.56	52	0.78	38	0.31	12	18	0.45	0.38	0.23
Fluorene	86-73-7	33,000	16,000	2300	2000	122	< 0.018	< 0.017	< 0.018	3.8	0.074 J	15	< 0.017	0.52	8.9	< 0.017	< 0.017	< 0.017
Indeno (1,2,3-c,d) pyrene	193-39-5	790	15	540	15	109	< 0.0095	0.13	0.21	9.3	0.56	5.8	0.11	2.8	1.9	0.19	0.062	0.16
Naphthalene	91-20-3	17,000	8,000	170	170	0.0994	< 0.022	0.051	*0.13* B	*0.93* B	*0.2* B	*25* B	0.055	*0.97* B	*47* B	0.042 J	< 0.022	0.037 J
Phenanthrene	85-01-8	2,500	1,200	170	170	45.7	< 0.013	0.13	0.22	35	0.55	39	0.12	8.2	19	0.19	0.18	0.12
Pyrene	129-00-0	25,000	12,000	13,000	2,000	78.5	< 0.013	0.23	0.38	39	0.7	23	0.2	9	10	0.4	0.3	0.21
SVOCs (8270C)																		
1,2,4-Trichlorobenzene	120-82-1	8,900	4,900	77	77	11.1	NP	NP	NP	< 0.12	< 0.047	< 0.12	< 0.023	< 0.23	< 0.24	NP	NP	NP
1,2-Dichlorobenzene	95-50-1	18,000	3,900	270	220	2.96	NP	NP	NP	< 0.14	< 0.054	< 0.13	< 0.027	< 0.27	< 0.27	NP	NP	NP
1,2-Diphenylhydrazine	122-66-7	NE	NE	NE	NE	NE	NP	NP	NP	< 0.08	< 0.032	< 0.078	< 0.016	< 0.16	< 0.16	NP	NP	NP
1,4-Dichlorobenzene	106-46-7	8,000	73	3.4	3.4	0.546	NP	NP	NP	< 0.093	< 0.038	< 0.092	< 0.018	< 0.18	< 0.19	NP	NP	NP
2,4,6-Trichlorophenol	88-06-2	89	49	0.2	0.2	9.94	NP	NP	NP	< 0.09	< 0.036	< 0.089	< 0.018	< 0.18	< 0.18	NP	NP	NP
2,4-Dichlorophenol	120-83-2	2,700	1,500	3	3	87.5	NP	NP	NP	< 0.092	< 0.037	< 0.091	< 0.018	< 0.18	< 0.19	NP	NP	NP
2,4-Dimethylphenol	105-67-9	18,000	9,800	25	25	0.01	NP	NP	NP	< 0.1	< 0.042	< 0.1	< 0.021	< 0.21	< 0.21	NP	NP	NP
2,4-Dinitrophenol	51-28-5	1,800	980	0.82	0.82	0.0609	NP	NP	NP	< 0.054	< 0.022	< 0.053	< 0.011	< 0.11	< 0.11	NP	NP	NP
2,4-Dinitrotoluene	121-14-2	890	20	0.031	0.031	1.28	NP	NP	NP	< 0.058	< 0.023	< 0.057	< 0.011	< 0.11	< 0.12	NP	NP	NP
2,6-Dinitrotoluene	606-20-2	890	20	0.031	0.031	0.0328	NP	NP	NP	< 0.14	< 0.055	< 0.13	< 0.027	< 0.27	< 0.27	NP	NP	NP
2-Chloronaphthalene	91-58-7	71,000	39,000	560	560	0.0122	NP	NP	NP	< 0.12	< 0.049	< 0.12	< 0.024	< 0.24	< 0.25	NP	NP	NP
2-Chlorophenol	95-57-8	2,200	580	10	10	0.243	NP	NP	NP	< 0.098	< 0.04	< 0.097	< 0.019	< 0.19	< 0.2	NP	NP	NP
2-Nitrophenol	88-75-5	NE	NE	NE	NE	1.6	NP	NP	NP	< 0.12	< 0.049	< 0.12	< 0.024	< 0.24	< 0.25	NP	NP	NP
3,3-Dichlorobenzidine	91-94-1	1,400	31	0.21	0.21	0.646	NP	NP	NP	< 0.096	< 0.039	< 0.095	< 0.019	< 0.19	< 0.19	NP	NP	NP
4,6-Dinitro-2-methylphenol	534-52-1	NE	NE	NE	NE	0.144	NP	NP	NP	< 0.062	< 0.025	< 0.061	< 0.012	< 0.12	< 0.12	NP	NP	NP
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	NE	NP	NP	NP	< 0.11	< 0.046	< 0.11	< 0.023	< 0.23	< 0.23	NP	NP	NP
4-Chloro-3-methylphenol	59-50-7	NE	NE	NE	NE	NE	NP	NP	NP	< 0.078	< 0.031	< 0.076	< 0.015	< 0.15	< 0.16	NP	NP	NP
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	NP	NP	NP	< 0.088	< 0.035	< 0.086	< 0.017	< 0.17	< 0.18	NP	NP	NP
4-Nitrophenol	100-02-7	NE	NE	NE	NE	5.12	NP	NP	NP	< 0.062	< 0.025	< 0.061	< 0.012	< 0.12	< 0.12	NP	NP	NP
Benzidine	92-87-5	NE	NE	NE	NE	NE	NP	NP	NP	< 8	< 3.2	< 7.8	< 1.6	< 16	< 16	NP	NP	NP
bis(2-Chloroethoxy)methane	111-91-1	NE	NE	NE	NE	0.302	NP	NP	NP	< 0.11	< 0.043	< 0.1	< 0.021	< 0.21	< 0.21	NP	NP	NP
bis(2-Chloroethyl)ether	111-44-4	280	3	0.012	0.012	23.7	NP	NP	NP	< 0.12	< 0.047	< 0.11	< 0.023	< 0.23	< 0.23	NP	NP	NP
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	19.9	NP	NP	NP	< 0.12	< 0.048	< 0.12	< 0.023	< 0.23	< 0.24	NP	NP	NP
bis(2-Ethylhexyl)phthalate	117-81-7	18,000	980	120,000	980	0.925	NP	NP	NP	< 0.079	< 0.032	< 0.077	< 0.016	< 0.15	< 0.16	NP	NP	NP
Butylbenzylphthalate	85-68-7	180,000	98,000	6,200	310	0.239	NP	NP	NP	< 0.091	< 0.037	< 0.09	< 0.018	< 0.18	< 0.18	NP	NP	NP
Diethylphthalate	84-66-2	710,000	390,000	1,300	840	24.8	NP	NP	NP	< 0.066	< 0.026	< 0.065	< 0.013	< 0.13	< 0.13	NP	NP	NP
Dimethylphthalate	131-11-3	1,000,000	1,000,000	5,600	1,100	734	NP	NP	NP	0.23 J	< 0.031	< 0.077	< 0.015	< 0.15	< 0.16	NP	NP	NP
Di-n-butylphthalate	84-74-2	89,000	49,000	NE	NE	0.150	NP	NP	NP	< 0.078	< 0.031	< 0.077	< 0.015	< 0.15	< 0.16	NP	NP	NP
Di-n-octylphthalate	117-84-0	36,000	20,000	67,000	2,000	709	NP	NP	NP	< 0.061	< 0.024	< 0.06	< 0.012	< 0.12	< 0.12	NP	NP	NP
Hexachlorobenzene	118-74-1	390	8.6	3.9	3.9	0.199	NP	NP	NP	< 0.073	< 0.029	< 0.072	< 0.014	< 0.14	< 0.15	NP	NP	NP
Hexachlorobutadiene	87-68-3	NE	NE	NE	NE	0.0398	NP	NP	NP	< 0.14	< 0.056	< 0.14	< 0.028	< 0.28	< 0.28	NP	NP	NP
Hexachlorocyclopentadiene	77-47-4	5,300	2,900	4,900	720	0.755	NP	NP	NP	< 0.088	< 0.036	< 0.087	< 0.018	< 0.17	< 0.18	NP	NP	NP
Hexachloroethane	67-72-1	660	240	7.7	7.7	0.596	NP	NP	NP	< 0.15	< 0.061	< 0.15	< 0.03	< 0.3	< 0.3	NP	NP	NP
Isophorone	78-59-1	180,000	14,000	18	18	139	NP	NP	NP	< 0.061	< 0.025	< 0.06	< 0.012	< 0.12	< 0.12	NP	NP	NP
Nitrobenzene	98-95-3	440	250	0.34	0.34	1.31	NP	NP	NP	< 0.14	< 0.057	< 0.14	< 0.028	< 0.28	< 0.29	NP	NP	NP
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	0.0000321	NP	NP	NP	< 0.13	< 0.052	< 0.13	< 0.026	< 0.25	< 0.26	NP	NP	NP
N-Nitroso-di-n-propylamine	621-64-7	89	2	0.002	0.002	0.544	NP	NP	NP	< 0.14	< 0.057	< 0.14	< 0.028	< 0.28	< 0.28	NP	NP	NP
N-Nitrosodiphenylamine	86-30-6	18,000	2,800	32	32	0.545	NP	NP	NP	< 0.087	< 0.035	< 0.085	< 0.017	< 0.17	< 0.17	NP	NP	NP
Pentachlorophenol	87-86-5	3,800	54	0.66	0.66	0.119	NP	NP	NP	< 0.034	< 0.014	< 0.034	< 0.0068	< 0.068	< 0.069	NP	NP	NP
Phenol	108-95-2	230,000	96,000	160	160	120	NP	NP	NP	< 0.12	< 0.05	0.46 J	< 0.025	< 0.25	< 0.25	NP	NP	NP

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2009 Table A updates

[2]US EPA Region V Ecological Screening Levels (ESLs), August, 2003

[3]US EPA National Ecological Soil Screening Levels, November, 2003

[4]IDEM=Bromodichloromethane

P=Plants

SI=Soil Invertebrates

AV=Avian

M=Mammalian wildlife

A(CW)=IDEM DQO Exceedance of the Construction Worker

A(DC)=IDEM DQO Exceedance of the Direct Contact (Only applicable to samples collected in the 0 to 2 foot interval)

A(GW)=IDEM DQO Exceedance of the Migration to Groundwater

A(CL)=IDEM DQO Exceedance of the Default Closure Level

B=Exceedance of US EPA ESLs

NP=Not Performed

U=Laboratory flag indicating analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

J =Laboratory flag indicating analyte concentration detected between reporting limit (RL) and method detection limit (MDL).

J+=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

J-=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

UJ=Laboratory flag indicating analyte was analyzed for, but was not detected and the value is approximate and may be inaccurate or imprecise.

R =Laboratory flag indicating the data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria.

B =Laboratory flag indicating analyte concentration detected in the associated method blank above the routine RL.

-Microbac Laboratory Inc. MDLs are updated on an annual basis. Based on these annual MDL studies, MDL and PQLs are subject to change.

-Several of the acceptance limits for LCS, MS/MSDs, are based on statistical studies; these limits are subject to change.

Parameters	CAS #	IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria	SB 886 (0-2)	SB 887 (0-2)	SB 888 (0-2)	SB 889 (0-2)	SB 890 (0-2)	SB 891 (0-2)	SB 892 (0-2)	SB 892 (8-10)	SB 893 (0-2)	SB 893 (6-8)	Calculated Statistics			
		IDEM[1] Construction Worker (mg/kg)	IDEM[1] Direct Contact (mg/kg)	IDEM[1] Migration to GW (mg/kg)	IDEM[1] Default Closure Level (mg/kg)	EPA[2] ESLs - Soil (mg/Kg)	7/13/2017	7/13/2017	7/10/2017	7/13/2017	7/14/2017	7/14/2017	7/10/2017	7/10/2017	7/14/2017	7/14/2017	% Detect	Average Detected	Minimum Detected	Maximum Detected
Metals (8020)																				
Antimony[3]	7440-36-0	460	620	37	37	78 SI | 0.29 M	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	63%	1.72533	0.0029	12
Arsenic	7440-38-2	320	20	5.8	5.8	5.7	NP	NP	NP	NP	NP	NP	NP	3.3	NP	< 0.061	75%	2.5392222	0.054	9.2
Beryllium[3]	7440-41-7	2,300	2,900	3,200	2,300	40 SI | 36 M	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	1.478425	0.0082	8.5
Cadmium[3]	7440-43-9	590	990	77	77	32 P | 140 SI | 1 AV | 0.38 M	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	1.1961667	0.043	9.3
Chromium	7440-47-3	1,000,000	1,000,000	1,000,000	10,000	0.4	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	96%	110.3	2.8	710
Chromium, hexavalent	18540-29-9	3,400	650	120	120	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	17%	1.1475	0.57	6.9
Copper	7440-50-8	46,000	62,000	2,900	2,900	5.4	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	18.197083	0.94	130
Iron[3]	7439-89-6	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	26387.5	2700	120000
Lead[3]	7439-92-1	970	1,300	230	230	110 P | 1,700 SI | 16 AV | 59 M	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	35.119167	0.66	290
Manganese	7439-96-5	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	3054.875	87	15000
Mercury	7439-97-6	340	470	32	32	0.1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	71%	0.1331042	0.0056	0.57
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	71%	1.6533333	0.17	5
Nickel	7440-02-0	23,000	31,000	2,700	2,700	13.6	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	7.9620833	0.59	30
Potassium	7440-09-7	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	570	NP	1400	100%	#N/A	#N/A	#N/A
Selenium	7782-49-2	5,700	7,800	53	53	0.0276	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	58%	0.5355667	0.0079	2.6
Silver	7440-22-4	5,700	7,800	87	87	4.04	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	0.1277083	0.01	0.42
Thallium	7440-28-0	80	110	10	10	0.0569	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	53%	0.1260667	0.019	0.41
Tin	7440-31-5	NE	NE	NE	NE	7.62	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	67%	16.363333	0.32	290
Vanadium	7440-62-2	NE	NE	NE	NE	1.59	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	113.89167	3.9	1000
Zinc	7440-66-6	340,000	470,000	38,000	10,000	6.62	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	96%	70.416667	7.3	370
Other																				
Total Organic Carbon (TOC)	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	88%	2.55125	0.1	28
Sulfide	18496-25-8	NE	NE	NE	NE	0.00358	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	83%	314.5125	1.9	2100
Total Cyanides	57-12-5	23,000	31,000	9.6	9.6	1.33	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	92%	1.4227083	0.097	6.5
Total Phenolics	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	58%	1.67625	0.29	6.5
Ammonia	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	71%	10.258333	5.1	25
Chloride	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Sulfate	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	2038.75	230	11000
pH	None	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	100%	9.3133333	7	12.3
VOCs (8260B)																				
1,1,1-Trichloroethane	74-55-6	34,000	6,700	280	280	29.8	< 0.00084	< 0.0012	< 0.0012 UJ	< 0.0011	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0011 UJ	< 0.0014	5%	0.0012244	0.00083	0.0054
1,1,2,2-Tetrachloroethane	79-34-5	960	8.7	0.11	0.11	0.127	< 0.001	< 0.0015	< 0.0014 UJ	< 0.0014	< 0.0015	< 0.0015	< 0.0015 U	< 0.0014	< 0.0014 UJ	< 0.0017	0%			
1,1-Dichloroethane	75-34-3	8,600	1,700	58	58	20.1	< 0.00086	< 0.0012	< 0.0012 UJ	< 0.0011	< 0.0013	< 0.0012	< 0.0012 U	< 0.0012	< 0.0011 UJ	< 0.0014	0%			
1,1-Dichloroethylene	75-35-4	2,200	410	42	42	8.28	< 0.00093	< 0.0013	< 0.0013 UJ	< 0.0012	< 0.0014	< 0.0013	< 0.0013 U	< 0.0013	< 0.0012 UJ	< 0.0015	0%			
1,2-Dichloroethane	107-06-2	150	5.8	0.15	0.15	21.2	< 0.0012	< 0.0017	< 0.0017 UJ	< 0.0016	< 0.0018	< 0.0017	< 0.0017 U	< 0.0017	< 0.0016 UJ	< 0.002	0%			
1,2-Dichloropropane	78-87-5	99	7.2	0.25	0.25	32.7	< 0.0009	< 0.0013	< 0.0012 UJ	< 0.0012	< 0.0013	< 0.0013	< 0.0013 U	< 0.0012	< 0.0012 UJ	< 0.0015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0011	< 0.0016	< 0.0016 UJ	< 0.0015	< 0.0017	< 0.0016	< 0.0016 U	< 0.0016	< 0.0015 UJ	< 0.0018	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0012	< 0.0018	< 0.0017 UJ	< 0.0016	< 0.0018	< 0.0018	< 0.0017 U	< 0.0017	< 0.0016 UJ	< 0.002	0%			
Acrolein	107-02-8	3.5	0.64	0.25	0.25	5.27	< 0.018	< 0.026	< 0.024 UJ	< 0.023	< 0.026	< 0.026	< 0.025 U	< 0.024	< 0.023 UJ	< 0.029	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.0239	< 0.021	< 0.03	< 0.028 UJ	< 0.027	< 0.03	< 0.03	< 0.029 U	< 0.028	< 0.028 UJ	< 0.034	0%			
Benzene	71-43-2	560	14	0.35	0.35	0.255	< 0.00066	< 0.00096	< 0.00091 UJ	< 0.00088	< 0.00097	< 0.00096	< 0.00093 U	0.0067	< 0.00088 UJ	< 0.0011	44%	11.00499	0.00066	220
bis (Chloromethyl) ether	542-88-1	NE	NE	NE	NE	NE	< 0.00077	< 0.0011	< 0.0011 UJ	< 0.001	< 0.0011	< 0.0011	< 0.0011 U	< 0.0011	< 0.001 UJ	< 0.0013	0%			
Bromoform	75-25-2	7,700	580	2.7	2.7	15.9	< 0.0012	< 0.0018	< 0.0017 UJ	< 0.0016	< 0.0018	< 0.0018	< 0.0017 U	< 0.0017	< 0.0016 UJ	< 0.002	0%			
Bromomethane (Methyl Bromide)	74-83-9	69	13	0.7	0.7	0.235	< 0.0012	< 0.0017	< 0.0016 UJ	< 0.0015	< 0.0017	< 0.0017	< 0.0016 U	< 0.0016	< 0.0016 UJ	< 0.0019	0%			
Carbon tetrachloride	56-23-5	38	5.2	0.29	0.29	2.98	< 0.00082	< 0.0012	< 0.0011 UJ	< 0.0011	< 0.0012	< 0.0012	< 0.0012 U	< 0.0011	< 0.0011 UJ	< 0.0013	0%			
Chlorobenzene	108-90-7	2,600	510	27	27	13.1	< 0.00042	< 0.00061	< 0.00058 UJ	< 0.00056	< 0.00061	< 0.00061	< 0.00059 U	< 0.00058	< 0.00056 UJ	< 0.00068	12%	0.0023307	0.00042	0.037
Chlorodibromomethane	124-48-1	NE	NE	NE	NE	2.05	< 0.00077	< 0.0011	< 0.0011 UJ	< 0.001	< 0.0011	< 0.0011	< 0.0011 U	< 0.0011	< 0.001 UJ	< 0.0013	0%			
Chloroethane	75-00-3	16,000	120	10	10	NE	< 0.0015	< 0.0021	< 0.002 UJ	< 0.0019	< 0.0021	< 0.0021	< 0.0021 U	< 0.002	< 0.002 UJ	< 0.0024	0%			
Chloroform	67-66-3	650	4.7	6	4.7	1.19	< 0.00048	< 0.0007	< 0.00066 UJ	< 0.00064	< 0.0007	< 0.0007	< 0.00068 U	< 0.00066	< 0.00064 UJ	< 0.00078	0%			
Chloromethane (Methyl Chloride)	74-87-3	NE	NE	NE	NE	10.4	< 0.00088	< 0.0013	< 0.0012 UJ	< 0.0012	< 0.0013	< 0.0013	< 0.0012 U	< 0.0012	< 0.0012 UJ	< 0.0014	0%			
Dichlorobromomethane[4]	75-27-4	2,100	17	0.51	0.51	0.54	< 0.00065	< 0.00094	< 0.0009 UJ	< 0.00087	< 0.00095	< 0.00094	< 0.00092 U	< 0.0009	< 0.00087 UJ	< 0.0011	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	39.5	< 0.0011	< 0.0017	< 0.0016 UJ	< 0.0015	< 0.0017	< 0.0017	< 0.0016 U	< 0.0016	< 0.0015 UJ	< 0.0019	0%			
Ethylbenzene	100-41-4	29,000	6,800	200	160	5.16	< 0.00071	< 0.001	< 0.00098 UJ	< 0.00095	< 0.001	< 0.001	< 0.001 U	< 0.00098	< 0.00095 UJ	< 0.0012	22%	0.8937	0.00071	20
Methylene chloride	75-09-2	22,000	200	1.8	1.8	4.05	0.017 J+	< 0.011 U	< 0.0074 UJ	< 0.012 U	< 0.013 U	< 0.014 U	< 0.0051 U	< 0.0064 U	< 0.011 UJ	< 0.013 U	7%	0.0117659	0.0037	0.027
Tetrachloroethylene	127-18-4	660	16	0.64	0.64	9.92	< 0.00091	< 0.0013	< 0.0013 UJ	< 0.0012	< 0.0013	< 0.0013	< 0.0013 U	< 0.0013	< 0.0012 UJ	< 0.0015	7%	0.0012683	0.00091	0.0024
Toluene	108-88-3	49,000	16,000	96	96	5.45	< 0.0006	< 0.00088	< 0.00083 UJ	< 0.0008	< 0.00089	< 0.00088	< 0.00085 U	< 0.00083	0.0013 J	< 0.00098	44%	9.3482954	0.0006	380
trans-1,2-Dichloroethylene	156-60-5	1,200	230	14	14	0.784	< 0.00076	< 0.0011	< 0.001 UJ	< 0.001	< 0.0011	< 0.0011	< 0.0011 U	< 0.001	< 0.001 UJ	< 0.0012	0%			
Trichlorofluoromethane	75-69-4	6,900	1,300	540	540	NE	< 0.00091	< 0.0013	< 0.0013 UJ	< 0.0012	< 0.0013	< 0.0013	< 0.0013 U	< 0.0013	< 0.0012 UJ	< 0.0015	0%			
Vinyl chloride	75-01-4	500	6.4	0.027	0.027	0.646	< 0.00099	< 0.0014	< 0.0014 UJ	< 0.0013	< 0.0015	< 0.0014	< 0.0014 U	< 0.0014	< 0.0013 UJ	< 0.0016	0%			

Parameters	CAS #	IDEM - Data Quality Objectives (DQOs)				EPA - Screening Criteria										Calculated Statistics			
		IDEM[1] Construction Worker (mg/kg)	IDEM[1] Direct Contact (mg/kg)	IDEM[1] Migration to GW (mg/kg)	IDEM[1] Default Closure Level (mg/kg)	EPA[2] ESLs - Soil (mg/Kg)	SB 886 (0-2) 7/13/2017	SB 887 (0-2) 7/13/2017	SB 888 (0-2) 7/10/2017	SB 889 (0-2) 7/13/2017	SB 890 (0-2) 7/14/2017	SB 891 (0-2) 7/14/2017	SB 892 (0-2) 7/10/2017	SB 892 (8-10) 7/10/2017	SB 893 (0-2) 7/14/2017	SB 893 (6-8) 7/14/2017	% Detect	Average Detected	Minimum Detected	Maximum Detected
PAHs (8270C SIM)																			
Acenaphthene	83-32-9	50,000	24,000	1,800	1,800	682	< 0.02	< 0.02	< 0.02	< 0.02	< 0.099	< 0.02	< 0.02	0.038 J	< 0.039	< 0.02	31%	0.7796	0.02	8.9
Acenaphthylene	208-96-8	5,900	2,800	180	180	682	0.084	< 0.021	< 0.021	< 0.021	1.2	0.035 J	< 0.021	< 0.021	0.075 J	< 0.021	64%	0.3728444	0.021	2.8
Anthracene	120-12-7	250,000	120,000	36,000	2,000	1,480	0.056	0.019 J	0.017 J	< 0.015	0.78	0.076	0.027 J	0.082	0.17	< 0.015	78%	1.2951556	0.014	18
Benzo(a)anthracene	56-55-3	790	15	62	15	5.21	0.28	0.1	0.087	0.03 J	4	0.45	0.15	0.13	0.72	0.019 J	84%	3.0338222	0.011	55
Benzo(a)pyrene	50-32-8	79	1.5	16	1.5	1.52	0.33	0.11	0.083	0.034 J	***4.7*** A(DC,CL),B	0.55	0.15	0.11	0.93	0.019 J	82%	2.6456444	0.011	46
Benzo(b)fluoranthene	205-99-2	790	15	190	15	59.8	0.49	0.16	0.14	0.05	6	0.73	0.23	0.14	1.2	0.031 J	84%	3.8229111	0.013	71
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	NE	119	0.28	0.093	0.06	0.029 J	4.2	0.43	0.11	0.066	0.81	0.018 J	82%	1.6504444	0.011	24
Benzo(k)fluoranthene	207-08-9	7,900	150	1,900	150	148	0.17	0.058	0.034 J	< 0.028	2.3	0.26	0.084	0.054	0.43	< 0.028	76%	1.1038444	0.028	17
Chrysene	218-01-9	79,000	1,500	6,200	1,500	4.75	0.27	0.1	0.091	0.031 J	4.3	0.54	0.16	0.11	0.78	0.021 J	82%	2.8019556	0.012	45
Dibenzo(a,h)anthracene	53-70-3	79	1.5	60	1.5	18.4	0.065	0.025 J	0.017 J	< 0.016	1.1	0.12	0.028 J	0.018 J	0.19	< 0.016	67%	0.5503778	0.016	12
Fluoranthene	206-44-0	33,000	16,000	18,000	2,000	122	0.63	0.19	0.18	0.052	6.2	0.77	0.32	0.3	1.1	0.021 J	89%	7.2951111	0.013	120
Fluorene	86-73-7	33,000	16,000	2300	2000	122	< 0.017	< 0.017	< 0.017	< 0.018	0.23 J	0.023 J	< 0.018	0.048 J	< 0.035	< 0.018	47%	1.1626889	0.017	15
Indeno (1,2,3-c,d) pyrene	193-39-5	790	15	540	15	109	0.23	0.074	0.054	0.024 J	3.7	0.37	0.091	0.057	0.71	0.017 J	82%	1.5044667	0.0093	22
Naphthalene	91-20-3	17,000	8,000	170	170	0.0994	*0.13* B	0.038 J	0.038 J	< 0.022	*0.53* B	0.022 J	0.027 J	0.094	*0.3* B	< 0.022	76%	4.7040444	0.021	120
Phenanthrene	85-01-8	2,500	1,200	170	170	45.7	0.24	0.083	0.099	0.02 J	3.5	0.36	0.13	0.32	0.98	0.022 J	84%	4.9654667	0.013	64
Pyrene	129-00-0	25,000	12,000	13,000	2,000	78.5	0.39	0.14	0.13	0.033 J	5.7	0.73	0.25	0.22	0.96	0.025 J	89%	5.2004889	0.013	87
SVOCs (8270C)																			
1,2,4-Trichlorobenzene	120-82-1	8,900	4,900	77	77	11.1	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
1,2-Dichlorobenzene	95-50-1	18,000	3,900	270	220	2.96	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
1,2-Diphenylhydrazine	122-66-7	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
1,4-Dichlorobenzene	106-46-7	8,000	73	3.4	3.4	0.546	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,4,6-Trichlorophenol	88-06-2	89	49	0.2	0.2	9.94	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,4-Dichlorophenol	120-83-2	2,700	1,500	3	3	87.5	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,4-Dimethylphenol	105-67-9	18,000	9,800	25	25	0.01	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,4-Dinitrophenol	51-28-5	1,800	980	0.82	0.82	0.0609	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,4-Dinitrotoluene	121-14-2	890	20	0.031	0.031	1.28	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2,6-Dinitrotoluene	606-20-2	890	20	0.031	0.031	0.0328	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2-Chloronaphthalene	91-58-7	71,000	39,000	560	560	0.0122	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2-Chlorophenol	95-57-8	2,200	580	10	10	0.243	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
2-Nitrophenol	88-75-5	NE	NE	NE	NE	1.6	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
3,3-Dichlorobenzidine	91-94-1	1,400	31	0.21	0.21	0.646	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
4,6-Dinitro-2-methylphenol	534-52-1	NE	NE	NE	NE	0.144	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
4-Chloro-3-methylphenol	59-50-7	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
4-Nitrophenol	100-02-7	NE	NE	NE	NE	5.12	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
bis(2-Chloroethoxy)methane	111-91-1	NE	NE	NE	NE	0.302	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
bis(2-Chloroethyl)ether	111-44-4	280	3	0.012	0.012	23.7	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	19.9	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	18,000	980	120,000	980	0.925	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Butylbenzylphthalate	85-68-7	180,000	98,000	6,200	310	0.239	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Diethylphthalate	84-66-2	710,000	390,000	1,300	840	24.8	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Dimethylphthalate	131-11-3	1,000,000	1,000,000	5,600	1,100	734	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	4%	0.0640417	0.23	0.23
Di-n-butylphthalate	84-74-2	89,000	49,000	NE	NE	0.150	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Di-n-octylphthalate	117-84-0	36,000	20,000	67,000	2,000	709	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Hexachlorobenzene	118-74-1	390	8.6	3.9	3.9	0.199	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Hexachlorobutadiene	87-68-3	NE	NE	NE	NE	0.0398	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Hexachlorocyclopentadiene	77-47-4	5,300	2,900	4,900	720	0.755	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Hexachloroethane	67-72-1	660	240	7.7	7.7	0.596	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Isophorone	78-59-1	180,000	14,000	18	18	139	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Nitrobenzene	98-95-3	440	250	0.34	0.34	1.31	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	0.0000321	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
N-Nitroso-di-n-propylamine	621-64-7	89	2	0.002	0.002	0.544	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
N-Nitrosodiphenylamine	86-30-6	18,000	2,800	32	32	0.545	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Pentachlorophenol	87-86-5	3,800	54	0.66	0.66	0.119	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	0%			
Phenol	108-95-2	230,000	96,000	160	160	120	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	13%		0.16	0.46

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2009 Table A updates
[2]US EPA Region V Ecological Screening Levels (ESLs), August, 2003
[3]US EPA National Ecological Soil Screening Levels, November, 2003
[4]IDEM=Bromodichloromethane
P=Plants
SI=Soil Invertebrates
AV=Avian
M=Mammalian wildlife
A(CW)=IDEM DQO Exceedance of the Construction Worker
A(DC)=IDEM DQO Exceedance of the Direct Contact (Only applicable to samples collected in the 0 to 2 foot interval)
A(GW)=IDEM DQO Exceedance of the Migration to Groundwater
A(CL)=IDEM DQO Exceedance of the Default Closure Level
B=Exceedance of US EPA ESLs
NP=Not Performed
[U]=Laboratory flag indicating analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
[J] =Laboratory flag indicating analyte concentration detected between reporting limit (RL) and method detection limit (MDL).
[J+]=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-]=Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ]=Laboratory flag indicating analyte was analyzed for, but was not detected and the value is approximate and may be inaccurate or imprecise.
[R] =Laboratory flag indicating the data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria.
[B] =Laboratory flag indicating analyte concentration detected in the associated method blank above the routine RL.
-Microbac Laboratory Inc. MDLs are updated on an annual basis. Based on these annual MDL studies, MDL and PQLs are subject to change.
-Several of the acceptance limits for LCS, MS/MSDs, are based on statistical studies; these limits are subject to change.

Table 5
Slag-fill/Soil Laboratory Method Detection Limits

	IDEM - Data Quality Objectives[1]				EPA - Screening Criteria[2]	
Parameters	**IDEM Construction Worker**	**IDEM Direct Contact[A]**	**IDEM Migration to GW**	**IDEM Default Closure**	**EPA** ESLs - soil	**Range of Method Detection Limits**
VOCs (mg/kg)						
1,1,1-Trichloroethane	34,000	6,700	280	280	30	0.001 - 0.0015
Benzene	560	14	0.35	0.35	0	0.00071 - 8.1
Chlorobenzene	2,600	510	27	27	13	0.00041 - 0.00083
Ethylbenzene	29,000	6,800	200	160	5	0.00079 - 0.44
Methylene chloride	22,000	200	1.8	1.8	4	0.00031 - 0.0031
Tetrachloroethylene	660	16	0.64	0.64	10	0.0009 - 0.0012
Toluene	49,000	16,000	96	96	5	0.0006 - 7.4
SVOCs (mg/kg)						
Diethyl phthalate	710,000	390,000	1,300	840	734	0.078 - 0.078
Phenol	230,000	96,000	160	160	120	0.039 - 0.039
PAHs (mg/kg)						
Acenaphthene	50,000	24,000	1,800	1,800	682	0.02 - 0.2
Acenaphthylene	5,900	2,800	180	180	682	0.021 - 0.21
Anthracene	250,000	120,000	36,000	2,000	1,480	0.014 - 0.15
Benzo[a]anthracene	790	15	62	15	5	0.011 - 0.56
Benzo[a]pyrene	79	1.5	16	1.5	2	0.011 - 0.58
Benzo[b]fluoranthene	790	15	190	15	60	0.013 - 0.68
Benzo[g,h,i]perylene	NE	NE	NE	NE	119	0.011 - 0.54
Benzo[k]fluoranthene	7,900	150	1,900	150	148	0.028 - 1.4
Chrysene	79,000	1,500	6,200	1,500	5	0.012 - 0.62
Dibenz[a,h]anthracene	79	1.5	60	1.5	18	0.016 - 0.16
Fluoranthene	33,000	16,000	18,000	2,000	122	0.013 - 0.65
Fluorene	33,000	16,000	2,300	2,000	122	0.017 - 0.18
Indeno[1,2,3cd]pyrene	790	15	540	15	109	0.0093 - 0.47
Naphthalene	17,000	8,000	170	170	0	0.022 - 1.1
Phenanthrene	2,500	1,200	170	170	46	0.013 - 0.65
Pyrene	25,000	12,000	13,000	2,000	79	0.013 - 0.65
Metals (mg/kg)						
Antimony[3]	460	620	37	37	78SI/0.29M	0.0025 - 0.0032
Arsenic	320	20	5.8	5.8	6	0.057 - 0.068
Beryllium[3]	2,300	2,900	3,200	2,300	40SI/36M	0.0032 - 0.0038
Cadmium[3]	590	990	77	77	32P/140SI/1AV/0.38M	0.0028 - 0.0036
Chromium	1,000,000	1,000,000	1,000,000	10,000	0	0.0075 - 0.41
Chromium, hexavalent	3,400	650	120	120	NE	0.57 - 0.59
Copper	46,000	62,000	2,900	2,900	5	0.012 - 0.016
Iron	NE	NE	NE	NE	NE	0.14 - 8.7
Lead	970	1,300	230	230	110P/1,700SI/16AV/59M	0.0019 - 0.0024
Manganese	NE	NE	NE	NE	NE	0.0041 - 0.26
Mercury	340	470	32	32	0.1	0.0056 - 0.065
Molybdenum	NE	NE	NE	NE	NE	0.0017 - 0.0022
Nickel	23,000	31,000	2,700	2,700	14	0.0062 - 0.008
Potassium	NE	NE	NE	NE	NE	0.15 - 0.19
Selenium	5,700	7,800	53	53	0	0.0072 - 0.0087
Silver	5,700	7,800	87	87	4	0.0048 - 0.0062
Thallium	80	110	10	10	0	0.0025 - 0.0032
Tin	NE	NE	NE	NE	8	0.011 - 0.014
Vanadium	NE	NE	NE	NE	2	0.045 - 2.5
Zinc	340,000	470,000	38,000	10,000	7	0.017 - 0.022
Other (mg/kg)						
Total Organic Carbon (TOC)	NE	NE	NE	NE	NE	0.1 - 28
Sulfide	NE	NE	NE	NE	0	1.9 - 200
Total Cyanides	23,000	31,000	9.6	9.6	1	0.095 - 0.1
Total Phenolics	NE	NE	NE	NE	NE	0.29 - 0.3
Ammonia	NE	NE	NE	NE	NE	5.0 - 5.4
Sulfate	NE	NE	NE	NE	NE	18 - 19

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1
Table A - Default Closure Table - Industrial with 2009 Table A updates
NE=Not Established
[2]US EPA Region V Ecological Screening Levels (ESLs), August, 2003
[3]US EPA National Ecological Soil Screening Levels, November, 2003
Only exceedances of Data Quality Objectives are displayed.
P=Plants
SI=Soil Invertebrates
AV=Avian
M=Mammalian wildlife
Slag-Fill/Soil samples obtained July 2017

Table 6
Slag-Fill/Soil Sample Lab Results Above DQOs

Sample Name	Depth (feet bgs)	Zone	Hydrogeologic Unit	Analyte	CAS Number	Units	Result	RL	MDL	IDEM - Data Quality Objectives		
										IDEM Direct Contact[A]	IDEM Migration to GW	IDEM Default Closure
MW-828S (0-2)	0-2	S	Slag-fill	No Exceedances								
MW-828S (2-4)	2-4	WT	Slag-fill	No Exceedances								
MW-828S (8-12)	8-12	B	Slag-fill	Benzene	71-43-2	mg/kg	180	48	8.1		0.35	0.35
				Toluene	108-88-3	mg/kg	380	48	7.4		96	96
				Benzo(a)pyrene	50-32-8	mg/kg	2.4	0.5	0.12			1.5
MW-829S (0-2)	0-2	S	Slag-fill	No Exceedances								
MW-829S (3-4)	3-4	WT	Slag-fill	No Exceedances								
MW-829S (14-16)	14-16	B	Slag-fill	No Exceedances								
MW-830S (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3.6	0.24	0.057	1.5		1.5
MW-830S (2-4)	2-4	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.2	0.85	0.058		5.8	5.8
				Benzo(a)pyrene	50-32-8	mg/kg	3.1	0.25	0.058			1.5
MW-830S (10-12)	10-12	B	Slag-fill	Benzene	71-43-2	mg/kg	5.6	0.22	0.038		0.35	0.35
MW-831S (0-2)	0-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	7.6	1.0	0.068		5.8	5.8
				Lead	7439-92-1	mg/kg	290	1.0	0.0024		230	230
				Benzo(a)anthracene	56-55-3	mg/kg	55	2.5	0.56	15		15
				Benzo(a)pyrene	50-32-8	mg/kg	46	2.5	0.58	1.5	16	1.5
				Benzo(b)fluoranthene	205-99-2	mg/kg	71	2.5	0.68	15		15
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	12	0.25	0.08	1.5		1.5
				Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	22	2.5	0.47	15		15
MW-831S (4-6)	4-6	WT	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	1.9	0.25	0.058			1.5
MW-831S (14-16)	14-16	B	Slag-fill	Benzene	71-43-2	mg/kg	8.1	0.23	0.039		0.35	0.35
MW-832D (0-2)	0-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	5.9	0.94	0.064		5.8	5.8
				Benzo(a)pyrene	50-32-8	mg/kg	5.7	0.25	0.058	1.5		1.5
MW-832D (4-6)	4-6	WT	Slag-fill	No Exceedances								
MW-832D (38-40)	38-40	B	Slag-fill	Benzene	71-43-2	mg/kg	220	37	6.2		0.35	0.35
MW-833S (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3.3	0.24	0.057	1.5		1.5
MW 833S (4-6)	4-6	WT	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3	0.25	0.057			1.5
MW 833S (14-16)	14-16	B	Slag-fill	Arsenic	7440-38-2	mg/kg	9.2	1.0	0.068		5.8	5.8
MW 834D (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4.8	0.25	0.058	1.5		1.5
MW 834D (2-4)	2-4	WT	Slag-fill	No Exceedances								
MW 834D (37-39)	37-39	B	Slag-fill	No Exceedances								
MW 835D (0-2)	0-2	S	Slag-fill	No Exceedances								
MW 835D (2-4)	2-4	WT	Slag-fill	No Exceedances								
MW 835D (36-38)	36-38	B	Slag-fill	No Exceedances								
MW 836S (0-2)	0-2	S	Slag-fill	No Exceedances								
MW 837S (0-2)	0-2	S	Slag-fill	No Exceedances								
MW-838S (0-2)	0-2	S	Slag-fill	Benzo(a)anthracene	56-55-3	mg/kg	19	0.25	0.056	15		15
				Benzo(a)pyrene	50-32-8	mg/kg	15	0.25	0.058	1.5		1.5
				Benzo(b)fluoranthene	205-99-2	mg/kg	21	0.25	0.068	15		15
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	3	0.25	0.08	1.5		1.5
MW-838S (2-4)	2-4	WT	Slag-fill	Benzene	71-43-2	mg/kg	5.9	0.32	0.054		0.35	0.35
MW-838S (14-16)	14-16	B	Slag-fill	Benzene	71-43-2	mg/kg	31	2.2	0.38		0.35	0.35
				Benzo(a)pyrene	50-32-8	mg/kg	9.5	0.25	0.057			1.5
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	1.8	0.25	0.079			1.5
MW-839S (0-2)	0-2	S	Slag-fill	No Exceedances								
MW-839S (2-4)	2-4	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.1	0.97	0.066		5.8	5.8
				Benzo(a)pyrene	50-32-8	mg/kg	5	0.49	0.11			1.5
MW-839S (10-12)	10-12	B	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4	0.5	0.12			1.5
SB 884 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 884 (6-8)	6-8	WT	Slag-fill	No Exceedances								
SB 885 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 886 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 887 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 888 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 889 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 890 (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4.7	0.25	0.057	1.5		1.5
SB 891 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 892 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 892 (8-10)	8-10	WT	Slag-fill	No Exceedances								
SB 893 (0-2)	0-2	S	Slag-fill	No Exceedances								
SB 893 (6-8)	6-8	WT	Slag-fill	No Exceedances								

Notes:
Only Exceedances of Data Quality Objectives are Displayed
bgs = below ground surface
S = Top two feet
WT = Two-foot interval above the water table
B = Bottom two feet
RL = Reporting limit
MDL = Method detection limit
A - Criterion applied to near surface (0-2 ft) samples
mg/kg = milligrams per kilogram
Slag-Fill/Soil samples obtained July 2017
No exceedances of IDEM Construction Worker DQOs were identified

Table 7
Groundwater Field Parameters Analysis Results

Well ID	Monitored Zone	Date	Field Parameters				
			Temperature (ºC)	pH (SU)	Conductivity (mS/cm)	ORP (mV)	Turbidity (NTU)
MW-801D	D	7/11/2005	15.9	9.28	1.06	-149	24
		1/19/2006	12.4	10.67	0.88	-66	3
		7/18/2007	15.5	7.43	1.21	-136	0
		7/16/2008	14.7	6.58	1.24	-114	0
		10/29/2012	13.86	8.02	1.22	-56.3	7
		7/16/2013	22.37	7.45	1.20	-161	2.3
		9/13/2017	16.98	6.88	1.48	-182	7.3
		Average	**16.0**	**8.0**	**1.2**	**-123**	**6**
MW-801S	WT	7/11/2005	16.5	10.01	0.27	-222	0
		1/19/2006	12.1	8.39	0.26	-109	2
		7/18/2007	16.3	11.17	0.317	-229	3
		7/16/2008	15.8	9.84	0.696	-237	0
		10/29/2012	15.8	11.47	3.15	-366	2
		7/16/2013	20.74	12.85	4.1	-274	0
		9/13/2017	18.41	12.26	2.75	-230	3.3
		Average	**16.5**	**10.9**	**1.6**	**-238**	**1**
MW-802S	WT	7/12/2005	15.7	7.06	0.74	-77	1
		1/20/2006	11.5	6.99	1.04	-15	0
		7/18/2007	17.0	7.16	0.67	-36	0
		7/18/2008	17.2	6.05	0.65	-47	2
		10/31/2012	17.0	7	3.13	59	0
		7/16/2013	18.8	7.51	1.41	194	0
		Average	**16.2**	**7.0**	**1.3**	**13**	**1**
MW-803D	D	7/13/2005	15.8	8.61	12.90	-271	0
		1/20/2006	9.9	8.84	9.40	-298	0
		7/19/2007	15.5	8.69	12.80	-342	3
		7/30/2008	15.8	7.66	9.40	-343	3
		10/31/2012	13.6	8.6	10.00	-247	2
		7/17/2013	19.07	8.99	9.61	-329	0
		9/13/2017	17.27	8.54	7.73	-405	7.8
		Average	**15.3**	**8.6**	**10.3**	**-319**	**2**
MW-803M	M	10/31/2012	14.1	8.36	1.22	-322	8
		7/17/2013	17.98	8.65	1.44	-325	15.1
		9/13/2017	17.58	8.14	0.94	-302	16.4
		Average	**16.2**	**8.6**	**6.7**	**-325**	**6**
MW-803S	WT	7/12/2005	15.5	6.67	1.80	-261	0
		1/20/2006	12.0	6.52	2.27	-240	0
		7/19/2007	15.6	6.58	1.70	-241	1
		7/22/2008	15.5	7.32	1.68	-267	0
		10/31/2012	15.37	7.45	1.62	-245.9	8
		7/17/2013	18.23	7.35	1.66	-329	0
		9/13/2017	19.07	6.82	1.58	-277	0
		Average	**15.9**	**7.0**	**1.8**	**-266**	**1**
MW-804S	WT	7/12/2005	14.4	7.06	0.58	-79	0
		1/20/2006	11.9	7.15	0.71	-43	0
		7/18/2007	16.0	6.94	0.56	-61	1
		7/16/2008	17.3	6.14	0.91	-71	0
		10/29/2012	16.4	7.02	0.89	-63	0
		7/16/2013	20.1	6.91	1.13	-42	2.2
		9/13/2017	18.6	7.85	0.95	-120	7.7
		Average	**16.4**	**7.0**	**0.8**	**-68**	**2**
MW-805D	D	7/11/2005	15.3	6.93	1.45	-103	10
		1/19/2006	12.7	7.23	1.36	-74	0
		7/18/2007	16.4	7.16	1.41	-134	2
		7/22/2008	15.5	7.57	1.43	-113	5
		10/31/2012	14.44	7.34	1.56	-67.2	5
		7/16/2013	19.54	5.9	0.02	-126	167
		9/12/2017	20.48	6.96	1.76	-195	137
		Average	**16.3**	**7.0**	**1.3**	**-116**	**47**

Table 7
Groundwater Field Parameters Analysis Results

Well ID	Monitored Zone	Date	Field Parameters				
			Temperature (ºC)	pH (SU)	Conductivity (mS/cm)	ORP (mV)	Turbidity (NTU)
MW-805S	WT	7/11/2005	17.1	7.18	0.83	-127	9
		1/19/2006	12.1	7.46	0.71	-81	0
		7/18/2007	18.2	7.24	0.45	-125	1
		8/1/2008	18.4	6.38	0.61	-128	5
		10/31/2012	16.3	7.09	1.70	-222	1
		7/17/2013	23.43	7.33	2.11	-148	27
		9/12/2017	20.92	6.99	0.49	-113	3.7
		Average	**18.1**	**7.1**	**1.0**	**-135**	**7**
MW-806D	D	1/18/2006	12.7	8.51	8.28	-137	41
		7/19/2007	15.0	8.35	7.90	-171	-10
		7/18/2008	16.2	7.48	7.66	-242	6
		10/31/2012	13.2	8.29	7.78	-348	2
		7/17/2013	16.1	8.42	8.08	-222	0
		9/14/2017	17.0	6.86	6.35	76	3.5
		Average	**15.0**	**8.0**	**7.7**	**-174**	**7**
MW-806S	WT	1/18/2006	13.1	7.25	1.21	-91	1
		7/18/2007	15.4	7.18	0.47	-85	8
		7/18/2008	14.7	5.94	0.91	-87	2
		10/31/2012	14.81	7.07	1.42	-32.1	8
		7/16/2013	16.04	7.04	1.77	-103	251
		9/14/2017	17.86	6.27	1.16	-80	1.1
		Average	**15.3**	**6.8**	**1.2**	**-80**	**45**
MW-807D	D	1/18/2006	11.4	10.18	10.4	-196	133
		7/19/2007	14.7	9.97	9.8	-278	8
		7/31/2008	15.5	8.68	9.1	-271	9
		11/1/2012	13.7	9.7	1.05	-348	8
		7/18/2013	22.47	9.83	9.6	-151	592
		9/13/2017	15.91	9.63	8.3	-128	47.7
		Average	**15.6**	**9.7**	**8.0**	**-229**	**133**
MW-807S	WT	1/18/2006	10.6	7.12	1.76	-83	1
		7/19/2007	15.4	6.96	1.68	-163	1
		7/30/2008	16	6.52	1.14	-200	0
		11/1/2012	15.34	7.79	0.91	-113.3	7
		7/16/2013	15.44	8.61	0.94	-249	0
		9/13/2017	16.55	7.66	1.45	-239	0
		Average	**14.9**	**7.4**	**1.3**	**-175**	**2**
MW-808D	D	1/19/2006	13.6	8.05	13.20	-188	5
		7/19/2007	14.4	8.22	11.00	-340	27
		8/5/2008	15.7	7.14	11.40	-348	16
		11/2/2012	13.47	7.97	14.50	-301.5	60
		7/17/2013	20.42	8.69	12.10	-383	4.8
		9/14/2017	15.53	8.14	12.60	-388	9.9
		Average	**15.5**	**8.0**	**12.5**	**-325**	**20**
MW-808S	WT	1/18/2006	12.2	7.77	3.31	-308	533
		7/19/2007	15.3	6.65	3.05	-316	16
		8/5/2008	16.4	6.15	2.84	-320	30
		11/2/2012	15.1	6.57	2.98	-423	8
		7/17/2013	18.88	7.4	1.84	-336	15
		9/14/2017	18.21	6.49	2.90	-417	15.8
		Average	**16.0**	**6.8**	**2.8**	**-353**	**103**
MW-809D	D	7/20/2007	14.7	8.11	11.70	-403	4
		8/6/2008	16.1	7.18	10.90	-408	3
		11/2/2012	12.6	7.9	8.97	-394	29
		7/18/2013	20.52	8.27	14.30	-414	0
		9/14/2017	17.85	7.54	13.00	-470	28
		Average	**16.0**	**7.7**	**9.7**	**-394**	**28**
MW-809M	M	11/2/2012	13.6	7.37	2.25	-223	4
		7/18/2013	21.29	9.46	2.35	-344	0
		9/14/2017	17.01	8.28	1.84	-356	0
		Average	**17.0**	**8.0**	**8.4**	**-373**	**15**

Table 7
Groundwater Field Parameters Analysis Results

Well ID	Monitored Zone	Date	Field Parameters				
			Temperature (ºC)	pH (SU)	Conductivity (mS/cm)	ORP (mV)	Turbidity (NTU)
MW-809S	WT	7/20/2007	15.1	6.75	2.06	-248	0
		8/5/2008	16.4	6.19	2.00	-236	0
		11/2/2012	13.7	6.58	2.25	-145	1
		7/15/2013	20.77	7.12	2.76	-58	1.2
		9/14/2017	16.99	7.06	2.25	-308	0
		Average	**16.7**	**7.0**	**3.3**	**-228**	**3**
MW-810D	D	7/19/2007	15.0	7.20	8.35	-91	2
		7/21/2008	15.0	7.18	10.10	-165	4
		10/31/2012	13.8	7.40	8.35	-89.8	4
		7/16/2013	18.5	7.32	6.10	-146	69.9
		9/14/2017	17.7	7.33	4.98	-232	28
		Average	**15.8**	**7.2**	**7.2**	**-144**	**17**
MW-810S	WT	7/19/2007	15.2	8.58	0.20	-112	3
		7/21/2008	15.7	7.01	0.36	-84	0
		10/31/2012	15.8	6.83	1.27	-138	3
		7/16/2013	18.75	7.36	1.12	17	0
		9/14/2017	20.54	6.03	1.89	-201	0
		Average	**17.0**	**7.2**	**2.0**	**-110**	**4**
MW-811S	WT	7/18/2007	14.5	11.79	1.58	-226	1
		7/17/2008	14.9	10.57	2.48	-246	11
		10/29/2012	15.6	12.68	7.17	-227	0
		7/16/2013	15.11	9.77	11.20	-193	0
		9/13/2017	15.96	12.79	9.24	-48	1.6
		Average	**15.5**	**10.8**	**5.6**	**-175**	**3**
MW-812S	WT	7/19/2007	13.8	8.90	0.35	-321	2
		7/21/2008	14.9	7.97	0.59	-180	0
		10/31/2012	14.1	8.68	1.39	-296	0
		7/16/2013	16.26	8.72	1.24	-323	0
		9/13/2017	14.29	7.94	0.94	-161	0
		Average	**14.8**	**8.8**	**1.7**	**-243**	**1**
MW-813S	WT	7/18/2007	15.5	7.57	0.61	-137	0
		7/22/2008	15.9	8.06	0.65	-113	0
		10/31/2012	15.4	7.6	1.96	-144	0
		7/15/2013	17.04	7.45	1.48	-143	0
		9/13/2017	16.22	7.67	0.76	-114	0
		Average	**15.7**	**7.9**	**1.3**	**-156**	**0**
MW-814S	WT	7/18/2007	15.3	11.56	1.13	-174	0
		7/17/2008	16.4	7.75	0.49	-41	0
		10/29/2012	15.5	8.73	1.41	-76	0
		7/16/2013	17.04	11.29	2.09	0	2.4
		9/13/2017	17.13	9.3	1.00	-12	0
		Average	**16.2**	**9.4**	**1.2**	**-76**	**0**
MW-815D	D	7/19/2007	14.8	7.44	4.37	-109	2
		7/17/2008	15.8	6.71	4.24	-113	6
		10/29/2012	15.09	8.46	4.41	-44.4	8
		7/15/2013	16.78	7.61	4.29	-38	10
		9/11/2017	15.44	7.91	4.06	-137	2.3
		Average	**15.7**	**7.9**	**3.8**	**-86**	**5**
MW-815S	WT	7/19/2007	17.3	7.21	0.56	-112	1
		7/17/2008	17.1	6.58	0.95	-105	0
		10/29/2012	17	7.76	1.41	-209	7
		7/17/2013	20.29	7.07	2.05	-35	0
		9/11/2017	17.39	7.89	0.99	3	0
		Average	**17.5**	**7.4**	**1.6**	**-91**	**2**
MW-816D	D	7/20/2007	14.3	8.40	5.59	-207	7
		8/5/2008	15	7.31	5.26	-142	8
		11/1/2012	14.62	8.62	6.57	-150.7	7
		7/17/2013	19.21	8.65	6.01	-264	0
		9/12/2017	19.16	8.26	5.13	-232	0.9
		Average	**16.1**	**8.1**	**5.0**	**-171**	**5**

Table 7
Groundwater Field Parameters Analysis Results

Well ID	Monitored Zone	Date	Field Parameters				
			Temperature (ºC)	pH (SU)	Conductivity (mS/cm)	ORP (mV)	Turbidity (NTU)
MW-816S	WT	7/20/2007	14.7	7.16	0.72	-140	2
		8/4/2008	15.9	6.55	1.02	-183	3
		11/1/2012	16.8	8.88	1.04	-358	9
		7/17/2013	17.23	12.95	1.82	-352	0
		9/12/2017	20.25	12.4	2.56	-287	361
		Average	**16.8**	**9.3**	**2.0**	**-248**	**63**
MW-817D	D	7/19/2007	12.8	7.92	10.30	-176	6
		8/1/2008	17.4	7.03	8.69	-254	4
		11/1/2012	17.8	8.37	12.02	-138.7	5
		7/17/2013	20.6	8.13	9.48	-155	63
		9/14/2017	24.6	8.02	9.11	-166	0
		Average	**17.1**	**8.2**	**8.5**	**-194**	**28**
MW-817S	WT	7/19/2007	20.5	7.14	0.78	-163	1
		7/31/2008	20	6.45	0.67	-249	1
		11/1/2012	17.8	7.04	1.34	-344	7
		7/17/2013	21.66	7.1	1.17	-163	2.1
		9/14/2017	21.9	6.51	1.61	-124	0
		Average	**19.8**	**7.1**	**2.3**	**-206**	**7**
MW-818S	WT	7/20/2007	15.7	7.58	0.54	-136	3
		7/31/2008	16.4	6.65	0.83	-197	0
		11/1/2012	16.5	7.32	0.88	-194	0
		7/17/2013	17.43	6.74	1.36	-208	0
		9/14/2017	17.94	7.53	0.73	-248	0
		Average	**16.8**	**7.2**	**0.9**	**-197**	**1**
MW-819D	D	8/6/2008	15.4	5.96	1.69	-166	1
		11/2/2012	14.42	7.04	2.06	-114.3	4
		7/17/2013	16.76	6.56	1.99	-91	6.9
		9/12/2017	19.66	6.67	2.26	-173	0
		Average	**16.6**	**6.6**	**2.0**	**-136**	**3**
MW-819S	WT	8/6/2008	17.6	5.95	0.86	-98	2
		11/2/2012	15.9	6.52	1.96	-387	10
		7/17/2013	19.33	6.35	0.87	-129	2
		9/12/2017	18.91	6.75	0.90	-136	9.5
		Average	**17.9**	**6.4**	**1.1**	**-188**	**6**
MW-820S	WT	8/14/2008	16	7.76	0.62	-74	4
		11/2/2012	15.6	11.04	1.47	-366	4
		7/18/2013	20.96	13.64	3.29	-343	6.6
		9/12/2017	19.08	10.77	0.28	-124	16.1
		Average	**17.9**	**10.8**	**1.4**	**-227**	**8**
MW-821D	D	8/14/2008	15	9.61	3.35	-225	25
		11/2/2012	13.82	8.26	3.77	-262.9	4
		7/18/2013	20.67	7.97	3.34	-224	18
		9/12/2017	14.96	8.95	2.72	-142	10.1
		Average	**16.1**	**8.7**	**3.3**	**-213**	**14**
MW-821S	WT	8/14/2008	16.1	7.43	0.93	-97	4
		11/2/2012	15.7	6.56	0.95	-247	8
		7/18/2013	20.18	6.43	0.73	-127	0
		9/12/2017	16.15	7.23	0.53	-68	0
		Average	**17.0**	**6.9**	**0.8**	**-135**	**3**
MW-822D	D	10/31/2012	15.36	7.27	5.05	-65.7	5
		7/16/2013	20.07	7.52	5.26	-167	5
		9/13/2017	18.26	6.84	1.60	-213	41.9
		Average	**17.5**	**7.2**	**3.7**	**-149**	**4**
MW-822S	WT	10/31/2012	18.4	6.99	0.79	-180	7
		7/16/2013	20.67	7.11	1.07	-140	3
		9/13/2017	21.3	7.26	0.80	-142	9.2
		Average	**20.1**	**7.1**	**0.9**	**-154**	**6**

Table 7
Groundwater Field Parameters Analysis Results

Well ID	Monitored Zone	Date	Field Parameters				
			Temperature (ºC)	pH (SU)	Conductivity (mS/cm)	ORP (mV)	Turbidity (NTU)
MW-823D	D	11/1/2012	14.5	8.4	4.09	-299	9
		7/17/2013	17.65	8.66	4.39	-183	26
		9/12/2017	15.27	8.58	2.69	-234	56.4
		Average	**15.8**	**8.5**	**3.7**	**-239**	**30**
MW-823S	WT	11/1/2012	16.46	7.47	1.85	-49.9	5
		7/17/2013	17.12	7.34	1.83	-63	1.5
		9/12/2017	18.29	7.85	0.82	-123	4.8
		Average	**17.3**	**7.6**	**1.5**	**-79**	**4**
MW-824D	D	11/1/2012	13.3	7.58	1.73	-152	10
		7/18/2013	17.99	7.96	1.76	-192	55
		9/12/2017	17.77	7.51	1.92	-171	23.3
		Average	**16.4**	**7.7**	**1.8**	**-172**	**33**
MW-824S	WT	11/1/2012	15.3	7.79	1.19	-208	0
		7/15/2013	19.89	8.22	1.67	-257	6.5
		9/12/2017	19.77	8.32	0.85	-357	0
		Average	**18.3**	**8.1**	**1.2**	**-274**	**2**
MW-825S	WT	11/1/2012	15.8	11.62	2.19	-238	0
		7/17/2013	17.45	11.76	2.91	-302	0
		9/12/2017	20.68	11.53	1.24	-264	0.5
		Average	**18.0**	**11.6**	**2.1**	**-268**	**0**
MW-826M	M	11/2/2012	12.83	8.2	2.53	-215.3	7
		7/16/2013	18.3	7.69	1.97	-117	0
		9/14/2017	21.04	6.86	3.57	-326	0
		Average	**17.4**	**7.6**	**2.7**	**-219**	**2**
MW-826S	WT	11/2/2012	13.9	7.13	1.83	-238	0
		7/16/2013	17.07	7.24	2.29	-96	0
		9/14/2017	18.28	7.4	0.86	-178	9.7
		Average	**16.4**	**7.3**	**1.7**	**-171**	**3**
MW-827S	WT	10/31/2012	13.6	10.9	1.53	-251	0
		7/16/2013	17.59	11	1.77	-216	0
		9/13/2017	17.07	8.72	1.76	-81	2.4
		Average	**16.1**	**10.2**	**1.7**	**-183**	**1**
MW-828S	WT	9/12/2017	18.35	7.48	0.74	-159	0
		Average	**18.4**	**7.5**	**0.7**	**-159.0**	**0**
MW-829S	WT	9/12/2017	17.9	7.46	0.89	-146	0
		Average	**17.9**	**7.5**	**0.9**	**-146.0**	**0**
MW-830S	WT	9/12/2017	18.27	7.63	0.79	-76	0
		Average	**18.3**	**7.6**	**0.8**	**-76.0**	**0**
MW-831S	WT	9/13/2017	17.93	7.53	1.84	-147	0
		Average	**17.9**	**7.5**	**1.8**	**-147.0**	**0**
MW-832D	D	9/11/2017	21	7.1	1.82	-167	41.7
		Average	**21.0**	**7.1**	**1.8**	**-167.0**	**41.7**
MW-832S	WT	9/11/2017	21.11	6.96	0.77	2	29.1
		Average	**21.1**	**7.0**	**0.8**	**2.0**	**29.1**
MW-833S	WT	9/11/2017	22.4	7.9	0.43	96	5
		Average	**22.4**	**7.9**	**0.4**	**96.0**	**5**
MW-834D	D	9/13/2017	18.97	7.41	4.88	-176	245
		Average	**19.0**	**7.4**	**4.9**	**-176.0**	**245**
MW-835D	D	9/13/2017	17.92	7.17	1.89	-197	211
		Average	**17.9**	**7.2**	**1.9**	**-197.0**	**211**
MW-836S	WT	9/13/2017	16.26	10.95	1.61	-328	0
		Average	**16.3**	**11.0**	**1.6**	**-328.0**	**0**
MW-837S	WT	9/13/2017	18.2	10.74	1.09	-11	2.3
		Average	**18.2**	**10.7**	**1.1**	**-11.0**	**2.3**
MW-838S	WT	9/13/2017	19.26	6.26	1.13	-28	3.5
		Average	**19.3**	**6.3**	**1.1**	**-28.0**	**3.5**
MW-839S	WT	9/12/2017	18.15	10.8	0.37	-54	5.8
		Average	**18.2**	**10.8**	**0.4**	**-54.0**	**5.8**

Notes:
WT = Water table well (10 foot screen/slag-fill, across the water table)
D = Deep well (3 foot screen/bottom of sand or soil, approximately 40 feet below ground surface)
M = Intermediate well (5 foot screen/middle of sand, approximately 25 feet below ground surface)
SU = Standard Units
ºC = Degrees Celsius
mS/cm = Millisiemens per centimeter
mV = Millivolts
NTU = Nephelometric Turbidity Units
Bold value represents arithmetic mean of ORP results for the identified monitoring well

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-801D 10/29/2012	MW-801D Dup 10/29/2012	MW-801D 7/16/2013	MW-801D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-801S 10/29/2012	MW-801S 7/16/2013	MW-801S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	< 0.00017	< 0.00017	< 0.00008	< 0.00018	0%				**0.015** A(MCL)	**0.018** A(MCL)	**0.014** A(MCL)	100%	0.016	0.014	0.018
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.00021	< 0.0001	< 0.00015	0%				0.0012	0.0014	0.00079 J	100%	0.0011	0.00079	0.0014
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00020	< 0.00011	< 0.00033	0%				< 0.00020	< 0.00011	< 0.00033 UJ	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032 UJ	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.00019	< 0.0001	< 0.00015	0%				0.0032	0.0027	0.0026 J	100%	0.0028	0.0026	0.0032
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003 UJ	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-802S 10/31/2012	MW-802S-Dup 10/31/2012	MW-802S 7/16/2013	% Detect	Average	Minimum Detected	Maximum Detected	MW-803D 10/31/2012	MW-803D 7/17/2013	MW-803D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.0017	< 0.002	0%				< 0.0017	< 0.002	< 0.052 UJ	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.0019	< 0.002	0%				< 0.0019	< 0.002	< 0.082 UJ	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	< 0.00017	< 0.00017	**0.1** A(MCL,I,DCL)	33%	0.10000	0.1	0.1	***0.62*** A(MCL,I,DCL),B	***0.62*** A(MCL,I,DCL),B	***3.3*** J A(MCL,I,DCL),B	100%	1.51	0.62	3.3
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.0050	0%				< 0.0050	< 0.0050	< 0.12 UJ	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00031	< 0.00013	0%				< 0.00031	< 0.00013	< 0.0068 UJ	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00018	< 0.00012	0%				< 0.00018	< 0.00012	< 0.004 UJ	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00020	< 0.00012	0%				< 0.00020	< 0.00012	< 0.004 UJ	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00025	< 0.00013	0%				< 0.00025	< 0.00013	< 0.01 UJ	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00027	< 0.00011	0%				< 0.00027	< 0.00011	< 0.0095 UJ	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00021	< 0.00008	0%				< 0.00021	< 0.00008	< 0.0052 UJ	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00019	< 0.00080	0%				< 0.00019	< 0.00080	< 0.0055 UJ	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00020	< 0.00007	0%				< 0.00020	< 0.00007	< 0.0075 UJ	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00024	< 0.00017	0%				< 0.00024	< 0.00017	< 0.0045 UJ	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	0.00026 J	0.00025 J	< 0.0001	67%	0.00026	0.00025	0.00026	< 0.00017	< 0.0001	< 0.004 UJ	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00028	< 0.00009	0%				< 0.00028	< 0.00009	< 0.0035 UJ	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00016	< 0.00015	0%				< 0.00016	< 0.00015	< 0.0048 UJ	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00022	< 0.00011	0%				< 0.00022	< 0.00011	< 0.0038 UJ	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00018	< 0.00009	0%				< 0.00018	< 0.00009	< 0.0052 UJ	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.00021	< 0.0001	0%				0.00043 J	0.00034 J	< 0.0038 UJ	67%	0.00039	0.00034	0.00043
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00029	< 0.00027	0%				< 0.00029	< 0.00027	< 0.0092 UJ	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00020	< 0.00011	0%				0.00031 J	< 0.00011	< 0.0082 UJ	33%	0.00031	0.00031	0.00031
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00014	< 0.00027	0%				< 0.00014	< 0.00027	< 0.035 UJ	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00025	< 0.00011	0%				< 0.00025	< 0.00011	< 0.0050 UJ	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00020	< 0.00006	0%				< 0.00020	< 0.00006	< 0.008 UJ	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.00019	< 0.0001	0%				0.00041 J	0.00036 J	< 0.0038 UJ	67%	0.00039	0.00036	0.00041
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.00019	< 0.0001	0%				< 0.00019	< 0.0001	< 0.0058 UJ	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00020	0.00078 J	33%	0.00078	0.00078	0.00078	< 0.00020	< 0.00009	< 0.0048 UJ	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00024	< 0.00014	0%				< 0.00024	< 0.00014	< 0.0075 UJ	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.00021	< 0.0001	0%				< 0.00021	< 0.0001	< 0.0042 UJ	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-803M 10/31/2012	MW-803M 7/17/2013	MW-803M 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-803S 10/31/2012	MW-803S 7/17/2013	MW-803S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.02	< 0.021	0%				< 0.0017	< 0.02	< 0.021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.02	< 0.033	0%				< 0.0019	< 0.02	< 0.033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***6.5*** A(MCL,I,DCL),B	***5.1*** A(MCL,I,DCL),B	***0.65*** A(MCL,I,DCL),B	100%	4.083333333	0.65	6.5	***2.8*** A(MCL,I,DCL),B	***2.4*** A(MCL,I,DCL),B	***5.7*** A(MCL,I,DCL),B	100%	3.633333333	2.4	5.7
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0500	< 0.05	0%				< 0.0050	< 0.0500	< 0.05	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.0013	< 0.0027	0%				< 0.00031	< 0.0013	< 0.0027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.0012	< 0.0016	0%				< 0.00018	< 0.0012	< 0.0016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	0.00041 J	< 0.00120	< 0.0016	33%	0.00041	0.00041	0.00041	0.00054 J	< 0.00120	< 0.0016	33%	0.00054	0.00054	0.00054
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.0013	< 0.0041	0%				< 0.00025	< 0.0013	< 0.0041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.0011	< 0.0038	0%				< 0.00027	< 0.0011	< 0.0038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.0008	< 0.0021	0%				< 0.00021	< 0.0008	< 0.0021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00800	< 0.0022	0%				< 0.00019	< 0.00800	< 0.0022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00070	< 0.003	0%				< 0.00020	< 0.00070	< 0.003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.0017	< 0.0018	0%				< 0.00024	< 0.0017	< 0.0018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	0.00029 J	< 0.001	< 0.0016	33%	0.00029	0.00029	0.00029	< 0.00017	< 0.001	< 0.0016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.0009	< 0.0014	0%				< 0.00028	< 0.0009	< 0.0014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.0015	< 0.0019	0%				< 0.00016	< 0.0015	< 0.0019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.0011	< 0.0015	0%				< 0.00022	< 0.0011	< 0.0015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.0009	< 0.0021	0%				< 0.00018	< 0.0009	< 0.0021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	*0.23* B	*0.28* B	*0.15* B	100%	0.22	0.15	0.28	*0.025* B	*0.018* B	0.0053 J	100%	0.0161	0.0053	0.025
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.0027	< 0.0037	0%				< 0.00029	< 0.0027	< 0.0037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	0.00023 J	< 0.00110	< 0.0033	33%	0.00023	0.00023	0.00023	< 0.00020	< 0.00110	< 0.0033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.0027	< 0.0063 U	0%				< 0.00014	0.0046 J	< 0.0072 U	33%	0.0046	0.0046	0.0046
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.0011	< 0.002	0%				< 0.00025	< 0.0011	< 0.002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00060	< 0.0032	0%				< 0.00020	< 0.00060	< 0.0032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	0.034	0.029	0.0064 J	100%	0.023133333	0.0064	0.034	0.0026	0.012	0.014 J	100%	0.009533333	0.0026	0.014
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.001	< 0.0023	0%				< 0.00019	< 0.001	< 0.0023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00090	< 0.0019	0%				< 0.00020	< 0.00090	< 0.0019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.0014	< 0.003	0%				< 0.00024	< 0.0014	< 0.003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.001	< 0.0017	0%				< 0.00021	< 0.001	< 0.0017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-804S 10/29/2012	MW-804S 7/16/2013	MW-804S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-805D 10/31/2012	MW-805D 7/16/2013	MW-805D Dup 7/16/2013	MW-805D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-805S 10/31/2012	MW-805S 7/17/2013	MW-805S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																												
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	0.00039 J	0.00027 J	< 0.00018	67%	0.00033	0.00027	0.00039	< 0.00017	< 0.00008	< 0.00008	< 0.0013 U	0%				***1.1*** A(MCL,I,DCL),B	***0.62*** A(MCL,I,DCL),B	***13*** A(MCL,I,DCL),B	100%	4.906666667	0.62	13
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	0.0017 J	33%	0.0017	0.0017	0.0017
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00013	< 0.00041	0%				0.0011 J	< 0.00013	0.0019 J	67%	0.003	0.0011	0.0019
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.0001	0.0002 J	25%	0.0002	0.0002	0.0002	< 0.00021	0.005	0.011	67%	0.008	0.005	0.011
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00011	< 0.00033	0%				< 0.00020	< 0.00011	< 0.00011	< 0.00033	0%				0.00031 J	< 0.00011	< 0.00033	33%	0.00031	0.00031	0.00031
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00027	< 0.00041 U	0%				< 0.00014	< 0.00027	0.00069 J	33%	0.00069	0.00069	0.00069
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.00015	0%				< 0.00019	< 0.0001	< 0.0001	< 0.00028 U	0%				0.00028 J	0.0042	0.007	100%	0.003826667	0.00028	0.007
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-806D 10/31/2012	MW-806D 7/17/2013	MW-806D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-806S 10/31/2012	MW-806S 7/16/2013	MW-806S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	**0.088** A(MCL,I,DCL)	**0.082** A(MCL,I,DCL)	**0.058** A(MCL,I,DCL)	100%	0.076	0.058	0.088	< 0.00017	< 0.00008	< 0.00018	0%			
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00011	< 0.00033	0%				0.00026 J	< 0.00011	< 0.00033	33%	0.00026	0.00026	0.00026
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.00015	0%				< 0.00019	< 0.0001	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-807D 11/1/2012	MW-807D 7/18/2013	MW-807D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-807S 11/1/2012	MW-807S 7/16/2013	MW-807S-Dup 7/16/2013	MW-807S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.017	< 0.02	< 0.1 UJ	0%				< 0.0017	< 0.002	< 0.002	< 0.021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.019	< 0.02	< 0.16 UJ	0%				< 0.0019	< 0.002	< 0.002	< 0.033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***8.1*** A(MCL,I,DCL),B	***8.8*** A(MCL,I,DCL),B	***5.1*** J A(MCL,I,DCL),B	100%	7.333333333	5.1	8.8	0.0041	**0.039** A(MCL)	**0.036** A(MCL)	**0.04** J A(MCL)	100%	0.0298	0.0041	0.04
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0500	< 0.0500	< 0.25 UJ	0%				< 0.0050	< 0.0050	< 0.0050	< 0.05	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.0031	< 0.0013	< 0.014 UJ	0%				< 0.00031	< 0.00013	< 0.00013	< 0.0027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.0018	< 0.0012	< 0.008 UJ	0%				< 0.00018	< 0.00012	< 0.00012	< 0.0016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00200	< 0.00120	< 0.008 UJ	0%				< 0.00020	< 0.00012	< 0.00012	< 0.0016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.0025	< 0.0013	< 0.02 UJ	0%				< 0.00025	< 0.00013	< 0.00013	< 0.0041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0027	< 0.0011	< 0.019 UJ	0%				< 0.00027	< 0.00011	< 0.00011	< 0.0038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.0021	< 0.0008	< 0.01 UJ	0%				< 0.00021	< 0.00008	< 0.00008	< 0.0021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00190	< 0.00800	< 0.011 UJ	0%				< 0.00019	< 0.00080	< 0.00080	< 0.0022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00200	< 0.00070	< 0.015 UJ	0%				< 0.00020	< 0.00007	< 0.00007	< 0.003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.0024	< 0.0017	< 0.009 UJ	0%				< 0.00024	< 0.00017	< 0.00017	< 0.0018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.0017	< 0.001	< 0.008 UJ	0%				< 0.00017	< 0.0001	< 0.0001	< 0.0016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.0028	< 0.0009	< 0.007 UJ	0%				< 0.00028	< 0.00009	< 0.00009	< 0.0014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.0016	< 0.0015	< 0.0095 UJ	0%				< 0.00016	< 0.00015	< 0.00015	< 0.0019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.0022	< 0.0011	< 0.0075 UJ	0%				< 0.00022	< 0.00011	< 0.00011	< 0.0015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0018	< 0.0009	< 0.01 UJ	0%				< 0.00018	< 0.00009	< 0.00009	< 0.0021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	0.0022 J	0.0021 J	< 0.0075 UJ	67%	0.00215	0.0021	0.0022	*0.36* B	*0.3* B	*0.31* B	***0.84*** A(MCL),B	100%	0.4525	0.3	0.84
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.0029	< 0.0027	< 0.018 UJ	0%				< 0.00029	< 0.00027	< 0.00027	< 0.0037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00200	< 0.00110	< 0.016 UJ	0%				0.00028 J	< 0.00011	< 0.00011	< 0.0033	25%	0.00028	0.00028	0.00028
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	**0.026** A(MCL)	**0.012** J A(MCL)	< 0.072 UJ	67%	0.019	0.012	0.026	0.00055 J	< 0.00027	< 0.00027	< 0.014 U	25%	0.00055	0.00055	0.00055
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0025	< 0.0011	< 0.0100 UJ	0%				< 0.00025	< 0.00011	< 0.00011	< 0.002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00200	< 0.00060	< 0.016 UJ	0%				< 0.00020	< 0.00006	< 0.00006	< 0.0032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	*0.91* B	*0.77* B	*0.6* J B	100%	0.76	0.6	0.91	0.0066	0.0074	0.0073	0.0074 J	100%	0.0072	0.0066	0.0074
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.0019	< 0.001	< 0.012 UJ	0%				< 0.00019	< 0.0001	< 0.0001	< 0.0023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00200	< 0.00090	< 0.0095 UJ	0%				< 0.00020	< 0.00009	< 0.00009	< 0.0019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0024	< 0.0014	< 0.015 UJ	0%				< 0.00024	< 0.00014	< 0.00014	< 0.003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.0021	< 0.001	< 0.0085 UJ	0%				< 0.00021	< 0.0001	< 0.0001	< 0.0017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-808D 11/2/2012	MW-808D 7/17/2013	MW-808D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-808S 11/2/2012	MW-808S 7/17/2013	MW-808S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.85	< 0.02	< 0.21 UJ	0%				< 0.085	< 0.02	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.95	< 0.02	< 0.33 UJ	0%				< 0.095	< 0.02	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***17*** A(MCL,I,DCL),B	***18*** A(MCL,I,DCL),B	***15*** J A(MCL,I,DCL),B	100%	16.66666667	15	18	***82*** A(MCL,I,DCL),B	***6.9*** A(MCL,I,DCL),B	***36*** A(MCL,I,DCL),B	100%	41.63	6.9	82
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 2.5000	< 0.0500	< 0.5 UJ	0%				< 0.2500	< 0.0500	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.16	< 0.0013	< 0.027 UJ	0%				< 0.016	< 0.0013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.09	< 0.0012	< 0.016 UJ	0%				< 0.009	< 0.0012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.10000	< 0.00120	< 0.016 UJ	0%				< 0.01000	< 0.00120	0.0012 J	33%	0.0012	0.0012	0.0012
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.12	< 0.0013	< 0.041 UJ	0%				< 0.012	< 0.0013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.14	< 0.0011	< 0.038 UJ	0%				< 0.014	< 0.0011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.1	< 0.0008	< 0.021 UJ	0%				< 0.01	< 0.0008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.09500	< 0.00800	< 0.022 UJ	0%				< 0.00950	< 0.00800	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.10000	< 0.00070	< 0.03 UJ	0%				< 0.01000	< 0.00070	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.12	< 0.0017	< 0.018 UJ	0%				< 0.012	< 0.0017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.085	< 0.001	< 0.016 UJ	0%				< 0.0085	< 0.001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.14	< 0.0009	< 0.014 UJ	0%				< 0.014	< 0.0009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.08	< 0.0015	< 0.019 UJ	0%				< 0.008	< 0.0015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.11	< 0.0011	< 0.015 UJ	0%				< 0.011	< 0.0011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.09	< 0.0009	< 0.021 UJ	0%				< 0.009	< 0.0009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.1	< 0.001	< 0.015 UJ	0%				*0.048* J B	0.004 J	*0.057* B	100%	0.036	0.004	0.057
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.14	< 0.0027	< 0.037 UJ	0%				< 0.014	< 0.0027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.10000	< 0.00110	< 0.033 UJ	0%				< 0.01000	< 0.00110	< 0.00033 UJ	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	**0.84** BJ A(MCL,I,DCL)	< 0.0027	< 0.079 UJ	33%	0.84	0.84	0.84	**0.054** J A(MCL)	< 0.0027	< 0.00031	33%	0.054	0.054	0.054
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.12	< 0.0011	< 0.02 UJ	0%				< 0.012	< 0.0011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.10000	< 0.00060	< 0.032 UJ	0%				< 0.01000	< 0.00060	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	***4.6*** A(MCL),B	***5.5*** A(MCL),B	***3.8*** J A(MCL),B	100%	4.633333333	3.8	5.5	***7.9*** A(MCL),B	*0.34* B	***1.2*** A(MCL),B	100%	3.15	0.34	7.9
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.095	< 0.001	< 0.023 UJ	0%				< 0.0095	< 0.001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.10000	< 0.00090	< 0.019 UJ	0%				< 0.01000	< 0.00090	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.12	< 0.0014	< 0.03 UJ	0%				< 0.012	< 0.0014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.1	< 0.001	< 0.017 UJ	0%				< 0.01	< 0.001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809D 11/2/2012	MW-809D 7/18/2013	MW-809D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809M 11/2/2012	MW-809M 7/18/2013	MW-809M-Dup 7/18/2013	MW-809M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.85	< 0.02	< 1 U	0%				< 0.085	< 0.02	< 0.02	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.95	< 0.02	< 1.6 U	0%				< 0.095	< 0.02	< 0.02	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***37*** A(MCL,I,DCL),B	***28*** A(MCL,I,DCL),B	***34*** J A(MCL,I,DCL),B	100%	33	28	37	***6.7*** A(MCL,I,DCL),B	***15*** A(MCL,I,DCL),B	***15*** A(MCL,I,DCL),B	***6.1*** A(MCL,I,DCL),B	100%	10.7	6.1	15
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 2.5000	< 0.0500	< 2.5 U	0%				< 0.2500	< 0.0500	< 0.0500	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.16	< 0.0013	< 0.14 U	0%				< 0.016	< 0.0013	< 0.0013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.09	< 0.0012	< 0.08 U	0%				< 0.009	< 0.0012	< 0.0012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.10000	< 0.00120	< 0.08 U	0%				< 0.01000	< 0.00120	< 0.00120	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.12	< 0.0013	< 0.2 U	0%				< 0.012	< 0.0013	< 0.0013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.14	< 0.0011	< 0.19 U	0%				< 0.014	< 0.0011	< 0.0011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.1	< 0.0008	< 0.1 U	0%				< 0.01	< 0.0008	< 0.0008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.09500	< 0.00800	< 0.11 U	0%				< 0.00950	< 0.00800	< 0.00800	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.10000	< 0.00070	< 0.15 U	0%				< 0.01000	< 0.00070	< 0.00070	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.12	< 0.0017	< 0.09 U	0%				< 0.012	< 0.0017	< 0.0017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.085	< 0.001	< 0.08 U	0%				< 0.0085	< 0.001	< 0.001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.14	< 0.0009	< 0.07 U	0%				< 0.014	< 0.0009	< 0.0009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.08	< 0.0015	< 0.095 U	0%				< 0.008	< 0.0015	< 0.0015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.11	< 0.0011	< 0.075 U	0%				< 0.011	< 0.0011	< 0.0011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.09	< 0.0009	< 0.1 U	0%				< 0.009	< 0.0009	< 0.0009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.1	< 0.001	< 0.075 U	0%				< 0.01	< 0.001	< 0.001	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.14	< 0.0027	< 0.18 U	0%				< 0.014	< 0.0027	< 0.0027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.10000	< 0.00110	< 0.16 U	0%				< 0.01000	< 0.00110	< 0.00110	< 0.00033 U	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	**0.58** J A(MCL,I,DCL)	< 0.0027	< 0.26 U	33%	0.58	0.58	0.58	**0.054** J A(MCL)	< 0.0027	< 0.0027	< 0.00031	25%	0.054	0.054	0.054
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.12	< 0.0011	< 0.1000 U	0%				< 0.012	< 0.0011	< 0.0011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.10000	< 0.00060	< 0.16 U	0%				< 0.01000	< 0.00060	< 0.00060	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.095	< 0.001	< 0.075 U	0%				0.05	0.12	0.12	0.042	100%	0.083	0.042	0.12
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.095	< 0.001	< 0.12 U	0%				< 0.0095	< 0.001	< 0.001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.10000	< 0.00090	< 0.095 U	0%				< 0.01000	< 0.00090	< 0.00090	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.12	< 0.0014	< 0.15 U	0%				< 0.012	< 0.0014	< 0.0014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.1	< 0.001	< 0.085 U	0%				< 0.01	< 0.001	< 0.001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
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[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809S 11/2/2012	MW-809S 7/15/2013	MW-809S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810D 10/31/2012	MW-810D 7/16/2013	MW-810D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810S 10/31/2012	MW-810S 7/16/2013	MW-810S 9/14/2017	MW-810S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																												
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021 [UJ]	0%				< 0.0017	< 0.002	< 0.0021	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033 [UJ]	0%				< 0.0019	< 0.002	< 0.0033	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	< 0.00017	< 0.00008	***2.2*** A(MCL,I,DCL),B	33%	2.2	2.2	2.2	0.00064 [J]	< 0.00008	< 0.00018 [UJ]	33%	0.00064	0.00064	0.00064	0.00078 [J]	< 0.00008	< 0.00018	< 0.00018	25%	0.00078	0.00078	0.00078
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005 [UJ]	0%				< 0.0050	< 0.0050	< 0.005	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027 [UJ]	0%				< 0.00031	< 0.00013	< 0.00027	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016 [UJ]	0%				< 0.00018	< 0.00012	< 0.00016	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	0.00064 [J]	0.00028 [J]	0.0013 [J]	100%	0.00074	0.00028	0.0013	< 0.00020	< 0.00012	< 0.00016 [UJ]	0%				< 0.00020	< 0.00012	< 0.00016	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041 [UJ]	0%				< 0.00025	< 0.00013	< 0.00041	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038 [UJ]	0%				< 0.00027	< 0.00011	< 0.00038	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021 [UJ]	0%				< 0.00021	< 0.00008	< 0.00021	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022 [UJ]	0%				< 0.00019	< 0.00080	< 0.00022	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003 [UJ]	0%				< 0.00020	< 0.00007	< 0.0003	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018 [UJ]	0%				< 0.00024	< 0.00017	< 0.00018	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016 [UJ]	0%				< 0.00017	< 0.0001	< 0.00016	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014 [UJ]	0%				< 0.00028	< 0.00009	< 0.00014	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019 [UJ]	0%				< 0.00016	< 0.00015	< 0.00019	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015 [UJ]	0%				< 0.00022	< 0.00011	< 0.00015	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021 [UJ]	0%				< 0.00018	< 0.00009	< 0.00021	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	0.004	< 0.0001	0.0048 [J]	67%	0.0088	0.004	0.0048	< 0.00021	< 0.0001	< 0.00015 [UJ]	0%				< 0.00021	< 0.0001	< 0.00015	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037 [UJ]	0%				< 0.00029	< 0.00027	< 0.00037	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	0.00024 [J]	< 0.00011	< 0.00033	33%	0.00024	0.00024	0.00024	< 0.00020	< 0.00011	< 0.00033 [UJ]	0%				0.00029 [J]	< 0.00011	< 0.00033	< 0.00033	25%	0.00029	0.00029	0.00029
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00051 [U]	0%				< 0.00014	< 0.00027	< 0.00031 [UJ]	0%				< 0.00014	< 0.00027	< 0.00031	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002 [UJ]	0%				< 0.00025	< 0.00011	< 0.0002	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032 [UJ]	0%				< 0.00020	< 0.00006	< 0.00032	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	0.00038 [J]	33%	0.00038	0.00038	0.00038	< 0.00019	< 0.0001	< 0.00015 [UJ]	0%				< 0.00019	< 0.0001	< 0.00015	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023 [UJ]	0%				< 0.00019	< 0.0001	< 0.00023	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019 [UJ]	0%				< 0.00020	< 0.00009	< 0.00019	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003 [UJ]	0%				< 0.00024	< 0.00014	< 0.0003	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017 [UJ]	0%				< 0.00021	< 0.0001	< 0.00017	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-811S 10/29/2012	MW-811S 7/16/2013	MW-811S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-812S 10/31/2012	MW-812S 7/16/2013	MW-812S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-813S 10/31/2012	MW-813S 7/15/2013	MW-813S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																											
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021 UJ	0%				< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033 UJ	0%				< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	0.0022	0.0016	< 0.00018 UJ	67%	0.0019	0.0016	0.0022	0.003	0.0014	< 0.00018	67%	0.0022	0.0014	0.003	< 0.00017	0.0007 J	< 0.00018	33%	0.0007	0.0007	0.0007
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005 UJ	0%				< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027 UJ	0%				< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016 UJ	0%				< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00016 UJ	0%				< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041 UJ	0%				< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038 UJ	0%				< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021 UJ	0%				< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022 UJ	0%				< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003 UJ	0%				< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018 UJ	0%				< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016 UJ	0%				< 0.00017	< 0.0001	0.00021 J	33%	0.00021	0.00021	0.00021	0.00036 J	< 0.0001	0.00022 J	67%	0.00029	0.00022	0.00036
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014 UJ	0%				< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019 UJ	0%				< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015 UJ	0%				< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021 UJ	0%				< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.00015 UJ	0%				< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037 UJ	0%				< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00011	< 0.00033 UJ	0%				< 0.00020	< 0.00011	< 0.00033	0%				< 0.00020	< 0.00011	< 0.00033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031 UJ	0%				< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002 UJ	0%				< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032 UJ	0%				< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.00015 UJ	0%				< 0.00019	< 0.0001	< 0.00015	0%				< 0.00019	< 0.0001	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023 UJ	0%				< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	0.00057 J	33%	0.00057	0.00057	0.00057	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003 UJ	0%				< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017 UJ	0%				< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-814S 10/29/2012	MW-814S 7/16/2013	MW-814S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815D 10/29/2012	MW-815D 7/15/2013	MW-815D 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815S 10/29/2012	MW-815S 7/17/2013	MW-815S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																											
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033 U	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	0.00045 J	**0.0065** A(MCL)	0.001 J	100%	0.00265	0.00045	0.0065	< 0.00017	< 0.00008	< 0.0012 U	0%				< 0.00017	< 0.00008	< 0.001 U	0%			
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	0.00022 J	0.00057 J	0.00026 J	100%	0.00035	0.00022	0.00057	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00011	< 0.00033	0%				< 0.00020	< 0.00011	< 0.00033	0%				0.00023 J	< 0.00011	< 0.00033	33%	0.00023	0.00023	0.00023
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00038 U	0%				< 0.00014	< 0.00027	< 0.00076 U	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.00015	0%				< 0.00019	< 0.0001	< 0.00039 U	0%				< 0.00019	< 0.0001	< 0.00029 U	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	0.00036 J	0.00065 J	0.00032 J	100%	0.0004	0.00032	0.00065	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-816D 11/1/2012	MW-816D 7/17/2013	MW-816D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-816S 11/1/2012	MW-816S 7/16/2013	MW-816S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.02	< 0.0021 UJ	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.02	< 0.0033 UJ	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***5.8*** A(MCL,I,DCL),B	***8*** A(MCL,I,DCL),B	***12*** J A(MCL,I,DCL),B	100%	8.6	5.8	12	**0.039** A(MCL)	**0.034** A(MCL)	**0.069** A(MCL,I,DCL)	100%	0.047333333	0.034	0.069
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0500	< 0.005 UJ	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.0013	< 0.00027 UJ	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.0012	< 0.00016 UJ	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00120	< 0.00016 UJ	0%				0.00020 J	< 0.00012	< 0.00016	33%	0.00016	0.00012	0.0002
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.0013	< 0.00041 UJ	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.0011	< 0.00038 UJ	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.0008	< 0.00021 UJ	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00800	< 0.00022 UJ	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00070	< 0.0003 UJ	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.0017	< 0.00018 UJ	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.001	< 0.00016 UJ	0%				0.00052 J	< 0.0001	0.00028 J	67%	0.0003	0.0001	0.00052
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.0009	< 0.00014 UJ	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.0015	< 0.00019 UJ	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.0011	< 0.00015 UJ	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.0009	< 0.00021 UJ	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.001	0.0002 J	33%	0.0002	0.0002	0.0002	0.00044 J	< 0.0001	*0.028* B	67%	0.009513333	0.0001	0.028
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.0027	< 0.00037 UJ	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00110	< 0.00033 UJ	0%				0.00027 J	< 0.00011	< 0.00033	33%	0.000236667	0.00011	0.00033
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	0.0039 J	< 0.00031 UJ	33%	0.0039	0.0039	0.0039	< 0.00014	< 0.00027	< 0.0004 U	0%	0.00027	0.00014	0.0004
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.0011	< 0.0002 UJ	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00060	< 0.00032 UJ	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	0.0069	0.0066 J	0.0082 J	100%	0.007233333	0.0066	0.0082	0.0033	0.0017	0.0046 U	67%	0.0032	0.0017	0.0046
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.001	< 0.00023 UJ	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00090	< 0.00019 UJ	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.0014	< 0.0003 UJ	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.001	< 0.00017 UJ	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-817D 11/1/2012	MW-817D Dup 11/1/2012	MW-817D 7/17/2013	MW-817D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-817S 11/1/2012	MW-817S 7/17/2013	MW-817S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.017	< 0.0017	< 0.002	< 0.0021 U	0%				< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.019	< 0.0019	< 0.002	< 0.0033 U	0%				< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***1*** A(MCL,I,DCL),B	***0.85*** A(MCL,I,DCL),B	***3.1*** A(MCL,I,DCL),B	**0.11** J A(MCL,I,DCL)	100%	1.265	0.11	3.1	***0.21*** A(MCL,I,DCL),B	**0.075** A(MCL,I,DCL)	0.0035 J	100%	0.096166667	0.0035	0.21
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0500	< 0.0050	< 0.0050	< 0.005 U	0%				< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.0031	< 0.00031	< 0.00013	< 0.00027 U	0%				< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.0018	< 0.00018	< 0.00012	< 0.00016 U	0%				< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00200	< 0.00020	< 0.00012	< 0.00016 U	0%				< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.0025	< 0.00025	< 0.00013	< 0.00041 U	0%				< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0027	< 0.00027	< 0.00011	< 0.00038 U	0%				< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.0021	< 0.00021	< 0.00008	< 0.00021 U	0%				< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00190	< 0.00019	< 0.00080	< 0.00022 U	0%				< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00200	< 0.00020	< 0.00007	< 0.0003 U	0%				< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.0024	< 0.00024	< 0.00017	< 0.00018 U	0%				< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.0017	< 0.00017	< 0.0001	< 0.00016 U	0%				0.0003 J	< 0.0001	< 0.00016	33%	0.000186667	0.0001	0.0003
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.0028	< 0.00028	< 0.00009	< 0.00014 U	0%				< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.0016	< 0.00016	< 0.00015	< 0.00019 U	0%				< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.0022	< 0.00022	< 0.00011	< 0.00015 U	0%				< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0018	< 0.00018	< 0.00009	< 0.00021 U	0%				< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.0021	< 0.00021	< 0.0001	< 0.00015 U	0%				0.006	0.0038	0.00025 J	100%	0.00335	0.00025	0.006
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.0029	< 0.00029	< 0.00027	< 0.00037 U	0%				< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00200	0.00048 J	< 0.00011	< 0.00033 U	25%	0.00073	0.00011	0.002	0.00023 J	< 0.00011	< 0.00033	33%	0.000223333	0.00011	0.00033
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.0038 J	0.0005 J	< 0.00027	< 0.00031 U	50%	0.00122	0.00027	0.0038	0.00028 J	< 0.00027	< 0.00031	33%	0.000286667	0.00027	0.00031
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0025	< 0.00025	< 0.00011	< 0.0002 U	0%				< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00200	< 0.00020	< 0.00006	< 0.00032 U	0%				< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.0019	0.00075 J	0.00082 J	0.0013 J	75%	0.0011925	0.00075	0.0019	0.0026	0.0026	0.00021 J	100%	0.001803333	0.00021	0.0026
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.0019	< 0.00019	< 0.0001	< 0.00023 U	0%				< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00200	< 0.00020	< 0.00009	< 0.00019 U	0%				< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0024	< 0.00024	< 0.00014	< 0.0003 U	0%				< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.0021	< 0.00021	< 0.0001	< 0.00017 U	0%				< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-818S 11/1/2012	MW-818S 7/17/2013	MW-818S 9/14/2017	MW-818S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-819D 11/2/2012	MW-819D 7/17/2013	MW-819D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.021	< 0.021	0%				< 0.017	< 0.02	< 0.021 U	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.033	< 0.033	0%				< 0.019	< 0.02	< 0.033 U	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	**0.028** A(MCL)	**0.0077** A(MCL)	< 0.0018	< 0.0018	50%	0.0098	0.0018	0.028	***69*** A(MCL,I,DCL),B	***61*** A(MCL,I,DCL),B	***5.7*** J A(MCL,I,DCL),B	100%	45.23333333	5.7	69
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.05	< 0.05	0%				< 0.0500	< 0.0500	< 0.05 U	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.0027	< 0.0027	0%				< 0.0031	< 0.0013	< 0.0027 U	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.0016	< 0.0016	0%				< 0.0018	< 0.0012	< 0.0016 U	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.0016	< 0.0016	0%				< 0.00200	< 0.00120	< 0.0016 U	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.0041	< 0.0041	0%				< 0.0025	< 0.0013	< 0.0041 U	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.0038	< 0.0038	0%				< 0.0027	< 0.0011	< 0.0038 U	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.0021	< 0.0021	0%				< 0.0021	< 0.0008	< 0.0021 U	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.0022	< 0.0022	0%				< 0.00190	< 0.00800	< 0.0022 U	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.003	< 0.003	0%				< 0.00200	< 0.00070	< 0.003 U	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.0018	< 0.0018	0%				< 0.0024	< 0.0017	< 0.0018 U	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.0016	< 0.0016	0%				< 0.0017	< 0.001	< 0.0016 U	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.0014	< 0.0014	0%				< 0.0028	< 0.0009	< 0.0014 U	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.0019	< 0.0019	0%				< 0.0016	< 0.0015	< 0.0019 U	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.0015	< 0.0015	0%				< 0.0022	< 0.0011	< 0.0015 U	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.0021	< 0.0021	0%				< 0.0018	< 0.0009	< 0.0021 U	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	*0.033* B	0.013	*0.015* J B	*0.014* J B	100%	0.0188	0.013	0.033	0.0031 J	0.0033 J	0.0015 U	67%	0.002633333	0.0015	0.0033
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.0037	< 0.0037	0%				< 0.0029	< 0.0027	< 0.0037 U	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	0.00041 J	< 0.00011	< 0.0033	< 0.0033	25%	0.0018	0.00011	0.0033	< 0.00200	< 0.00110	< 0.0033 U	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.00031 J	< 0.00027	< 0.007 U	< 0.0065 U	25%	0.0035	0.00027	0.007	0.0023 J	< 0.0027	< 0.01 U	33%	0.005	0.0023	0.01
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.002	< 0.002	0%				< 0.0025	< 0.0011	< 0.0020 U	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.0032	< 0.0032	0%				< 0.00200	< 0.00060	< 0.0032 U	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	0.038	0.016	0.014 J	0.012 J	100%	0.0200	0.012	0.038	0.0033 J	< 0.001	< 0.0015 U	33%	0.001933333	0.001	0.0033
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.0023	< 0.0023	0%				< 0.0019	< 0.001	< 0.0023 U	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.0019	< 0.0019	0%				< 0.00200	< 0.00090	< 0.0019 U	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.003	< 0.003	0%				< 0.0024	< 0.0014	< 0.003 U	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.0017	< 0.0017	0%				< 0.0021	< 0.001	< 0.0017 U	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
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A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-819S 11/2/2012	MW-819S 7/17/2013	MW-819S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-820S 11/2/2012	MW-820S 7/18/2013	MW-820S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.017	< 0.02	< 0.0021	0%				< 0.85	< 0.02	< 0.021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.019	< 0.02	< 0.0033	0%				< 0.95	< 0.02	< 0.033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***26*** A(MCL,I,DCL),B	***11*** A(MCL,I,DCL),B	***57*** A(MCL,I,DCL),B	100%	31.33333333	11	57	***7*** A(MCL,I,DCL),B	***1.7*** A(MCL,I,DCL),B	***3.5*** A(MCL,I,DCL),B	100%	4.066666667	1.7	7
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0500	< 0.0500	< 0.005	0%				< 2.5000	< 0.0500	< 0.05	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.0031	< 0.0013	< 0.00027	0%				< 0.16	< 0.0013	< 0.0027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.0018	< 0.0012	< 0.00016	0%				< 0.09	< 0.0012	< 0.0016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	0.00310 J	< 0.00120	0.0035 J	67%	0.0026	0.0012	0.0035	< 0.10000	< 0.00120	< 0.0016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.0025	< 0.0013	< 0.00041	0%				< 0.12	< 0.0013	< 0.0041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0027	< 0.0011	< 0.00038	0%				< 0.14	< 0.0011	< 0.0038 UJ	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.0021	< 0.0008	< 0.00021	0%				< 0.1	< 0.0008	< 0.0021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00190	< 0.00800	< 0.00022	0%				< 0.09500	< 0.00800	< 0.0022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00200	< 0.00070	< 0.0003	0%				< 0.10000	< 0.00070	< 0.003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.0024	< 0.0017	< 0.00018	0%				< 0.12	< 0.0017	< 0.0018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.0017	< 0.001	0.0017 J	33%	0.001466667	0.001	0.0017	< 0.085	< 0.001	< 0.0016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.0028	< 0.0009	< 0.00014	0%				< 0.14	< 0.0009	< 0.0014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.0016	< 0.0015	< 0.00019	0%				< 0.08	< 0.0015	< 0.0019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.0022	< 0.0011	< 0.00015	0%				< 0.11	< 0.0011	< 0.0015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0018	< 0.0009	< 0.00021	0%				< 0.09	< 0.0009	< 0.0021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	***1.3*** A(MCL),B	***0.99*** A(MCL),B	***1.3*** A(MCL),B	100%	1.196666667	0.99	1.3	***0.48*** J B	***0.48*** B	***0.27*** B	100%	0.41	0.27	0.48
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.0029	< 0.0027	< 0.00037	0%				< 0.14	< 0.0027	< 0.0037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00200	< 0.00110	< 0.00033	0%				< 0.10000	< 0.00110	< 0.0033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.0025 J	< 0.0027	< 0.0004 U	33%	0.001866667	0.0004	0.0027	**0.56** J A(MCL,I,DCL)	**0.018** J A(MCL)	< 0.031 U	67%	0.203	0.018	0.56
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0025	< 0.0011	< 0.0002	0%				< 0.12	< 0.0011	< 0.002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00200	< 0.00060	< 0.00032	0%				< 0.10000	< 0.00060	< 0.0032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	***15*** A(MCL,I,DCL),B	***6.6*** A(MCL),B	***17*** A(MCL,I,DCL),B	100%	12.86666667	6.6	17	< 0.095	0.013	0.21	67%	0.106	0.013	0.21
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.0019	< 0.001	< 0.00023	0%				< 0.095	< 0.001	< 0.0023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00200	< 0.00090	< 0.00019	0%				< 0.10000	< 0.00090	< 0.0019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0024	< 0.0014	< 0.0003	0%				< 0.12	< 0.0014	< 0.003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.0021	< 0.001	< 0.00017	0%				< 0.1	< 0.001	< 0.0017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-821D 11/2/2012	MW-821D 7/18/2013	MW-821D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-821S 11/2/2012	MW-821S 7/18/2013	MW-821S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																				
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.017	< 0.4	< 0.0021 U	0%				< 0.085	< 0.02	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.019	< 0.4	< 0.0033 U	0%				< 0.095	< 0.02	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***110*** A(MCL,I,DCL),B	***280*** A(MCL,I,DCL),B	***300*** J A(MCL,I,DCL),B	100%	230	110	300	***19*** A(MCL,I,DCL),B	***5.5*** A(MCL,I,DCL),B	***5.7*** A(MCL,I,DCL),B	100%	10.1	5.5	19
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0500	< 1.0000	< 0.005 U	0%				< 0.2500	< 0.0500	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.0031	< 0.026	< 0.00027 U	0%				< 0.016	< 0.0013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.0018	< 0.024	< 0.00016 U	0%				< 0.009	< 0.0012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00200	< 0.02400	< 0.00016 U	0%				< 0.01000	< 0.00120	0.0021 J	33%	0.0044	0.0012	0.01
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.0025	< 0.026	< 0.00041 U	0%				< 0.012	< 0.0013	0.0007 J	33%	0.0047	0.0007	0.012
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0027	< 0.022	< 0.00038 U	0%				< 0.014	< 0.0011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.0021	< 0.016	< 0.00021 U	0%				< 0.01	< 0.0008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00190	< 0.16000	< 0.00022 U	0%				< 0.00950	< 0.00800	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00200	< 0.01400	< 0.0003 U	0%				< 0.01000	< 0.00070	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.0024	< 0.034	< 0.00018 U	0%				< 0.012	< 0.0017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.0017	< 0.02	< 0.00016 U	0%				< 0.0085	< 0.001	0.0077	33%	0.0057	0.001	0.0085
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.0028	< 0.018	< 0.00014 U	0%				< 0.014	< 0.0009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.0016	< 0.03	< 0.00019 U	0%				< 0.008	< 0.0015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.0022	< 0.022	< 0.00015 U	0%				< 0.011	< 0.0011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0018	< 0.018	< 0.00021 U	0%				< 0.009	< 0.0009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	0.0041 J	< 0.02	0.0013 J	67%	0.008466667	0.0013	0.02	*0.67* B	*0.13* B	*0.21* B	100%	0.34	0.13	0.67
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.0029	< 0.054	< 0.00037 U	0%				< 0.014	< 0.0027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00200	< 0.02200	< 0.00033 U	0%				< 0.01000	< 0.00110	< 0.00033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.0023 J	**0.29** J A(MCL)	< 0.00083 U	67%	0.09771	0.00083	0.29	**0.047** J A(MCL)	**0.016** J A(MCL)	< 0.00056 U	67%	0.021	0.00056	0.047
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0025	< 0.022	< 0.0002 U	0%				< 0.012	< 0.0011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00200	< 0.01200	< 0.00032 U	0%				< 0.01000	< 0.00060	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	0.0031 J	< 0.02	0.0079 J	67%	0.010333333	0.0031	0.02	***3.6*** A(MCL),B	*0.47* B	0.25	100%	1.44	0.25	3.6
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.0019	< 0.02	< 0.00023 U	0%				< 0.0095	< 0.001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00200	< 0.01800	< 0.00019 U	0%				< 0.01000	< 0.00090	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0024	< 0.028	< 0.0003 U	0%				< 0.012	< 0.0014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.0021	< 0.02	< 0.00017 U	0%				< 0.01	< 0.001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-822D 10/31/2012	MW-822D 7/16/2013	MW-822D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-822S 10/31/2012	MW-822S 7/16/2013	MW-822S 9/13/2017	MW-822S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-823D 11/1/2012	MW-823D 7/17/2013	MW-823D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																												
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.0021	< 0.0021	0%				< 0.0017	< 0.02	< 0.21 UJ	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.0033	< 0.0033	0%				< 0.0019	< 0.02	< 0.33 UJ	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	0.00037 J	< 0.00008	< 0.00018	33%	0.00021	0.00008	0.00037	< 0.00017	< 0.00008	< 0.00018	< 0.00018	0%				***31*** A(MCL,I,DCL),B	***22*** A(MCL,I,DCL),B	***48*** J A(MCL,I,DCL),B	100%	33.66666667	22	48
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.005	< 0.005	0%				< 0.0050	< 0.0500	< 0.5 UJ	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00027	< 0.00027	0%				< 0.00031	< 0.0013	< 0.027 UJ	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00016	< 0.00016	0%				< 0.00018	< 0.0012	< 0.016 UJ	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00012	< 0.00016	< 0.00016	0%				0.00032 J	< 0.00120	< 0.016 UJ	33%	0.00584	0.00032	0.016
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00041	< 0.00041	0%				< 0.00025	< 0.0013	< 0.041 UJ	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00038	< 0.00038	0%				< 0.00027	< 0.0011	< 0.038 UJ	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00021	< 0.00021	0%				< 0.00021	< 0.0008	< 0.021 UJ	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00022	< 0.00022	0%				< 0.00019	< 0.00800	< 0.022 UJ	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.0003	< 0.0003	0%				< 0.00020	< 0.00070	< 0.03 UJ	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00018	< 0.00018	0%				< 0.00024	< 0.0017	< 0.018 UJ	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.0001	< 0.00016	< 0.00016	0%				< 0.00017	< 0.001	< 0.016 UJ	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00014	< 0.00014	0%				< 0.00028	< 0.0009	< 0.014 UJ	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00019	< 0.00019	0%				< 0.00016	< 0.0015	< 0.019 UJ	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00015	< 0.00015	0%				< 0.00022	< 0.0011	< 0.015 UJ	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00021	< 0.00021	0%				< 0.00018	< 0.0009	< 0.021 UJ	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.0001	< 0.00015	< 0.00015	0%				0.005	< 0.001	< 0.015 UJ	33%	0.007	0.001	0.015
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00037	< 0.00037	0%				< 0.00029	< 0.0027	< 0.037 UJ	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	0.00031 J	< 0.00011	< 0.00033	33%	0.00025	0.00011	0.00033	0.00070 J	< 0.00011	< 0.00033	< 0.00033	25%	0.0003675	0.00011	0.0007	< 0.00020	< 0.00110	< 0.033 UJ	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00027	< 0.00031	< 0.00031	0%				0.00022 J	< 0.0027	< 0.11 UJ	33%	0.03764	0.00022	0.11
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.0002	< 0.0002	0%				< 0.00025	< 0.0011	< 0.02 UJ	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00006	< 0.00032	< 0.00032	0%				< 0.00020	< 0.00060	< 0.032 UJ	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.00015	0%				< 0.00019	< 0.0001	< 0.00015	< 0.00015	0%				0.013	0.015	< 0.015 UJ	67%	0.014333333	0.013	0.015
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.00023	< 0.00023	0%				< 0.00019	< 0.001	< 0.023 UJ	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00009	< 0.00019	< 0.00019	0%				< 0.00020	< 0.00090	< 0.019 UJ	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.0003	< 0.0003	0%				< 0.00024	< 0.0014	< 0.03 UJ	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.00017	< 0.00017	0%				< 0.00021	< 0.001	< 0.017 UJ	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-823S 11/1/2012	MW-823S 7/17/2013	MW-823S-Dup 7/17/2013	MW-823S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-824D 11/1/2012	MW-824D 7/18/2013	MW-824D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.02	< 0.021	0%				< 0.0017	< 0.02	< 0.0021 UJ	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.02	< 0.033	0%				< 0.0019	< 0.02	< 0.0033 UJ	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***1.9*** A(MCL,I,DCL),B	**0.033** A(MCL)	**0.051** A(MCL)	***1.8*** A(MCL,I,DCL),B	100%	0.946	0.033	1.9	***43*** A(MCL,I,DCL),B	***31*** A(MCL,I,DCL),B	***71*** J A(MCL,I,DCL),B	100%	48	31	71
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.0500	< 0.05	0%				< 0.0050	< 0.0500	< 0.005 UJ	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.0013	< 0.0027	0%				< 0.00031	< 0.0013	< 0.00027 UJ	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.0012	< 0.0016	0%				< 0.00018	< 0.0012	< 0.00016 UJ	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	< 0.00120	< 0.0016	0%				0.00078 J	< 0.00120	< 0.00016 UJ	33%	0.00071	0.00016	0.0012
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.0013	< 0.0041	0%				< 0.00025	< 0.0013	< 0.00041 UJ	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.0011	< 0.0038	0%				< 0.00027	< 0.0011	< 0.00038 UJ	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.0008	< 0.0021	0%				< 0.00021	< 0.0008	< 0.00021 UJ	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00800	< 0.0022	0%				< 0.00019	< 0.00800	< 0.00022 UJ	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.00070	< 0.003	0%				< 0.00020	< 0.00070	< 0.0003 UJ	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.0017	< 0.0018	0%				< 0.00024	< 0.0017	< 0.00018 UJ	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.001	< 0.0016	0%				< 0.00017	< 0.001	< 0.00016 UJ	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.0009	< 0.0014	0%				< 0.00028	< 0.0009	< 0.00014 UJ	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.0015	< 0.0019	0%				< 0.00016	< 0.0015	< 0.00019 UJ	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.0011	< 0.0015	0%				< 0.00022	< 0.0011	< 0.00015 UJ	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.0009	< 0.0021	0%				< 0.00018	< 0.0009	< 0.00021 UJ	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	< 0.001	< 0.0015	0%				0.00057 J	< 0.001	0.00024 J	67%	0.001	0.00024	0.001
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.0027	< 0.0037	0%				< 0.00029	< 0.0027	< 0.00037 UJ	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00020	< 0.00011	< 0.00110	< 0.0033	0%				< 0.00020	< 0.00110	< 0.00033 UJ	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.00031 J	< 0.00027	0.0043 J	< 0.01 UJ	50%	0.004	0.00027	0.01	0.00023 J	**0.0087** J A(MCL)	< 0.00043 UJ	67%	0.00312	0.00023	0.0087
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0011	< 0.002	0%				< 0.00025	< 0.0011	< 0.0002 UJ	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00060	< 0.0032	0%				< 0.00020	< 0.00060	< 0.00032 UJ	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	< 0.001	0.0024 J	25%	0.001	0.0001	0.0024	0.002	< 0.001	0.0012 J	67%	0.0014	0.001	0.002
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.001	< 0.0023	0%				< 0.00019	< 0.001	< 0.00023 UJ	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00090	< 0.0019	0%				< 0.00020	< 0.00090	< 0.00019 UJ	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0014	< 0.003	0%				< 0.00024	< 0.0014	< 0.0003 UJ	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.001	< 0.0017	0%				< 0.00021	< 0.001	< 0.00017 UJ	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8A
Groundwater Sample Laboratory Results - VOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-824S 11/1/2012	MW-824S 7/15/2013	MW-824S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-825S 11/1/2012	MW-825S 7/15/2013	MW-825S-Dup 7/15/2013	MW-825S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																					
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.002	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.002	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	0.0004 J	***1.4*** A(MCL,I,DCL),B	0.0043 J	100%	0.468	0.0004	1.4	**0.024** A(MCL)	**0.047** A(MCL)	**0.046** A(MCL)	**0.032** A(MCL)	100%	0.03725	0.024	0.047
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00013	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00012	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00020	< 0.00012	0.0002 J	33%	0.00017	0.00012	0.0002	< 0.00020	< 0.00012	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00013	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00011	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00008	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00080	< 0.00080	< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00007	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00017	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00017	< 0.0001	< 0.00016	0%				0.00059 J	0.00063 J	0.00068 J	0.00056 J	100%	0.000615	0.00056	0.00068
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00009	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00015	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00011	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00009	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00021	< 0.0001	0.00022 J	33%	0.00018	0.0001	0.00022	0.0012	0.0025	0.0025	0.0021 J	100%	0.002075	0.0012	0.0025
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00027	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	0.00032 J	< 0.00011	< 0.00033	33%	0.00025	0.00011	0.00033	0.00022 J	< 0.00011	< 0.00011	< 0.00033	25%	0.0001925	0.00011	0.00033
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00014	< 0.00027	< 0.00031	0%	0.00024	0.00014	0.00031	< 0.00014	< 0.00027	< 0.00027	< 0.00055 U	0%	0.0003075	0.00014	0.00055
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00011	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	0.00023 J	< 0.00006	< 0.00032	25%	0.0002025	0.00006	0.00032
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00019	< 0.0001	0.00021 J	33%	0.00017	0.0001	0.00021	0.01	0.022	0.022	0.015	100%	0.01725	0.01	0.022
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.0001	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00020	< 0.00009	< 0.00019	0%				0.00021 J	< 0.00009	< 0.00009	< 0.00019	25%	0.000145	0.00009	0.00021
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00014	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.0001	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-826M 11/2/2012	MW-826M 7/16/2013	MW-826M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-826S 11/2/2012	MW-826S 7/16/2013	MW-826S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-827S 10/31/2012	MW-827S-Dup 10/31/2012	MW-827S 7/16/2013	MW-827S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																												
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0085	< 0.002	< 0.0021 UJ	0%				< 0.0017	< 0.002	< 0.0021	0%				< 0.0017	< 0.0017	< 0.002	< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0095	< 0.002	< 0.0033 UJ	0%				< 0.0019	< 0.002	< 0.0033	0%				< 0.0019	< 0.0019	< 0.002	< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	**0.0094** A(MCL)	**0.0072** A(MCL)	**0.0098** J A(MCL)	100%	0.0088	0.0072	0.0098	< 0.00017	< 0.00008	< 0.00018	0%				0.0016	0.0016	0.0013	0.0015 J	100%	0.0015	0.0013	0.0016
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.0250	< 0.0050	< 0.005 UJ	0%				< 0.0050	< 0.0050	< 0.005	0%				< 0.0050	< 0.0050	< 0.0050	< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.0016	< 0.00013	< 0.00027 UJ	0%				< 0.00031	< 0.00013	< 0.00027	0%				< 0.00031	< 0.00031	< 0.00013	< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.0009	< 0.00012	< 0.00016 UJ	0%				< 0.00018	< 0.00012	< 0.00016	0%				< 0.00018	< 0.00018	< 0.00012	< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00100	< 0.00012	< 0.00016 UJ	0%				< 0.00020	< 0.00012	< 0.00016	0%				< 0.00020	< 0.00020	< 0.00012	< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.0012	< 0.00013	< 0.00041 UJ	0%				< 0.00025	< 0.00013	< 0.00041	0%				< 0.00025	< 0.00025	< 0.00013	< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.0014	< 0.00011	< 0.00038 UJ	0%				< 0.00027	< 0.00011	< 0.00038	0%				< 0.00027	< 0.00027	< 0.00011	< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.001	< 0.00008	< 0.00021 UJ	0%				< 0.00021	< 0.00008	< 0.00021	0%				< 0.00021	< 0.00021	< 0.00008	< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00095	< 0.00080	< 0.00022 UJ	0%				< 0.00019	< 0.00080	< 0.00022	0%				< 0.00019	< 0.00019	< 0.00080	< 0.00022	0%			
Dichlorobromomethane [C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.00100	< 0.00007	< 0.0003 UJ	0%				< 0.00020	< 0.00007	< 0.0003	0%				< 0.00020	< 0.00020	< 0.00007	< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.0012	< 0.00017	< 0.00018 UJ	0%				< 0.00024	< 0.00017	< 0.00018	0%				< 0.00024	< 0.00024	< 0.00017	< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00085	< 0.0001	< 0.00016 UJ	0%				< 0.00017	< 0.0001	< 0.00016	0%				< 0.00017	< 0.00017	< 0.0001	< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.0014	< 0.00009	< 0.00014 UJ	0%				< 0.00028	< 0.00009	< 0.00014	0%				< 0.00028	< 0.00028	< 0.00009	< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.0008	< 0.00015	< 0.00019 UJ	0%				< 0.00016	< 0.00015	< 0.00019	0%				< 0.00016	< 0.00016	< 0.00015	< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.0011	< 0.00011	< 0.00015 UJ	0%				< 0.00022	< 0.00011	< 0.00015	0%				< 0.00022	< 0.00022	< 0.00011	< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.0009	< 0.00009	< 0.00021 UJ	0%				< 0.00018	< 0.00009	< 0.00021	0%				< 0.00018	< 0.00018	< 0.00009	< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.001	< 0.0001	< 0.00015 UJ	0%				< 0.00021	< 0.0001	< 0.00015	0%				< 0.00021	< 0.00021	0.0009 J	< 0.00015	25%	0.0004	0.0002	0.0009
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.0014	< 0.00027	< 0.00037 UJ	0%				< 0.00029	< 0.00027	< 0.00037	0%				< 0.00029	< 0.00029	< 0.00027	< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00100	< 0.00011	< 0.00033 UJ	0%				< 0.00020	< 0.00011	< 0.00033	0%				0.00035 J	< 0.00020	< 0.00011	< 0.00033	25%	0.0002	0.0001	0.0004
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	0.0044 J	< 0.00027	< 0.00031 UJ	33%	0.00166	0.00027	0.0044	< 0.00014	< 0.00027	< 0.00031	0%				< 0.00014	< 0.00014	< 0.00027	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0012	< 0.00011	< 0.0002 UJ	0%				< 0.00025	< 0.00011	< 0.0002	0%				< 0.00025	< 0.00025	< 0.00011	< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00100	< 0.00006	< 0.00032 UJ	0%				< 0.00020	< 0.00006	< 0.00032	0%				< 0.00020	< 0.00020	< 0.00006	< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00095	< 0.0001	< 0.00015 UJ	0%				< 0.00019	< 0.0001	0.00019 J	33%	0.00016	0.0001	0.00019	< 0.00019	< 0.00019	< 0.0001	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00095	< 0.0001	< 0.00023 UJ	0%				< 0.00019	< 0.0001	< 0.00023	0%				< 0.00019	< 0.00019	< 0.0001	< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00100	< 0.00009	< 0.00019 UJ	0%				< 0.00020	< 0.00009	< 0.00019	0%				< 0.00020	< 0.00020	< 0.00009	< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0012	< 0.00014	< 0.0003 UJ	0%				< 0.00024	< 0.00014	< 0.0003	0%				< 0.00024	< 0.00024	< 0.00014	< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.001	< 0.0001	< 0.00017 UJ	0%				< 0.00021	< 0.0001	< 0.00017	0%				< 0.00021	< 0.00021	< 0.0001	< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-828S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-829S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-830S 9/12/2017	MW-830S DUP 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-831S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																											
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0021	0%				< 0.0021	0%				< 0.0021	< 0.0021	0%				< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0033	0%				< 0.0033	0%				< 0.0033	< 0.0033	0%				< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***40*** A(MCL,I,DCL),B	100%	40	40	40	< 0.0011 U	0%	0.0011	0.0011	0.0011	**0.011** A(MCL)	***0.12*** A(MCL,I,DCL),B	100%	0.066	0.011	0.12	< 0.00018	0%			
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.005	0%				< 0.005	0%				< 0.005	< 0.005	0%				< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00027	0%				< 0.00027	0%				< 0.00027	< 0.00027	0%				< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00016	0%				< 0.00016	0%				< 0.00016	< 0.00016	0%				< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	0.004 J	100%	0.004	0.004	0.004	< 0.00016	0%				< 0.00016	< 0.00016	0%				0.00022 J	100%	0.00022	0.00022	0.00022
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00041	0%				< 0.00041	0%				< 0.00041	< 0.00041	0%				< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00038	0%				< 0.00038	0%				< 0.00038	< 0.00038	0%				< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	0%				< 0.00021	0%				< 0.00021	< 0.00021	0%				< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00022	0%				< 0.00022	0%				< 0.00022	< 0.00022	0%				< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.0003	0%				< 0.0003	0%				< 0.0003	< 0.0003	0%				< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00018	0%				< 0.00018	0%				< 0.00018	< 0.00018	0%				< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00016	0%				< 0.00016	0%				< 0.00016	< 0.00016	0%				0.00054 J	100%	0.00054	0.00054	0.00054
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00014	0%				< 0.00014	0%				< 0.00014	< 0.00014	0%				< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00019	0%				< 0.00019	0%				< 0.00019	< 0.00019	0%				< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00015	0%				< 0.00015	0%				< 0.00015	< 0.00015	0%				< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00021	0%				< 0.00021	0%				< 0.00021	< 0.00021	0%				< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	***0.99*** A(MCL),B	100%	0.99	0.99	0.99	< 0.00015	0%				0.00076 J	0.00071 J	100%	0.00074	0.00071	0.00076	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00037	0%				< 0.00037	0%				< 0.00037	< 0.00037	0%				< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00033	0%				< 0.00033	0%				< 0.00033	< 0.00033	0%				< 0.00033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00031	0%				< 0.00068 U	0%	0.00068	0.00068	0.00068	< 0.00063 U	< 0.00081 U	0%	0.00072	0.00063	0.00081	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0002	0%				< 0.0002	0%				< 0.0002	< 0.0002	0%				< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00032	0%				< 0.00032	0%				< 0.00032	< 0.00032	0%				< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	***33*** A(MCL,I,DCL),B	100%	33	33	33	< 0.00025 U	0%	0.00025	0.00025	0.00025	0.00063 J	0.00051 J	100%	0.00057	0.00051	0.00063	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00023	0%				< 0.00023	0%				< 0.00023	< 0.00023	0%				< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00019	0%				< 0.00019	0%				< 0.00019	< 0.00019	0%				< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0003	0%				< 0.0003	0%				< 0.0003	< 0.0003	0%				< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00017	0%				< 0.00017	0%				< 0.00017	< 0.00017	0%				< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-832D 9/11/2017	MW-832D DUP 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-833S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-834D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																											
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0021 U	< 0.0021 U	0%				< 0.0021	0%				< 0.0021	0%				< 0.0021	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0033 U	< 0.0033 U	0%				< 0.0033	0%				< 0.0033	0%				< 0.0033	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	***110*** J A(MCL,I,DCL),B	***100*** J A(MCL,I,DCL),B	100%	105	100	110	***0.66*** A(MCL,I,DCL),B	100%	0.66	0.66	0.66	***0.16*** A(MCL,I,DCL),B	100%	0.16	0.16	0.16	0.00026 J	100%	0.00026	0.00026	0.00026
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.005 U	< 0.005 U	0%				< 0.005	0%				< 0.005	0%				< 0.005	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00027 U	< 0.00027 U	0%				< 0.00027	0%				< 0.00027 U	0%				< 0.00027	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00016 U	< 0.00016 U	0%				< 0.00016	0%				< 0.00016	0%				< 0.00016	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00016 U	0.00022 J	50%	0.00019	0.00016	0.00022	< 0.00016	0%				< 0.00016	0%				< 0.00016	0%			
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00041 U	< 0.00041 U	0%				< 0.00041	0%				< 0.00041	0%				< 0.00041	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00038 U	< 0.00038 U	0%				< 0.00038	0%				< 0.00038	0%				< 0.00038	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021 U	< 0.00021 U	0%				< 0.00021	0%				< 0.00021	0%				< 0.00021	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00022 U	< 0.00022 U	0%				< 0.00022	0%				< 0.00022	0%				< 0.00022	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.0003 U	< 0.0003 U	0%				< 0.0003	0%				< 0.0003	0%				< 0.0003	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00018 U	< 0.00018 U	0%				< 0.00018	0%				< 0.00018	0%				< 0.00018	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00016 U	< 0.00016 U	0%				< 0.00016	0%				< 0.00016	0%				< 0.00016	0%			
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00014 U	< 0.00014 U	0%				< 0.00014	0%				< 0.00014	0%				< 0.00014	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00019 U	< 0.00019 U	0%				< 0.00019	0%				< 0.00019	0%				< 0.00019	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00015 U	< 0.00015 U	0%				< 0.00015	0%				< 0.00015	0%				< 0.00015	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00021 U	< 0.00021 U	0%				< 0.00021	0%				< 0.00021	0%				< 0.00021	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00015 U	< 0.00015 U	0%				< 0.00015	0%				***0.7*** A(MCL),B	100%	0.7	0.7	0.7	< 0.00015	0%			
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00037 U	< 0.00037 U	0%				< 0.00037	0%				< 0.00037	0%				< 0.00037	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00033 U	< 0.00033 U	0%				< 0.00033	0%				< 0.00033	0%				< 0.00033	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00038 U	< 0.00085 U	0%	0.00062	0.00038	0.00085	< 0.001 U	0%	0.001	0.001	0.001	< 0.00051 U	0%	0.00051	0.00051	0.00051	< 0.00031	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0002 U	< 0.0002 U	0%				< 0.0002	0%				< 0.0002	0%				< 0.0002	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00032 U	< 0.00032 U	0%				< 0.00032	0%				< 0.00032	0%				< 0.00032	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	0.0014 J	0.0013 J	100%	0.00135	0.00130	0.00140	< 0.00015	0%				***1.3*** A(MCL),B	100%	1.3	1.3	1.3	< 0.00015	0%			
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00023 U	< 0.00023 U	0%				< 0.00023	0%				< 0.00023	0%				< 0.00023	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00019 U	< 0.00019 U	0%				< 0.00019	0%				< 0.00019	0%				< 0.00019	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0003 U	< 0.0003 U	0%				< 0.0003	0%				< 0.0003	0%				< 0.0003	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00017 U	< 0.00017 U	0%				< 0.00017	0%				< 0.00017	0%				< 0.00017	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-835D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-836S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-837S 9/13/2017	MW-837S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-838S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-839S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
VOCs (mg/L)																																
Acrolein	107-02-8	210,000	NE	0.051	0.051	0.00019	< 0.0021	0%				< 0.0021	0%				< 0.0021	< 0.0021	0%				< 0.0021	0%				< 0.0021 UJ	0%			
Acrylonitrile	107-13-1	NE	NE	NE	NE	0.066	< 0.0033	0%				< 0.0033	0%				< 0.0033	< 0.0033	0%				< 0.0033	0%				< 0.0033 UJ	0%			
Benzene	71-43-2	1,800	0.005	0.052	0.052	0.114	< 0.00018	0%				0.001 J	100%	0.001	0.001	0.001	0.0010 J	0.0011 J	100%	0.0011	0.0010	0.0011	***54*** A(MCL,I,DCL),B	100%	54	54	54	***0.12*** J A(MCL,I,DCL),B	100%	0.12	0.12	0.12
Bis(chloromethyl)ether [TIC]	542-88-1	NE	NE	NE	NE	NE	< 0.005	0%				< 0.005	0%				< 0.005	< 0.005	0%				< 0.005	0%				< 0.005 UJ	0%			
Bromoform	75-25-2	3,100	0.08	0.36	0.36	0.23	< 0.00027	0%				< 0.00027	0%				< 0.00027	< 0.00027	0%				< 0.00027	0%				< 0.00027 UJ	0%			
Carbon tetrachloride	56-23-5	790	0.005	0.022	0.022	0.24	< 0.00016	0%				< 0.00016	0%				< 0.00016	< 0.00016	0%				< 0.00016	0%				< 0.00016 UJ	0%			
Chlorobenzene	108-90-7	470	0.1	2	2	0.047	< 0.00016	0%				< 0.00016	0%				< 0.00016	< 0.00016	0%				0.0087	100%	0.0087	0.0087	0.0087	0.00023 J	100%	0.00023	0.00023	0.00023
Chloroethane	75-0-3	5,700	NE	0.99	0.99	NE	< 0.00041	0%				< 0.00041	0%				< 0.00041	< 0.00041	0%				< 0.00041	0%				< 0.00041 UJ	0%			
2-Chloroethyl vinyl ether	110-75-8	NE	NE	NE	NE	NE	< 0.00038	0%				< 0.00038	0%				< 0.00038	< 0.00038	0%				< 0.00038	0%				< 0.00038 UJ	0%			
Chloroform	67-66-3	7,900	0.08	1	1	0.14	< 0.00021	0%				< 0.00021	0%				< 0.00021	< 0.00021	0%				< 0.00021	0%				< 0.00021 UJ	0%			
Dibromochloromethane	124-48-1	NE	NE	NE	NE	NE	< 0.00022	0%				< 0.00022	0%				< 0.00022	< 0.00022	0%				< 0.00022	0%				< 0.00022 UJ	0%			
Dichlorobromomethane[C]	75-27-4	6,700	0.08	0.046	0.08	NE	< 0.0003	0%				< 0.0003	0%				< 0.0003	< 0.0003	0%				< 0.0003	0%				< 0.0003 UJ	0%			
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	NE	< 0.00018	0%				< 0.00018	0%				< 0.00018	< 0.00018	0%				< 0.00018	0%				< 0.00018 UJ	0%			
1,1-Dichloroethane	75-34-3	5,100	NE	10	10	0.047	< 0.00016	0%				0.0003 J	100%	0.0003	0.0003	0.0003	< 0.00016	< 0.00016	0%				< 0.00016	0%				0.00038 J	100%	0.00038	0.00038	0.00038
1,2-Dichloroethane	107-6-2	8,500	0.005	0.031	0.031	0.91	< 0.00014	0%				< 0.00014	0%				< 0.00014	< 0.00014	0%				< 0.00014	0%				< 0.00014 UJ	0%			
1,1-Dichloroethene	75-35-4	2,300	0.007	5.1	5.1	0.065	< 0.00019	0%				< 0.00019	0%				< 0.00019	< 0.00019	0%				< 0.00019	0%				< 0.00019 UJ	0%			
1,2-Dichloropropane	75-87-5	2,800	0.005	0.042	0.042	0.36	< 0.00015	0%				< 0.00015	0%				< 0.00015	< 0.00015	0%				< 0.00015	0%				< 0.00015 UJ	0%			
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	< 0.00021	0%				< 0.00021	0%				< 0.00021	< 0.00021	0%				< 0.00021	0%				< 0.00021 UJ	0%			
Ethylbenzene	100-41-4	170	0.7	10	10	0.014	< 0.00015	0%				< 0.00015	0%				< 0.00015	< 0.00015	0%				*0.64* B	100%	0.64	0.64	0.64	*0.023* J B	100%	0.023	0.023	0.023
Methyl Bromide (Bromomethane)	74-83-9	15,000	NE	0.14	0.14	0.016	< 0.00037	0%				< 0.00037	0%				< 0.00037	< 0.00037	0%				< 0.00037	0%				< 0.00037 UJ	0%			
Methyl Chloride (Chloromethane)	74-87-3	NE	NE	NE	NE	NE	< 0.00033	0%				< 0.00033	0%				< 0.00033 UJ	< 0.00033 UJ	0%				< 0.00033	0%				< 0.00033 UJ	0%			
Methylene chloride	75-9-2	13,000	0.005	0.38	0.38	0.94	< 0.00031	0%				< 0.00031	0%				< 0.00031	< 0.00031	0%				< 0.00031	0%				< 0.00031 UJ	0%			
1,1,2,2-Tetrachloroethane	79-34-5	3,000	NE	0.014	0.014	0.38	< 0.0002	0%				< 0.0002	0%				< 0.0002	< 0.0002	0%				< 0.0002	0%				< 0.0002 UJ	0%			
Tetrachloroethene	127-18-4	200	0.005	0.055	0.055	0.045	< 0.00032	0%				< 0.00032	0%				< 0.00032	< 0.00032	0%				< 0.00032	0%				< 0.00032 UJ	0%			
Toluene	108-88-3	530	1	8.2	8.2	0.253	< 0.00015	0%				0.001 J	100%	0.001	0.001	0.001	0.0004 J	0.0004 J	100%	0.0004	0.0004	0.0004	0.027	100%	0.027	0.027	0.027	0.0055 J	100%	0.0055	0.0055	0.0055
trans-1,2-Dichloroethene	156-60-5	6,300	0.1	2	2	0.97	< 0.00023	0%				< 0.00023	0%				< 0.00023	< 0.00023	0%				< 0.00023	0%				< 0.00023 UJ	0%			
1,1,1-Trichloroethane	74-55-6	1,300	0.2	29	29	0.076	< 0.00019	0%				0.00025 J	100%	0.00025	0.00025	0.00025	0.00041 J	0.00043 J	100%	0.00042	0.00041	0.00043	< 0.00019	0%				< 0.00019 UJ	0%			
Trichlorofluoromethane	75-69-4	1,100	NE	31	31	NE	< 0.0003	0%				< 0.0003	0%				< 0.0003	< 0.0003	0%				< 0.0003	0%				< 0.0003 UJ	0%			
Vinyl chloride	75-1-4	2,800	0.002	0.004	0.004	0.93	< 0.00017	0%				< 0.00017	0%				< 0.00017	< 0.00017	0%				< 0.00017	0%				< 0.00017 UJ	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] Dibromochloromethane = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
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A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
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TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-801D 10/29/2012	MW-801D Dup 10/29/2012	MW-801D 7/16/2013	MW-801D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-801S 10/29/2012	MW-801S 7/16/2013	MW-801S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.000029 J	0.00004 J	< 0.000016	< 0.00004	50%	0.00003125	0.000016	0.00004	0.019	0.011	0.023	100%	0.0177	0.0110	0.0230
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	< 0.000013	< 0.000013	< 0.000014	0.000031 J	25%	0.00001775	0.000013	0.000031	0.02	0.011	0.019	100%	0.0167	0.0110	0.0200
Anthracene	120-12-7	0.043	NE	31	31	0.000035	< 0.000015	< 0.000015	< 0.000016	0.000031 J	25%	0.00001925	0.000015	0.000031	*0.0013* B	*0.0014* J B	*0.0013* J B	100%	0.0013	0.0013	0.0014
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	< 0.000015	< 0.000015	< 0.000016	0.000021 J	25%	0.00001675	0.000015	0.000021	*0.00022* B	*0.00022* J B	*0.0003* J B	100%	0.0002	0.0002	0.0003
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	< 0.0000099	< 0.000011	< 0.000023	0%				*0.000043* J B	*0.00012* J B	< 0.00022	67%	0.0001	0.0000	0.0002
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	< 0.0000099	< 0.0000099	< 0.000011	< 0.00002	0%				0.0001	0.00014 J	< 0.00019	67%	0.0001	0.0001	0.0002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000013	< 0.000014	< 0.000011	0%				< 0.000013	< 0.00014	< 0.00011	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.000018	< 0.000016	0%				0.000034 J	< 0.00017	< 0.00016	33%	0.0001	0.0000	0.0002
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000013	< 0.000014	< 0.00002	0%				0.00016 J	< 0.00014	< 0.00019	33%	0.0002	0.0001	0.0002
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000016	< 0.000014	0%				< 0.000015	< 0.00016	< 0.00014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.0000099	< 0.0000099	0.000012 J	< 0.000023	25%	0.0000137	0.0000099	0.000023	*0.0031* B	*0.0026* J B	*0.003* J B	100%	0.0029	0.0026	0.0031
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.0000099	0.000011 J	0.000013 J	< 0.00021	50%	0.000060975	0.0000099	0.00021	0.008	0.0092	*0.012*	100%	0.0097	0.0080	0.0120
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.000014	< 0.000011	0%				< 0.000013	< 0.00014	< 0.00011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.000074 J	0.000072 J	0.000085 J	0.00043 J	100%	0.00016525	0.000072	0.00043	*0.37* B	*0.2* B	*0.29* B	100%	0.2867	0.2000	0.3700
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000025 J	0.000026 J	0.000036 J	< 0.000042	75%	0.00003225	0.000025	0.000042	*0.0049* B	*0.0058* B	*0.0047* J B	100%	0.0051	0.0047	0.0058
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.000019	< 0.000021	0.000021 J	25%	0.00002	0.000019	0.000021	*0.0025* B	*0.0019* J B	*0.0016* J B	100%	0.0020	0.0016	0.0025
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00040	< 0.00044	< 0.00061	0%				< 0.00040	< 0.00043	< 0.006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00059	< 0.00044	< 0.00075	0%				< 0.00061	< 0.00043	< 0.0074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00030	< 0.00088	< 0.00065	0%				< 0.00030	< 0.00086	< 0.0064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00050	< 0.00055	< 0.00064	0%				< 0.00051	< 0.00054	< 0.0063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00040	< 0.00088	< 0.00076	0%				< 0.00040	< 0.00086	< 0.0075	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00069	< 0.00077	< 0.00063	0%				< 0.00071	< 0.00075	< 0.0062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.00099	< 0.00044	< 0.0007	0%				0.0056 J	0.004 J	< 0.0069	67%	0.0055	0.0040	0.0069
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.0014	< 0.00031	0%				< 0.0013	< 0.0014	< 0.003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00050	< 0.00088	< 0.00048	0%				< 0.00051	< 0.00086	< 0.0047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00050	< 0.00088	< 0.00059	0%				< 0.00051	< 0.00086	< 0.0058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00050	< 0.00044	< 0.00073	0%				< 0.00051	< 0.00043	< 0.0072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00059	< 0.00055	< 0.00074	0%				< 0.00061	< 0.00054	< 0.0073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00099	< 0.00094	0%				< 0.00061	< 0.00097	< 0.0092	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00089	< 0.00066	< 0.0013	0%				< 0.00091	< 0.00065	< 0.013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00050	< 0.00077	< 0.00035	0%				< 0.00051	< 0.00075	< 0.0034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00050	< 0.00066	< 0.00069	0%				< 0.00051	< 0.00065	< 0.0068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00050	< 0.00066	< 0.00071	0%				< 0.00051	< 0.00065	< 0.007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0020	< 0.0009	< 0.00086	0%				< 0.0020	< 0.0009	< 0.0084	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0023	< 0.00022	< 0.052	0%				< 0.0023	< 0.00022	< 0.51	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00066	< 0.00088	0%				< 0.00061	< 0.00065	< 0.0086	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00099	< 0.00044	< 0.00079	0%				< 0.001	< 0.00043	< 0.0078	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00044	< 0.0007	0%				< 0.00061	< 0.00043	< 0.0069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	< 0.00040	< 0.00099	< 0.0012	0%				< 0.00040	< 0.00097	< 0.012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.00059	< 0.0018	< 0.00094	0%				< 0.00061	< 0.0017	< 0.0092	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00040	< 0.00077	< 0.0013	0%				< 0.00040	< 0.00075	< 0.013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00040	< 0.00077	< 0.0007	0%				< 0.00040	< 0.00075	< 0.0069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.00073 J	0.00086 J	< 0.00099	< 0.00085	50%	0.0008575	0.00073	0.00099	< 0.0004	< 0.00097	< 0.0083	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.00059	< 0.0012	< 0.00072	0%				< 0.00061	< 0.0012	< 0.0071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00050	< 0.00110	< 0.00099	0%				< 0.00051	< 0.00110	< 0.0097	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00059	< 0.00077	< 0.00099	0%				< 0.00061	< 0.00075	< 0.0097	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00050	< 0.00066	< 0.00041	0%				< 0.00051	< 0.00065	< 0.004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00059	< 0.00066	< 0.001	0%				< 0.00061	< 0.00065	< 0.01	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00059	< 0.00066	< 0.00082	0%				< 0.00061	< 0.00065	< 0.0081	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00059	< 0.00044	< 0.00081	0%				< 0.00061	< 0.00043	< 0.008	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.00099	< 0.0023	< 0.00094	0%				< 0.001	< 0.0023	< 0.0092	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00059	< 0.00033	< 0.001	0%				< 0.00061	< 0.00032	< 0.01	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00040	< 0.00055	< 0.00074	0%				< 0.00040	< 0.00054	< 0.0073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00066	< 0.00078	0%				< 0.00061	< 0.00065	< 0.0077	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00069	< 0.00066	< 0.00032	0%				**0.0016** J A(MCL)	0.00086 J	< 0.0031	67%	0.0019	0.0009	0.0031
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00040	< 0.00033	< 0.00038	0%				0.01300	0.01300	0.021 J	100%	0.0157	0.0130	0.0210

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-802S 10/31/2012	MW-802S-Dup 10/31/2012	MW-802S 7/16/2013	% Detect	Average	Minimum Detected	Maximum Detected	MW-803D 10/31/2012	MW-803D 7/17/2013	MW-803D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.000043 J	0.00003 J	0.000043 J	100%	0.000039	0.00003	0.000043	0.00054 J	0.00042 J	0.000084 J	100%	0.00035	0.000084	0.00054
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.000046 J	0.000038 J	0.000039 J	100%	0.000041	0.000038	0.000046	0.0006	0.00025 J	0.00041 J	100%	0.00042	0.00025	0.0006
Anthracene	120-12-7	0.043	NE	31	31	0.000035	0.000031 J	0.000024 J	0.000027 J	100%	0.000027	0.000024	0.000031	*0.00015* J B	*0.000088* J B	*0.00025* J B	100%	0.00016	0.000088	0.00025
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	< 0.000015	0.000021 J	< 0.000015	33%	0.000017	0.000015	0.000021	*0.000033* J B	*0.000028* J B	*0.000032* J B	100%	0.00003	0.000028	0.000033
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	< 0.00001	< 0.0000098	0%				< 0.000012	*0.000024* J B	< 0.000023	33%	0.00002	0.000012	0.000024
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000011 J	0.000011 J	< 0.0000098	67%	0.000011	0.0000098	0.000011	0.000024 J	0.000025 J	< 0.00002	67%	0.00002	0.00002	0.000025
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000013	0.000013 J	33%	0.000013	0.000013	0.000013	< 0.000015	0.000023 J	< 0.000012	33%	0.00002	0.000012	0.000023
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.000016	0%				< 0.000019	0.000017 J	< 0.000017	33%	0.00002	0.000017	0.000019
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000013	< 0.000013	0%				0.00004 J	0.000021 J	< 0.00002	67%	0.00003	0.00002	0.00004
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000015	0%				< 0.000018	0.00002 J	< 0.000015	33%	0.00002	0.000015	0.00002
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.0000099	< 0.00001	0.000014 J	33%	0.000011	0.0000099	0.000014	0.00016 J	0.00012 J	0.000042 J	100%	0.00011	0.000042	0.00016
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000027 J	0.000026 J	< 0.0000098	67%	0.000021	0.0000098	0.000027	0.00021 J	0.0002 J	< 0.00021	67%	0.00021	0.0002	0.00021
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.000013	0%				< 0.000015	**0.000023** A(GW)	< 0.000012	33%	0.00002	0.000012	0.000023
Naphthalene	91-20-3	31	NE	2	2	0.013	0.00009 J	0.0001 J	0.00014 J	100%	0.000110	0.00009	0.00014	0.0096	0.006	0.0019	100%	0.00583	0.0019	0.0096
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	< 0.000013	< 0.000013	0.000039 J	33%	0.000022	0.000013	0.000039	0.00027 J	0.00027 J	0.000074 J	100%	0.00020	0.000074	0.00027
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.000019	0.000025 J	33%	0.000021	0.000019	0.000025	0.000074 J	0.000073 J	0.000032 J	100%	0.00006	0.000032	0.000074
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00040	< 0.00039	0%				< 0.00048	< 0.00042	< 0.00062	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.0006	< 0.00039	0%				< 0.00071	< 0.00042	< 0.00077	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00030	< 0.00078	0%				< 0.00036	< 0.00084	< 0.00066	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00050	< 0.00049	0%				< 0.00060	< 0.00053	< 0.00065	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00040	< 0.00078	0%				< 0.00048	< 0.00084	< 0.00078	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.0007	< 0.00069	0%				< 0.00083	< 0.00074	< 0.00064	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.001	< 0.00039	0%				< 0.0012	< 0.00042	< 0.00072	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.0013	0%				< 0.0015	< 0.0014	< 0.00032	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00050	< 0.00078	0%				< 0.00060	< 0.00084	< 0.00049	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00050	< 0.00078	0%				< 0.00060	< 0.00084	< 0.0006	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00050	< 0.00039	0%				< 0.00060	< 0.00042	< 0.00075	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.0006	< 0.00049	0%				< 0.00071	< 0.00053	< 0.00076	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00088	0%				< 0.00071	< 0.00095	< 0.00096	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.0009	< 0.00059	0%				< 0.0011	< 0.00063	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00050	< 0.00069	0%				< 0.00060	< 0.00074	< 0.00036	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00050	< 0.00059	0%				< 0.00060	< 0.00063	< 0.00071	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00050	< 0.00059	0%				< 0.00060	< 0.00063	< 0.00073	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0020	< 0.0008	0%				< 0.0024	< 0.0008	< 0.00087	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0023	< 0.0002	0%				< 0.0027	< 0.00021	< 0.053	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00059	0%				< 0.00071	< 0.00063	< 0.00089	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.001	< 0.00039	0%				< 0.0012	< 0.00042	< 0.00081	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00039	0%				< 0.00071	< 0.00042	< 0.00072	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	*0.00077* J B	< 0.00088	33%	0.0007	0.0004	0.00088	*0.00150* J B	< 0.00095	< 0.0013	33%	0.00125	0.00095	0.0015
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0006	< 0.0016	0%				< 0.00071	< 0.0017	< 0.00096	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00040	< 0.00069	0%				< 0.00048	< 0.00074	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00040	< 0.00069	0%				< 0.00048	< 0.00074	< 0.00072	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0019 J	0.002 J	< 0.00088	67%	0.0016	0.00088	0.002	0.0048 J	0.0083 J	< 0.00086	67%	0.00465	0.00086	0.0083
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0006	< 0.0011	0%				< 0.00071	< 0.0013	< 0.00074	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00050	< 0.00098	0%				< 0.00060	< 0.00110	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.0006	< 0.00069	0%				< 0.00071	< 0.00074	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00050	< 0.00059	0%				< 0.00060	< 0.00063	< 0.00042	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.0006	< 0.00059	0%				< 0.00071	< 0.00063	< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.0006	< 0.00059	0%				< 0.00071	< 0.00063	< 0.00084	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.0006	< 0.00039	0%				< 0.00071	< 0.00042	< 0.00083	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.001	< 0.0021	0%				< 0.0012	< 0.0022	< 0.00096	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.0006	< 0.00029	0%				< 0.00071	< 0.00032	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00040	< 0.00049	0%				< 0.00048	< 0.00053	< 0.00076	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00059	0%				< 0.00071	< 0.00063	< 0.0008	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.0007	< 0.00059	0%				< 0.00083	< 0.00063	< 0.00033	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00040	0.00250 J	33%	0.0011	0.0004	0.0025	< 0.00048	< 0.00032	< 0.00039	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-803M 10/31/2012	MW-803M 7/17/2013	MW-803M 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-803S 10/31/2012	MW-803S 7/17/2013	MW-803S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.035	< 0.000015	0.0052 J	67%	0.01341	0.000015	0.035	0.026	0.017	0.036	100%	0.02633	0.017	0.036
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0026	0.000023 J	0.00053 J	100%	0.00105	0.000023	0.0026	0.0023	0.0029	0.0031	100%	0.00277	0.0023	0.0031
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00016* J B	*0.00013* J B	< 0.00015	67%	0.00015	0.00013	0.00016	*0.00021* J B	*0.00016* J B	*0.00032* J B	100%	0.00023	0.00016	0.00032
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000018 J	< 0.000015	< 0.00012	33%	0.00005	0.000015	0.00012	*0.000028* J B	0.000015 J	*0.000041* J B	100%	0.00003	0.000015	0.000041
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	0.000011 J	< 0.00023	33%	0.00008	0.00001	0.00023	< 0.000011	< 0.0000098	< 0.000023	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000012 J	< 0.00001	< 0.0002	33%	0.00007	0.00001	0.0002	0.000014 J	< 0.0000098	< 0.00002	33%	0.00001	0.0000098	0.00002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000013	< 0.00012	0%				< 0.000014	< 0.000013	< 0.000011	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.00017	0%				< 0.000017	< 0.000016	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000013	< 0.0002	0%				< 0.000014	< 0.000013	< 0.00002	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.00015	0%				< 0.000016	< 0.000015	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.00001	< 0.00001	< 0.00023	0%				< 0.000011	0.00002 J	0.000041 J	67%	0.00002	0.000011	0.000041
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.00056	0.000012 J	< 0.0021	67%	0.00089	0.000012	0.0021	0.0052	0.0051	0.0025	100%	0.00427	0.0025	0.0052
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.00012	0%				< 0.000014	< 0.000013	< 0.000011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	*1.6* B	*1.1* B	*0.58* B	100%	1.09333	0.58	1.6	0.00084	0.0035	0.00081	100%	0.00172	0.00081	0.0035
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000043 J	0.000065 J	< 0.00043	67%	0.00018	0.000043	0.00043	0.000067 J	0.00011 J	0.000093 J	100%	0.00009	0.000067	0.00011
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.000019	< 0.00017	0%				< 0.00002	0.000021 J	0.000031 J	67%	0.00002	0.00002	0.000031
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00041	< 0.00062	0%				< 0.00042	< 0.00039	< 0.00061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0006	< 0.00041	< 0.00077	0%				< 0.00063	< 0.00039	< 0.00075	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00082	< 0.00066	0%				< 0.00032	< 0.00078	< 0.00065	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00051	< 0.00065	0%				< 0.00053	< 0.00049	< 0.00064	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00082	< 0.00078	0%				< 0.00042	< 0.00078	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0007	< 0.00071	< 0.00064	0%				< 0.00074	< 0.00069	< 0.00063	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.061	0.041	< 0.00072	67%	0.03424	0.00072	0.061	< 0.0011	< 0.00039	< 0.0007	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.00032	< 0.00049	0%				< 0.0014	< 0.0013	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00082	< 0.00049	0%				< 0.00053	< 0.00078	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00062	< 0.0006	0%				< 0.00053	< 0.00078	< 0.00059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00041	< 0.00075	0%				< 0.00053	< 0.00039	< 0.00073	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0006	< 0.00051	< 0.00076	0%				< 0.00063	< 0.00049	< 0.00074	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0006	< 0.00092	< 0.00096	0%				< 0.00063	< 0.00088	< 0.00094	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0009	< 0.00061	< 0.0014	0%				< 0.00095	< 0.00059	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00071	< 0.00036	0%				< 0.00053	< 0.00069	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00061	< 0.00071	0%				< 0.00053	< 0.00059	< 0.00069	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00061	< 0.00073	0%				< 0.00053	< 0.00059	< 0.00071	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00087	0%				< 0.0021	< 0.0008	< 0.00086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.053	0%				< 0.0024	< 0.0002	< 0.052	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00061	< 0.00089	0%				< 0.00063	< 0.00059	< 0.00088	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00041	< 0.00081	0%				< 0.0011	< 0.00039	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00041	< 0.00072	0%				< 0.00063	< 0.00039	< 0.0007	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	< 0.00092	< 0.0013	0%				*0.00084* J B	< 0.00088	< 0.0012	33%	0.00097	0.00084	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0006	< 0.0016	< 0.00096	0%				< 0.00063	< 0.0016	< 0.00094	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00071	< 0.0014	0%				< 0.00042	< 0.00069	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00071	< 0.00072	0%				< 0.00042	< 0.00069	< 0.0007	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0021 J	0.0053 J	< 0.00086	67%	0.00275	0.00086	0.0053	0.0025 J	0.0057 J	< 0.00085	67%	0.00302	0.00085	0.0057
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0005	< 0.0011	< 0.00074	0%				< 0.00063	< 0.0011	< 0.00072	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10[-7]	< 0.00050	< 0.00100	< 0.001	0%				< 0.00053	< 0.00098	< 0.00099	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.0006	< 0.00071	< 0.001	0%				< 0.00063	< 0.00069	< 0.00099	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00061	< 0.00042	0%				< 0.00053	< 0.00059	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0006	< 0.00061	< 0.0011	0%				< 0.00063	< 0.00059	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0006	< 0.00061	< 0.00084	0%				< 0.00063	< 0.00059	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0006	< 0.00041	< 0.00083	0%				< 0.00063	< 0.00039	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00096	0%				< 0.0011	< 0.0021	< 0.00094	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0006	< 0.00031	< 0.001	0%				< 0.00063	< 0.00029	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00051	< 0.00076	0%				< 0.00042	< 0.00049	< 0.00074	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0006	< 0.00061	< 0.0008	0%				< 0.00063	< 0.00059	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0007	< 0.00061	< 0.00033	0%				< 0.00074	< 0.00059	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.00460 J	0.01300	0.0018 J	100%	0.00647	0.0018	0.013	0.00430 J	0.01700	0.0093 J	100%	0.01020	0.0043	0.017

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-804S 10/29/2012	MW-804S 7/16/2013	MW-804S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-805D 10/31/2012	MW-805D 7/16/2013	MW-805D-Dup 7/16/2013	MW-805D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	< 0.000015	0.000034 J	< 0.000039	33%	0.00003	0.000015	0.000039	< 0.000016	0.000053 J	0.00013 J	< 0.000039	50%	0.000060	0.000016	0.00013
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00002 J	0.000015 J	< 0.000014	67%	0.00002	0.000014	0.00002	< 0.000014	0.000047 J	0.00012 J	0.00003 J	75%	0.000053	0.000014	0.00012
Anthracene	120-12-7	0.043	NE	31	31	0.000035	< 0.000015	< 0.000016	0.00002 J	33%	0.00002	0.000015	0.00002	0.000017 J	0.000022 J	*0.000045* J B	0.00003 J	100%	0.000029	0.000017	0.000045
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000018 J	< 0.000016	< 0.000011	33%	0.00002	0.000011	0.000018	< 0.000016	< 0.000015	< 0.000015	0.00002 J	25%	0.000017	0.000015	0.00002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.000011	< 0.000022	0%				< 0.000011	< 0.0000098	< 0.0000098	< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000017 J	< 0.000011	< 0.000019	33%	0.00002	0.000011	0.000019	0.000013 J	< 0.0000098	< 0.0000098	< 0.000019	25%	0.000013	0.0000098	0.000019
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000014	< 0.000011	0%				< 0.000014	0.000015 J	< 0.000013	< 0.000011	25%	0.000013	0.000011	0.000015
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000017	< 0.000016	0%				< 0.000017	< 0.000016	< 0.000016	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000014	< 0.000019	0%				< 0.000014	< 0.000013	< 0.000013	< 0.000019	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000016	< 0.000014	0%				< 0.000016	< 0.000015	< 0.000015	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.00001	0.000014 J	< 0.000022	33%	0.00002	0.00001	0.000022	< 0.000011	0.000012 J	0.000013 J	< 0.000022	50%	0.000015	0.000011	0.000022
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000014 J	0.000017 J	< 0.0002	67%	0.00008	0.000014	0.0002	< 0.000011	0.000011 J	0.000013 J	< 0.0002	50%	0.000059	0.000011	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000014	< 0.000011	0%				< 0.000014	< 0.000013	< 0.000013	< 0.000011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.00018 J	0.00017 J	< 0.00016 U	67%	0.00017	0.00016	0.00018	0.000047 J	0.000066 J	0.00015 J	0.0021	100%	0.000591	0.000047	0.0021
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000033 J	0.000033 J	< 0.000041	67%	0.00004	0.000033	0.000041	< 0.000014	0.000035 J	0.000043 J	< 0.000041	50%	0.000033	0.000014	0.000043
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.000021	< 0.000016	0%				< 0.00002	0.000022 J	0.00005 J	< 0.000016	50%	0.000027	0.000016	0.00005
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00043	< 0.00059	0%				< 0.00042	< 0.00039	< 0.00039	< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0006	< 0.00043	< 0.00073	0%				< 0.00063	< 0.00039	< 0.00039	< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00087	< 0.00063	0%				< 0.00032	< 0.00078	< 0.00078	< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00054	< 0.00062	0%				< 0.00053	< 0.00049	< 0.00049	< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00087	< 0.00074	0%				< 0.00042	< 0.00078	< 0.00078	< 0.00075	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0007	< 0.00076	< 0.00061	0%				< 0.00074	< 0.00069	< 0.00069	< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.001	< 0.00043	< 0.00068	0%				0.0012 J	< 0.00039	0.0011 J	0.0021 J	75%	0.001198	0.00039	0.0021
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.0003	0%				< 0.0014	< 0.0013	< 0.0013	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00087	< 0.00047	0%				< 0.00053	< 0.00078	< 0.00078	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00087	< 0.00057	0%				< 0.00053	< 0.00078	< 0.00078	< 0.00058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00043	< 0.00071	0%				< 0.00053	< 0.00039	< 0.00039	< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0006	< 0.00054	< 0.00072	0%				< 0.00063	< 0.00049	< 0.00049	< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0006	< 0.00098	< 0.00091	0%				< 0.00063	< 0.00088	< 0.00088	< 0.00092	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0009	< 0.00065	< 0.0013	0%				< 0.00095	< 0.00059	< 0.00059	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00076	< 0.00034	0%				< 0.00053	< 0.00069	< 0.00069	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00065	< 0.00067	0%				< 0.00053	< 0.00059	< 0.00059	< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00065	< 0.00069	0%				< 0.00053	< 0.00059	< 0.00059	< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.00083	0%				< 0.0021	< 0.0008	< 0.0008	< 0.00084	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00022	< 0.05	0%				< 0.0024	< 0.0002	< 0.0002	< 0.051	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00065	< 0.00085	0%				< 0.00063	< 0.00059	< 0.00059	< 0.00086	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00043	< 0.00077	0%				< 0.0011	< 0.00039	< 0.00039	< 0.00078	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00043	< 0.00068	0%				< 0.00063	< 0.00039	< 0.00039	< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00055* J B	< 0.00098	< 0.0012	33%	0.00091	0.00055	0.0012	< 0.00042	*0.00110* J B	< 0.00088	< 0.0012	25%	0.000900	0.00042	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0006	< 0.0017	< 0.00091	0%				< 0.00063	< 0.0016	< 0.0016	< 0.00092	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00076	< 0.0013	0%				< 0.00042	< 0.00069	< 0.00069	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00076	< 0.00068	0%				< 0.00042	< 0.00069	< 0.00069	< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0014 J	0.0038 J	< 0.00082	67%	0.00201	0.00082	0.0038	0.0018 J	< 0.00088	< 0.00088	< 0.00083	25%	0.001098	0.00083	0.0018
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0006	< 0.0012	< 0.0007	0%				< 0.00063	< 0.0011	< 0.0011	< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00110	< 0.00096	0%				< 0.00053	< 0.00098	< 0.00098	< 0.00097	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.0006	< 0.00078	< 0.00096	0%				< 0.00063	< 0.00069	< 0.00069	< 0.00097	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00065	< 0.0004	0%				< 0.00053	< 0.00059	< 0.00059	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0006	< 0.00065	< 0.001	0%				< 0.00063	< 0.00059	< 0.00059	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0006	< 0.00065	< 0.0008	0%				< 0.00063	< 0.00059	< 0.00059	< 0.00081	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0006	< 0.00043	< 0.00079	0%				< 0.00063	< 0.00039	< 0.00039	< 0.0008	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0023	< 0.00091	0%				< 0.0011	< 0.0021	< 0.0021	< 0.00092	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0006	< 0.00033	< 0.00099	0%				< 0.00063	< 0.00029	< 0.00029	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00054	< 0.00072	0%				< 0.00042	< 0.00049	< 0.00049	< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0006	< 0.00065	< 0.00076	0%				< 0.00063	< 0.00059	< 0.00059	< 0.00077	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0007	< 0.00065	< 0.00031	0%				< 0.00074	< 0.00059	< 0.00059	< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00033	< 0.00037	0%				< 0.00042	< 0.00029	< 0.00029	< 0.00037	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-805S 10/31/2012	MW-805S 7/17/2013	MW-805S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-806D 10/31/2012	MW-806D 7/17/2013	MW-806D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.0054	0.0024	0.0035	100%	0.00377	0.0024	0.0054	0.000099 J	0.000052 J	0.00012 J	100%	0.00009	0.000052	0.00012
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0001 J	0.00006 J	0.00019 J	100%	0.00012	0.00006	0.00019	0.00018 J	0.00014 J	0.0002 J	100%	0.00017	0.00014	0.0002
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.0001* J B	*0.000084* J B	*0.00014* J B	100%	0.00011	0.000084	0.00014	*0.000089* J B	*0.000046* J B	*0.00011* J B	100%	0.00008	0.000046	0.00011
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000041* J B	*0.000043* J B	*0.000041* J B	100%	0.00004	0.000041	0.000043	0.000019 J	0.000017 J	0.000021 J	100%	0.00002	0.000017	0.000021
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	*0.000031* J B	< 0.000023	33%	0.00002	0.00001	0.000031	< 0.00001	< 0.0000099	< 0.000023	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000051 J	0.00004 J	0.000062 J	100%	0.00005	0.00004	0.000062	0.000023 J	< 0.0000099	< 0.00002	33%	0.00002	0.0000099	0.000023
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	0.000025 J	0.000052 J	67%	0.00003	0.000013	0.000052	< 0.000013	0.000015 J	< 0.000011	33%	0.00001	0.000011	0.000015
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	0.000018 J	0.000021 J	67%	0.00002	0.000016	0.000021	< 0.000016	< 0.000016	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000033 J	0.000023 J	0.000021 J	100%	0.00003	0.000021	0.000033	< 0.000013	< 0.000013	< 0.00002	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0.000015 J	< 0.000014	33%	0.00001	0.000014	0.000015	< 0.000015	< 0.000015	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.0005 J	0.00034 J	0.0003 J	100%	0.00038	0.0003	0.0005	0.000053 J	0.000021 J	< 0.000023	67%	0.00003	0.000021	0.000053
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0049	0.003	0.0019	100%	0.00327	0.0019	0.0049	< 0.00001	0.000024 J	< 0.00021	33%	0.00008	0.00001	0.00021
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	**0.000023** A(GW)	< 0.000011	33%	0.00002	0.000011	0.000023	< 0.000013	0.000013 J	< 0.000011	33%	0.00001	0.000011	0.000013
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0023	0.00049 J	*0.024* B	100%	0.00893	0.00049	0.024	0.0045	0.00012 J	0.005	100%	0.00321	0.00012	0.005
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	< 0.000013	0.000032 J	< 0.000042	33%	0.00003	0.000013	0.000042	0.000027 J	0.000047 J	< 0.000042	67%	0.00004	0.000027	0.000047
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.00026 J	0.00018 J	0.00014 J	100%	0.00019	0.00014	0.00026	0.00008 J	< 0.000019	0.000021 J	67%	0.00004	0.000019	0.00008
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00040	< 0.00061	0%				< 0.00041	< 0.00040	< 0.00061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0006	< 0.0004	< 0.00075	0%				< 0.00061	< 0.0004	< 0.00075	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00079	< 0.00065	0%				< 0.00031	< 0.00079	< 0.00065	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00050	< 0.00064	0%				< 0.00051	< 0.00050	< 0.00064	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00079	< 0.00076	0%				< 0.00041	< 0.00079	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0007	< 0.00069	< 0.00063	0%				< 0.00071	< 0.00069	< 0.00063	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.001	< 0.0004	< 0.0007	0%				< 0.001	< 0.0004	< 0.0007	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.00031	< 0.00031	0%				< 0.0013	< 0.0013	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00079	< 0.00048	0%				< 0.00051	< 0.00079	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00079	< 0.00059	0%				< 0.00051	< 0.00079	< 0.00059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00040	< 0.00073	0%				< 0.00051	< 0.00040	< 0.00073	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0006	< 0.0005	< 0.00074	0%				< 0.00061	< 0.0005	< 0.00074	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0006	< 0.00089	< 0.00094	0%				< 0.00061	< 0.00089	< 0.00094	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0009	< 0.00059	< 0.0013	0%				< 0.00092	< 0.00059	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00069	< 0.00035	0%				< 0.00051	< 0.00069	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00059	< 0.00069	0%				< 0.00051	< 0.00059	< 0.00069	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00059	< 0.00071	0%				< 0.00051	< 0.00059	< 0.00071	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00086	0%				< 0.0020	< 0.0008	< 0.00086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.052	0%				< 0.0023	< 0.0002	< 0.052	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00059	< 0.00088	0%				< 0.00061	< 0.00059	< 0.00088	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.0004	< 0.00079	0%				< 0.001	< 0.0004	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0006	< 0.0004	< 0.0007	0%				< 0.00061	< 0.0004	< 0.0007	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00075* J B	< 0.00089	< 0.0012	33%	0.00095	0.00075	0.0012	*0.00070* J B	< 0.00089	< 0.0012	33%	0.00093	0.0007	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0006	< 0.0016	< 0.00094	0%				< 0.00061	< 0.0016	< 0.00094	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00069	< 0.0013	0%				< 0.00041	< 0.00069	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00069	< 0.0007	0%				< 0.00041	< 0.00069	< 0.0007	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0025 J	0.0048 J	< 0.00085	67%	0.00272	0.00085	0.0048	0.0032 J	0.0066 J	< 0.00085	67%	0.00355	0.00085	0.0066
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0006	< 0.0011	< 0.00072	0%				< 0.00061	< 0.0011	< 0.00072	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00099	< 0.00099	0%				< 0.00051	< 0.00099	< 0.00099	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.0006	< 0.00069	< 0.00099	0%				< 0.00061	< 0.00069	< 0.00099	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00059	< 0.00041	0%				< 0.00051	< 0.00059	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0006	< 0.00059	< 0.001	0%				< 0.00061	< 0.00059	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0006	< 0.00059	< 0.00082	0%				< 0.00061	< 0.00059	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0006	< 0.0004	< 0.00081	0%				< 0.00061	0.0011 J	< 0.00081	33%	0.00084	0.00061	0.0011
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00094	0%				< 0.001	< 0.0021	< 0.00094	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0006	< 0.0003	< 0.001	0%				< 0.00061	< 0.0003	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00050	< 0.00074	0%				< 0.00041	< 0.00050	< 0.00074	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0006	< 0.00059	< 0.00078	0%				< 0.00061	< 0.00059	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0007	< 0.00059	< 0.00032	0%				< 0.00071	< 0.00059	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.00440 J	0.00300 J	0.011	100%	0.00613	0.003	0.011	< 0.00041	< 0.00030	0.001 J	33%	0.00057	0.0003	0.001

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-806S 10/31/2012	MW-806S 7/16/2013	MW-806S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-807D 11/1/2012	MW-807D 7/18/2013	MW-807D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00021 J	0.000085 J	0.00018 J	100%	0.00016	0.000085	0.00021	0.0001 J	< 0.0006	< 0.00039	33%	0.00036	0.0001	0.0006
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00025 J	0.00014 J	0.00024 J	100%	0.00021	0.00014	0.00025	0.0007 J	< 0.00052	0.0003 J	67%	0.00051	0.0003	0.0007
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000043* J B	0.000026 J	*0.00015* J B	100%	0.00007	0.000026	0.00015	*0.00023* J B	< 0.0006	< 0.00014	33%	0.00032	0.00014	0.0006
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000016 J	< 0.000015	*0.000032* J B	67%	0.00002	0.000015	0.000032	*0.00017* J B	*0.0013* J B	< 0.00011	67%	0.00053	0.00011	0.0013
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.0000098	< 0.000023	0%				< 0.00004	< 0.0004	< 0.00022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000011 J	< 0.0000098	< 0.00002	33%	0.00001	0.0000098	0.00002	< 0.00004	< 0.0004	< 0.00019	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000013	< 0.000012	0%				< 0.000052	< 0.00052	< 0.00011	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.000017	0%				< 0.000064	< 0.00064	< 0.00016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000013	< 0.00002	0%				0.000096 J	0.00052 J	< 0.00019	67%	0.00027	0.000096	0.00052
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000015	0%				< 0.00006	< 0.0006	< 0.00014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.00001	0.000015 J	0.000042 J	67%	0.00002	0.00001	0.000042	0.00017 J	< 0.0004	< 0.00022	33%	0.00026	0.00017	0.0004
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000016 J	0.000015 J	< 0.00021	67%	0.00008	0.000015	0.00021	0.000056 J	< 0.0004	< 0.002	33%	0.00082	0.000056	0.002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.000012	0%				< 0.000052	< 0.00052	< 0.00011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.000074 J	0.000058 J	< 0.00047 U	67%	0.00020	0.000058	0.00047	0.0045	0.0033 J	< 0.0021 U	67%	0.00330	0.0021	0.0045
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	< 0.000013	0.000039 J	< 0.000043	33%	0.00003	0.000013	0.000043	0.0001 J	< 0.00052	< 0.00041	33%	0.00034	0.0001	0.00052
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.000055 J	0.000032 J	0.000042 J	100%	0.00004	0.000032	0.000055	*0.0003* J B	< 0.00076	< 0.00016	33%	0.00041	0.00016	0.00076
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00041	< 0.00039	< 0.00062	0%				< 0.00400	< 0.00040	< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00062	< 0.00039	< 0.00077	0%				< 0.006	< 0.0004	< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00031	< 0.00078	< 0.00066	0%				< 0.00300	< 0.00080	< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00052	< 0.00049	< 0.00065	0%				< 0.00500	< 0.00050	< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00041	< 0.00078	< 0.00078	0%				< 0.00400	< 0.00080	< 0.00075	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00072	< 0.00069	< 0.00064	0%				< 0.007	< 0.0007	< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.001	< 0.00039	< 0.00072	0%				*1.2* B	*0.64* B	*0.38* B	100%	0.74	0.38	1.2
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00032	0%				< 0.013	< 0.0018	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00052	< 0.00078	< 0.00049	0%				< 0.00500	< 0.00080	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00052	< 0.00078	< 0.0006	0%				< 0.00500	< 0.00080	< 0.00058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00052	< 0.00039	< 0.00075	0%				< 0.00500	< 0.00040	< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00062	< 0.00049	< 0.00076	0%				< 0.006	< 0.0005	< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00062	< 0.00088	< 0.00096	0%				< 0.006	< 0.0009	< 0.00092	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00093	< 0.00059	< 0.0014	0%				< 0.009	< 0.0006	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00052	< 0.00069	< 0.00036	0%				< 0.00500	< 0.00070	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00052	< 0.00059	< 0.00071	0%				< 0.00500	< 0.00060	< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00052	< 0.00059	< 0.00073	0%				< 0.00500	< 0.00060	< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0021	< 0.0008	< 0.00087	0%				< 0.0200	< 0.0008	< 0.00084	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0024	< 0.0002	< 0.053	0%				< 0.023	< 0.0002	< 0.051	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00062	< 0.00059	< 0.00089	0%				< 0.006	< 0.0006	< 0.00086	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00039	< 0.00081	0%				< 0.01	< 0.0004	< 0.00078	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00062	< 0.00039	< 0.00072	0%				< 0.006	< 0.0004	< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00057* J B	*0.00120* J B	< 0.0013	67%	0.00102	0.00057	0.0013	< 0.00400	< 0.00090	< 0.0012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00062	< 0.0016	< 0.00096	0%				< 0.006	< 0.0016	< 0.00092	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00041	< 0.00069	< 0.0014	0%				< 0.00400	< 0.00070	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00041	< 0.00069	< 0.00072	0%				< 0.00400	< 0.00070	< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0021 J	< 0.00088	< 0.00086	33%	0.00128	0.00086	0.0021	< 0.004	0.0067 J	< 0.00083	33%	0.00384	0.00083	0.0067
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00062	< 0.0011	< 0.00074	0%				< 0.006	< 0.0011	< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00052	< 0.00098	< 0.001	0%				< 0.00500	< 0.00100	< 0.00097	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00062	< 0.00069	< 0.001	0%				< 0.006	< 0.0007	< 0.00097	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00052	< 0.00059	< 0.00042	0%				< 0.00500	< 0.00060	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00062	< 0.00059	< 0.0011	0%				< 0.006	< 0.0006	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00062	< 0.00059	< 0.00084	0%				< 0.006	< 0.0006	< 0.00081	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00062	< 0.00039	< 0.00083	0%				< 0.006	< 0.0004	< 0.0008	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00096	0%				< 0.01	< 0.0021	< 0.00092	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00062	< 0.00029	< 0.001	0%				< 0.006	< 0.0003	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00041	< 0.00049	< 0.00076	0%				< 0.00400	< 0.00050	< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00062	< 0.00059	< 0.0008	0%				< 0.006	< 0.0006	< 0.00077	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00072	< 0.00059	< 0.00033	0%				< 0.007	**0.0022** J A(MCL)	< 0.00031	33%	0.00317	0.00031	0.007
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00041	< 0.00029	0.00043 J	33%	0.00038	0.00029	0.00043	***34*** A(I,DCL),B	***46*** A(I,DCL),B	*21* B	100%	33.66667	21	46

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-807S 11/1/2012	MW-807S 7/16/2013	MW-807S-Dup 7/16/2013	MW-807S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-808D 11/2/2012	MW-808D 7/17/2013	MW-808D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00096	0.00024 J	0.00029 J	< 0.0039	75%	0.0013	0.00024	0.0039	< 0.00015	< 0.00082	< 0.002	0%			
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0012	0.00047 J	0.00058	0.004 J	100%	0.0016	0.00047	0.004	0.00026 J	< 0.00071	< 0.00073	33%	0.00057	0.00026	0.00073
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00025* J B	*0.000071* J B	*0.000085* J B	< 0.0014	75%	0.0005	0.000071	0.0014	< 0.00015	< 0.00082	< 0.00073	0%			
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000021	< 0.000016	< 0.000016	< 0.0011	25%	0.0003	0.000016	0.0011	< 0.00015	< 0.00082	< 0.00057	0%			
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	< 0.000011	< 0.000011	< 0.0022	0%				< 0.0001	< 0.00054	< 0.0011	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000014 J	0.000012 J	0.000011 J	< 0.0019	75%	0.0005	0.000011	0.0019	< 0.0001	< 0.00054	< 0.00099	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	0.00002 J	0.000016 J	< 0.0011	50%	0.0003	0.000013	0.0011	< 0.00013	< 0.00071	< 0.00057	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000018	< 0.000017	< 0.0016	0%				< 0.00016	< 0.00087	< 0.00083	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000014	< 0.000014	< 0.0019	0%				< 0.00013	< 0.00071	< 0.00099	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000016	< 0.000016	< 0.0014	0%				< 0.00015	< 0.00082	< 0.00073	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.0000099	0.000011 J	0.000017 J	< 0.0022	50%	0.0006	0.0000099	0.0022	< 0.0001	0.00054 J	< 0.0011	33%	0.00058	0.0001	0.0011
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.00097	0.00041 J	0.00052 J	< 0.02	75%	0.0055	0.00041	0.02	< 0.0001	< 0.00054	< 0.01	0%			
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	0.000014 J	< 0.000014	< 0.0011	25%	0.0003	0.000013	0.0011	< 0.00013	< 0.00071	< 0.00057	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	*1.4* B	*0.37* B	*0.46* B	*1.9* B	100%	1.0325	0.37	1.9	0.0016 J	0.0055 J	< 0.0017	67%	0.00293	0.0016	0.0055
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000095 J	0.000069 J	0.000089 J	< 0.0041	75%	0.0011	0.000069	0.0041	< 0.00013	< 0.00071	< 0.0021	0%			
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.000021	< 0.00002	< 0.0016	0%				< 0.00019	< 0.001	< 0.00083	0%			
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00044	< 0.00042	< 0.006	0%				< 0.00400	< 0.00870	< 0.031	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00044	< 0.00042	< 0.0074	0%				< 0.0061	< 0.0087	< 0.038	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00088	< 0.00084	< 0.0064	0%				< 0.00300	< 0.01700	< 0.033	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00055	< 0.00053	< 0.0063	0%				< 0.00510	< 0.01100	< 0.032	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00088	< 0.00084	< 0.0075	0%				< 0.00400	< 0.01700	< 0.039	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00077	< 0.00074	< 0.0062	0%				< 0.0071	< 0.015	< 0.032	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.0048 J	< 0.00044	0.0015 J	< 0.0069	50%	0.0034	0.00044	0.0069	***3.3*** A(I,DCL),B	***3*** A(I,DCL),B	***2.5*** A(I,DCL),B	100%	2.93333	2.5	3.3
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.0014	< 0.003	0%				< 0.013	< 0.028	< 0.016	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00088	< 0.00084	< 0.0047	0%				< 0.00510	< 0.01700	< 0.024	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00088	< 0.00084	< 0.0058	0%				< 0.00510	< 0.01700	< 0.03	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00044	< 0.00042	< 0.0072	0%				< 0.00510	< 0.00870	< 0.037	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00055	< 0.00053	< 0.0073	0%				< 0.0061	< 0.011	< 0.038	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00099	< 0.00095	< 0.0092	0%				< 0.0061	< 0.02	< 0.047	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00066	< 0.00063	< 0.013	0%				< 0.0091	< 0.013	< 0.068	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00077	< 0.00074	< 0.0034	0%				< 0.00510	< 0.01500	< 0.018	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00066	< 0.00063	< 0.0068	0%				< 0.00510	< 0.01300	< 0.035	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00066	< 0.00063	< 0.007	0%				< 0.00510	< 0.01300	< 0.036	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.0008	< 0.0084	0%				< 0.0200	< 0.0170	< 0.043	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00022	< 0.00021	< 0.51	0%				< 0.023	< 0.0043	< 2.6	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00066	< 0.00063	< 0.0086	0%				< 0.0061	< 0.013	< 0.044	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00044	< 0.00042	< 0.0078	0%				< 0.01	< 0.0087	< 0.04	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00044	< 0.00042	< 0.0069	0%				< 0.0061	< 0.0087	< 0.035	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00063* J B	< 0.00099	< 0.00095	< 0.012	25%	0.0036	0.00063	0.012	< 0.00400	< 0.02000	< 0.062	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0018	< 0.0017	< 0.0092	0%				< 0.0061	< 0.035	< 0.047	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00077	< 0.00074	< 0.013	0%				< 0.00400	< 0.01500	< 0.068	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00077	< 0.00074	< 0.0069	0%				< 0.00400	< 0.01500	< 0.035	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0024 J	< 0.00099	< 0.00095	< 0.0083	25%	0.0032	0.00095	0.0083	< 0.004	< 0.02	< 0.043	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0012	< 0.0012	< 0.0071	0%				< 0.0061	< 0.024	< 0.036	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10^{-7}	< 0.00050	< 0.00110	< 0.00110	< 0.0097	0%				< 0.00510	< 0.02200	< 0.05	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00077	< 0.00074	< 0.0097	0%				< 0.0061	< 0.015	< 0.05	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00066	< 0.00063	< 0.004	0%				< 0.00510	< 0.01300	< 0.021	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00066	< 0.00063	< 0.01	0%				< 0.0061	< 0.013	< 0.052	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00066	< 0.00063	< 0.0081	0%				< 0.0061	< 0.013	< 0.042	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00044	< 0.00042	< 0.008	0%				< 0.0061	< 0.0087	< 0.041	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0023	< 0.0022	< 0.0092	0%				< 0.01	< 0.046	< 0.047	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00033	< 0.00032	< 0.01	0%				< 0.0061	< 0.0065	< 0.052	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00055	< 0.00053	< 0.0073	0%				< 0.00400	< 0.01100	< 0.038	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00066	< 0.00063	< 0.0077	0%				< 0.0061	< 0.013	< 0.04	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00066	< 0.00063	< 0.0031	0%				< 0.0071	< 0.013	< 0.016	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00033	< 0.00032	0.019 J	25%	0.0050	0.00032	0.019	***110*** A(I,DCL),B	***120*** A(I,DCL),B	***55*** A(I,DCL),B	100%	95.00000	55	120

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-808S 11/2/2012	MW-808S 7/17/2013	MW-808S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809D 11/2/2012	MW-809D 7/18/2013	MW-809D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.0011 J	0.00016 J	< 0.0021	67%	0.00112	0.00016	0.0021	< 0.00006	< 0.00031	< 0.002	0%			
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00038 J	0.00053 J	< 0.00075	67%	0.00055	0.00038	0.00075	0.0001 J	0.0004 J	< 0.00071	67%	0.00040	0.0001	0.00071
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00096* J B	*0.00041* J B	< 0.00075	67%	0.00071	0.00041	0.00096	*0.000092* J B	*0.0004* J B	< 0.00071	67%	0.00040	0.000092	0.00071
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00069* B	*0.00055* B	< 0.00059	67%	0.00061	0.00055	0.00069	*0.000068* J B	*0.00044* J B	< 0.00056	67%	0.00036	0.000068	0.00056
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	***0.00036*** J A(MCL),B	***0.00033*** A(MCL),B	< 0.0012	67%	0.00063	0.00033	0.0012	< 0.00004	< 0.012	< 0.0011	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00081	0.00062	< 0.001	67%	0.00081	0.00062	0.001	< 0.00004	< 0.012	< 0.00096	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.00023 J	0.00015 J	< 0.00059	67%	0.00032	0.00015	0.00059	< 0.000052	< 0.012	< 0.00056	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.00018 J	0.00021	< 0.00086	67%	0.00042	0.00018	0.00086	< 0.000064	< 0.012	< 0.00081	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00046 J	0.0005 J	< 0.001	67%	0.00065	0.00046	0.001	< 0.000052	< 0.012	< 0.00096	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000064	0.000072 J	< 0.00075	33%	0.00030	0.000064	0.00075	< 0.00006	< 0.012	< 0.00071	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	*0.0033* B	0.000018 J	< 0.0012	67%	0.00151	0.000018	0.0033	< 0.00004	< 0.012	< 0.0011	0%			
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0053	0.00046 J	< 0.011	67%	0.00559	0.00046	0.011	0.00023 J	< 0.012	< 0.01	33%	0.00741	0.00023	0.012
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.00025** A(GW)	**0.00017** A(GW)	< 0.00059	67%	0.00034	0.00017	0.00059	< 0.000052	< 0.012	< 0.00056	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	*0.066* B	*0.013* B	*0.067* B	100%	0.04867	0.013	0.067	0.0025	0.00073 J	< 0.0016	67%	0.00161	0.00073	0.0025
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	*0.0054* B	0.0013	< 0.0022	67%	0.00297	0.0013	0.0054	< 0.000052	< 0.00027	< 0.0021	0%			
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0014* J B	0.000029 J	< 0.00086	67%	0.00076	0.000029	0.0014	< 0.000076	< 0.0004	< 0.00081	0%			
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00043	< 0.00045	< 0.032	0%				< 0.00040	< 0.00830	< 0.03	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00064	< 0.00045	< 0.039	0%				< 0.0006	< 0.0083	< 0.037	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00032	< 0.00090	< 0.034	0%				< 0.00030	< 0.01700	< 0.032	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00053	< 0.00056	< 0.033	0%				< 0.00050	< 0.01000	< 0.031	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00043	< 0.00090	< 0.04	0%				< 0.00040	< 0.01700	< 0.037	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00074	< 0.00079	< 0.033	0%				< 0.0007	< 0.015	< 0.031	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	***3.6*** A(I,DCL),B	*0.42* B	*0.55* B	100%	1.52333	0.42	3.6	***3.2*** A(I,DCL),B	***3.3*** A(I,DCL),B	***2.4*** A(I,DCL),B	100%	2.96667	2.4	3.3
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0014	< 0.0016	< 0.016	0%				< 0.0013	< 0.027	< 0.015	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00053	< 0.00090	< 0.025	0%				< 0.00050	< 0.01700	< 0.024	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00053	< 0.00090	< 0.031	0%				< 0.00050	< 0.01700	< 0.029	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00053	< 0.00045	< 0.038	0%				< 0.00050	< 0.00830	< 0.036	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00064	< 0.00056	< 0.039	0%				< 0.0006	< 0.01	< 0.036	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00064	< 0.001	< 0.049	0%				< 0.0006	< 0.019	< 0.046	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00096	< 0.00067	< 0.07	0%				< 0.0009	< 0.012	< 0.066	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00053	< 0.00079	< 0.018	0%				< 0.00050	< 0.01500	< 0.017	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00053	< 0.00067	< 0.036	0%				< 0.00050	< 0.01200	< 0.034	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00053	< 0.00067	< 0.037	0%				< 0.00050	< 0.01200	< 0.035	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0021	< 0.0009	< 0.045	0%				< 0.0020	< 0.0170	< 0.042	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0024	< 0.00022	< 2.7	0%				< 0.0023	< 0.0042	< 2.5	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00064	< 0.00067	< 0.046	0%				< 0.0006	< 0.012	< 0.043	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.0011	< 0.00045	< 0.041	0%				< 0.001	< 0.0083	< 0.039	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00064	< 0.00045	< 0.037	0%				< 0.0006	< 0.0083	< 0.034	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00170* J B	< 0.00100	< 0.065	33%	0.02257	0.001	0.065	*0.00130* J B	< 0.01900	< 0.061	33%	0.02710	0.0013	0.061
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00064	< 0.0018	< 0.049	0%				< 0.0006	< 0.033	< 0.046	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00043	< 0.00079	< 0.07	0%				< 0.00040	< 0.01500	< 0.066	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00043	< 0.00079	< 0.037	0%				< 0.00040	< 0.01500	< 0.034	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.007 J	*0.014* B	< 0.044	67%	0.02167	0.007	0.044	< 0.0004	< 0.019	< 0.041	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00054	< 0.0012	< 0.038	0%				< 0.0006	< 0.023	< 0.035	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00053	< 0.00110	< 0.052	0%				< 0.00050	< 0.02100	< 0.048	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00064	< 0.00079	< 0.052	0%				< 0.0006	< 0.015	< 0.048	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00053	< 0.00067	< 0.022	0%				< 0.00050	< 0.01200	< 0.02	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00064	< 0.00067	< 0.054	0%				< 0.0006	< 0.012	< 0.051	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00064	< 0.00067	< 0.043	0%				< 0.0006	< 0.012	< 0.04	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00064	< 0.00045	< 0.042	0%				< 0.0006	< 0.0083	< 0.04	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.0011	< 0.0024	< 0.049	0%				< 0.001	< 0.044	< 0.046	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00064	< 0.00034	< 0.053	0%				< 0.0006	< 0.0063	< 0.05	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00043	< 0.00056	< 0.039	0%				< 0.00040	< 0.01000	< 0.036	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00064	< 0.00067	< 0.041	0%				< 0.0006	< 0.012	< 0.038	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00074	< 0.00067	< 0.017	0%				< 0.0007	< 0.012	< 0.016	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	20 B	*5.4* B	*3.3* B	100%	9.56667	3.3	20	*15* B	***31*** A(I,DCL),B	< 0.019	67%	15.33967	0.019	31

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809M 11/2/2012	MW-809M 7/18/2013	MW-809M-Dup 7/18/2013	MW-809M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809S 11/2/2012	MW-809S 7/15/2013	MW-809S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.000062 J	< 0.00031	< 0.00016	0.000051 J	50%	0.000146	0.000051	0.00031	0.00011 J	0.00028 J	0.0007 J	100%	0.000363	0.00011	0.0007
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00015 J	< 0.00027	0.0002 J	0.000081 J	75%	0.000175	0.000081	0.00027	0.00023 J	0.00039 J	0.0017 J	100%	0.000773	0.00023	0.0017
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00018* J B	< 0.00031	< 0.00016	*0.00015* J B	50%	0.000200	0.00015	0.00031	*0.00015* J B	*0.000042* J B	*0.0004* J B	100%	0.000197	0.000042	0.0004
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000019 J	*0.00062* J B	*0.00023* J B	0.00002 J	100%	0.000222	0.000019	0.00062	*0.000028* J B	0.000023 J	*0.0002* J B	100%	0.000084	0.000023	0.0002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	< 0.00021	< 0.00011	< 0.000022	0%				< 0.00001	*0.00003* J B	< 0.00022	33%	0.000087	0.00001	0.00022
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000012 J	< 0.00021	< 0.00011	< 0.000019	25%	0.000088	0.000012	0.00021	0.000033 J	0.000038 J	< 0.00019	67%	0.000087	0.000033	0.00019
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.00027	< 0.00014	0.00003 J	25%	0.000113	0.000013	0.00027	0.000021 J	0.000058 J	< 0.00011	67%	0.000063	0.000021	0.00011
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.00033	< 0.00017	0.00003 J	25%	0.000137	0.000016	0.00033	< 0.000016	0.00003 J	< 0.00016	33%	0.000069	0.000016	0.00016
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.00027	< 0.00014	< 0.000019	0%				< 0.000013	0.000035 J	< 0.00019	33%	0.000079	0.000013	0.00019
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.00031	< 0.00016	0.00004	25%	0.000131	0.000015	0.00031	< 0.000015	0.00004 J	< 0.00014	33%	0.000065	0.000015	0.00014
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.0000099	< 0.00021	< 0.00011	< 0.000022	0%				0.000045 J	0.00004 J	< 0.00022	67%	0.000102	0.00004	0.00022
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000014 J	< 0.00021	< 0.00011	< 0.0002	25%	0.000134	0.000014	0.00021	0.000033 J	0.000056 J	< 0.002	67%	0.000696	0.000033	0.002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.00027	< 0.00014	< 0.000011	0%				< 0.000013	**0.000047** A(GW)	< 0.00011	33%	0.000057	0.000013	0.00011
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0024	0.00058 J	0.00044 J	< 0.00027 U	75%	0.000873	0.000071	0.0024	0.0011	0.000081 J	0.0098	100%	0.003660	0.000081	0.0098
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000023 J	< 0.00027	< 0.00014	0.000061 J	50%	0.000124	0.000023	0.00027	0.00003 J	0.00012 J	0.0006 J	100%	0.000250	0.00003	0.0006
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.00039	< 0.0002	0.00003 J	25%	0.000160	0.000019	0.00039	< 0.000019	< 0.00002	< 0.00016	0%			
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00041	< 0.00420	< 0.0006	0%				< 0.00040	< 0.00043	< 0.00059	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00041	< 0.0042	< 0.00074	0%				< 0.0006	< 0.00043	< 0.00073	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00082	< 0.00840	< 0.00064	0%				< 0.00030	< 0.00086	< 0.00063	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00052	< 0.00530	< 0.00063	0%				< 0.00050	< 0.00054	< 0.00062	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00082	< 0.00840	< 0.00075	0%				< 0.00040	< 0.00086	< 0.00074	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00072	< 0.0074	< 0.00062	0%				< 0.0007	< 0.00075	< 0.00061	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	*0.16* B	*0.13* B	*0.15* B	0.044	100%	0.121000	0.044	0.16	< 0.001	< 0.00043	0.002 J	33%	0.001143	0.00043	0.002
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.014	< 0.0003	0%				< 0.0013	< 0.0014	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00082	< 0.00840	< 0.00047	0%				< 0.00050	< 0.00086	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00062	< 0.00840	< 0.00058	0%				< 0.00050	< 0.00086	< 0.00057	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00041	< 0.00420	< 0.00072	0%				< 0.00050	< 0.00043	< 0.00071	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00052	< 0.0053	< 0.00073	0%				< 0.0006	< 0.00054	< 0.00072	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00093	< 0.0095	< 0.00092	0%				< 0.0006	< 0.00097	< 0.00091	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00062	< 0.0063	< 0.0013	0%				< 0.0009	< 0.00065	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00072	< 0.00740	< 0.00034	0%				< 0.00050	< 0.00075	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00062	< 0.00630	< 0.00068	0%				< 0.00050	< 0.00065	< 0.00067	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00062	< 0.00630	< 0.0007	0%				< 0.00050	< 0.00065	< 0.00069	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.0084	< 0.00084	0%				< 0.0020	< 0.0009	< 0.00083	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00021	< 0.0021	< 0.051	0%				< 0.0023	< 0.00022	< 0.05	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	0.0057 J	< 0.00062	< 0.0063	< 0.00086	25%	0.003370	0.00062	0.0063	< 0.0006	< 0.00065	< 0.00085	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00041	< 0.0042	< 0.00078	0%				< 0.001	< 0.00043	< 0.00077	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00041	< 0.0042	< 0.00069	0%				< 0.0006	< 0.00043	< 0.00068	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00069* J B	< 0.00093	< 0.00950	< 0.0012	25%	0.003080	0.00069	0.0095	< 0.00040	*0.00260* J B	*0.0014* J B	67%	0.001467	0.0004	0.0026
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0016	< 0.017	< 0.00092	0%				< 0.0006	< 0.0017	< 0.00091	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00072	< 0.00740	< 0.0013	0%				< 0.00040	< 0.00075	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00072	< 0.00740	< 0.00069	0%				< 0.00040	< 0.00075	< 0.00068	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0032 J	0.0061 J	< 0.0095	< 0.00083	50%	0.004908	0.00083	0.0095	0.0043 J	0.0024 J	< 0.00082	67%	0.002507	0.00082	0.0043
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0011	< 0.012	< 0.00071	0%				< 0.0006	< 0.0012	< 0.0007	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00100	< 0.01100	< 0.00097	0%				< 0.00050	< 0.00110	< 0.00096	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00072	< 0.0074	< 0.00097	0%				< 0.0006	< 0.00075	< 0.00096	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00062	< 0.00630	< 0.0004	0%				< 0.00050	< 0.00065	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00062	< 0.0063	< 0.001	0%				< 0.0006	< 0.00065	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00062	< 0.0063	< 0.00081	0%				< 0.0006	< 0.00065	< 0.0008	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00041	< 0.0042	< 0.0008	0%				< 0.0006	< 0.00043	< 0.00079	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0022	< 0.022	< 0.00092	0%				< 0.001	< 0.0023	< 0.00091	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00031	< 0.0032	< 0.001	0%				< 0.0006	< 0.00032	< 0.00099	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00052	< 0.00530	< 0.00073	0%				< 0.00040	< 0.00054	< 0.00072	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00062	< 0.0063	< 0.00077	0%				< 0.0006	< 0.00065	< 0.00076	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00062	< 0.0063	< 0.00031	0%				< 0.0007	< 0.00065	< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.023	0.026	0.026 J	< 0.00037	75%	0.018843	0.00037	0.026	0.013	< 0.00032	0.0034 J	67%	0.005573	0.00032	0.013

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-810D 10/31/2012	MW-810D 7/16/2013	MW-810D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810S 10/31/2012	MW-810S 7/16/2013	MW-810S 9/14/2017	MW-810S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	< 0.000016	< 0.000015	< 0.000039	0%				0.00011 J	0.000053 J	< 0.00004	< 0.00004	50%	0.000061	0.00004	0.00011
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.000017 J	0.000015 J	0.00003 J	100%	0.000021	0.000015	0.00003	0.0002 J	0.00023 J	0.00015 J	0.0001 J	100%	0.000170	0.0001	0.00023
Anthracene	120-12-7	0.043	NE	31	31	0.000035	< 0.000016	< 0.000015	0.00003 J	33%	0.000020	0.000015	0.00003	0.00002 J	0.00002 J	*0.000041* J B	0.000031 J	100%	0.000028	0.00002	0.000041
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000017 J	< 0.000015	0.00002 J	67%	0.000017	0.000015	0.00002	0.000016 J	< 0.000015	0.00002 J	0.00002 J	75%	0.000018	0.000015	0.00002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	0.000012 J	< 0.000022	33%	0.000015	0.00001	0.000022	< 0.00001	< 0.00001	< 0.000022	< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000017 J	0.000015 J	< 0.000019	67%	0.000017	0.000015	0.000019	< 0.00001	< 0.00001	< 0.000019	< 0.000019	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000014	0.000016 J	< 0.000011	33%	0.000014	0.000011	0.000016	< 0.000013	0.000016 J	< 0.000011	< 0.000011	25%	0.000013	0.000011	0.000016
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000017	< 0.000016	< 0.000016	0%				< 0.000016	< 0.000016	< 0.000016	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000014	< 0.000013	< 0.000019	0%				< 0.000013	< 0.000013	< 0.000019	< 0.000019	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000016	0.000018 J	< 0.000014	33%	0.000016	0.000014	0.000018	< 0.000015	< 0.000015	< 0.000014	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.00001	0.000015 J	< 0.000022	33%	0.000016	0.00001	0.000022	< 0.00001	0.00002 J	< 0.000022	< 0.000022	25%	0.000019	0.00001	0.000022
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.00001	0.000012 J	< 0.0002	33%	0.000074	0.00001	0.0002	< 0.00001	0.000019 J	< 0.0002	< 0.0002	25%	0.000107	0.00001	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000014	0.000015 J	< 0.000011	33%	0.000013	0.000011	0.000015	< 0.000013	0.000015 J	< 0.000011	< 0.000011	25%	0.000013	0.000011	0.000015
Naphthalene	91-20-3	31	NE	2	2	0.013	0.000057 J	0.0017	< 0.000071 U	67%	0.000609	0.000057	0.0017	0.0027	0.0013	< 0.00005 U	< 0.00006 U	50%	0.001028	0.000051	0.0027
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000024 J	0.000046 J	< 0.000041	67%	0.000037	0.000024	0.000046	0.000023 J	0.00005 J	< 0.000042	< 0.000042	50%	0.000039	0.000023	0.00005
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.00002	< 0.00002	0.00002 J	33%	0.000020	0.00002	0.00002	< 0.000019	< 0.000019	< 0.000016	0.00002 J	25%	0.000019	0.000016	0.00002
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00042	< 0.00041	< 0.0006	0%				< 0.00040	< 0.00040	< 0.0006	< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00063	< 0.00041	< 0.00074	0%				< 0.0006	< 0.0004	< 0.00074	< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00031	< 0.00082	< 0.00064	0%				< 0.00030	< 0.00080	< 0.00064	< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00052	< 0.00052	< 0.00063	0%				< 0.00050	< 0.00050	< 0.00063	< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00042	< 0.00082	< 0.00075	0%				< 0.00040	< 0.00080	< 0.00076	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00073	< 0.00072	< 0.00062	0%				< 0.0007	< 0.0007	< 0.00062	< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.001	< 0.00041	< 0.00069	0%				< 0.001	< 0.0004	< 0.00069	< 0.00069	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0014	< 0.0013	< 0.0003	0%				< 0.0013	< 0.0013	< 0.00031	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00052	< 0.00082	< 0.00047	0%				< 0.00050	< 0.00080	< 0.00048	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00052	< 0.00082	< 0.00058	0%				< 0.00050	< 0.00080	< 0.00058	< 0.00058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00052	< 0.00041	< 0.00072	0%				< 0.00050	< 0.00040	< 0.00072	< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00063	< 0.00052	< 0.00073	0%				< 0.0006	< 0.0005	< 0.00073	< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00063	< 0.00093	< 0.00092	0%				< 0.0006	< 0.0009	< 0.00093	< 0.00093	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00094	< 0.00062	< 0.0013	0%				< 0.0009	< 0.0006	< 0.0013	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00052	< 0.00072	< 0.00034	0%				< 0.00050	< 0.00070	< 0.00035	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00052	< 0.00062	< 0.00068	0%				< 0.00050	< 0.00060	< 0.00068	< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00052	< 0.00082	< 0.0007	0%				< 0.00050	< 0.00060	< 0.0007	< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0021	< 0.0008	< 0.00084	0%				< 0.0020	< 0.0008	< 0.00085	< 0.00085	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0024	< 0.00021	< 0.051	0%				< 0.0023	< 0.0002	< 0.051	< 0.051	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00063	< 0.00062	< 0.00086	0%				< 0.0006	< 0.0006	< 0.00087	< 0.00087	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00041	< 0.00078	0%				< 0.001	< 0.0004	< 0.00079	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00063	< 0.00041	< 0.00069	0%				< 0.0006	< 0.0004	< 0.00069	< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00077* J B	*0.00200* J B	< 0.0012	67%	0.001323	0.00077	0.002	*0.00051* J B	< 0.00090	< 0.0012	< 0.0012	25%	0.000953	0.00051	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00063	< 0.0016	< 0.00092	0%				< 0.0006	< 0.0016	< 0.00093	< 0.00093	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00042	< 0.00072	< 0.0013	0%				< 0.00040	< 0.00070	< 0.0013	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00042	< 0.00072	< 0.00069	0%				< 0.00040	< 0.00070	< 0.00069	< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0031 J	0.0014 J	< 0.00083	67%	0.001777	0.00083	0.0031	0.002 J	0.00096 J	< 0.00084	< 0.00084	50%	0.001160	0.00084	0.002
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00063	< 0.0011	< 0.00071	0%				< 0.0006	< 0.0011	< 0.00071	< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00052	< 0.00100	< 0.00097	0%				< 0.00050	< 0.00100	< 0.00098	< 0.00098	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00063	< 0.00072	< 0.00097	0%				< 0.0006	< 0.0007	< 0.00098	< 0.00098	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00052	< 0.00062	< 0.0004	0%				< 0.00050	< 0.00060	< 0.00041	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00063	< 0.00062	< 0.001	0%				< 0.0006	< 0.0006	< 0.001	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00063	< 0.00062	< 0.00081	0%				< 0.0006	< 0.0006	< 0.00082	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00063	< 0.00041	< 0.0008	0%				< 0.0006	< 0.0004	< 0.00081	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0022	< 0.00092	0%				< 0.001	< 0.0021	< 0.00093	< 0.00093	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00063	< 0.00031	< 0.001	0%				< 0.0006	< 0.0003	< 0.001	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00042	< 0.00052	< 0.00073	0%				< 0.00040	< 0.00050	< 0.00073	< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00063	< 0.00062	< 0.00077	0%				< 0.0006	< 0.0006	< 0.00078	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00073	< 0.00062	< 0.00031	0%				< 0.0007	< 0.0006	< 0.00032	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00042	< 0.00031	< 0.00037	0%				< 0.00040	< 0.00030	< 0.00038	< 0.00038	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-811S 10/29/2012	MW-811S 7/16/2013	MW-811S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-812S 10/31/2012	MW-812S 7/16/2013	MW-812S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.000075 J	0.000028 J	0.000073 J	100%	0.000059	0.000028	0.000075	0.000031 J	0.000024 J	< 0.000041	67%	0.000032	0.000024	0.000041
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0001 J	0.000054 J	0.000073 J	100%	0.000076	0.000054	0.0001	0.00014 J	0.00013 J	0.0001 J	100%	0.000123	0.0001	0.00014
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000054* J B	*0.000065* J B	*0.00028* J B	100%	0.000133	0.000054	0.00028	*0.000084* J B	*0.000059* J B	*0.000073* J B	100%	0.000072	0.000059	0.000084
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000032* J B	*0.000032* J B	*0.000073* J B	100%	0.000046	0.000032	0.000073	< 0.000015	< 0.000015	< 0.000011	0%			
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	*0.000015* J B	< 0.000023	33%	0.000016	0.0000099	0.000023	< 0.00001	0.000011 J	< 0.000023	33%	0.000015	0.00001	0.000023
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00002 J	0.000022 J	< 0.00002	67%	0.000021	0.00002	0.000022	0.000015 J	< 0.00001	< 0.00002	33%	0.000015	0.00001	0.00002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	0.000019 J	< 0.000011	33%	0.000014	0.000011	0.000019	< 0.000013	0.000015 J	< 0.000011	33%	0.000013	0.000011	0.000015
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.000017	0%				< 0.000016	< 0.000016	< 0.000017	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00002 J	0.000016 J	0.000031 J	100%	0.000022	0.000016	0.000031	< 0.000013	< 0.000013	< 0.00002	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000015	0%				< 0.000015	0.000016 J	< 0.000015	33%	0.000015	0.000015	0.000016
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00026 J	0.00044 J	0.0013	100%	0.000667	0.00026	0.0013	0.00007 J	0.000017 J	< 0.000023	67%	0.000037	0.000017	0.00007
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000028 J	0.000051 J	< 0.00021	67%	0.000096	0.000028	0.00021	0.000018 J	0.000037 J	< 0.00021	67%	0.000088	0.000018	0.00021
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	0.000014 J	< 0.000011	33%	0.000013	0.000011	0.000014	< 0.000013	0.000013 J	< 0.000011	33%	0.000012	0.000011	0.000013
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0015	0.00098	0.00093	100%	0.001137	0.00093	0.0015	0.00013 J	0.0001 J	< 0.00018 U	67%	0.000137	0.0001	0.00018
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00025 J	0.00037 J	0.0011	100%	0.000573	0.00025	0.0011	0.000022 J	0.000053 J	< 0.000043	67%	0.000039	0.000022	0.000053
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.00024 J	0.00026 J	*0.00084* B	100%	0.000447	0.00024	0.00084	< 0.000019	< 0.000019	< 0.000017	0%			
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00039	< 0.00061	0%				< 0.00040	< 0.00040	< 0.00061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00039	< 0.00076	0%				< 0.0006	< 0.0004	< 0.00076	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00078	< 0.00066	0%				< 0.00030	< 0.00080	< 0.00066	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00049	< 0.00065	0%				< 0.00050	< 0.00050	< 0.00065	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00078	< 0.00077	0%				< 0.00040	< 0.00080	< 0.00077	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00069	< 0.00064	0%				< 0.0007	< 0.0007	< 0.00064	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.00039	< 0.00071	0%				< 0.001	< 0.0004	< 0.00071	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00031	0%				< 0.0013	< 0.0013	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00078	< 0.00049	0%				< 0.00050	< 0.00080	< 0.00049	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00078	< 0.00059	0%				< 0.00050	< 0.00080	< 0.00059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00039	< 0.00074	0%				< 0.00050	< 0.00040	< 0.00074	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00049	< 0.00075	0%				< 0.0006	< 0.0005	< 0.00075	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00088	< 0.00095	0%				< 0.0006	< 0.0009	< 0.00095	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00059	< 0.0014	0%				< 0.0009	< 0.0006	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00069	< 0.00035	0%				< 0.00050	< 0.00070	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00059	< 0.0007	0%				< 0.00050	< 0.00060	< 0.0007	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00059	< 0.00072	0%				< 0.00050	< 0.00060	< 0.00072	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00086	0%				< 0.0020	< 0.0008	< 0.00086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.052	0%				< 0.0023	< 0.0002	< 0.052	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00089	0%				< 0.0006	< 0.0006	< 0.00089	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00039	< 0.0008	0%				< 0.001	< 0.0004	< 0.0008	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00039	< 0.00071	0%				< 0.0006	< 0.0004	< 0.00071	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	< 0.00088	< 0.0012	0%				< 0.00040	*0.00210* J B	< 0.0012	33%	0.001233	0.0004	0.0021
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0016	< 0.00095	0%				< 0.0006	< 0.0016	< 0.00095	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00069	< 0.0014	0%				< 0.00040	< 0.00070	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00069	< 0.00071	0%				< 0.00040	< 0.00070	< 0.00071	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.00059 J	< 0.00088	< 0.00085	33%	0.000773	0.00059	0.00088	0.0017 J	0.0013 J	< 0.00085	67%	0.001283	0.00085	0.0017
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0011	< 0.00073	0%				< 0.0006	< 0.0011	< 0.00073	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00098	< 0.001	0%				< 0.00050	< 0.00100	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00069	< 0.001	0%				< 0.0006	< 0.0007	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00059	< 0.00042	0%				< 0.00050	< 0.00060	< 0.00042	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00059	< 0.001	0%				< 0.0006	< 0.0006	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00059	< 0.00083	0%				< 0.0006	< 0.0006	< 0.00083	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00039	< 0.00082	0%				< 0.0006	< 0.0004	< 0.00082	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0021	< 0.00095	0%				< 0.001	< 0.0021	< 0.00095	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00029	< 0.001	0%				< 0.0006	< 0.0003	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00049	< 0.00075	0%				< 0.00040	< 0.00050	< 0.00075	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00059	< 0.00079	0%				< 0.0006	< 0.0006	< 0.00079	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00059	< 0.00032	0%				< 0.0007	< 0.0006	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.00330 J	0.00880 J	0.058	100%	0.023367	0.0033	0.058	< 0.00040	0.002 J	0.00044 J	67%	0.000947	0.0004	0.002

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-813S 10/31/2012	MW-813S 7/15/2013	MW-813S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-814S 10/29/2012	MW-814S 7/16/2013	MW-814S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00029 J	0.00015 J	0.00019 J	100%	0.000210	0.00015	0.00029	0.000065 J	0.000023 J	< 0.000039	67%	0.000042	0.000023	0.000065
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00006 J	0.00006 J	0.000085 J	100%	0.000068	0.00006	0.000085	0.000038 J	0.000035 J	0.00004 J	100%	0.000038	0.000035	0.00004
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00004* J B	*0.000045* J B	*0.000085* J B	100%	0.000057	0.00004	0.000085	0.000032 J	0.000033 J	*0.00005* J B	100%	0.000038	0.000032	0.00005
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	< 0.000015	0.000019 J	0.000021 J	67%	0.000018	0.000015	0.000021	< 0.000015	< 0.000015	0.00002 J	33%	0.000017	0.000015	0.00002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	*0.000019* J B	< 0.000023	33%	0.000017	0.0000099	0.000023	< 0.0000099	< 0.0000098	< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000011 J	0.000023 J	< 0.00002	67%	0.000018	0.000011	0.000023	0.000013 J	< 0.0000098	< 0.000019	33%	0.000014	0.0000098	0.000019
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	0.00004 J	< 0.000012	33%	0.000022	0.000012	0.00004	< 0.000013	0.000014 J	< 0.000011	33%	0.000013	0.000011	0.000014
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	0.000018 J	< 0.000017	33%	0.000017	0.000016	0.000018	< 0.000016	< 0.000016	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	0.000016 J	< 0.00002	33%	0.000016	0.000013	0.00002	< 0.000013	< 0.000013	< 0.000019	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0.000028 J	< 0.000015	33%	0.000019	0.000015	0.000028	< 0.000015	< 0.000015	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	< 0.0000099	0.000019 J	< 0.000023	33%	0.000017	0.0000099	0.000023	0.00005 J	0.000047 J	< 0.000022	67%	0.000040	0.000022	0.00005
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.0000099	0.000023 J	< 0.00021	33%	0.000081	0.0000099	0.00021	0.000022 J	0.000029 J	< 0.0002	67%	0.000084	0.000022	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	**0.000032** A(GW)	< 0.000012	33%	0.000019	0.000012	0.000032	< 0.000013	< 0.000013	< 0.000011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0018	0.00012 J	< 0.000053 U	67%	0.000658	0.000053	0.0018	0.00014 J	0.0024	< 0.0001 U	67%	0.000880	0.0001	0.0024
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	< 0.000013	0.000049 J	< 0.000041	33%	0.000035	0.000013	0.000049	0.000056 J	0.000051 J	< 0.000041	67%	0.000049	0.000041	0.000056
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	0.000025 J	0.000032 J	67%	0.000025	0.000019	0.000032	< 0.000019	< 0.000019	0.00002 J	33%	0.000019	0.000019	0.00002
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00041	< 0.00063	0%				< 0.00040	< 0.00039	< 0.00059	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00041	< 0.00078	0%				< 0.00059	< 0.00039	< 0.00073	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00082	< 0.00067	0%				< 0.00030	< 0.00078	< 0.00063	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00052	< 0.00066	0%				< 0.00050	< 0.00049	< 0.00062	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00082	< 0.00079	0%				< 0.00040	< 0.00078	< 0.00074	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00072	< 0.00065	0%				< 0.00069	< 0.00069	< 0.00061	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.00041	< 0.00072	0%				< 0.00099	< 0.00039	< 0.00068	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00032	0%				< 0.0013	< 0.0013	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00082	< 0.0005	0%				< 0.00050	< 0.00078	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00082	< 0.00061	0%				< 0.00050	< 0.00078	< 0.00057	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00041	< 0.00076	0%				< 0.00050	< 0.00039	< 0.00071	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00052	< 0.00077	0%				< 0.00059	< 0.00049	< 0.00072	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00093	< 0.00097	0%				< 0.00059	< 0.00088	< 0.00091	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00062	< 0.0014	0%				< 0.00089	< 0.00059	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00072	< 0.00036	0%				< 0.00050	< 0.00069	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00062	< 0.00071	0%				< 0.00050	< 0.00059	< 0.00067	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00062	< 0.00073	0%				< 0.00050	< 0.00059	< 0.00069	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00088	0%				< 0.0020	< 0.0008	< 0.00083	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00021	< 0.053	0%				< 0.0023	< 0.0002	< 0.05	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00062	< 0.0009	0%				< 0.00059	< 0.00059	< 0.00085	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00041	< 0.00082	0%				< 0.00099	< 0.00039	< 0.00077	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00041	< 0.00072	0%				< 0.00059	< 0.00039	< 0.00068	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00074* J B	*0.00190* J B	< 0.0013	67%	0.001313	0.00074	0.0019	*0.00079* J B	< 0.00088	< 0.0012	33%	0.000957	0.00079	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0016	< 0.00097	0%				< 0.00059	< 0.0016	< 0.00091	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00072	< 0.0014	0%				< 0.00040	< 0.00069	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00072	< 0.00072	0%				< 0.00040	< 0.00069	< 0.00068	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0023 J	0.0016 J	< 0.00087	67%	0.001590	0.00087	0.0023	0.0025 J	< 0.00088	< 0.00082	33%	0.001400	0.00082	0.0025
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0011	< 0.00074	0%				< 0.00059	< 0.0011	< 0.0007	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00100	< 0.001	0%				< 0.00050	< 0.00098	< 0.00096	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00072	< 0.001	0%				< 0.00059	< 0.00089	< 0.00096	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00062	< 0.00043	0%				< 0.00050	< 0.00059	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00062	< 0.0011	0%				< 0.00059	< 0.00059	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00062	< 0.00085	0%				< 0.00059	< 0.00059	< 0.0008	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00041	< 0.00084	0%				< 0.00059	< 0.00039	< 0.00079	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0022	< 0.00097	0%				< 0.00099	< 0.0021	< 0.00091	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00031	< 0.0011	0%				< 0.00059	< 0.00029	< 0.00099	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00052	< 0.00077	0%				< 0.00040	< 0.00049	< 0.00072	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00062	< 0.00081	0%				< 0.00059	< 0.00059	< 0.00076	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00062	< 0.00033	0%				< 0.00069	< 0.00059	< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00031	< 0.00039	0%				< 0.00040	< 0.00029	0.0035 J	33%	0.001397	0.00029	0.0035

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-815D 10/29/2012	MW-815D 7/15/2013	MW-815D 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815S 10/29/2012	MW-815S 7/17/2013	MW-815S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00014 J	0.000035 J	< 0.00004	67%	0.000072	0.000035	0.00014	0.000053 J	0.00003 J	< 0.00004	67%	0.000041	0.00003	0.000053
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.000099 J	0.00003 J	0.000052 J	100%	0.000060	0.00003	0.000099	0.00002 J	0.000015 J	0.00002 J	100%	0.000018	0.000015	0.00002
Anthracene	120-12-7	0.043	NE	31	31	0.000035	0.000031 J	0.000026 J	< 0.000042 U	67%	0.000033	0.000026	0.000041	0.00003 J	0.000021 J	< 0.000052 U	67%	0.000034	0.000021	0.000051
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.000024 J	0.000021 J	< 0.000011	67%	0.000019	0.000011	0.000024	< 0.000015	< 0.000016	< 0.000011	0%			
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	*0.000024* J B	< 0.000023	33%	0.000019	0.0000099	0.000024	< 0.00001	< 0.000011	< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000021 J	0.000039 J	< 0.00002	67%	0.000027	0.00002	0.000039	< 0.00001	< 0.000011	< 0.000019	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	0.000047 J	< 0.000011	33%	0.000024	0.000011	0.000047	< 0.000013	< 0.000014	< 0.000011	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	0.000024 J	< 0.000016	33%	0.000019	0.000016	0.000024	< 0.000016	< 0.000017	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	0.00002 J	< 0.00002	33%	0.000018	0.000013	0.00002	< 0.000013	< 0.000014	< 0.000019	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0.000037 J	< 0.000014	33%	0.000022	0.000014	0.000037	< 0.000015	< 0.000016	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000041 J	0.000024 J	< 0.000023	67%	0.000029	0.000023	0.000041	< 0.00001	0.000017 J	< 0.000022	33%	0.000016	0.00001	0.000022
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0000099 J	0.000028 J	< 0.00021	67%	0.000083	0.0000099	0.00021	0.000041 J	0.000018 J	< 0.0002	67%	0.000086	0.000018	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	**0.000039** A(GW)	< 0.000011	33%	0.000021	0.000011	0.000039	< 0.000013	< 0.000014	< 0.000011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.00093	0.00022 J	0.00026 J	100%	0.000470	0.00022	0.00093	0.00046 J	0.00066	0.00078	100%	0.000633	0.00046	0.00078
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000029 J	0.000071 J	< 0.000042	67%	0.000047	0.000029	0.000071	0.000021 J	0.000049 J	< 0.000042	67%	0.000037	0.000021	0.000049
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	< 0.00002	< 0.000016	0%				0.00012 J	0.000067 J	< 0.000092 U	67%	0.000093	0.000067	0.00012
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00043	< 0.00061	0%				< 0.00040	< 0.00043	< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00043	< 0.00075	0%				< 0.0006	< 0.00043	< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00085	< 0.00065	0%				< 0.00030	< 0.00085	< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00053	< 0.00064	0%				< 0.00050	< 0.00053	< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00085	< 0.00076	0%				< 0.00040	< 0.00085	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00074	< 0.00063	0%				< 0.0007	< 0.00074	< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.00043	< 0.0007	0%				< 0.001	< 0.00043	< 0.00069	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.00031	0%				< 0.0013	< 0.0014	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00085	< 0.00048	0%				< 0.00050	< 0.00085	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00085	< 0.00059	0%				< 0.00050	< 0.00085	< 0.00058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00043	< 0.00073	0%				< 0.00050	< 0.00043	< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00053	< 0.00074	0%				< 0.0006	< 0.00053	< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00096	< 0.00094	0%				< 0.0006	< 0.00096	< 0.00093	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00064	< 0.0013	0%				< 0.0009	< 0.00064	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00074	< 0.00035	0%				< 0.00050	< 0.00074	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00064	< 0.00069	0%				< 0.00050	< 0.00064	< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00064	< 0.00071	0%				< 0.00050	< 0.00064	< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.00086	0%				< 0.0020	< 0.0009	< 0.00085	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00021	< 0.052	0%				< 0.0023	< 0.00021	< 0.051	0%			
bis(2-Chloroethoxy)methane D	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00064	< 0.00088	0%				< 0.0006	< 0.00064	< 0.00087	0%			
bis(2-Chloroethyl)ether E	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00043	< 0.00079	0%				< 0.001	< 0.00043	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00043	< 0.0007	0%				< 0.0006	< 0.00043	< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00068* J B	*0.00230* J B	< 0.0012	67%	0.001393	0.00068	0.0023	< 0.00040	< 0.00096	< 0.0012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0017	< 0.00094	0%				< 0.0006	< 0.0017	< 0.00093	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00074	< 0.0013	0%				< 0.00040	< 0.00074	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00074	< 0.0007	0%				< 0.00040	< 0.00074	< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0026 J	0.0019 J	< 0.00085	67%	0.001783	0.00085	0.0026	< 0.0004	0.0057 J	< 0.00084	33%	0.002313	0.0004	0.0057
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0012	< 0.00072	0%				< 0.0006	< 0.0012	< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10-7	< 0.00050	< 0.00110	< 0.00099	0%				< 0.00050	< 0.00110	< 0.00098	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00074	< 0.00099	0%				< 0.0006	< 0.00074	< 0.00098	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00064	< 0.00041	0%				< 0.00050	< 0.00064	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00064	< 0.001	0%				< 0.0006	< 0.00064	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00064	< 0.00082	0%				< 0.0006	< 0.00064	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00043	< 0.00081	0%				< 0.0006	< 0.00043	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0022	< 0.00094	0%				< 0.001	< 0.0022	< 0.00093	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00032	< 0.001	0%				< 0.0006	< 0.00032	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00053	< 0.00074	0%				< 0.00040	< 0.00053	< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00064	< 0.00078	0%				< 0.0006	< 0.00064	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00064	< 0.00032	0%				< 0.0007	< 0.00064	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00032	< 0.00038	0%				< 0.00040	0.014	< 0.00038	33%	0.004927	0.00038	0.014

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-816D 11/1/2012	MW-816D 7/17/2013	MW-816D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-816S 11/1/2012	MW-816S 7/16/2013	MW-816S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00018 J	0.00028 J	0.00015 J	100%	0.000203	0.00015	0.00028	0.0015	0.001	0.0018 J	100%	0.001433	0.001	0.0018
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00043 J	0.00088	0.0017	100%	0.001003	0.00043	0.0017	0.0027	0.0034	0.0097	100%	0.005267	0.0027	0.0097
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000084* J B	*0.00014* J B	*0.00023* J B	100%	0.000151	0.000084	0.00023	*0.00041* J B	*0.00042* J B	*0.0015* J B	100%	0.000777	0.00041	0.0015
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	< 0.000015	0.000023 J	*0.00031* J B	67%	0.000023	0.000015	0.000031	*0.0001* J B	*0.000083* J B	*0.00031* J B	100%	0.000164	0.000083	0.00031
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.00001	< 0.000022	0%				*0.000039* J B	*0.000023* J B	< 0.00023	67%	0.000097	0.000023	0.00023
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000016 J	< 0.00001	< 0.000019	33%	0.000015	0.00001	0.000019	0.000059 J	0.000037 J	< 0.0002	67%	0.000099	0.000037	0.0002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000013	< 0.000011	0%				0.000031 J	0.000015 J	< 0.00011	67%	0.000052	0.000015	0.00011
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	< 0.000016	0%				< 0.000016	0.000017 J	< 0.00016	33%	0.000064	0.000016	0.00016
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	0.000013 J	< 0.000019	33%	0.000015	0.000013	0.000019	0.000062 J	0.00004 J	< 0.0002	67%	0.000101	0.00004	0.0002
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000014	0%				< 0.000015	< 0.000015	< 0.00014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000061 J	0.000041 J	0.00011 J	100%	0.000071	0.000041	0.00011	0.0016	0.0014	*0.0034* J B	100%	0.002133	0.0014	0.0034
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000066 J	0.00014 J	< 0.0002	67%	0.000135	0.000066	0.0002	0.0013	0.0021	0.0063	100%	0.003233	0.0013	0.0063
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.000011	0%				< 0.000013	0.000013 J	< 0.00011	33%	0.000045	0.000013	0.00011
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0028	0.0057	0.0017	100%	0.003400	0.0017	0.0057	*0.016* B	0.0096	*0.072* B	100%	0.032533	0.0096	0.072
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000098 J	0.00017 J	0.0001 J	100%	0.000123	0.000098	0.00017	0.0023	0.0032	*0.01* B	100%	0.005167	0.0023	0.01
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	< 0.000019	0.000052 J	0.000041 J	67%	0.000037	0.000019	0.000052	*0.00092* B	*0.0011* B	*0.0022* J B	100%	0.001407	0.00092	0.0022
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00041	< 0.0006	0%				< 0.00041	< 0.00040	< 0.00061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00061	< 0.00041	< 0.00074	0%				< 0.00061	< 0.0004	< 0.00075	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00082	< 0.00064	0%				< 0.00031	< 0.00080	< 0.00065	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00051	< 0.00051	< 0.00063	0%				< 0.00051	< 0.00050	< 0.00064	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00082	< 0.00076	0%				< 0.00041	< 0.00080	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00071	< 0.00071	< 0.00062	0%				< 0.00071	< 0.0007	< 0.00063	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	*0.14* B	*0.32* B	0.083	100%	0.181000	0.083	0.32	0.013	0.022	0.013	100%	0.016000	0.013	0.022
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00031	0%				< 0.0013	< 0.0013	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00051	< 0.00082	< 0.00048	0%				< 0.00051	< 0.00080	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00051	< 0.00082	< 0.00058	0%				< 0.00051	< 0.00080	< 0.00059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00051	< 0.00041	< 0.00072	0%				< 0.00051	< 0.00040	< 0.00073	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00061	< 0.00051	< 0.00073	0%				< 0.00061	< 0.0005	< 0.00074	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00061	< 0.00092	< 0.00093	0%				< 0.00061	< 0.0009	< 0.00094	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00091	< 0.00061	< 0.0013	0%				< 0.00092	< 0.0006	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00051	< 0.00071	< 0.00035	0%				< 0.00051	< 0.00070	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00051	< 0.00061	< 0.00068	0%				< 0.00051	< 0.00060	< 0.00069	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00051	< 0.00061	< 0.0007	0%				< 0.00051	< 0.00060	< 0.00071	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00085	0%				< 0.0020	< 0.0008	< 0.00086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.051	0%				< 0.0023	< 0.0002	< 0.052	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00061	< 0.00061	< 0.00087	0%				< 0.00061	< 0.0006	< 0.00088	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00041	< 0.00079	0%				< 0.001	< 0.0004	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00061	< 0.00041	< 0.00069	0%				< 0.00061	< 0.0004	< 0.0007	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00130* J B	< 0.00092	< 0.0012	33%	0.001140	0.00092	0.0013	*0.00077* J B	*0.00140* J B	< 0.0012	67%	0.001123	0.00077	0.0014
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00061	< 0.0016	< 0.00093	0%				< 0.00061	< 0.0016	< 0.00094	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00071	< 0.0013	0%				< 0.00041	< 0.00070	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00071	< 0.00069	0%				< 0.00041	< 0.00070	< 0.0007	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0036 J	0.0089 J	< 0.00084	67%	0.004447	0.00084	0.0089	0.004 J	< 0.0009	< 0.00085	33%	0.001917	0.00085	0.004
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00061	< 0.0011	< 0.00071	0%				< 0.00061	< 0.0011	< 0.00072	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10^{-7}	< 0.00051	< 0.00100	< 0.00098	0%				< 0.00051	< 0.00100	< 0.00099	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00061	< 0.00071	< 0.00098	0%				< 0.00061	< 0.0007	< 0.00099	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00051	< 0.00061	< 0.00041	0%				< 0.00051	< 0.00060	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00061	< 0.00061	< 0.001	0%				< 0.00061	< 0.0006	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00061	< 0.00061	< 0.00082	0%				< 0.00061	0.00062 J	< 0.00082	33%	0.000683	0.00061	0.00082
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00061	< 0.00041	< 0.00081	0%				< 0.00061	< 0.0004	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00093	0%				< 0.001	< 0.0021	< 0.00094	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00061	< 0.00031	< 0.001	0%				< 0.00061	< 0.0003	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00051	< 0.00073	0%				< 0.00041	< 0.00050	< 0.00074	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00061	< 0.00061	< 0.00078	0%				< 0.00061	< 0.0006	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00071	< 0.00061	< 0.00032	0%				< 0.00071	< 0.0006	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00031	< 0.00038	0%				0.085	0.044	0.018	100%	0.049000	0.018	0.085

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-817D 11/1/2012	MW-817D Dup 11/1/2012	MW-817D 7/17/2013	MW-817D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-817S 11/1/2012	MW-817S 7/17/2013	MW-817S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00048 J	0.00047 J	0.00041 J	0.00031 J	100%	0.000418	0.00031	0.00048	*0.085* B	0.0059	0.012	100%	0.03430	0.0059	0.085
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0005	0.00072	0.00058	0.00072	100%	0.000630	0.0005	0.00072	0.0021	0.001	0.00088	100%	0.00133	0.00088	0.0021
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.0003* J B	*0.0004* J B	*0.00032* J B	*0.00039* J B	100%	0.000353	0.0003	0.0004	*0.0042* B	*0.00068* B	*0.00041* J B	100%	0.00176	0.00041	0.0042
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00011* B	*0.00015* B	*0.000055* J B	*0.000062* J B	100%	0.000094	0.000055	0.00015	*0.001* B	***0.00034*** B	*0.00014* B	100%	0.00049	0.00014	0.001
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	*0.000061* J B	*0.000088* J B	*0.000031* J B	*0.00018* B	100%	0.000090	0.000031	0.00018	***0.00086*** A(MCL,I,DCL),B	***0.00086*** A(MCL,I,DCL),B	***0.00032*** A(MCL),B	100%	0.00068	0.00032	0.00086
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00011	0.00012	0.00004 J	0.000042 J	100%	0.000078	0.00004	0.00012	0.00085	0.00086	0.00014	100%	0.00062	0.00014	0.00086
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000024 J	0.000046 J	0.000022 J	0.000021 J	100%	0.000028	0.000021	0.000046	0.00032	0.00044	0.00014 J	100%	0.00030	0.00014	0.00044
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.000027 J	0.000051 J	0.000019 J	0.000021 J	100%	0.000030	0.000019	0.000051	0.00028	0.00026	0.000032 J	100%	0.00019	0.000032	0.00028
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000084 J	0.000096 J	0.000034 J	0.000042 J	100%	0.000064	0.000034	0.000096	0.00065	0.00032 J	0.000053 J	100%	0.00034	0.000053	0.00065
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.000016	< 0.000015	0%				0.000084 J	0.0001	0.000021 J	100%	0.00007	0.000021	0.0001
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00059	0.00087	0.00042 J	0.00044 J	100%	0.000580	0.00042	0.00087	*0.018* B	*0.0022* B	0.0017	100%	0.00730	0.0017	0.018
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.001	0.00092	0.0012	0.00096	100%	0.001020	0.00092	0.0012	*0.03* B	0.0031	0.0016	100%	0.01157	0.0016	0.03
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.000027** A(GW)	**0.000048** A(GW)	0.000021 J	< 0.000011	75%	0.000027	0.000011	0.000048	0.00036 A(GW)	**0.00045** A(GW)	**0.00028** A(GW)	100%	0.00036	0.00028	0.00045
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0046	0.0047	0.0034	0.0043	100%	0.004250	0.0034	0.0047	*0.13* B	0.0077	0.00059	100%	0.04610	0.00059	0.13
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.0015	0.0018	0.0015	0.0014	100%	0.001550	0.0014	0.0018	0.0027	0.00057	0.000095 J	100%	0.00112	0.000095	0.0027
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.00044* J B	*0.00064* B	0.00028 J	0.00027 J	100%	0.000408	0.00027	0.00064	*0.0071* B	*0.0014* B	*0.001* B	100%	0.00317	0.001	0.0071
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00040	< 0.00044	< 0.00061	0%				< 0.00040	< 0.00040	< 0.00062	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.0006	< 0.00044	< 0.00076	0%				< 0.00061	< 0.0004	< 0.00077	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00030	< 0.00088	< 0.00066	0%				< 0.00030	< 0.00080	< 0.00066	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00050	< 0.00055	< 0.00065	0%				< 0.00051	< 0.00050	< 0.00065	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00040	< 0.00088	< 0.00077	0%				< 0.00040	< 0.00080	< 0.00078	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.0007	< 0.00077	< 0.00064	0%				< 0.00071	< 0.0007	< 0.00064	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.001	0.0013 J	0.0011 J	50%	0.001098	0.00099	0.0013	< 0.001	< 0.0004	< 0.00072	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.0014	< 0.00031	0%				< 0.0013	< 0.0013	< 0.00032	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00050	< 0.00088	< 0.00049	0%				< 0.00051	< 0.00080	< 0.00049	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00050	< 0.00088	< 0.00059	0%				< 0.00051	< 0.00080	< 0.0006	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00050	< 0.00044	< 0.00074	0%				< 0.00051	< 0.00040	< 0.00075	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.0006	< 0.00055	< 0.00075	0%				< 0.00061	< 0.0005	< 0.00076	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00099	< 0.00095	0%				< 0.00061	< 0.0009	< 0.00096	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.0009	< 0.00066	< 0.0014	0%				< 0.00091	< 0.0006	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00050	< 0.00077	< 0.00035	0%				< 0.00051	< 0.00070	< 0.00036	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00050	< 0.00066	< 0.0007	0%				< 0.00051	< 0.00060	< 0.00071	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00050	< 0.00066	< 0.00072	0%				< 0.00051	< 0.00060	< 0.00073	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0020	< 0.0009	< 0.00086	0%				< 0.0020	< 0.0008	< 0.00087	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0023	< 0.00022	< 0.052	0%				< 0.0023	< 0.0002	< 0.053	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00066	< 0.00089	0%				< 0.00061	< 0.0006	< 0.00089	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.001	< 0.00044	< 0.0008	0%				< 0.001	< 0.0004	< 0.00081	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00044	< 0.00071	0%				< 0.00061	< 0.0004	< 0.00072	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00120* J B	*0.00120* J B	< 0.00099	< 0.0012	50%	0.001148	0.00099	0.0012	< 0.00040	< 0.00090	< 0.0013	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0006	< 0.0018	< 0.00095	0%				< 0.00061	< 0.0016	< 0.00096	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	0.00050 J	< 0.00040	< 0.00077	< 0.0014	25%	0.000768	0.0004	0.0014	< 0.00040	< 0.00070	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00040	< 0.00077	< 0.00071	0%				< 0.00040	< 0.00070	< 0.00072	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0029 J	0.0021 J	*0.011* B	< 0.00085	75%	0.004213	0.00085	0.011	0.0026 J	0.0074 J	< 0.00086	67%	0.00362	0.00086	0.0074
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0006	< 0.0012	< 0.00073	0%				< 0.00061	< 0.0011	< 0.00074	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10-7	< 0.00050	< 0.00050	< 0.00110	< 0.001	0%				< 0.00051	< 0.00100	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.0006	< 0.00077	< 0.001	0%				< 0.00061	< 0.0007	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00050	< 0.00066	< 0.00042	0%				< 0.00051	< 0.00060	< 0.00042	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.0006	< 0.00066	< 0.001	0%				< 0.00061	< 0.0006	< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.0006	< 0.00066	< 0.00083	0%				< 0.00061	< 0.0006	< 0.00084	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.0006	< 0.00044	< 0.00082	0%				< 0.00061	< 0.0004	< 0.00083	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.001	< 0.0023	< 0.00095	0%				< 0.001	< 0.0021	< 0.00096	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.0006	< 0.00033	< 0.001	0%				< 0.00061	< 0.0003	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00040	< 0.00055	< 0.00075	0%				< 0.00040	< 0.00050	< 0.00076	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.0006	< 0.00066	< 0.00079	0%				< 0.00061	< 0.0006	< 0.0008	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.0007	< 0.00066	< 0.00032	0%				< 0.00071	< 0.0006	< 0.00033	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00040	< 0.00033	< 0.00039	0%				0.00860 J	< 0.00030	< 0.00039	33%	0.00310	0.0003	0.0086

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-818S 11/1/2012	MW-818S 7/17/2013	MW-818S 9/14/2017	MW-818S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-819D 11/2/2012	MW-819D 7/17/2013	MW-819D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	*0.2* B	*0.063* B	*0.08* B	*0.083* B	100%	0.10650	0.063	0.2	0.000068 J	0.000048 J	< 0.00004	67%	0.000052	0.00004	0.000068
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.0091	0.0022	0.0084	0.009	100%	0.00718	0.0022	0.0091	0.00029 J	0.00028 J	0.00011 J	100%	0.000227	0.00011	0.00029
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.006* B	*0.0017* B	*0.0023* B	*0.0024* B	100%	0.00310	0.0017	0.006	0.00002 J	0.000024 J	*0.000041* J B	100%	0.000028	0.00002	0.000041
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00065* B	*0.00026* B	*0.00043* B	*0.00042* B	100%	0.00044	0.00026	0.00065	0.000017 J	0.000016 J	0.00002 J	100%	0.000018	0.000016	0.00002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	*0.00011* B	*0.000096* J B	***0.00031*** A(MCL),B	***0.0003*** A(MCL),B	100%	0.00020	0.000096	0.00031	< 0.0000099	< 0.000011	< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00017	0.00011	0.00016	0.00015	100%	0.00015	0.00011	0.00017	0.00002 J	< 0.000011	< 0.000019	33%	0.000017	0.000011	0.00002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.00003 J	0.000051 J	0.000053 J	0.000062 J	100%	0.00005	0.00003	0.000062	0.000022 J	< 0.000014	0.00023	67%	0.000089	0.000014	0.00023
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.000044 J	0.000045 J	0.000053 J	0.000052 J	100%	0.00005	0.000044	0.000053	< 0.000016	< 0.000018	0.00017	33%	0.000068	0.000016	0.00017
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00038 J	0.00014 J	0.00026 J	0.00026 J	100%	0.00026	0.00014	0.00038	< 0.000013	< 0.000014	0.00002 J	33%	0.000016	0.000013	0.00002
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0.000021 J	< 0.000015	0.000021 J	50%	0.00002	0.000015	0.000021	< 0.000015	< 0.000016	0.00019	33%	0.000074	0.000015	0.00019
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	*0.016* B	*0.0039* B	*0.0089* B	*0.0089* B	100%	0.00943	0.0039	0.016	< 0.0000099	0.000022 J	< 0.000022	33%	0.000018	0.0000099	0.000022
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	*0.062* B	*0.03* B	*0.032* B	*0.034* B	100%	0.03950	0.03	0.062	0.000096 J	0.000074 J	< 0.0002	67%	0.000123	0.000074	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.000026** A(GW)	**0.000048** A(GW)	**0.00023** A(GW)	**0.00024** A(GW)	100%	0.00014	0.000026	0.00024	< 0.000013	< 0.000014	**0.0004** A(GW)	33%	0.000142	0.000013	0.0004
Naphthalene	91-20-3	31	NE	2	2	0.013	*0.54* B	*0.12* B	*0.15* B	*0.16* B	100%	0.24250	0.12	0.54	*0.016* B	*0.013* B	0.0035	100%	0.010833	0.0035	0.016
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	*0.024* B	*0.0054* B	*0.0076* B	*0.0076* B	100%	0.01115	0.0054	0.024	0.000066 J	0.00009 J	< 0.00042	67%	0.000066	0.000042	0.00009
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.01* B	*0.0024* B	*0.0048* B	*0.0047* B	100%	0.00548	0.0024	0.01	< 0.000019	< 0.000021	0.0001 J	33%	0.000047	0.000019	0.0001
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00043	< 0.00062	< 0.00061	0%				< 0.00040	< 0.00044	< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00043	< 0.00077	< 0.00075	0%				< 0.00059	< 0.00044	< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00087	< 0.00066	< 0.00065	0%				< 0.00030	< 0.00088	< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00054	< 0.00065	< 0.00064	0%				< 0.00050	< 0.00055	< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00087	< 0.00078	< 0.00076	0%				< 0.00040	< 0.00088	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00076	< 0.00064	< 0.00063	0%				< 0.00069	< 0.00077	< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.00043	< 0.00072	< 0.0007	0%				0.0031 J	0.0041 J	0.004 J	100%	0.003733	0.0031	0.0041
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.00032	< 0.00031	0%				< 0.0013	< 0.0014	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00087	< 0.00049	< 0.00048	0%				< 0.00050	< 0.00088	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00087	< 0.0006	< 0.00059	0%				< 0.00050	< 0.00088	< 0.00058	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00043	< 0.00075	< 0.00073	0%				< 0.00050	< 0.00044	< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00054	< 0.00076	< 0.00074	0%				< 0.00059	< 0.00055	< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00098	< 0.00096	< 0.00094	0%				< 0.00059	< 0.00099	< 0.00093	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00065	< 0.0014	< 0.0013	0%				< 0.00089	< 0.00066	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00076	< 0.00036	< 0.00035	0%				< 0.00050	< 0.00077	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00065	< 0.00071	< 0.00069	0%				< 0.00050	< 0.00066	< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00065	< 0.00073	< 0.00071	0%				< 0.00050	< 0.00066	< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.00087	< 0.00086	0%				< 0.0020	< 0.0009	< 0.00085	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00022	< 0.053	< 0.052	0%				< 0.0023	< 0.00022	< 0.051	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00065	< 0.00089	< 0.00088	0%				< 0.00059	< 0.00066	< 0.00087	0%			
bis(2-Chloroethyl)ether[C]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00043	< 0.00081	< 0.00079	0%				< 0.00099	< 0.00044	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00043	< 0.00072	< 0.0007	0%				< 0.00059	< 0.00044	< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00068* J B	< 0.00098	< 0.0013	< 0.0012	25%	0.00104	0.00068	0.0013	*0.00075* J B	< 0.00099	< 0.0012	33%	0.000980	0.00075	0.0012
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0017	< 0.00096	< 0.00094	0%				< 0.00059	< 0.0018	< 0.00093	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00076	< 0.0014	< 0.0013	0%				< 0.00040	< 0.00077	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00076	< 0.00072	< 0.0007	0%				< 0.00040	< 0.00077	< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0024 J	0.0069 J	< 0.00086	< 0.00085	50%	0.00275	0.00085	0.0069	0.0031 J	0.0075 J	< 0.00084	67%	0.003813	0.00084	0.0075
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0012	< 0.00074	< 0.00072	0%				< 0.00059	< 0.0012	< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00110	< 0.001	< 0.00099	0%				< 0.00050	< 0.00110	< 0.00098	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00076	< 0.001	< 0.00099	0%				< 0.00059	< 0.00077	< 0.00098	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00065	< 0.00042	< 0.00041	0%				< 0.00050	< 0.00066	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00065	< 0.0011	< 0.001	0%				< 0.00059	< 0.00066	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00065	< 0.00084	< 0.00082	0%				< 0.00059	< 0.00066	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00043	< 0.00083	< 0.00081	0%				< 0.00059	< 0.00044	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0023	< 0.00096	< 0.00094	0%				< 0.00099	< 0.0023	< 0.00093	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00033	< 0.001	< 0.001	0%				< 0.00059	< 0.00033	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00054	< 0.00076	< 0.00074	0%				< 0.00040	< 0.00055	< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00065	< 0.0008	< 0.00078	0%				< 0.00059	< 0.00066	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00065	< 0.00033	< 0.00032	0%				< 0.00069	< 0.00066	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00040	< 0.00033	< 0.00039	< 0.00038	0%				0.05100	0.06700	0.0042 J	100%	0.040733	0.0042	0.067

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-819S 11/2/2012	MW-819S 7/17/2013	MW-819S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-820S 11/2/2012	MW-820S 7/18/2013	MW-820S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.012	0.012	0.015	100%	0.013000	0.012	0.015	*0.047* B	0.03	0.027	100%	0.034667	0.027	0.047
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.011	0.0072	0.014	100%	0.010733	0.0072	0.014	0.0044	0.0011 J	0.0029 J	100%	0.002800	0.0011	0.0044
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00018* J B	*0.0003* J B	*0.00042* J B	100%	0.000300	0.00018	0.00042	*0.0021* B	*0.0014* J B	*0.0015* J B	100%	0.001667	0.0014	0.0021
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000078* J B	*0.000042* J B	< 0.00011	67%	0.000077	0.000042	0.00011	*0.00031* J B	*0.0015* J B	*0.00061* J B	100%	0.000807	0.00031	0.0015
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	*0.000049* J B	*0.000046* J B	< 0.00023	67%	0.000108	0.000046	0.00023	*0.00018* J B	***0.00048*** J A(MCL,I,DCL),B	< 0.00022	67%	0.000293	0.00018	0.00048
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000093 J	0.000053 J	< 0.0002	67%	0.000115	0.000053	0.0002	0.00028 J	0.00061 J	0.00051 J	100%	0.000467	0.00028	0.00061
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000037 J	0.000024 J	< 0.00011	67%	0.000057	0.000024	0.00011	0.00011 J	< 0.00057	0.0002 J	67%	0.000293	0.00011	0.00057
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	0.000023 J	< 0.00017	33%	0.000070	0.000016	0.00017	< 0.000064	< 0.0007	0.0002 J	33%	0.000321	0.000064	0.0007
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000057 J	0.000038 J	< 0.0002	67%	0.000098	0.000038	0.0002	0.00022 J	0.00083 J	0.0004 J	100%	0.000483	0.00022	0.00083
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	< 0.00015	0%				< 0.00006	< 0.00065	< 0.00014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000043 J	0.00031 J	0.00031 J	100%	0.000221	0.000043	0.00031	0.0018 J	0.0011 J	*0.0021* J B	100%	0.001667	0.0011	0.0021
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0035	0.003	0.0051 J	100%	0.003867	0.003	0.0051	0.013	0.0094 J	0.0094	100%	0.010600	0.0094	0.013
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.00003** A(GW)	**0.000027** A(GW)	< 0.00011	67%	0.000056	0.000027	0.00011	**0.000088** A(GW)	< 0.00057	< 0.00011	33%	0.000256	0.000088	0.00057
Naphthalene	91-20-3	31	NE	2	2	0.013	*1.5* B	*0.61* B	*1.8* B	100%	1.303333	0.61	1.8	2.8 A(I,DCL),B	2.9 A(I,DCL),B	*1.7* B	100%	2.466667	1.7	2.9
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00081	0.00064	0.00052 J	100%	0.000657	0.00052	0.00081	*0.0076* B	*0.006* J B	*0.007* B	100%	0.006867	0.006	0.0076
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.00031* J B	0.00021 J	0.00021 J	100%	0.000243	0.00021	0.00031	*0.0015* J B	< 0.00083	*0.0016* J B	67%	0.001310	0.00083	0.0016
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00041	< 0.00041	< 0.0061	0%				< 0.00040	< 0.00043	< 0.006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00062	< 0.00041	< 0.0076	0%				< 0.0006	< 0.00043	< 0.0074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00031	< 0.00082	< 0.0066	0%				< 0.00030	< 0.00087	< 0.0064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00052	< 0.00051	< 0.0065	0%				< 0.00050	< 0.00054	< 0.0063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00041	< 0.00082	< 0.0077	0%				< 0.00040	< 0.00087	< 0.0075	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00072	< 0.00071	< 0.0064	0%				< 0.0007	< 0.00076	< 0.0062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.014	0.0022 J	< 0.0071	67%	0.007767	0.0022	0.014	0.0038 J	0.0012 J	< 0.0069	67%	0.003967	0.0012	0.0069
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.0031	0%				< 0.0013	< 0.0014	< 0.003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00052	< 0.00082	< 0.0049	0%				< 0.00050	< 0.00087	< 0.0047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00052	< 0.00082	< 0.0059	0%				< 0.00050	< 0.00087	< 0.0056	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00052	< 0.00041	< 0.0074	0%				< 0.00050	< 0.00043	< 0.0072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00062	< 0.00051	< 0.0075	0%				< 0.0006	< 0.00054	< 0.0073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00062	< 0.00092	< 0.0095	0%				< 0.0006	< 0.00098	< 0.0092	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00093	< 0.00061	< 0.014	0%				< 0.0009	< 0.00065	< 0.013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00052	< 0.00071	< 0.0035	0%				< 0.00050	< 0.00076	< 0.0034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00052	< 0.00061	< 0.007	0%				< 0.00050	< 0.00065	< 0.0068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00052	< 0.00061	< 0.0072	0%				< 0.00050	< 0.00065	< 0.007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0021	< 0.0008	< 0.0086	0%				< 0.0020	< 0.0009	< 0.0084	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0024	< 0.0002	< 0.52	0%				< 0.0023	< 0.00022	< 0.51	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00062	< 0.00061	< 0.0089	0%				< 0.0006	< 0.00065	< 0.0086	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00041	< 0.008	0%				< 0.001	< 0.00043	< 0.0078	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00062	< 0.00041	< 0.0071	0%				< 0.0006	< 0.00043	< 0.0069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00150* J B	*0.00092* J B	< 0.012	67%	0.004807	0.00092	0.012	< 0.00040	< 0.00098	< 0.012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00062	< 0.0016	< 0.0095	0%				< 0.0006	< 0.0017	< 0.0092	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00041	< 0.00071	< 0.014	0%				< 0.00040	< 0.00076	< 0.013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00041	< 0.00071	< 0.0071	0%				< 0.00040	< 0.00076	< 0.0069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.006 J	*0.012* B	< 0.0085	67%	0.008833	0.006	0.012	0.0034 J	0.0049 J	< 0.0083	67%	0.005533	0.0034	0.0083
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00062	< 0.0011	< 0.0073	0%				< 0.0006	< 0.0012	< 0.0071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00052	< 0.00100	< 0.01	0%				< 0.00050	< 0.00110	< 0.0097	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00062	< 0.00071	< 0.01	0%				< 0.0006	< 0.00076	< 0.0097	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00052	< 0.00061	< 0.0042	0%				< 0.00050	< 0.00065	< 0.004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00062	< 0.00061	< 0.01	0%				< 0.0006	< 0.00065	< 0.01	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00062	< 0.00061	< 0.0083	0%				< 0.0006	< 0.00065	< 0.0081	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00062	< 0.00041	< 0.0082	0%				< 0.0006	< 0.00043	< 0.008	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.0095	0%				< 0.001	< 0.0023	< 0.0092	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00062	< 0.00031	< 0.01	0%				< 0.0006	< 0.00033	< 0.01	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00041	< 0.00051	< 0.0075	0%				< 0.00040	< 0.00054	< 0.0073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00062	< 0.00061	< 0.0079	0%				< 0.0006	< 0.00065	< 0.0077	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00072	< 0.00061	< 0.0032	0%				< 0.0007	< 0.00065	< 0.0031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.12000	0.03500	0.031 J	100%	0.062000	0.031	0.12	0.033	0.04800	0.0061 J	100%	0.029033	0.0061	0.048

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-821D 11/2/2012	MW-821D 7/18/2013	MW-821D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-821S 11/2/2012	MW-821S 7/18/2013	MW-821S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00039 J	0.00023 J	0.00017 J	100%	0.000263	0.00017	0.00039	0.02	0.017	0.027	100%	0.021333	0.017	0.027
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00013 J	0.00017 J	0.00033 J	100%	0.000210	0.00013	0.00033	0.0092	0.0033 J	0.006	100%	0.006167	0.0033	0.0092
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000069* J B	*0.000042* J B	*0.000084* J B	100%	0.000065	0.000042	0.000084	*0.0017* B	*0.00081* J B	*0.0027* J B	100%	0.001737	0.00081	0.0027
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000043* J B	*0.000041* J B	0.000021 J	100%	0.000035	0.000021	0.000043	*0.00046* B	*0.00059* J B	*0.0013* B	100%	0.000783	0.00046	0.0013
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	*0.000024* J B	< 0.000023	33%	0.000019	0.00001	0.000024	***0.00026*** A(MCL),B	< 0.00022	***0.0027*** A(GW,MCL,I,DCL),B	67%	0.001060	0.00022	0.0027
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000036 J	0.000021 J	0.000021 J	100%	0.000026	0.000021	0.000036	0.00041	< 0.00022	0.0011	67%	0.000577	0.00022	0.0011
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000029 J	0.000014 J	< 0.000012	67%	0.000018	0.000012	0.000029	0.00012 J	< 0.00029	0.00052 J	67%	0.000310	0.00012	0.00052
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000017	< 0.000017	0%				0.00011	< 0.00035	0.00052 J	67%	0.000327	0.00011	0.00052
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000031 J	0.000025 J	0.000042 J	100%	0.000033	0.000025	0.000042	0.00052	0.00035 J	**0.0018** J A(GW)	100%	0.000890	0.00035	0.0018
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000016	< 0.000015	0%				< 0.000015	< 0.00033	0.00021 J	33%	0.000185	0.000015	0.00033
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00019 J	0.000061 J	0.000063 J	100%	0.000105	0.000061	0.00019	*0.0029* B	0.00064 J	*0.0041* J B	100%	0.002547	0.00064	0.0041
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.00018 J	0.000097 J	< 0.00021	67%	0.000162	0.000097	0.00021	0.0052	0.0075 J	0.011	100%	0.007900	0.0052	0.011
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000014	< 0.000012	0%				**0.00013** A(GW)	< 0.00029	< 0.00011	33%	0.000177	0.00011	0.00029
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0091	0.011	0.0058	100%	0.008633	0.0058	0.011	*1.3* B	*0.27* B	*0.52* B	100%	0.696667	0.27	1.3
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00013 J	0.00017 J	0.00013 J	100%	0.000143	0.00013	0.00017	*0.0067* B	0.0027 J	*0.012* B	100%	0.007133	0.0027	0.012
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.00014 J	0.000057 J	0.000042 J	100%	0.000080	0.000042	0.00014	*0.0018* B	*0.00062* J B	*0.0035* J B	100%	0.001973	0.00062	0.0035
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00043	< 0.00062	0%				< 0.00041	< 0.00044	< 0.0061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0006	< 0.00043	< 0.00077	0%				< 0.00061	< 0.00044	< 0.0075	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00087	< 0.00066	0%				< 0.00031	< 0.00088	< 0.0065	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00054	< 0.00065	0%				< 0.00051	< 0.00055	< 0.0064	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00087	< 0.00078	0%				< 0.00041	< 0.00088	< 0.0076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0007	< 0.00076	< 0.00064	0%				< 0.00071	< 0.00077	< 0.0063	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.0014 J	< 0.00043	< 0.00072	33%	0.000850	0.00043	0.0014	0.0067 J	0.0045 J	< 0.007	67%	0.006067	0.0045	0.007
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.00032	0%				< 0.0013	< 0.0014	< 0.0031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00087	< 0.00049	0%				< 0.00051	< 0.00088	< 0.0048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00087	< 0.0006	0%				< 0.00051	< 0.00088	< 0.0059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00043	< 0.00075	0%				< 0.00051	< 0.00044	< 0.0073	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0006	< 0.00054	< 0.00076	0%				< 0.00061	< 0.00055	< 0.0074	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0006	< 0.00098	< 0.00096	0%				< 0.00061	< 0.00099	< 0.0094	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0009	< 0.00065	< 0.0014	0%				< 0.00092	< 0.00066	< 0.013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00076	< 0.00036	0%				< 0.00051	< 0.00077	< 0.0035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00065	< 0.00071	0%				< 0.00051	< 0.00066	< 0.0069	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00065	< 0.00073	0%				< 0.00051	< 0.00066	< 0.0071	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.00087	0%				< 0.0020	< 0.0009	< 0.0086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00022	< 0.053	0%				< 0.0023	< 0.00022	< 0.52	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00065	< 0.00089	0%				< 0.00061	< 0.00066	< 0.0088	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00043	< 0.00081	0%				< 0.001	< 0.00044	< 0.0079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00043	< 0.00072	0%				< 0.00061	< 0.00044	< 0.007	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00088* J B	< 0.00098	< 0.0013	33%	0.001053	0.00088	0.0013	< 0.00041	< 0.00099	< 0.012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0006	< 0.0017	< 0.00096	0%				< 0.00061	< 0.0018	< 0.0094	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00076	< 0.0014	0%				< 0.00041	< 0.00077	< 0.013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00076	< 0.00072	0%				< 0.00041	< 0.00077	< 0.007	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0041 J	0.0064 J	< 0.00086	67%	0.003787	0.00086	0.0064	0.0049 J	0.0088 J	< 0.0085	67%	0.007400	0.0049	0.0088
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0006	< 0.0012	< 0.00074	0%				< 0.00061	< 0.0012	< 0.0072	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00110	< 0.001	0%				< 0.00051	< 0.00110	< 0.0099	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.0006	< 0.00076	< 0.001	0%				< 0.00061	< 0.00077	< 0.0099	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00065	< 0.00042	0%				< 0.00051	< 0.00066	< 0.0041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0006	< 0.00065	< 0.0011	0%				< 0.00061	< 0.00066	< 0.01	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0006	< 0.00065	< 0.00084	0%				< 0.00061	< 0.00066	< 0.0082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0006	< 0.00043	< 0.00083	0%				< 0.00061	< 0.00044	< 0.0081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0023	< 0.00096	0%				< 0.001	< 0.0023	< 0.0094	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0006	< 0.00033	< 0.001	0%				< 0.00061	< 0.00033	< 0.01	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00054	< 0.00076	0%				< 0.00041	< 0.00055	< 0.0074	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0006	< 0.00065	< 0.0008	0%				< 0.00061	< 0.00066	< 0.0078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0007	< 0.00065	< 0.00033	0%				< 0.00071	< 0.00066	< 0.0032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.04100	0.05100	0.014	100%	0.035333	0.014	0.051	0.04200	0.04300	0.0089 J	100%	0.031300	0.0089	0.043

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-822D 10/31/2012	MW-822D 7/16/2013	MW-822D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-822S 10/31/2012	MW-822S 7/16/2013	MW-822S 9/13/2017	MW-822S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	< 0.000016	< 0.000015	< 0.000039	0%				0.000025 J	< 0.000016	< 0.00004	< 0.000041	25%	0.000031	0.000016	0.000041
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	< 0.000014	< 0.000013	< 0.000014	0%				< 0.000013	< 0.000014	0.000052 J	< 0.000015	25%	0.000024	0.000013	0.000052
Anthracene	120-12-7	0.043	NE	31	31	0.000035	< 0.000016	< 0.000015	0.00002 J	33%	0.000017	0.000015	0.00002	< 0.000015	< 0.000016	< 0.000014	< 0.000015	0%			
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00003* J B	< 0.000015	*0.00003* J B	67%	0.000025	0.000015	0.00003	0.000017 J	< 0.000016	< 0.000011	< 0.000012	25%	0.000014	0.000011	0.000017
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.00001	< 0.000022	0%				< 0.00001	< 0.00001	< 0.000023	< 0.000023	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000041 J	0.000014 J	0.00003 J	100%	0.000028	0.000014	0.000041	0.000018 J	0.000012 J	< 0.00002	< 0.00002	50%	0.000018	0.000012	0.00002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000014	0.000022 J	0.00003 J	67%	0.000022	0.000014	0.00003	< 0.000013	0.000023 J	< 0.000011	< 0.000012	25%	0.000015	0.000011	0.000023
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000017	< 0.000016	0.00002 J	33%	0.000018	0.000016	0.00002	< 0.000016	< 0.000017	< 0.000016	< 0.000017	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000023 J	< 0.000013	< 0.000019	33%	0.000018	0.000013	0.000023	< 0.000013	< 0.000014	< 0.00002	< 0.00002	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000016	0.000015 J	< 0.000014	33%	0.000015	0.000014	0.000016	< 0.000015	0.000017 J	< 0.000014	< 0.000015	25%	0.000015	0.000014	0.000017
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000045 J	< 0.00001	0.00004 J	67%	0.000032	0.00001	0.000045	< 0.00001	0.000011 J	< 0.000023	< 0.000023	25%	0.000017	0.00001	0.000023
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.00001	< 0.00001	< 0.0002	0%				< 0.00001	< 0.00001	< 0.00021	< 0.00021	0%			
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000014	0.000015 J	< 0.000011	33%	0.000013	0.000011	0.000015	< 0.000013	0.000017 J	< 0.000011	< 0.000012	25%	0.000013	0.000011	0.000017
Naphthalene	91-20-3	31	NE	2	2	0.013	0.000038 J	0.00074	< 0.000032	67%	0.000270	0.000032	0.00074	0.0015	0.0021	0.0028	< 0.000053 U	75%	0.001613	0.000053	0.0028
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000026 J	0.00002 J	< 0.000041	67%	0.000029	0.00002	0.000041	0.000025 J	0.000034 J	< 0.000042	< 0.000043	50%	0.000036	0.000025	0.000043
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.000045 J	< 0.000019	0.00004 J	67%	0.000035	0.000019	0.000045	< 0.000019	< 0.00002	< 0.000016	< 0.000017	0%			
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00042	< 0.00041	< 0.0006	0%				< 0.00040	< 0.00042	< 0.00061	< 0.00062	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00063	< 0.00041	< 0.00074	0%				< 0.00061	< 0.00042	< 0.00075	< 0.00077	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00031	< 0.00082	< 0.00064	0%				< 0.00030	< 0.00083	< 0.00065	< 0.00066	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00052	< 0.00051	< 0.00063	0%				< 0.00051	< 0.00052	< 0.00064	< 0.00065	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00042	< 0.00082	< 0.00075	0%				< 0.00040	< 0.00083	< 0.00076	< 0.00078	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00073	< 0.00071	< 0.00062	0%				< 0.00071	< 0.00073	< 0.00063	< 0.00064	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.001	< 0.00041	< 0.00069	0%				< 0.001	< 0.00042	< 0.0007	< 0.00072	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0014	< 0.0013	< 0.0003	0%				< 0.0013	< 0.0014	< 0.00031	< 0.00032	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00052	< 0.00082	< 0.00047	0%				< 0.00051	< 0.00083	< 0.00048	< 0.00049	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00052	< 0.00082	< 0.00058	0%				< 0.00051	< 0.00083	< 0.00059	< 0.0006	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00052	< 0.00041	< 0.00072	0%				< 0.00051	< 0.00042	< 0.00073	< 0.00075	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00063	< 0.00051	< 0.00073	0%				< 0.00061	< 0.00052	< 0.00074	< 0.00076	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00063	< 0.00092	< 0.00092	0%				< 0.00061	< 0.00094	< 0.00094	< 0.00096	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00094	< 0.00061	< 0.0013	0%				< 0.00091	< 0.00063	< 0.0013	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00052	< 0.00071	< 0.00034	0%				< 0.00051	< 0.00073	< 0.00035	< 0.00036	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00052	< 0.00061	< 0.00068	0%				< 0.00051	< 0.00063	< 0.00069	< 0.00071	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00052	< 0.00061	< 0.0007	0%				< 0.00051	< 0.00063	< 0.00071	< 0.00073	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0021	< 0.0008	< 0.00084	0%				< 0.0020	< 0.0008	< 0.00086	< 0.00087	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0024	< 0.0002	< 0.051	0%				< 0.0023	< 0.00021	< 0.052	< 0.053	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00063	< 0.00061	< 0.00086	0%				< 0.00061	< 0.00063	< 0.00088	< 0.00089	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00041	< 0.00078	0%				< 0.001	< 0.00042	< 0.00079	< 0.00081	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00063	< 0.00041	< 0.00069	0%				< 0.00061	< 0.00042	< 0.0007	< 0.00072	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00056* J B	< 0.00092	< 0.0012	33%	0.000893	0.00056	0.0012	*0.00042* J B	< 0.00094	< 0.0012	< 0.0013	25%	0.000965	0.00042	0.0013
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00063	< 0.0016	< 0.00092	0%				< 0.00061	< 0.0017	< 0.00094	< 0.00096	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00042	< 0.00071	< 0.0013	0%				< 0.00040	< 0.00073	< 0.0013	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00042	< 0.00071	< 0.00069	0%				< 0.00040	< 0.00073	< 0.0007	< 0.00072	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.002 J	< 0.00092	< 0.00083	33%	0.001250	0.00083	0.002	0.0018 J	< 0.00094	< 0.00085	< 0.00086	25%	0.001113	0.00085	0.0018
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00063	< 0.0011	< 0.00071	0%				< 0.00061	< 0.0011	< 0.00072	< 0.00074	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00052	< 0.00100	< 0.00097	0%				< 0.00051	< 0.00100	< 0.00099	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00063	< 0.00071	< 0.00097	0%				< 0.00061	< 0.00073	< 0.00099	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00052	< 0.00061	< 0.0004	0%				< 0.00051	< 0.00063	< 0.00041	< 0.00042	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00063	< 0.00061	< 0.001	0%				< 0.00061	< 0.00063	< 0.001	< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00063	< 0.00061	< 0.00081	0%				< 0.00061	< 0.00063	< 0.00082	< 0.00084	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00063	< 0.00041	< 0.0008	0%				< 0.00061	< 0.00042	< 0.00081	< 0.00083	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00092	0%				< 0.001	< 0.0022	< 0.00094	< 0.00096	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00063	< 0.00031	< 0.001	0%				< 0.00061	< 0.00031	< 0.001	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00042	< 0.00051	< 0.00073	0%				< 0.00040	< 0.00052	< 0.00074	< 0.00076	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00063	< 0.00061	< 0.00077	0%				< 0.00061	< 0.00063	< 0.00078	< 0.0008	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00073	< 0.00061	< 0.00031	0%				< 0.00071	< 0.00063	< 0.00032	< 0.00033	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00042	< 0.00031	< 0.00037	0%				< 0.00040	< 0.00031	0.0042 J	< 0.00039	25%	0.001325	0.00031	0.0042

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-823D 11/1/2012	MW-823D 7/17/2013	MW-823D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-823S 11/1/2012	MW-823S 7/17/2013	MW-823S-Dup 7/17/2013	MW-823S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00041 J	0.000073 J	0.000043 J	100%	0.000175	0.000043	0.00041	0.0073	0.0021	0.0017	0.0012	100%	0.0031	0.0012	0.0073
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00017 J	0.0002 J	0.00021 J	100%	0.000193	0.00017	0.00021	0.012	0.0026	0.0022	0.0007	100%	0.0044	0.0007	0.012
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000043* J B	*0.000043* J B	*0.000065* J B	100%	0.000050	0.000043	0.000065	*0.0011* B	*0.0004* J B	*0.00024* J B	*0.0002* J B	100%	0.0005	0.0002	0.0011
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000027* J B	0.000024 J	0.000022 J	100%	0.000024	0.000022	0.000027	*0.00022* B	*0.000083* J B	*0.000043* J B	*0.000053* J B	100%	0.0001	0.000043	0.00022
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.00001	< 0.000024	0%				*0.000065* J B	*0.000023* J B	0.000013 J	***0.00021*** A(MCL),B	100%	0.0001	0.000013	0.00021
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000024 J	< 0.00001	< 0.000021	33%	0.000018	0.00001	0.000024	0.0001	0.000031 J	< 0.00001	0.000021 J	75%	0.0000	0.00001	0.0001
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000021 J	< 0.000013	0.000054 J	67%	0.000029	0.000013	0.000054	0.000038 J	< 0.000013	< 0.000013	< 0.000012	25%	0.0000	0.000012	0.000038
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.000016	0.000043 J	33%	0.000025	0.000016	0.000043	0.00003 J	0.000024 J	< 0.000016	< 0.000017	50%	0.0000	0.000016	0.00003
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000013	< 0.000021	0%				0.00017 J	0.0002 J	0.000028 J	0.000032 J	100%	0.0001	0.000028	0.0002
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000015	0.000043	33%	0.000024	0.000015	0.000043	< 0.000015	< 0.000015	< 0.000015	< 0.000015	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000083 J	0.000029 J	< 0.000024	67%	0.000045	0.000024	0.000083	*0.0036* B	0.00062	0.0005 J	0.00068	100%	0.0014	0.0005	0.0036
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.00002 J	0.000026 J	< 0.00022	67%	0.000089	0.00002	0.00022	0.0063	0.0025	0.0021	0.0004 J	100%	0.0028	0.0004	0.0063
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000013	< 0.000012	0%				**0.000029** A(GW)	0.000013 J	< 0.000013	**0.00019** A(GW)	75%	0.0001	0.000013	0.00019
Naphthalene	91-20-3	31	NE	2	2	0.013	0.002	0.002	0.0014	100%	0.001800	0.0014	0.002	0.00038 J	0.0013	0.0011	0.0014	100%	0.0010	0.00038	0.0014
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00004 J	0.000069 J	< 0.000045	67%	0.000051	0.00004	0.000069	*0.005* B	0.001	0.00087	0.00036 J	100%	0.0018	0.00036	0.005
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.00012 J	< 0.000019	< 0.000017	33%	0.000052	0.000017	0.00012	*0.0027* B	*0.00051* B	0.00023 J	*0.00041* J B	100%	0.0010	0.00023	0.0027
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00041	< 0.00040	< 0.00064	0%				< 0.00040	< 0.00040	< 0.00040	< 0.00063	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00061	< 0.0004	< 0.00079	0%				< 0.00059	< 0.0004	< 0.0004	< 0.00078	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00031	< 0.00080	< 0.00068	0%				< 0.00030	< 0.00080	< 0.00080	< 0.00067	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00051	< 0.00050	< 0.00067	0%				< 0.00050	< 0.00050	< 0.00050	< 0.00066	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00041	< 0.00080	< 0.0008	0%				< 0.00040	< 0.00080	< 0.00080	< 0.00079	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00071	< 0.0007	< 0.00066	0%				< 0.00069	< 0.0007	< 0.0007	< 0.00065	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.045	0.056	0.039	100%	0.046667	0.039	0.056	< 0.00099	< 0.0004	< 0.0004	< 0.00072	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00033	0%				< 0.0013	< 0.0013	< 0.0013	< 0.00032	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00051	< 0.00080	< 0.00051	0%				< 0.00050	< 0.00080	< 0.00080	< 0.0005	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00051	< 0.00080	< 0.00062	0%				< 0.00050	< 0.00080	< 0.00080	< 0.00061	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00051	< 0.00040	< 0.00077	0%				< 0.00050	< 0.00040	< 0.00040	< 0.00076	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00061	< 0.0005	< 0.00078	0%				< 0.00059	< 0.0005	< 0.0005	< 0.00077	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00061	< 0.0009	< 0.00099	0%				< 0.00059	< 0.0009	< 0.0009	< 0.00097	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00092	< 0.0006	< 0.0014	0%				< 0.00089	< 0.0006	< 0.0006	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00051	< 0.00070	< 0.00037	0%				< 0.00050	< 0.00070	< 0.00070	< 0.00036	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00051	< 0.00060	< 0.00073	0%				< 0.00050	< 0.00060	< 0.00060	< 0.00071	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00051	< 0.00060	< 0.00075	0%				< 0.00050	< 0.00060	< 0.00060	< 0.00073	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.0009	0%				< 0.0020	< 0.0008	< 0.0008	< 0.00088	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.054	0%				< 0.0023	< 0.0002	< 0.0002	< 0.053	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00061	< 0.0006	< 0.00092	0%				< 0.00059	< 0.0006	< 0.0006	< 0.0009	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.0004	< 0.00084	0%				< 0.00099	< 0.0004	< 0.0004	< 0.00082	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00061	< 0.0004	< 0.00074	0%				< 0.00059	< 0.0004	< 0.0004	< 0.00072	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00076* J B	< 0.00090	< 0.0013	33%	0.000987	0.00076	0.0013	*0.00076* J B	< 0.00090	< 0.00090	< 0.0013	25%	0.0010	0.00076	0.0013
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00061	< 0.0016	< 0.00099	0%				< 0.00059	< 0.0016	< 0.0016	< 0.00097	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00041	< 0.00070	< 0.0014	0%				< 0.00040	< 0.00070	< 0.00070	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00041	< 0.00070	< 0.00074	0%				< 0.00040	< 0.00070	< 0.00070	< 0.00072	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0031 J	0.0069 J	< 0.00089	67%	0.003630	0.00089	0.0069	0.0028 J	0.0065 J	0.0055 J	< 0.00087	75%	0.0039	0.00087	0.0065
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00061	< 0.0011	< 0.00076	0%				< 0.00059	< 0.0011	< 0.0011	< 0.00074	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00051	< 0.00100	< 0.001	0%				< 0.00050	< 0.00100	< 0.00100	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00061	< 0.0007	< 0.001	0%				< 0.00059	< 0.0007	< 0.0007	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00051	< 0.00060	< 0.00043	0%				< 0.00050	< 0.00060	< 0.00060	< 0.00043	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00061	< 0.0006	< 0.0011	0%				< 0.00059	< 0.0006	< 0.0006	< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00061	< 0.0006	< 0.00087	0%				< 0.00059	< 0.0006	< 0.0006	< 0.00085	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00061	< 0.0004	< 0.00086	0%				< 0.00059	< 0.0004	< 0.0004	< 0.00084	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0021	< 0.00099	0%				< 0.00099	< 0.0021	< 0.0021	< 0.00097	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00061	< 0.0003	< 0.0011	0%				< 0.00059	< 0.0003	< 0.0003	< 0.0011	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00041	< 0.00050	< 0.00078	0%				< 0.00040	< 0.00050	< 0.00050	< 0.00077	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00061	< 0.0006	< 0.00083	0%				< 0.00059	< 0.0006	< 0.0006	< 0.00081	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00071	< 0.0006	< 0.00034	0%				< 0.00069	< 0.0006	< 0.0006	< 0.00033	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.032	0.008 J	0.012	100%	0.017200	0.0076	0.032	0.015	0.001 J	0.008 J	0.00083 J	100%	0.0063	0.00083	0.015

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
U Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
J+ Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
J- Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
UJ Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-824D 11/1/2012	MW-824D 7/18/2013	MW-824D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-824S 11/1/2012	MW-824S 7/15/2013	MW-824S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																				
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.001	0.00032 J	0.00043 J	100%	0.000583	0.00032	0.001	0.00028 J	0.000021 J	< 0.000039	67%	0.000113	0.000021	0.00028
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00023 J	0.00024 J	0.00034 J	100%	0.000270	0.00023	0.00034	0.000039 J	0.000049 J	0.00005 J	100%	0.000046	0.000039	0.00005
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00029* J B	*0.00022* J B	*0.00024* J B	100%	0.000250	0.00022	0.00029	*0.000045* J B	*0.000038* J B	*0.00006* J B	100%	0.000048	0.000038	0.00006
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000071* J B	*0.00037* J B	*0.000031* J B	100%	0.000157	0.000031	0.00037	0.000021 J	0.00002 J	0.00002 J	100%	0.000020	0.00002	0.000021
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.0000099	*0.00012* J B	< 0.000023	33%	0.000051	0.0000099	0.00012	< 0.0000099	*0.000021* J B	< 0.000022	33%	0.000018	0.0000099	0.000022
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00011	< 0.0001	< 0.00002	33%	0.000077	0.00002	0.00011	0.000014 J	0.000027 J	< 0.000019	67%	0.000020	0.000014	0.000027
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000023 J	< 0.00013	< 0.000011	33%	0.000055	0.000011	0.00013	< 0.000013	0.00004 J	< 0.000011	33%	0.000021	0.000011	0.00004
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.000087 J	< 0.00016	< 0.00002	33%	0.000088	0.000017	0.00016	< 0.000016	0.000021 J	< 0.000016	33%	0.000018	0.000016	0.000021
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000034 J	0.00017 J	< 0.00002	67%	0.000075	0.00002	0.00017	< 0.000013	0.000027 J	< 0.000019	33%	0.000020	0.000013	0.000027
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.00015	< 0.000015	0%				< 0.000015	0.000027 J	< 0.000014	33%	0.000019	0.000014	0.000027
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00027 J	0.00025 J	0.00011 J	100%	0.000210	0.00011	0.00027	0.000052 J	0.000044 J	< 0.000022	67%	0.000039	0.000022	0.000052
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.00035 J	0.00029 J	0.00029 J	100%	0.000310	0.00029	0.00035	0.00007 J	0.000023 J	< 0.0002	67%	0.000098	0.000023	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.00013	< 0.000011	0%				< 0.000013	**0.000029** A(GW)	< 0.000011	33%	0.000018	0.000011	0.000029
Naphthalene	91-20-3	31	NE	2	2	0.013	0.01	0.0091	0.0026	100%	0.007233	0.0026	0.01	0.0012	0.00016 J	< 0.00028 U	67%	0.000540	0.00016	0.0012
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00086	0.00071 J	0.00036 J	100%	0.000643	0.00036	0.00086	0.000069 J	0.000076 J	< 0.000041	67%	0.000062	0.000041	0.000076
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.00027 J	0.00027 J	0.000094 J	100%	0.000211	0.000094	0.00027	0.000079 J	0.000027 J	< 0.000016	67%	0.000041	0.000016	0.000079
SVOCs (mg/L)																				
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00040	< 0.00061	0%				< 0.00040	< 0.00043	< 0.00059	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.0004	< 0.00076	0%				< 0.00059	< 0.00043	< 0.00073	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00081	< 0.00066	0%				< 0.00030	< 0.00085	< 0.00063	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00051	< 0.00065	0%				< 0.00050	< 0.00053	< 0.00062	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00081	< 0.00077	0%				< 0.00040	< 0.00085	< 0.00074	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00071	< 0.00064	0%				< 0.00069	< 0.00074	< 0.00061	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00099	< 0.0004	< 0.00071	0%				< 0.00099	< 0.00043	< 0.00068	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0013	< 0.00031	0%				< 0.0013	< 0.0014	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00081	< 0.00049	0%				< 0.00050	< 0.00085	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00081	< 0.00058	0%				< 0.00050	< 0.00085	< 0.00057	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00040	< 0.00074	0%				< 0.00050	< 0.00043	< 0.00071	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00051	< 0.00075	0%				< 0.00059	< 0.00053	< 0.00072	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00091	< 0.00095	0%				< 0.00059	< 0.00096	< 0.00091	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00061	< 0.0014	0%				< 0.00089	< 0.00064	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00071	< 0.00035	0%				< 0.00050	< 0.00074	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00061	< 0.0007	0%				< 0.00050	< 0.00064	< 0.00067	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00061	< 0.00072	0%				< 0.00050	< 0.00064	< 0.00069	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0008	< 0.00086	0%				< 0.0020	< 0.0009	< 0.00083	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.0002	< 0.052	0%				< 0.0023	< 0.00021	< 0.05	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00061	< 0.00089	0%				< 0.00059	< 0.00064	< 0.00085	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.0004	< 0.0008	0%				< 0.00099	< 0.00043	< 0.00077	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.0004	< 0.00071	0%				< 0.00059	< 0.00043	< 0.00068	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	< 0.00091	< 0.0012	0%				< 0.00040	*0.00210* J B	< 0.0012	33%	0.001233	0.0004	0.0021
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0016	< 0.00095	0%				< 0.00059	< 0.0017	< 0.00091	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00071	< 0.0014	0%				< 0.00040	< 0.00074	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00071	< 0.00071	0%				< 0.00040	< 0.00074	< 0.00068	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0033 J	0.0095 J	< 0.00085	67%	0.004550	0.00085	0.0095	0.0025 J	0.0019 J	< 0.00082	67%	0.001740	0.00082	0.0025
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0011	< 0.00073	0%				< 0.00059	< 0.0012	< 0.0007	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00100	< 0.001	0%				< 0.00050	< 0.00110	< 0.00096	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00071	< 0.001	0%				< 0.00059	< 0.00074	< 0.00096	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00061	< 0.00042	0%				< 0.00050	< 0.00064	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00061	< 0.001	0%				< 0.00059	< 0.00064	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00061	< 0.00083	0%				< 0.00059	< 0.00064	< 0.0008	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.0004	< 0.00082	0%				< 0.00059	< 0.00043	< 0.00079	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0021	< 0.00095	0%				< 0.00099	< 0.0022	< 0.00091	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.0003	< 0.001	0%				< 0.00059	< 0.00032	< 0.00099	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00051	< 0.00075	0%				< 0.00040	< 0.00053	< 0.00072	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00061	< 0.00079	0%				< 0.00059	< 0.00064	< 0.00076	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00069	< 0.00061	< 0.00032	0%				< 0.00069	< 0.00064	< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.015	0.032	0.036	100%	0.027667	0.015	0.036	< 0.00040	0.00340 J	< 0.00037	33%	0.001390	0.00037	0.0034

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-825S 11/1/2012	MW-825S 7/15/2013	MW-825S-Dup 7/15/2013	MW-825S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-826M 11/2/2012	MW-826M 7/16/2013	MW-826M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00049 J	0.0009	0.00083	0.00062	100%	0.000710	0.00049	0.0009	0.000048 J	0.000023 J	< 0.000039	67%	0.000037	0.000023	0.000048
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00015 J	0.00067	0.00061	0.00046 J	100%	0.000473	0.00015	0.00067	0.000071 J	0.000096 J	0.00008 J	100%	0.000082	0.000071	0.000096
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00026 J* B	*0.0004 J* B	*0.00034 J* B	*0.00042 J* B	100%	0.000355	0.00026	0.00042	*0.000063 J* B	0.000034 J	*0.00006 J* B	100%	0.000052	0.000034	0.000063
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000093 J* B	*0.000088 J* B	*0.000081 J* B	*0.00009 J* B	100%	0.000088	0.000081	0.000093	*0.000052 J* B	< 0.000016	*0.00003 J* B	67%	0.000033	0.000016	0.000052
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	*0.000035 J* B	*0.00002 J* B	*0.000018 J* B	< 0.000022	75%	0.000024	0.000018	0.000035	*0.000041 J* B	< 0.000011	< 0.000022	33%	0.000025	0.000011	0.000041
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00007 J	0.000033 J	0.00003 J	0.00004 J	100%	0.000043	0.00003	0.00007	0.000054 J	< 0.000011	< 0.000019	33%	0.000028	0.000011	0.000054
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000028 J	0.000017 J	0.000015 J	0.00007 J	100%	0.000033	0.000015	0.00007	0.000047 J	0.000015 J	< 0.000011	67%	0.000024	0.000011	0.000047
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.00003 J	0.000019 J	< 0.000017	0.00008 J	75%	0.000037	0.000017	0.00008	< 0.000016	< 0.000017	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00008 J	0.000048 J	0.000046 J	0.00006 J	100%	0.000059	0.000046	0.00008	0.000044 J	< 0.000014	< 0.000019	33%	0.000026	0.000014	0.000044
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0.000016 J	< 0.000016	0.00007	50%	0.000029	0.000015	0.00007	< 0.000015	< 0.000016	< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00059	0.00041 J	0.00037 J	0.00046 J	100%	0.000458	0.00037	0.00059	0.00016 J	0.000073 J	0.00004 J	100%	0.000091	0.00004	0.00016
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0004 J	0.0012	0.0011	0.00072	100%	0.000855	0.0004	0.0012	0.000024 J	0.00004 J	< 0.0002	67%	0.000088	0.000024	0.0002
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	0.000015 J	< 0.000014	**0.00025** A(GW)	50%	0.000073	0.000013	0.00025	**0.000031** A(GW)	< 0.000014	< 0.000011	33%	0.000019	0.000011	0.000031
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0002 J	*0.04* B	*0.037* B	*0.03* B	100%	0.026800	0.0002	0.04	0.0008	0.00015 J	< 0.00008 U	67%	0.000343	0.00008	0.0008
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.0006	0.0018	0.0017	0.0014	100%	0.001375	0.0006	0.0018	0.000048 J	0.000061 J	< 0.000041	67%	0.000050	0.000041	0.000061
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0007* B	*0.00048 J* B	*0.00044 J* B	*0.00057* B	100%	0.000548	0.00044	0.0007	0.000075 J	0.000036 J	0.00002 J	100%	0.000044	0.00002	0.000075
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00043	< 0.00043	< 0.00059	0%				< 0.00040	< 0.00043	< 0.00059	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00059	< 0.00043	< 0.00043	< 0.00073	0%				< 0.00059	< 0.00043	< 0.00073	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00085	< 0.00085	< 0.00063	0%				< 0.00030	< 0.00087	< 0.00063	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00053	< 0.00053	< 0.00062	0%				< 0.00050	< 0.00054	< 0.00062	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00085	< 0.00085	< 0.00074	0%				< 0.00040	< 0.00087	< 0.00074	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00069	< 0.00074	< 0.00074	< 0.00061	0%				< 0.00069	< 0.00076	< 0.00061	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.0047 J	0.004 J	0.0037 J	0.0029 J	100%	0.003825	0.0029	0.0047	0.0036 J	< 0.00043	< 0.00068	33%	0.001570	0.00043	0.0036
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0014	< 0.0014	< 0.0003	0%				< 0.0013	< 0.0014	< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00085	< 0.00085	< 0.00047	0%				< 0.00050	< 0.00087	< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00085	< 0.00085	< 0.00057	0%				< 0.00050	< 0.00087	< 0.00057	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00043	< 0.00043	< 0.00071	0%				< 0.00050	< 0.00043	< 0.00071	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00059	< 0.00053	< 0.00053	< 0.00072	0%				< 0.00059	< 0.00054	< 0.00072	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00059	< 0.00096	< 0.00096	< 0.00091	0%				< 0.00059	< 0.00098	< 0.00091	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.00089	< 0.00064	< 0.00064	< 0.0013	0%				< 0.00089	< 0.00065	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00074	< 0.00074	< 0.00034	0%				< 0.00050	< 0.00076	< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00064	< 0.00064	< 0.00067	0%				< 0.00050	< 0.00065	< 0.00067	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00064	< 0.00064	< 0.00069	0%				< 0.00050	< 0.00065	< 0.00069	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0009	< 0.0009	< 0.00083	0%				< 0.0020	< 0.0009	< 0.00083	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00021	< 0.00021	< 0.05	0%				< 0.0023	< 0.00022	< 0.05	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00064	< 0.00064	< 0.00085	0%				< 0.00059	< 0.00065	< 0.00085	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00099	< 0.00043	< 0.00043	< 0.00077	0%				< 0.00099	< 0.00043	< 0.00077	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00059	< 0.00043	< 0.00043	< 0.00068	0%				< 0.00059	< 0.00043	< 0.00068	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.00051 J* B	< 0.00096	< 0.00096	< 0.0012	25%	0.000908	0.00051	0.0012	< 0.00040	*0.00170 J* B	< 0.0012	33%	0.001100	0.0004	0.0017
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00059	< 0.0017	< 0.0017	< 0.00091	0%				< 0.00059	< 0.0017	< 0.00091	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00074	< 0.00074	< 0.0013	0%				< 0.00040	< 0.00076	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00074	< 0.00074	< 0.00068	0%				< 0.00040	< 0.00076	< 0.00068	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0018 J	0.0022 J	0.0022 J	< 0.00082	75%	0.001755	0.00082	0.0022	0.0015 J	0.001 J	< 0.00082	67%	0.001107	0.00082	0.0015
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00059	< 0.0012	< 0.0012	< 0.0007	0%				< 0.00059	< 0.0012	< 0.0007	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.00050	< 0.00110	< 0.00110	< 0.00096	0%				< 0.00050	< 0.00110	< 0.00096	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.00059	< 0.00074	< 0.00074	< 0.00096	0%				< 0.00059	< 0.00076	< 0.00096	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00064	< 0.00064	< 0.0004	0%				< 0.00050	< 0.00065	< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.00059	< 0.00064	< 0.00064	< 0.001	0%				< 0.00059	< 0.00065	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00059	< 0.00064	< 0.00064	< 0.0008	0%				< 0.00059	< 0.00065	< 0.0008	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00059	< 0.00043	< 0.00043	< 0.00079	0%				< 0.00059	< 0.00043	< 0.00079	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00099	< 0.0022	< 0.0022	< 0.00091	0%				< 0.00099	< 0.0023	< 0.00091	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.00059	< 0.00032	< 0.00032	< 0.00099	0%				< 0.00059	< 0.00033	< 0.00099	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00053	< 0.00053	< 0.00072	0%				< 0.00040	< 0.00054	< 0.00072	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00059	< 0.00064	< 0.00064	< 0.00076	0%				< 0.00059	< 0.00065	< 0.00076	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	***0.029*** J A(MCL,I,DCL),B	***0.029*** J A(MCL,I,DCL),B	***0.026*** J A(MCL,I,DCL),B	***0.022*** J A(MCL),B	100%	0.026500	0.022	0.029	< 0.00069	< 0.00065	< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.00450 J	0.00170 J	< 0.00032	< 0.00037	50%	0.001723	0.00032	0.0045	0.06500	< 0.00033	< 0.00037	33%	0.021900	0.00033	0.065

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-826S 11/2/2012	MW-826S 7/16/2013	MW-826S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-827S 10/31/2012	MW-827S-Dup 10/31/2012	MW-827S 7/16/2013	MW-827S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.000041 J	< 0.000018	< 0.00004	33%	0.000033	0.000018	0.000041	0.000027 J	0.000032 J	< 0.000016	0.000052 J	75%	0.00003	0.00002	0.00005
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.00009 J	0.000089 J	0.00026 J	100%	0.000146	0.000089	0.00026	0.000013 J	0.000015 J	0.000019 J	0.000041 J	100%	0.00002	0.00001	0.00004
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.000046* J B	0.000033 J	*0.00013* J B	100%	0.000070	0.000033	0.00013	0.000021 J	0.000019 J	0.000026 J	*0.000082* J B	100%	0.00004	0.00002	0.00008
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	0.00002 J	< 0.000018	0.000021 J	67%	0.000020	0.000018	0.000021	0.000019 J	< 0.000015	0.000016 J	0.000021 J	75%	0.00002	0.00002	0.00002
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.00001	< 0.000012	< 0.000023	0%				< 0.0000099	< 0.0000099	0.000013 J	< 0.000023	25%	0.00001	0.00001	0.00002
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000022 J	< 0.000012	< 0.00002	33%	0.000018	0.000012	0.000022	< 0.0000099	< 0.0000099	0.000016 J	< 0.00002	25%	0.00001	0.00001	0.00002
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000013	< 0.000016	< 0.000011	0%				< 0.000013	< 0.000013	0.00002 J	< 0.000011	25%	0.00001	0.00001	0.00002
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.000016	< 0.00002	< 0.000016	0%				< 0.000016	< 0.000016	< 0.000017	< 0.000016	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	< 0.000013	< 0.000016	< 0.00002	0%				< 0.000013	< 0.000013	< 0.000014	< 0.00002	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.000018	< 0.000014	0%				< 0.000015	< 0.000015	0.000016 J	< 0.000014	25%	0.00002	0.00001	0.00002
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.000036 J	< 0.000061	< 0.000023	33%	0.000040	0.000023	0.000061	< 0.0000099	< 0.0000099	0.000017 J	0.000031 J	50%	0.00002	0.00001	0.00003
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.000024 J	0.000024 J	< 0.00021	67%	0.000086	0.000024	0.00021	< 0.0000099	< 0.0000099	0.000019 J	< 0.00021	25%	0.00006	0.00001	0.00021
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000013	< 0.000016	< 0.000011	0%				< 0.000013	< 0.000013	0.000016 J	< 0.000011	25%	0.00001	0.00001	0.00002
Naphthalene	91-20-3	31	NE	2	2	0.013	0.0011	0.000099 J	< 0.000052 U	67%	0.000417	0.000052	0.0011	0.00011 J	0.00021 J	0.0049	0.00026 J	100%	0.00137	0.00011	0.00490
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.000032 J	0.000065 J	< 0.000042	67%	0.000046	0.000032	0.000065	< 0.000013	< 0.000013	0.00004 J	< 0.000042	25%	0.00003	0.00001	0.00004
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	0.000047 J	0.000027 J	< 0.000016	67%	0.000030	0.000016	0.000047	< 0.000019	< 0.000019	< 0.00002	0.000021 J	25%	0.00002	0.00002	0.00002
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00040	< 0.00049	< 0.00061	0%				< 0.00040	< 0.00040	< 0.00043	< 0.00061	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0006	< 0.00049	< 0.00075	0%				< 0.00059	< 0.00059	< 0.00043	< 0.00075	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00030	< 0.00098	< 0.00065	0%				< 0.00030	< 0.00030	< 0.00085	< 0.00065	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00050	< 0.00061	< 0.00064	0%				< 0.00050	< 0.00050	< 0.00053	< 0.00064	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00040	< 0.00098	< 0.00076	0%				< 0.00040	< 0.00040	< 0.00085	< 0.00076	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0007	< 0.00085	< 0.00063	0%				< 0.00069	< 0.00069	< 0.00074	< 0.00063	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	0.0026 J	< 0.00049	< 0.0007	33%	0.001263	0.00049	0.0026	0.0012 J	0.0013 J	< 0.00043	< 0.0007	50%	0.00091	0.00043	0.00130
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0013	< 0.0016	< 0.00031	0%				< 0.0013	< 0.0013	< 0.0014	< 0.00031	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00050	< 0.00098	< 0.00048	0%				< 0.00050	< 0.00050	< 0.00085	< 0.00048	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00050	< 0.00098	< 0.00059	0%				< 0.00050	< 0.00050	< 0.00085	< 0.00059	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00050	< 0.00049	< 0.00073	0%				< 0.00050	< 0.00050	< 0.00043	< 0.00073	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0006	< 0.00061	< 0.00074	0%				< 0.00059	< 0.00059	< 0.00053	< 0.00074	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0006	< 0.0011	< 0.00094	0%				< 0.00059	< 0.00059	< 0.00096	< 0.00094	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0009	< 0.00073	< 0.0013	0%				< 0.00089	< 0.00089	< 0.00064	< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00050	< 0.00085	< 0.00035	0%				< 0.00050	< 0.00050	< 0.00074	< 0.00035	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00050	< 0.00073	< 0.00069	0%				< 0.00050	< 0.00050	< 0.00064	< 0.00069	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00050	< 0.00073	< 0.00071	0%				< 0.00050	< 0.00050	< 0.00064	< 0.00071	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0020	< 0.0010 *	< 0.00086	0%				< 0.0020	< 0.0020	< 0.0009	< 0.00086	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.0023	< 0.00024	< 0.052	0%				< 0.0023	< 0.0023	< 0.00021	< 0.052	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00073	< 0.00088	0%				< 0.00059	< 0.00059	< 0.00064	< 0.00088	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.001	< 0.00049	< 0.00079	0%				< 0.00099	< 0.00099	< 0.00043	< 0.00079	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0006	< 0.00049	< 0.0007	0%				< 0.00059	< 0.00059	< 0.00043	< 0.0007	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.00040	*0.00280* J B	< 0.0012	33%	0.001467	0.0004	0.0028	*0.00052* J B	< 0.00040	< 0.00096	< 0.0012	25%	0.00077	0.00040	0.00120
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0006	< 0.002	< 0.00094	0%				< 0.00059	< 0.00059	< 0.0017	< 0.00094	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.00040	< 0.00085	< 0.0013	0%				< 0.00040	< 0.00040	< 0.00074	< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00040	< 0.00085	< 0.0007	0%				< 0.00040	< 0.00040	< 0.00074	< 0.0007	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	0.0037 J	0.0021 J	< 0.00085	67%	0.002217	0.00085	0.0037	0.0019 J	0.0016 J	< 0.00096	< 0.00085	50%	0.00133	0.00085	0.00190
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0006	< 0.0013	< 0.00072	0%				< 0.00059	< 0.00059	< 0.0012	< 0.00072	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10[-6]	< 0.00050	< 0.00120	< 0.00099	0%				< 0.00050	< 0.00050	< 0.00110	< 0.00099	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.0006	< 0.00085	< 0.00099	0%				< 0.00059	< 0.00059	< 0.00074	< 0.00099	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00050	< 0.00073	< 0.00041	0%				< 0.00050	< 0.00050	< 0.00064	< 0.00041	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0006	< 0.00073	< 0.001	0%				< 0.00059	< 0.00059	< 0.00064	< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0006	< 0.00073	< 0.00082	0%				< 0.00059	< 0.00059	< 0.00064	< 0.00082	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0006	< 0.00049	< 0.00081	0%				< 0.00059	< 0.00059	< 0.00043	< 0.00081	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.001	< 0.0026	< 0.00094	0%				< 0.00099	< 0.00099	< 0.0022	< 0.00094	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0006	< 0.00037	< 0.001	0%				< 0.00059	< 0.00059	< 0.00032	< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00040	< 0.00061	< 0.00074	0%				< 0.00040	< 0.00040	< 0.00053	< 0.00074	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0006	< 0.00073	< 0.00078	0%				< 0.00059	< 0.00059	< 0.00064	< 0.00078	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0007	< 0.00073	< 0.00032	0%				< 0.00069	< 0.00069	< 0.00064	< 0.00032	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.06300	< 0.00037	< 0.00038	33%	0.021250	0.00037	0.063	< 0.00040	< 0.00040	< 0.00032	< 0.00038	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-828S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-829S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-830S 9/12/2017	MW-830S DUP 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																						
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.0043 J	100%	0.00430	0.00430	0.00430	0.00013 J	100%	0.00013	0.00013	0.00013	*0.04* J B	*0.058* J B	100%	0.04900	0.04000	0.05800
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.011	100%	0.01100	0.01100	0.01100	0.00013 J	100%	0.00013	0.00013	0.00013	0.0007	0.00055	100%	0.00063	0.00055	0.00070
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.0015* J B	100%	0.00150	0.00150	0.00150	*0.000074* J B	100%	0.00007	0.00007	0.00007	*0.0088* B	*0.0078* B	100%	0.00830	0.00780	0.00880
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00042* J B	100%	0.00042	0.00042	0.00042	< 0.000012	0%				*0.0008* B	*0.00075* B	100%	0.00078	0.00075	0.00080
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	***0.0022*** A(GW,MCL,I,DCL),B	100%	0.00220	0.00220	0.00220	< 0.000023	0%				***0.0004*** A(MCL,I,DCL),B	***0.00045*** A(MCL,I,DCL),B	100%	0.00043	0.00040	0.00045
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00031 J	100%	0.00031	0.00031	0.00031	< 0.00002	0%				0.0003	0.00038	100%	0.00034	0.00030	0.00038
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.00011	0%				< 0.000012	0%				0.00009 J	0.00014 J	100%	0.00012	0.00009	0.00014
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	< 0.00017	0%				< 0.000017	0%				0.00009 J	0.00013	100%	0.00011	0.00009	0.00013
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00021 J	100%	0.00021	0.00021	0.00021	< 0.00002	0%				0.00045 J	0.0004 J	100%	0.00043	0.00040	0.00045
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.00015	0%				< 0.000015	0%				0.000022 J	0.000054	100%	0.00004	0.00002	0.00005
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	*0.0019* J B	100%	0.00190	0.00190	0.00190	< 0.000023	0%				*0.011* B	*0.013* B	100%	0.01200	0.01100	0.01300
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.0093	100%	0.00930	0.00930	0.00930	< 0.00021	0%				*0.028* B	*0.034* B	100%	0.03100	0.02800	0.03400
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.002** A(GW)	100%	0.00200	0.00200	0.00200	< 0.000012	0%				**0.00027** A(GW)	**0.00029** A(GW)	100%	0.00028	0.00027	0.00029
Naphthalene	91-20-3	31	NE	2	2	0.013	***2*** A(I,DCL),B	100%	2.00000	2.00000	2.00000	0.0022	100%	0.00220	0.00220	0.00220	0.0045 J	0.0021 J	100%	0.00330	0.00210	0.00450
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	*0.0076* B	100%	0.00760	0.00760	0.00760	< 0.000043	0%				*0.028* B	*0.036* B	100%	0.03200	0.02800	0.03600
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0012* J B	100%	0.00120	0.00120	0.00120	< 0.000017	0%				*0.0081* B	*0.006* B	100%	0.00705	0.00600	0.00810
SVOCs (mg/L)																						
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.0061	0%				< 0.00062	0%				< 0.00066	< 0.00063	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.0076	0%				< 0.00077	0%				< 0.00082	< 0.00078	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.0066	0%				< 0.00066	0%				< 0.00071	< 0.00068	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.0065	0%				< 0.00065	0%				< 0.0007	< 0.00067	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.0077	0%				< 0.00078	0%				< 0.00083	< 0.0008	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.0064	0%				< 0.00064	0%				< 0.00069	< 0.00066	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.0071	0%				< 0.00072	0%				< 0.00076	< 0.00073	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.0031	0%				< 0.00032	0%				< 0.00034	< 0.00032	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.0049	0%				< 0.00049	0%				< 0.00053	< 0.00051	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.0059	0%				< 0.0006	0%				< 0.00064	< 0.00061	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.0074	0%				< 0.00075	0%				< 0.0008	< 0.00076	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.0075	0%				< 0.00076	0%				< 0.00081	< 0.00077	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.0095	0%				< 0.00096	0%				< 0.001	< 0.00098	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.014	0%				< 0.0014	0%				< 0.0015	< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.0035	0%				< 0.00036	0%				< 0.00038	< 0.00037	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.007	0%				< 0.00071	0%				< 0.00075	< 0.00072	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.0072	0%				< 0.00073	0%				< 0.00078	< 0.00074	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.0086	0%				< 0.00087	0%				< 0.00093	< 0.00089	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.52	0%				< 0.053	0%				< 0.056	< 0.054	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.0089	0%				< 0.00089	0%				< 0.00096	< 0.00091	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.008	0%				< 0.00081	0%				< 0.00087	< 0.00083	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.0071	0%				< 0.00072	0%				< 0.00076	< 0.00073	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.012	0%				< 0.0013	0%				< 0.0013	< 0.0013	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.0095	0%				< 0.00096	0%				< 0.001	< 0.00098	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.014	0%				< 0.0014	0%				< 0.0015	< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.0071	0%				< 0.00072	0%				< 0.00076	< 0.00073	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	< 0.0085	0%				< 0.00086	0%				< 0.00092	< 0.00088	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.0073	0%				< 0.00074	0%				< 0.00079	< 0.00075	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.01	0%				< 0.001	0%				< 0.0011	< 0.001	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.01	0%				< 0.001	0%				< 0.0011	< 0.001	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.0042	0%				< 0.00042	0%				< 0.00045	< 0.00043	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.01	0%				< 0.0011	0%				< 0.0011	< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.0083	0%				< 0.00084	0%				< 0.0009	< 0.00086	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.0082	0%				< 0.00083	0%				< 0.00089	< 0.00085	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.0095	0%				< 0.00096	0%				< 0.001	< 0.00098	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.01	0%				< 0.001	0%				< 0.0011	< 0.0011	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.0075	0%				< 0.00076	0%				< 0.00081	< 0.00077	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0079	0%				< 0.0008	0%				< 0.00085	< 0.00082	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.0032	0%				< 0.00033	0%				< 0.00035	< 0.00033	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.0048 J	100%	0.00480	0.00480	0.00480	< 0.00039	0%				0.0018 J	0.0021 J	100%	0.00195	0.00180	0.00210

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-831S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832D 9/11/2017	MW-832D DUP 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-833S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																											
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.00011 J	100%	0.00011	0.00011	0.00011	< 0.00004	< 0.00004	0%				< 0.00004	0%				0.001	100%	0.00100	0.00100	0.00100
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.000053 J	100%	0.00005	0.00005	0.00005	0.00002 J	0.000021 J	100%	0.00002	0.00002	0.00002	< 0.000014	0%				0.0036	100%	0.00360	0.00360	0.00360
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.00022* J B	100%	0.00022	0.00022	0.00022	< 0.00002 U	< 0.000031 U	0%				< 0.000014	0%				< 0.00036 U	0%			
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00017* B	100%	0.00017	0.00017	0.00017	< 0.000031 U	< 0.000031 U	0%				< 0.000021 U	0%				< 0.00007 U	0%			
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.000023	0%				< 0.000022	< 0.000023	0%				< 0.000023	0%				< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000053 J	100%	0.00005	0.00005	0.00005	0.000031 J	0.000031 J	100%	0.00003	0.00003	0.00003	< 0.00002	0%				0.00006 J	100%	0.00006	0.00006	0.00006
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	0.000032 J	100%	0.00003	0.00003	0.00003	0.00002 J	0.000021 J	100%	0.00002	0.00002	0.00002	< 0.000011	0%				0.00003 J	100%	0.00003	0.00003	0.00003
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.000021 J	100%	0.00002	0.00002	0.00002	< 0.000016	< 0.000016	0%				< 0.000016	0%				0.00002 J	100%	0.00002	0.00002	0.00002
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00015 J	100%	0.00015	0.00015	0.00015	< 0.000019	< 0.00002	0%				< 0.00002	0%				0.00004 J	100%	0.00004	0.00004	0.00004
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	0%				< 0.000014	< 0.000014	0%				< 0.000014	0%				< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.0014	100%	0.00140	0.00140	0.00140	< 0.000051 U	< 0.000062 U	0%				< 0.000023	0%				< 0.00042 U	0%			
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.00021	0%				< 0.0002	< 0.00021	0%				< 0.00021	0%				0.0012	100%	0.00120	0.00120	0.00120
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000012	0%				< 0.000011	< 0.000011	0%				< 0.000011	0%				< 0.000013	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	< 0.00049 U	0%	0.00049	0.00049	0.00049	0.00011 J	0.00014 J	100%	0.00013	0.00011	0.00014	< 0.000033	0%				*0.53* B	100%	0.53000	0.53000	0.53000
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	< 0.000045	0%				< 0.000042	0.000072 J	50%	0.00007	0.00007	0.00007	< 0.000042	0%				0.0017	100%	0.00170	0.00170	0.00170
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0015* B	100%	0.00150	0.00150	0.00150	< 0.000031 U	< 0.000052 U	0%				< 0.000016	0%				< 0.00028 U	0%			
SVOCs (mg/L)																											
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00062	0%				< 0.0006	< 0.00061	0%				< 0.00061	0%				< 0.00059	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00077	0%				< 0.00074	< 0.00075	0%				< 0.00075	0%				< 0.00073	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00066	0%				< 0.00064	< 0.00065	0%				< 0.00065	0%				< 0.00063	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00065	0%				< 0.00063	< 0.00064	0%				< 0.00064	0%				< 0.00062	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00078	0%				< 0.00076	< 0.00076	0%				< 0.00076	0%				< 0.00074	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00064	0%				< 0.00062	< 0.00063	0%				< 0.00063	0%				< 0.00061	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00072	0%				< 0.00069	< 0.0007	0%				< 0.0007	0%				< 0.00068	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.00032	0%				< 0.00031	< 0.00031	0%				< 0.00031	0%				< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00049	0%				< 0.00048	< 0.00048	0%				< 0.00048	0%				< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.0006	0%				< 0.00058	< 0.00059	0%				< 0.00059	0%				< 0.00057	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00075	0%				< 0.00072	< 0.00073	0%				< 0.00073	0%				< 0.00071	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00076	0%				< 0.00073	< 0.00074	0%				< 0.00074	0%				< 0.00072	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00096	0%				< 0.00093	< 0.00094	0%				< 0.00094	0%				< 0.00091	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0014	0%				< 0.0013	< 0.0013	0%				< 0.0013	0%				< 0.0013 UJ	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00036	0%				< 0.00035	< 0.00035	0%				< 0.00035	0%				< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00071	0%				< 0.00068	< 0.00069	0%				< 0.00069	0%				< 0.00067	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00073	0%				< 0.0007	< 0.00071	0%				< 0.00071	0%				< 0.00069	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.00087	0%				< 0.00085	< 0.00086	0%				< 0.00086	0%				< 0.00083	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.053	0%				< 0.051	< 0.052	0%				< 0.052	0%				< 0.05	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00089	0%				< 0.00087	< 0.00088	0%				< 0.00088	0%				< 0.00085	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00081	0%				< 0.00078	< 0.00079	0%				< 0.00079	0%				< 0.00077	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00072	0%				< 0.00069	< 0.0007	0%				< 0.0007	0%				< 0.00068	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.0013	0%				*0.0017* J B	*0.0019* J B	100%	0.00180	0.00170	0.00190	< 0.0012	0%				< 0.0012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00096	0%				< 0.00093	< 0.00094	0%				< 0.00094	0%				< 0.00091	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	0.0014 J	100%	0.00140	0.00140	0.00140	< 0.0013	< 0.0013	0%				< 0.0013	0%				< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00072	0%				< 0.00069	< 0.0007	0%				< 0.0007	0%				< 0.00068	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	< 0.00086	0%				< 0.00084	< 0.00085	0%				< 0.00085	0%				< 0.00082	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00074	0%				< 0.00071	< 0.00072	0%				< 0.00072	0%				< 0.0007	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	3X10-7	< 0.001	0%				< 0.00098	< 0.00099	0%				< 0.00099	0%				< 0.00096	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.001	0%				< 0.00098	< 0.00099	0%				< 0.00099	0%				< 0.00096	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00042	0%				< 0.00041	< 0.00041	0%				< 0.00041	0%				< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0011	0%				< 0.001	< 0.001	0%				< 0.001	0%				< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00084	0%				< 0.0043 U	< 0.0036 U	0%	0.00395	0.00360	0.00430	< 0.0022 U	0%	0.00220	0.00220	0.00220	< 0.00087 U	0%	0.00087	0.00087	0.00087
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00083	0%				< 0.00081	< 0.00081	0%				< 0.00081	0%				< 0.00079	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00096	0%				< 0.00093	< 0.00094	0%				< 0.00094	0%				< 0.00091	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.001	0%				< 0.001	< 0.001	0%				< 0.001	0%				< 0.00099	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00076	0%				< 0.00073	< 0.00074	0%				< 0.00074	0%				< 0.00072	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.0008	0%				< 0.00078	< 0.00078	0%				< 0.00078	0%				< 0.00076	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00033	0%				< 0.00032	< 0.00032	0%				< 0.00032	0%				< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00039	0%				0.019	0.02	100%	0.01950	0.01900	0.02000	< 0.00038	0%				< 0.00037	0%			

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8B
Groundwater Sample Laboratory Results - PAHs and SVOCs

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-834D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-835D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-836S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																					
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	< 0.000041	0%				0.000072 J	100%	0.00007	0.00007	0.00007	0.0026 J	100%	0.00260	0.00260	0.00260
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.000052 J	100%	0.00005	0.00005	0.00005	0.00022 J	100%	0.00022	0.00022	0.00022	0.0041 J	100%	0.00410	0.00410	0.00410
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.0001* J B	100%	0.00010	0.00010	0.00010	0.000031 J	100%	0.00003	0.00003	0.00003	*0.00089* J B	100%	0.00089	0.00089	0.00089
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.00032* B	100%	0.00032	0.00032	0.00032	0.000021 J	100%	0.00002	0.00002	0.00002	*0.00022* J B	100%	0.00022	0.00022	0.00022
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	***0.00043*** A(MCL,I,DCL),B	100%	0.00043	0.00043	0.00043	< 0.000023					< 0.00024	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.00033	100%	0.00033	0.00033	0.00033	< 0.00002					< 0.00021	0%			
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.0002 U	0%				< 0.000011					< 0.00012	0%			
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.0001	100%	0.00010	0.00010	0.00010	< 0.000016					< 0.00018	0%			
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.00028 J	100%	0.00028	0.00028	0.00028	< 0.00002					< 0.00021	0%			
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	0.000052	100%	0.00005	0.00005	0.00005	< 0.000014					< 0.00016	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	0.00071	100%	0.00071	0.00071	0.00071	0.000082 J	100%	0.00008	0.00008	0.00008	0.00089 J	100%	0.00089	0.00089	0.00089
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	< 0.00021	0%				< 0.00021					0.0042 J	100%	0.00420	0.00420	0.00420
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	**0.00033** A(GW)	100%	0.00033	0.00033	0.00033	< 0.000011					< 0.00012	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	0.00033 J	100%	0.00033	0.00033	0.00033	0.0017	100%	0.00170	0.00170	0.00170	*0.41* B	100%	0.41000	0.41000	0.41000
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	0.00024 J	100%	0.00024	0.00024	0.00024	0.00011 J	100%	0.00011	0.00011	0.00011	*0.0044* J B	100%	0.00440	0.00440	0.00440
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0005* J B	100%	0.00050	0.00050	0.00050	0.000052 J	100%	0.00005	0.00005	0.00005	*0.00067* J B	100%	0.00067	0.00067	0.00067
SVOCs (mg/L)																					
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00061	0%				< 0.00061	0%				< 0.00066	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00076	0%				< 0.00075	0%				< 0.00081	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00066	0%				< 0.00065	0%				< 0.0007	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00065	0%				< 0.00064	0%				< 0.00069	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.00077	0%				< 0.00076	0%				< 0.00082	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00064	0%				< 0.00063	0%				< 0.00068	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00071	0%				< 0.0007	0%				0.0021 J	100%	0.00210	0.00210	0.00210
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.00031	0%				< 0.00031	0%				< 0.00033	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00049	0%				< 0.00048	0%				< 0.00052	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00059	0%				< 0.00059	0%				< 0.00063	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00074	0%				< 0.00073	0%				< 0.00079	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00075	0%				< 0.00074	0%				< 0.0008	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00095	0%				< 0.00094	0%				< 0.001	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0014	0%				< 0.0013	0%				< 0.0014	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00035	0%				< 0.00035	0%				< 0.00038	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.0007	0%				< 0.00069	0%				< 0.00074	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00072	0%				< 0.00071	0%				< 0.00077	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.00086	0%				< 0.00086	0%				< 0.00092	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.052	0%				< 0.052	0%				< 0.056	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00089	0%				< 0.00088	0%				< 0.00094	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.0008	0%				< 0.00079	0%				< 0.00086	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00071	0%				< 0.0007	0%				< 0.00076	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	*0.0013* J B	100%	0.00130	0.00130	0.00130	< 0.0012	0%				< 0.0013	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00095	0%				< 0.00094	0%				< 0.001	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.0014	0%				< 0.0013	0%				< 0.0014	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00071	0%				< 0.0007	0%				< 0.00076	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	< 0.00085	0%				< 0.00085	0%				< 0.00091	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00073	0%				< 0.00072	0%				< 0.00078	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.001	0%				< 0.00099	0%				< 0.0011	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.001	0%				< 0.00099	0%				< 0.0011	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00042	0%				< 0.00041	0%				< 0.00044	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.001	0%				< 0.001	0%				< 0.0011	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00083	0%				< 0.00082	0%				< 0.00089	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00082	0%				< 0.00081	0%				< 0.00088	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00095	0%				< 0.00094	0%				< 0.001	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.001	0%				< 0.001	0%				< 0.0011	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00075	0%				< 0.00074	0%				< 0.0008	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00079	0%				< 0.00078	0%				< 0.00084	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00032	0%				< 0.00032	0%				***0.0073*** J A(MCL),B	100%	0.00730	0.00730	0.00730
Phenol	108-95-2	83,000	NE	31	31	0.180	< 0.00039	0%				< 0.00038	0%				0.001 J	100%	0.00100	0.00100	0.00100

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-837S 9/13/2017	MW-837S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-838S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-839S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
PAHs (mg/L)																						
Acenaphthene	83-32-9	4.2	NE	6.1	6.1	0.038	0.0058	0.0057	100%	0.00575	0.00570	0.00580	0.011	100%	0.01100	0.01100	0.01100	0.014	100%	0.01400	0.01400	0.01400
Acenaphthylene	208-96-8	3.9	NE	0.73	0.73	4.84	0.025	0.024	100%	0.02450	0.02400	0.02500	0.00042 J	100%	0.00042	0.00042	0.00042	0.00064	100%	0.00064	0.00064	0.00064
Anthracene	120-12-7	0.043	NE	31	31	0.000035	*0.002* B	*0.0016* J B	100%	0.00180	0.00160	0.00200	*0.0032* J B	100%	0.00320	0.00320	0.00320	*0.00029* J B	100%	0.00029	0.00029	0.00029
Benzo[a]anthracene	56-55-3	0.0094	NE	0.0039	0.0039	0.000025	*0.000097* J B	*0.00021* J B	100%	0.00015	0.00010	0.00021	*0.00063* J B	100%	0.00063	0.00063	0.00063	*0.000081* J B	100%	0.00008	0.00008	0.00008
Benzo[a]pyrene	50-32-8	0.0016	0.0002	0.00039	0.00039	0.000014	< 0.000024	< 0.00023	0%				< 0.00023	0%				< 0.000022	0%			
Benzo[b]fluoranthene	205-99-2	0.0015	NE	0.0039	0.0039	0.00907	0.000043 J	< 0.0002	50%	0.00012	0.00004	0.00020	0.00032 J	100%	0.00032	0.00032	0.00032	0.000081 J	100%	0.00008	0.00008	0.00008
Benzo[g,h,i]perylene	191-24-2	NE	NE	NE	NE	0.00764	< 0.000032 U	< 0.00031 U	0%	0.00017	0.00003	0.00031	< 0.00012	0%				0.000051 J	100%	0.00005	0.00005	0.00005
Benzo[k]fluoranthene	207-08-9	0.0008	NE	0.039	0.039	NE	0.000022 J	< 0.00017	50%	0.00010	0.00002	0.00017	< 0.00017	0%				0.00003 J	100%	0.00003	0.00003	0.00003
Chrysene	218-01-9	0.0016	NE	0.39	0.39	NE	0.000065 J	< 0.0002	50%	0.00013	0.00007	0.00020	0.00042 J	100%	0.00042	0.00042	0.00042	0.000061 J	100%	0.00006	0.00006	0.00006
Dibenzo[a,h]anthracene	53-70-3	0.0025	NE	0.00039	0.00039	NE	< 0.000015	< 0.00021 U	0%				< 0.00015	0%				< 0.000014	0%			
Fluoranthene	206-44-0	0.21	NE	4.1	4.1	0.0019	*0.002* B	*0.0021* J B	100%	0.00205	0.00200	0.00210	*0.0054* B	100%	0.00540	0.00540	0.00540	0.00039 J	100%	0.00039	0.00039	0.00039
Fluorene	86-73-7	2	NE	4.1	4.1	0.019	0.011	0.011	100%	0.01100	0.01100	0.01100	0.014	100%	0.01400	0.01400	0.01400	0.0061	100%	0.00610	0.00610	0.00610
Indeno[1,2,3cd]pyrene	193-39-5	0.000022	NE	0.0039	0.0039	0.00431	< 0.000012	< 0.00011	0%				< 0.00012	0%				< 0.000011	0%			
Naphthalene	91-20-3	31	NE	2	2	0.013	*0.12* B	*0.12* B	100%	0.12000	0.12000	0.12000	*0.51* B	100%	0.51000	0.51000	0.51000	*0.26* B	100%	0.26000	0.26000	0.26000
Phenanthrene	85-01-8	1.2	NE	0.31	0.31	0.0036	*0.012* B	*0.012* B	100%	0.01200	0.01200	0.01200	*0.018* B	100%	0.01800	0.01800	0.01800	0.00043 J	100%	0.00043	0.00043	0.00043
Pyrene	129-00-0	0.14	NE	3.1	3.1	0.0003	*0.0013* B	*0.0015* J B	100%	0.00140	0.00130	0.00150	*0.0031* J B	100%	0.00310	0.00310	0.00310	*0.00031* J B	100%	0.00031	0.00031	0.00031
SVOCs (mg/L)																						
1,2,4-Trichlorobenzene	120-82-1	300	0.07	1	1	0.030	< 0.00063	< 0.00061	0%				< 0.00062	0%				< 0.0006	0%			
1,2-Dichlorobenzene	95-50-1	160	0.6	9.2	9.2	0.014	< 0.00078	< 0.00076	0%				< 0.00077	0%				< 0.00074	0%			
1,2-Diphenyl-hydrazine	122-66-7	NE	NE	NE	NE	NE	< 0.00068	< 0.00066	0%				< 0.00066	0%				< 0.00064	0%			
1,4-Dichlorobenzene	106-46-7	74	0.075	0.12	0.12	0.0094	< 0.00067	< 0.00065	0%				< 0.00065	0%				< 0.00063	0%			
2,4,6-Trichlorophenol	88-06-2	800	NE	0.01	0.01	0.0049	< 0.0008	< 0.00077	0%				< 0.00078	0%				< 0.00075	0%			
2,4-Dichlorophenol	120-83-2	4,500	NE	0.31	0.31	0.011	< 0.00066	< 0.00064	0%				< 0.00064	0%				< 0.00062	0%			
2,4-Dimethylphenol	105-67-9	7,900	NE	2	2	0.1	< 0.00073	< 0.00071	0%				0.0037 J	100%	0.00370	0.00370	0.00370	< 0.00069	0%			
2,4-Dinitrophenol	51-28-5	2,800	NE	0.2	0.2	0.019	< 0.00032	< 0.00031	0%				< 0.00032	0%				< 0.0003	0%			
2,4-Dinitrotoluene	121-14-2	NE	NE	NE	NE	0.044	< 0.00051	< 0.00049	0%				< 0.00049	0%				< 0.00047	0%			
2,6-Dinitrotoluene	606-20-2	NE	NE	NE	NE	0.081	< 0.00061	< 0.00059	0%				< 0.0006	0%				< 0.00056	0%			
2-Chloronaphthalene	91-58-7	12	NE	8.2	8.2	0.000396	< 0.00076	< 0.00074	0%				< 0.00075	0%				< 0.00072	0%			
2-Chlorophenol	95-57-8	22,000	NE	0.51	0.51	0.024	< 0.00077	< 0.00075	0%				< 0.00078	0%				< 0.00073	0%			
2-Nitrophenol (o-Nitrophenol)	88-75-5	NE	NE	NE	NE	NE	< 0.00098	< 0.00095	0%				< 0.00096	0%				< 0.00092	0%			
3,3-Dichlorobenzidine	91-94-1	3.1	NE	0.0064	0.0064	0.0045	< 0.0014	< 0.0014	0%				< 0.0014	0%				< 0.0013	0%			
4,6-Dinitro-o-cresol	534-52-1	NE	NE	NE	NE	0.023	< 0.00037	< 0.00035	0%				< 0.00036	0%				< 0.00034	0%			
4-Bromophenyl phenyl ether	101-55-3	NE	NE	NE	NE	0.0015	< 0.00072	< 0.0007	0%				< 0.00071	0%				< 0.00068	0%			
4-Chlorophenyl phenyl ether	7005-72-3	NE	NE	NE	NE	NE	< 0.00074	< 0.00072	0%				< 0.00073	0%				< 0.0007	0%			
4-Nitrophenol (p-Nitrophenol)	100-02-7	NE	NE	NE	NE	0.06	< 0.00089	< 0.00086	0%				< 0.00087	0%				< 0.00084	0%			
Benzidine	92-87-5	NE	NE	NE	NE	NE	< 0.054	< 0.052	0%				< 0.053	0%				< 0.051	0%			
bis(2-Chloroethoxy)methane[D]	111-91-1	NE	NE	NE	NE	NE	< 0.00091	< 0.00089	0%				< 0.00089	0%				< 0.00086	0%			
bis(2-Chloroethyl)ether[E]	111-44-4	17,000	NE	0.0026	0.0026	19	< 0.00083	< 0.0008	0%				< 0.00081	0%				< 0.00078	0%			
bis(2-Chloroisopropyl)ether	108-60-1	NE	NE	NE	NE	NE	< 0.00073	< 0.00071	0%				< 0.00072	0%				< 0.00069	0%			
bis(2-Ethylhexyl)phthalate	117-81-7	0.34	0.006	0.2	0.2	0.0003	< 0.0013	< 0.0012	0%				< 0.0013	0%				< 0.0012	0%			
Butyl benzyl phthalate	85-68-7	2.7	NE	20	2.7	0.023	< 0.00098	< 0.00095	0%				< 0.00096	0%				< 0.00092	0%			
Diethyl phthalate	84-66-2	1,100	NE	82	82	0.11	< 0.0014	< 0.0014	0%				< 0.0014	0%				< 0.0013	0%			
Dimethyl phthalate	131-11-3	4,000	NE	1,000	1,000	NE	< 0.00073	< 0.00071	0%				< 0.00072	0%				< 0.00069	0%			
Di-n-butyl phthalate	84-74-2	11	NE	10	10	0.0097	< 0.00088	< 0.00085	0%				< 0.00086	0%				< 0.00083	0%			
Di-n-octyl phthalate	117-84-0	0.02	NE	4.1	0.02	0.030	< 0.00075	< 0.00073	0%				< 0.00074	0%				< 0.00071	0%			
Hexachlorobenzene	118-74-1	6.2	0.001	0.0018	0.0018	$3X10^{-7}$	< 0.001	< 0.001	0%				< 0.001	0%				< 0.00097	0%			
Hexachlorobutadiene	87-68-3	3.2	NE	0.031	0.031	0.000053	< 0.001	< 0.001	0%				< 0.001	0%				< 0.00097	0%			
Hexachlorocyclopentadiene	77-47-4	1.8	0.05	0.61	0.61	0.077	< 0.00043	< 0.00042	0%				< 0.00042	0%				< 0.0004	0%			
Hexachloroethane	67-72-1	50	NE	0.1	0.1	0.008	< 0.0011	< 0.001	0%				< 0.0011	0%				< 0.001	0%			
Isophorone	78-59-1	12,000	NE	3	3	0.92	< 0.00086	< 0.00083	0%				< 0.00084	0%				< 0.00081	0%			
Nitrobenzene	98-95-3	2,100	NE	0.051	0.051	NE	< 0.00085	< 0.00082	0%				< 0.00083	0%				< 0.0008	0%			
N-Nitrosodimethylamine	62-75-9	NE	NE	NE	NE	NE	< 0.00098	< 0.00095	0%				< 0.00096	0%				< 0.00092	0%			
N-Nitrosodi-n-propylamine	621-64-7	9,900	NE	0.00041	0.00041	NE	< 0.0011	< 0.001	0%				< 0.001	0%				< 0.001	0%			
N-Nitrosodiphenylamine	86-30-6	35	NE	0.58	0.58	NE	< 0.00077	< 0.00075	0%				< 0.00076	0%				< 0.00073	0%			
p-Chloro-m-cresol	59-50-7	NE	NE	NE	NE	NE	< 0.00082	< 0.00079	0%				< 0.0008	0%				< 0.00077	0%			
Pentachlorophenol	87-86-5	2,000	0.001	0.024	0.024	0.004	< 0.00033	< 0.00032	0%				< 0.00033	0%				< 0.00031	0%			
Phenol	108-95-2	83,000	NE	31	31	0.180	0.00074 J	0.00079 J	100%	0.00077	0.00074	0.00079	0.031	100%	0.03100	0.03100	0.03100	0.0011 J	100%	0.00110	0.00110	0.00110

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quar
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-801D Total Metals 10/29/2012	MW-801D Dup Total Metals 10/29/2012	MW-801D Total Metals 7/16/2013	MW-801D Total Metals 9/13/2017	MW-801D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-801S Total Metals 10/29/2012	MW-801S Total Metals 7/16/2013	MW-801S Total Metals 9/13/2017	MW-801S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0027 J	0.0011 J	< 0.002	< 0.00009 UJ	< 0.00005 B	50%	0.00102	0.00009	0.0027	0.00093 J	0.00057 J	< 0.00023 UJ	< 0.00017 UJ	67%	0.001	0.0002	0.001
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0077** J A(I)	**0.0059** J A(I)	**0.0085** J A(I)	0.00094 J	< 0.0008	100%	0.00576	0.00094	0.0085	**0.011** A(MCL,I,DCL)	**0.0091** J A(I)	**0.011** J A(MCL,I,DCL)	**0.014** A(MCL,I,DCL)	100%	0.010	0.0091	0.011
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.24	0.22	0.21	0.17	0.17 J+	100%	0.210	0.17	0.24	0.092	0.09	0.069	0.076 J+	100%	0.084	0.0690	0.092
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0017 J	0.002 J	< 0.0003	< 0.0015 UJ	< 0.001	50%	0.0014	0.0003	0.002	0.0018 J	< 0.0003	0.017	0.0094	67%	0.006	0.0003	0.017
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	NP	0.0018 J	NP	100%	0.0018	0.0018	0.0018	NP	NP	0.076	NP	100%	0.076	0.076	0.076
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	< 0.00015	< 0.00015	0.00068 J	*0.0019* J B	< 0.0004	50%	0.00072	0.00015	0.0019	*0.0019* J B	*0.0054* J B	*0.002* J B	0.001 J	100%	0.003	0.0019	0.005
Iron	7439-89-6	NE	NE	NE	NE	NE	5.9	5.9	6.1	9.6	1.0	100%	6.9	5.9	9.6	0.35	0.22	0.4 J	0.3 J	100%	0.323	0.22	0.400
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00014 J	0.00011 J	< 0.0001	0.00057 J	< 0.0001	75%	0.00023	0.0001	0.00057	< 0.0001	0.00015 J	0.00012 J	< 0.0001	67%	0.0001	0.0001	0.0002
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.18	0.18	0.16	0.19	0.17	100%	0.178	0.16	0.19	0.00089 J	0.00088 J	0.00085 J	< 0.00053 UJ	100%	0.001	0.0009	0.001
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000020	< 0.000030	< 0.00014 UJ	NP	0%	0.00005	0.00002	0.00014	< 0.000020	< 0.000030	< 0.00016 UJ	NP	0%	0.000	0.0000	0.000
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.011 J	0.0053 J	0.0027 J	< 0.00092 UJ	< 0.00069 UJ	75%	0.00498	0.00092	0.011	0.022	0.021	0.019	0.021 J+	100%	0.021	0.0190	0.022
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0011 J	0.0011 J	< 0.0001	0.00082 J	< 0.00035	75%	0.00078	0.0001	0.0011	0.01	0.0041 J	0.006	0.0054	100%	0.007	0.0041	0.010
Potassium	7440-09-7	NE	NE	NE	NE	NE	5	5.2	5	5.5	5.0	100%	5.18	5	5.5	54	74	25	24.0	100%	51.000	25	74.000
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0078* B	0.0035 J	< 0.001	0.00095 J	< 0.0004	100%	0.00331	0.00095	0.0078	0.0049 J	0.0044 J	0.0033 J	0.002 J	100%	0.004	0.0033	0.005
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	49	52	55	68	130	100%	56.0	49	68	270	550	160	340	100%	327	160	550
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	**0.003** J A(MCL)	0.001 J	0.00028 J	< 0.00029 UJ	< 0.0001 B	75%	0.00114	0.00028	0.003	0.00047 J	0.00045 J	0.00024 J	< 0.0001 B	100%	0.0004	0.0002	0.0005
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0033 J	0.0016 J	0.0008 J	0.0016 J	< 0.00015	100%	0.00183	0.0008	0.0033	0.00075 J	0.0014 J	< 0.00015	< 0.00015	67%	0.001	0.0002	0.001
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.00050	0.00210 J	0.00240 J	0.0022 J	< 0.0014	75%	0.00180	0.0005	0.0024	*0.01200* B	*0.05000* B	*0.013* B	0.0081	100%	0.025	0.0120	0.050
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0013 J	< 0.0005	0.00028 J	0.0099 J	0.0034 J	75%	0.0030	0.00028	0.0099	< 0.0005	0.0071 J	< 0.0027	< 0.0027	33%	0.003	0.0005	0.007

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
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[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals results.

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-802S 10/31/2012	MW-802S-Dup 10/31/2012	MW-802S 7/16/2013	% Detect	Average	Minimum Detected	Maximum Detected	MW-803D Total Metals 10/31/2012	MW-803D Total Metals 7/17/2013	MW-803D Total Metals 9/13/2017	MW-803D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																					
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00083 J	0.00083 J	0.0015 J	100%	0.00105	0.00083	0.0015	0.00058 J	< 0.0002	< 0.0012 UJ	0.00019 J	33%	0.001	0.0002	0.001
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	0.0017 J	0.0017 J	0.001 J	100%	0.00147	0.001	0.0017	**0.034** A(MCL,I,DCL)	**0.038** A(MCL,I,DCL)	**0.039** A(MCL,I,DCL)	**0.046** A(MCL,I,DCL)	100%	0.037	0.0340	0.039
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.4	0.39	0.46	100%	0.41667	0.39	0.46	0.32	0.33	0.44	0.47	100%	0.363	0.3200	0.440
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.00015	0%				*0.00021* J B	*0.00021* J B	< 0.0001	< 0.0001	67%	0.000	0.0001	0.000
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0022 J	0.0024 J	0.006	100%	0.00353	0.0022	0.006	0.0094	0.0068	0.0052	0.006	100%	0.007	0.0052	0.009
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	NP					NP	NP	0.073		100%	0.073	0.0730	0.073
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0045* J B	*0.0047* J B	*0.0084* J B	100%	0.00587	0.0045	0.0084	*0.0073* J B	*0.0085* J B	*0.012* B	0.00088 J	100%	0.009	0.0073	0.012
Iron	7439-89-6	NE	NE	NE	NE	NE	0.34	0.44	< 0.0015	67%	0.26050	0.0015	0.44	0.36	0.26	0.25 J	0.2 J	100%	0.290	0.2500	0.360
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	< 0.0001	0.00014 J	< 0.0001	33%	0.00011	0.0001	0.00014	0.00013 J	< 0.0001	0.00021 J	< 0.0001	67%	0.0001	0.0001	0.0002
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.36	0.37	0.02	100%	0.25000	0.02	0.37	0.0097	0.0072	0.0071	0.0067	100%	0.008	0.0071	0.010
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000020	< 0.000030	0%				< 0.000020	< 0.000030	< 2E-05	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.02 J	0.019 J	0.052	100%	0.03033	0.019	0.052	0.0057 J	0.0036 J	0.0071	0.004 J	100%	0.005	0.0036	0.007
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0061 J	0.0058 J	0.0013 J	100%	0.00440	0.0013	0.0061	0.0063 J	0.0067 J	0.0059	0.0065	100%	0.006	0.0059	0.007
Potassium	7440-09-7	NE	NE	NE	NE	NE	43	43	24	100%	36.66667	24	43	29	26	19	18	100%	25	19	29
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0086* B	*0.0086* B	0.0045 J	100%	0.00723	0.0045	0.0086	*0.036* B	*0.041* B	< 0.003 UJ	0.0033 J	67%	0.027	0.0030	0.041
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	190	190	130	100%	170	130	190	330	440	630	650	100%	467	330	630
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	< 0.00015	< 0.00015	0%				0.00034 J	< 0.00015	0.0017	< 0.0001	67%	0.001	0.0002	0.002
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	< 0.0004	< 0.0004	0%				0.0016 J	< 0.0004	< 0.00015	< 0.00015	33%	0.001	0.0002	0.002
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00140 J	< 0.00050	0.00340 J	67%	0.00177	0.0005	0.0034	*0.01900* B	*0.02500* B	*0.021* B	*0.026* B	100%	0.022	0.0190	0.025
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0079 J	0.0077 J	0.013 J	100%	0.00953	0.0077	0.013	0.002 J	0.034	0.0074 J	0.0047 J	100%	0.014	0.0020	0.034

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-803M Total Metals 10/31/2012	MW-803M Total Metals 7/17/2013	MW-803M Total Metals 9/13/2017	MW-803M Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-803S Total Metals 10/31/2012	MW-803S Total Metals 7/17/2013	MW-803S Total Metals 9/13/2017	MW-803S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0002 J	< 0.0002	< 0.0035 U	< 0.0002	0%	0.0003	0.0002	0.0004	0.0035 J	< 0.0002	< 0.001 U	< 0.0002	33%	0.0016	0.0002	0.0035
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0027** J A(I)	**0.0029** J A(I)	0.0012 J	< 0.0032	100%	0.002	0.0012	0.003	**0.0046** J A(I)	< 0.00015	< 0.0008	< 0.0032	33%	0.002	0.0002	0.005
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.44	0.46	0.19	0.18 J+	100%	0.36	0.19	0.46	0.2	0.16	0.19	0.18 J+	100%	0.18	0.16	0.20
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0044	0.0042	0.0014 J	< 0.004	100%	0.003	0.0014	0.004	0.0029 J	0.0019 J	0.0015 J	< 0.004	100%	0.002	0.0015	0.003
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.003 R	NP	0%				NP	NP	**0.13** J- A(MCL)	NP	100%	0.130	0.130	0.130
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.00031 J	0.00058 J	< 0.0004	< 0.0016	67%	0.0004	0.0003	0.001	*0.0019* J B	0.00085 J	*0.002* J B	*0.0021* J B	100%	0.0016	0.0009	0.002
Iron	7439-89-6	NE	NE	NE	NE	NE	0.88	0.47	0.27 J	0.1 J	100%	0.54	0.27	0.88	0.59	0.42	0.83 J	0.5	100%	0.61	0.42	0.83
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00044 J	0.00028 J	< 0.0001	< 0.0004	67%	0.0003	0.0001	0.0004	0.00037 J	0.00015 J	< 0.0001	< 0.0004	67%	0.0002	0.0001	0.0004
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.047	0.031	0.034	0.024	100%	0.037	0.0310	0.047	0.16	0.21	0.16	0.14	100%	0.177	0.1600	0.210
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030 B	< 2E-05	NP	0%				< 0.000020	< 0.000030	< 0.00013 U	NP	0%	0.00006	0.00002	0.00013
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.00084 J	< 0.0003	< 0.00026 U	0.0021 J	33%	0.0005	0.0003	0.0008	0.023	0.00096 J	< 0.0012 U	0.0037 J	67%	0.0084	0.0010	0.0230
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0012 J	0.001 J	0.00062 J	< 0.0014	100%	0.001	0.0006	0.001	0.0033 J	0.0015 J	0.0018 J	< 0.0014	100%	0.002	0.0015	0.003
Potassium	7440-09-7	NE	NE	NE	NE	NE	2.3	2.3	2.3	1.8	100%	2.3	2.3	2.3	3.6	4.7	7.6	6.9	100%	5.3	3.6	7.6
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.002 J	0.0018 J	< 0.0033 U	< 0.0016	67%	0.002	0.0018	0.003	*0.012* B	0.0015 J	*0.0071* J+ B	< 0.0016	100%	0.007	0.0015	0.012
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	47	50	62	53	100%	53	47	62	31	50	60	52	100%	47	31	60
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				**0.0032** J A(MCL)	0.00016 J	0.00031 J	< 0.0004	100%	0.0012	0.0002	0.0032
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	< 0.0004	< 0.00015	< 0.0006	0%				0.011 J	< 0.0004	< 0.00015	< 0.0006	33%	0.0039	0.0002	0.0110
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00230 J	0.00200 J	< 0.0014	< 0.0054	67%	0.002	0.0014	0.002	0.00450 J	0.00220 J	0.0024 J	< 0.0054	100%	0.003	0.0022	0.005
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.003 J	0.0047 J	0.0049 J	< 0.011	100%	0.004	0.0030	0.005	0.0022 J	0.032	< 0.0027	< 0.011	67%	0.012	0.0022	0.032

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-804S Total Metals 10/29/2012	MW-804S Total Metals 7/16/2013	MW-804S Total Metals 9/13/2017	MW-804S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-805D Total Metals 10/31/2012	MW-805D Total Metals 7/16/2013	MW-805D-Dup Total Metals 7/16/2013	MW-805D Total Metals 9/12/2017	MW-805D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00061 J	0.00093 J	< 0.00054 UJ	0.0001 J	67%	0.0007	0.0005	0.0009	0.00099 J	0.0014 J	0.00047 J	< 0.00005	< 0.00015 UJ	75%	0.0007	0.0001	0.0014
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.012** A(MCL,I,DCL)	**0.0061** J A(I)	**0.0032** J A(I)	< 0.0008	100%	0.007	0.0032	0.012	**0.0075** J A(I)	**0.011** A(MCL,I,DCL)	**0.0081** J A(I)	< 0.0008	< 0.0008	75%	0.0069	0.0008	0.0110
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.18	0.26	0.17	0.16 J+	100%	0.20	0.17	0.26	0.32	0.27	0.25	0.18	0.17 J+	100%	0.26	0.18	0.32
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0018 J	0.0031	< 0.001 UJ	< 0.001	67%	0.002	0.0018	0.003	0.00067 J	< 0.0003	< 0.0003	< 0.001	< 0.001	25%	0.0006	0.0003	0.0010
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001 UJ	NP	0%				NP	NP	NP	0.0033 J	NP	100%	0.0033	0.0033	0.0033
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	< 0.00015	0.00042 J	*0.0016* J B	< 0.0004	67%	0.0007	0.0002	0.002	0.0011 J	0.0011 J	0.0012 J	0.0014 J	< 0.0004	100%	0.0012	0.0011	0.0014
Iron	7439-89-6	NE	NE	NE	NE	NE	4.7	1.8	3.6	0.013 J	100%	3.37	1.80	4.70	13	12	13	9.7	0.066 J	100%	12	10	13
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00032 J	0.00031 J	0.00011 J	< 0.0001	100%	0.0002	0.0001	0.0003	0.00013 J	0.00026 J	0.00021 J	0.00023 J	< 0.0001	100%	0.0002	0.0001	0.0003
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.56	0.68	0.75	0.74	100%	0.663	0.5600	0.750	0.11	0.1	0.1	0.059	0.057	100%	0.0923	0.0590	0.1100
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	*0.000230* B	< 0.00013 UJ	NP	33%	0.00013	0.00002	0.00023	< 0.000020	< 0.000030	< 0.000030	< 0.000074 UJ	NP	0%	0.00004	0.00002	0.00007
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0042 J	0.022	< 0.0031 UJ	0.0024 J	67%	0.0098	0.0031	0.0220	0.011 J	0.022	0.0075 J	< 0.0028 UJ	0.0024 J	75%	0.011	0.003	0.022
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0023 J	0.0026 J	0.0019 J	0.0016 J	100%	0.002	0.0019	0.003	0.0014 J	< 0.0001	< 0.0001	0.0022 J	< 0.00035	50%	0.0010	0.0001	0.0022
Potassium	7440-09-7	NE	NE	NE	NE	NE	5.4	4.7	6.4	6.0	100%	5.5	4.7	6.4	7.5	7.5	7.6	8.1	8.5 J-	100%	7.7	7.5	8.1
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0017 J	*0.011* B	0.00084 J	< 0.0004	100%	0.005	0.0008	0.011	0.0027 J	*0.0089* B	0.002 J	0.0011 J	< 0.0004	100%	0.0037	0.0011	0.0089
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	20	23	23	21	100%	22	20	23	95	99	97	130	110	100%	105	95	130
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00049 J	**0.0036** J A(MCL)	< 0.0007 UJ	< 0.0001	67%	0.0016	0.0005	0.0036	0.0008 J	**0.003** J A(MCL)	0.00072 J	< 0.00013 UJ	< 0.0001	75%	0.0012	0.0001	0.0030
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.00095 J	0.0075 J	< 0.00015	< 0.00015	67%	0.0029	0.0002	0.0075	0.0032 J	0.007 J	0.002 J	< 0.00015	0.00021 J	75%	0.0031	0.0002	0.0070
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00300 J	< 0.00050	0.0064 J	< 0.0014	67%	0.003	0.0005	0.006	< 0.00050	0.00300 J	0.00370 J	< 0.0014	< 0.0014	50%	0.0022	0.0005	0.0037
Zinc	7440-66-6	NE	NE	31	31	0.0657	< 0.0005	0.004 J	< 0.0027	< 0.0027	33%	0.002	0.0005	0.004	0.011 J	0.01 J	0.009 J	< 0.0083 UJ	0.011	75%	0.0096	0.0083	0.0110

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

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[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-805S Total Metals 10/31/2012	MW-805S Total Metals 7/17/2013	MW-805S Total Metals 9/12/2017	MW-805S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-806D Total Metals 10/31/2012	MW-806D Total Metals 7/17/2013	MW-806D Total Metals 9/14/2017	MW-806D Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00038 J	0.00041 J	< 0.0003 UJ	< 0.0003 UJ	67%	0.0003	0.0001	0.0004	0.00028 J	0.00075 J	< 0.00048 UJ	< 0.00005	67%	0.0005	0.0003	0.0008
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.013** A(MCL,I,DCL)	**0.013** A(MCL,I,DCL)	**0.0039** J A(I)	**0.0047** J A(I)	100%	0.010	0.0039	0.013	**0.017** A(MCL,I,DCL)	**0.011** A(MCL,I,DCL)	< 0.0008	**0.0034** J A(I)	67%	0.010	0.0008	0.017
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00014	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.37	0.24	0.081 J+	0.11 J+	100%	0.23	0.08	0.37	0.19 J	0.17	0.17	0.18 J+	100%	0.18	0.17	0.19
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0026 J	0.00073 J	< 0.001 UJ	< 0.001	67%	0.001	0.0007	0.003	0.0078	0.0032	0.0016 J	0.0015 J	100%	0.004	0.0016	0.008
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	0.0084 J	NP	100%	0.0084	0.0084	0.0084	NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0041* J B	*0.0079* J B	0.00097 J	< 0.0004	100%	0.0043	0.0010	0.008	*0.013* B	*0.0093* J B	< 0.0004	*0.0018* J B	67%	0.0076	0.0004	0.013
Iron	7439-89-6	NE	NE	NE	NE	NE	2.6	7.1	2.9 J	0.028 J	100%	4.2	2.6	7.1	0.47	0.19	0.57 J	0.100 J	100%	0.4	0.2	0.6
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00018 J	0.00054 J	0.00036 J	< 0.0001	100%	0.0004	0.0002	0.0005	0.00027 J	0.00026 J	< 0.0001	< 0.0001	67%	0.0002	0.0001	0.0003
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.42	0.6	0.27 J	0.4	100%	0.430	0.2700	0.600	0.017	0.013	0.027	0.026	100%	0.019	0.0130	0.027
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 0.000099 UJ	NP	0%	0.00005	0.00002	0.00010	*0.000100* J B	< 0.000030	< 2E-05	NP	33%	0.00005	0.00002	0.00010
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0026 J	0.0051 J	0.0025 J+	0.0042 J	100%	0.0034	0.0025	0.0051	0.0023 J	0.018 J	0.001 J	0.00062 J	100%	0.0071	0.0010	0.0180
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0042 J	0.0013 J	0.00073 J	< 0.00035	100%	0.002	0.0007	0.004	0.0028 J	0.0024 J	< 0.00035	0.00039 J	67%	0.002	0.0004	0.003
Potassium	7440-09-7	NE	NE	NE	NE	NE	21	34	5.2 J	8.4 J+	100%	20.1	5.2	34.0	23	22	19	19.0	100%	21	19	23
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0029 J	0.0024 J	< 0.0004 UJ	< 0.0004	67%	0.002	0.0004	0.003	*0.014* B	*0.02* B	< 0.0012 UJ	0.0015 J	67%	0.012	0.0012	0.020
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001 UJ	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	76	210	16 J	28 J+	100%	101	16	210	850	890	980	510	100%	907	850	980
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00021 J	0.00061 J	< 0.00019 UJ	< 0.0001	67%	0.0003	0.0002	0.0006	< 0.00015	**0.0025** J A(MCL)	0.00019 J	< 0.0001	67%	0.0009	0.0002	0.0025
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.00088 J	0.0012 J	< 0.00015 UJ	< 0.00015	67%	0.0007	0.0002	0.0012	0.00078 J	0.0058 J	< 0.00015	< 0.00015	67%	0.0022	0.0002	0.0058
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.00050	0.00150 J	0.0055 J	< 0.0014	67%	0.003	0.0005	0.006	0.00610 J	0.00460 J	0.0025 J	0.0027 J	100%	0.004	0.0025	0.006
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.011 J	0.0099 J	< 0.0039 UJ	< 0.0027	67%	0.008	0.0039	0.011	0.011 J	0.0033 J	< 0.0027	< 0.0027	67%	0.006	0.0027	0.011

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

U Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

J+ Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

J- Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

UJ Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-806S Total Metals 10/31/2012	MW-806S Total Metals 7/16/2013	MW-806S Total Metals 9/14/2017	MW-806S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-807D Total Metals 11/1/2012	MW-807D Total Metals 7/18/2013	MW-807D Total Metals 9/13/2017	MW-807D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00093 J	< 0.0002	< 0.00099 UJ	< 0.0002	33%	0.0007	0.0002	0.0010	0.0003 J	0.00049 J	0.002 J	< 0.0002	100%	0.0009	0.0003	0.0020
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.027** A(MCL,I,DCL)	**0.025** A(MCL,I,DCL)	**0.016** A(MCL,I,DCL)	**0.0076** J A(I)	100%	0.023	0.0160	0.027	***0.15*** A(MCL,I,DCL),B	**0.14** A(MCL,I,DCL)	**0.12** A(MCL,I,DCL)	**0.088** A(MCL,I,DCL)	100%	0.137	0.1200	0.150
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0006	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.29	0.34	0.13	0.12 J+	100%	0.25	0.13	0.34	0.25	0.19	0.11	0.11 J+	100%	0.18	0.11	0.25
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0015 J	< 0.0003	< 0.001	< 0.004	33%	0.001	0.0003	0.002	0.0096	0.0059	0.0039 J	0.005 J	100%	0.006	0.0039	0.010
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	**0.14** J- A(MCL)	NP	100%	0.140	0.140	0.140	NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	< 0.00015	0.00075 J	< 0.0004	< 0.0016	33%	0.0004	0.0002	0.001	*0.041* B	*0.016* B	*0.0073* B	*0.0066* J B	100%	0.0214	0.0073	0.041
Iron	7439-89-6	NE	NE	NE	NE	NE	5.7	7.9	2.3	0.012 J	100%	5.3	2.3	7.9	2.3	1.7	0.99 J	0.800 J	100%	1.7	1.0	2.3
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	< 0.0001	< 0.0001	< 0.0001	< 0.0004	0%				0.00052 J	0.0006 J	0.00084 J	0.00056 J	100%	0.00065	0.00052	0.00084
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.78	0.74	0.56	0.55	100%	0.693	0.5600	0.780	0.0098	0.011	0.011	< 0.0083 UJ	100%	0.011	0.0098	0.011
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 2E-05	NP	0%				< 0.000020	< 0.000030 B	< 0.00014 UJ	NP	0%	0.00006	0.00002	0.00014
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0077 J	0.003 J	0.01	0.0067 J	100%	0.0069	0.0030	0.0100	0.056	0.06	0.026	0.028 J+	100%	0.0473	0.0260	0.0600
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0029 J	0.00076 J	0.001 J	< 0.0014	100%	0.002	0.0008	0.003	0.013	0.013	0.01	0.0074 J	100%	0.012	0.0100	0.013
Potassium	7440-09-7	NE	NE	NE	NE	NE	29	19	35	33.0	100%	28	19	35	9.1	10	11	10.0	100%	10	9	11
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0038 J	*0.04* B	< 0.001 UJ	< 0.0016	67%	0.015	0.0010	0.040	*0.044* B	***0.072*** A(MCL),B	*0.045* J+ B	< 0.0016	100%	0.054	0.0440	0.072
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	30	57	61	63	100%	49	30	61	2200	1900	1700	1400	100%	1933	1700	2200
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.0007 J	0.00018 J	**0.002** A(MCL)	< 0.0004	100%	0.0010	0.0002	0.0020	< 0.00015	**0.003** J A(MCL)	0.0016	< 0.0001	67%	0.0016	0.0002	0.0030
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0027 J	< 0.0008	0.0002 J	< 0.0008	67%	0.0011	0.0002	0.0027	0.0016 J	0.0075 J	0.0024 J	< 0.0015	100%	0.0038	0.0016	0.0075
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00130 J	0.00580 J	0.0018 J	< 0.0054	100%	0.003	0.0013	0.006	*0.066* B	*0.04900* B	*0.045* B	*0.04* B	100%	0.053	0.0450	0.066
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0027 J	0.0061 J	< 0.0027	< 0.011	67%	0.004	0.0027	0.006	0.0054 J	0.0051 J	0.0069 J	0.0045 J	100%	0.006	0.0051	0.007

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-807S Total Metals 11/1/2012	MW-807S Total Metals 7/16/2013	MW-807S-Dup Total Metals 7/16/2013	MW-807S Total Metals 9/13/2017	MW-807S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-808D Total Metals 11/2/2012	MW-808D Total Metals 7/17/2013	MW-808D Total Metals 9/14/2017	MW-808D Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0011 J	0.00024 J	0.0013 J	< 0.00059 UJ	< 0.00007 UJ	75%	0.0008	0.0002	0.0013	0.00057 J	0.00072 J	< 0.00058 UJ	0.00033 J	67%	0.0006	0.0006	0.0007
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0024** J A(I)	**0.0046** J A(I)	**0.0034** J A(I)	< 0.0008	< 0.0008	75%	0.0028	0.0008	0.0046	**0.094** A(MCL,I,DCL)	**0.081** A(MCL,I,DCL)	**0.11** A(MCL,I,DCL)	**0.1** A(MCL,I,DCL)	100%	0.095	0.0810	0.110
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015 UJ	0%				< 0.00015	< 0.00045	< 0.00013	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.22	0.13	0.11	0.31	0.31 J+	100%	0.19	0.11	0.31	0.4	0.34	0.37	0.29 J+	100%	0.37	0.34	0.40
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00014	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				0.00021 J B	0.00042 J B	< 0.0001	< 0.0001	67%	0.00024	0.00010	0.00042
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0047	0.066 B	0.065 B	0.0079 J+	0.0042 J	100%	0.0359	0.0047	0.0660	0.024	0.022	0.019	0.014	100%	0.022	0.0190	0.024
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	NP	< 0.001	NP	0%				NP	NP	0.068	NP	100%	0.068	0.068	0.068
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.0012 J	0.0058 J B	0.0056 J B	0.0021 J B	0.0013 J	100%	0.0037	0.0012	0.0058	0.027 B	0.016 B	0.0029 J B	0.00043 J	100%	0.0153	0.0029	0.027
Iron	7439-89-6	NE	NE	NE	NE	NE	0.96	0.87	0.85	1.5	1.100	100%	1.0	0.9	1.5	3.2	2	1.7	1.300	100%	2.3	1.7	3.2
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00035 J	0.0001 J	< 0.0001	0.00014 J	0.00032 J	75%	0.0002	0.0001	0.0004	0.00036 J	0.00022 J	0.00017 J	< 0.0001	100%	0.00025	0.00017	0.00036
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.11	0.076	0.074	0.1	0.085	100%	0.0900	0.0740	0.1100	0.047	0.031	0.044	0.033	100%	0.041	0.0310	0.047
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	0.000072 J B	0.000079 J B	0.00021 J+ B	NP	75%	0.00010	0.00002	0.00021	< 0.000020	< 0.000030	< 2E-05	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0074 J	0.013 J	0.011 J	< 0.0025 UJ	< 0.0009 UJ	75%	0.009	0.003	0.013	0.0087 J	0.0061 J	0.0045 J	0.0037 J	100%	0.0064	0.0045	0.0087
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0042 J	0.0018 J	0.0018 J	0.0023 J	0.0022 J	100%	0.0025	0.0018	0.0042	0.018	0.015	0.01	0.0076	100%	0.014	0.0100	0.018
Potassium	7440-09-7	NE	NE	NE	NE	NE	11	12	11	11	10.0	100%	11.3	11.0	12.0	33	30	25	19.0	100%	29	25	33
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0049 J	0.0063 B	0.005 J	0.0011 J	< 0.0004	100%	0.0043	0.0011	0.0063	0.023 B	0.018 B	0.0051 J+ B	0.0037 J	100%	0.015	0.0051	0.023
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	29	31	29	76	79	100%	41	29	76	250	1300	1300	960	100%	950	250	1300
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00086 J	0.00046 J	0.00019 J	< 0.002 UJ	< 0.0001 B	75%	0.0009	0.0002	0.0020	0.00043 J	< 0.000150	< 0.0001	< 0.0001	33%	0.0002	0.0001	0.0004
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0035 J	0.0014 J	0.00068 J	< 0.00015	< 0.00015	75%	0.0014	0.0002	0.0035	0.0018 J	< 0.000450	< 0.00015	< 0.00015	33%	0.0008	0.0002	0.0018
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.02500 B	0.02400 B	0.02300 B	0.003 J	0.0069	100%	0.0188	0.0030	0.0250	0.096 B	0.094 B	0.094 B	0.072 B	100%	0.095	0.0940	0.096
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0036 J	0.0026 J	0.0024 J	0.0068 J	0.0059 J	100%	0.0039	0.0024	0.0068	0.0087 J	0.0093 J	0.018 J	< 0.0027	100%	0.012	0.0087	0.018

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
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NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
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A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-808S Total Metals 11/2/2012	MW-808S Total Metals 7/17/2013	MW-808S Total Metals 9/14/2017	MW-808S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809D Total Metals 11/2/2012	MW-809D Total Metals 7/18/2013	MW-809D Total Metals 9/14/2017	MW-809D Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0037 J	0.0013 J	< 0.0021 UJ	0.00097 J	67%	0.0024	0.0013	0.0037	0.0028 J	0.0018 J	< 0.0041 UJ	0.0043 J	67%	0.0029	0.0018	0.0041
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.035** A(MCL,I,DCL)	**0.013** A(MCL,I,DCL)	**0.017** A(MCL,I,DCL)	**0.014** J A(MCL,I,DCL)	100%	0.022	0.0130	0.035	***0.19*** A(MCL,I,DCL),B	***0.2*** A(MCL,I,DCL),B	***0.24*** A(MCL,I,DCL),B	***0.27*** A(MCL,I,DCL),B	100%	0.210	0.1900	0.240
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.37	0.22	0.24	0.25 J+	100%	0.28	0.22	0.37	0.45	0.44	0.39	0.4	100%	0.43	0.39	0.45
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	***0.00021*** J B	< 0.0001	< 0.0001	33%	0.00015	0.00010	0.00021
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.005	0.0048	0.0035 J	< 0.004	100%	0.004	0.0035	0.005	0.017	0.015	0.015	0.014	100%	0.016	0.0150	0.017
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	< 0.001	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0023* J B	*0.0085* J B	*0.0068* B	< 0.0016	100%	0.0059	0.0023	0.009	*0.028* B	*0.11* B	*0.025* B	< 0.0004	100%	0.0543	0.0250	0.110
Iron	7439-89-6	NE	NE	NE	NE	NE	0.33	1.1	0.9 J	0.160 J	100%	0.78	0.33	1.10	3.6	3.4	5.3	5.100	100%	4.1	3.4	5.3
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00049 J	0.00071 J	0.00036 J	< 0.0004	100%	0.00052	0.00036	0.00071	0.0003 J	*0.0016* J B	0.0004 J	< 0.0001	100%	0.00077	0.00030	0.00160
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.32 B	0.29	0.34	0.26	100%	0.317	0.2900	0.340	0.0084	0.011	0.008	0.0063	100%	0.009	0.0080	0.011
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	*0.000056* J B	*0.000025* J B	NP	67%	0.000034	0.000020	0.000056	*0.000044* J B	< 0.000030 B	< 2E-05	NP	33%	0.000031	0.000020	0.000044
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.013 J	0.0046 J	< 0.0045 UJ	0.004 J	67%	0.0074	0.0045	0.0130	0.0038 J	0.0098 J	0.0048 J	0.0046 J	100%	0.0061	0.0038	0.0098
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.016	0.0084 J	0.0072	< 0.0014	100%	0.011	0.0072	0.016	0.015	0.017	0.021	0.021	100%	0.018	0.0150	0.021
Potassium	7440-09-7	NE	NE	NE	NE	NE	6.1	4.6	7.9	7.9	100%	6.2	4.6	7.9	38	38	38	38.0	100%	38	38	38
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0068* B	0.0042 J	*0.02* J+ B	< 0.0016	100%	0.010	0.0042	0.020	*0.019* B	*0.027* B	*0.006* B	*0.0059* B	100%	0.017	0.0060	0.027
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	71	27	97	110	100%	65	27	97	1100	1100	22 J+	1200	100%	741	22	1100
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00024 J	< 0.00015	< 0.0001	< 0.0004	33%	0.0002	0.0001	0.0002	< 0.00015	0.0012 J	< 0.0001	< 0.0001	33%	0.0005	0.0001	0.0012
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0063 J	0.0024 J	0.0022 J	0.002 J	100%	0.0036	0.0022	0.0063	0.00052 J	0.0039 J	< 0.00015	< 0.00015	67%	0.0015	0.0002	0.0039
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00330 J	0.00480 J	0.0036 J	< 0.0054	100%	0.004	0.0033	0.005	*0.05500* B	*0.04400* B	*0.048* B	*0.048* B	100%	0.049	0.0440	0.055
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0039 J	0.01 J	0.0075 J	< 0.011	100%	0.007	0.0039	0.010	0.0052 J	0.03	0.016 J	0.0027 J	100%	0.017	0.0052	0.030

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809M Total Metals 11/2/2012	MW-809M Total Metals 7/18/2013	MW-809M-Dup Total Metals 7/18/2013	MW-809M Total Metals 9/14/2017	MW-809M Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809S Total Metals 11/2/2012	MW-809S Total Metals 7/15/2013	MW-809S Total Metals 9/14/2017	MW-809S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0002	< 0.0002	< 0.0002	< 0.00022 U	< 0.0002	0%	0.0002	0.0002	0.0002	< 0.0002	0.0011 J	< 0.00022 U	< 0.0002	33%	0.0005	0.0002	0.0011
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0095** J A(I)	**0.027** A(MCL,I,DCL)	**0.027** A(MCL,I,DCL)	**0.022** A(MCL,I,DCL)	**0.023** A(MCL,I,DCL)	100%	0.0214	0.0095	0.0270	< 0.00015	**0.0036** J A(I)	< 0.0008	< 0.0032	33%	0.002	0.0002	0.004
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00013	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00013	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.37	0.3	0.3	0.32	0.29	100%	0.32	0.30	0.37	0.33	0.32	0.28	0.28	100%	0.31	0.28	0.33
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00014	< 0.0004	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0025 J	0.0022 J	0.002 J	0.0029 J	< 0.004	100%	0.0024	0.0020	0.0029	0.0023 J	0.0042	0.002 J	< 0.004	100%	0.003	0.0020	0.004
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.00072 J	*0.0023* J B	*0.0018* J B	0.00042 J	< 0.0016	100%	0.0013	0.0004	0.0023	0.00024 J	*0.0024* J B	*0.0018* J B	< 0.0016	100%	0.0015	0.0002	0.002
Iron	7439-89-6	NE	NE	NE	NE	NE	0.86	0.49	0.46	0.2 J	0.140 J	100%	0.5	0.2	0.9	0.81	1.1	1.6	0.090 J	100%	1.2	0.8	1.6
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	< 0.0001	0.00021 J	< 0.0001	< 0.0001	< 0.0004	25%	0.0001	0.0001	0.0002	< 0.0001	0.00028 J	< 0.0001	< 0.0004	33%	0.00016	0.00010	0.00028
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.074 B	0.016	0.016	0.01	0.0086	100%	0.0290	0.0100	0.0740	0.2 B	1.1	0.24	0.23	100%	0.513	0.2000	1.100
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030 B	< 0.000030 B	< 2E-05	NP	0%				< 0.000020	< 0.000030	< 2E-05	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0006 J	< 0.0003	< 0.0003	< 0.0001 U	0.0019 J	25%	0.000	0.000	0.001	0.00057 J	0.021	< 0.00013 U	0.0021 J	67%	0.0072	0.0001	0.0210
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0037 J	0.0036 J	0.0036 J	0.0019 J	< 0.0014	100%	0.0032	0.0019	0.0037	0.0051 J	0.0043 J	0.0018 J	< 0.0014	100%	0.004	0.0018	0.005
Potassium	7440-09-7	NE	NE	NE	NE	NE	2.1	2.1	2.1	2	1.7	100%	2.1	2.0	2.1	2.6	10	5.6	5.2	100%	6	3	10
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0042 J	*0.0057* B	*0.0052* B	< 0.0037 U	< 0.0016	75%	0.0047	0.0037	0.0057	0.0018 J	*0.012* B	< 0.0037 U	< 0.0016	67%	0.006	0.0018	0.012
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	93	190	210	100	91	100%	148	93	210	47	64	84	74	100%	65	47	84
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	**0.0024** J A(MCL)	< 0.0001	0.00049 J	33%	0.0009	0.0001	0.0024
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	< 0.0003	< 0.0003	< 0.00015	< 0.0006	0%				< 0.0004	0.0066 J	< 0.00015	< 0.0006	33%	0.0024	0.0002	0.0066
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00820	*0.01300* B	*0.01200* B	< 0.0014	< 0.0054	75%	0.0087	0.0014	0.0130	0.00520 J	0.00430 J	< 0.0014	< 0.0054	67%	0.004	0.0014	0.005
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.00083 J	0.0097 J	0.029	0.0097 J	< 0.011	100%	0.0123	0.0008	0.0290	0.0015 J	0.013 J	0.0033 J	< 0.011	100%	0.006	0.0015	0.013

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
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[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
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A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-810D Total Metals 10/31/2012	MW-810D Total Metals 7/16/2013	MW-810D Total Metals 9/14/2017	MW-810D Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810S Total Metals 10/31/2012	MW-810S Total Metals 7/16/2013	MW-810S Total Metals 9/14/2017	MW-810S DUP Total Metals 9/14/2017	MW-810S Dissolved Metals 9/14/2017	MW-810S DUP Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-811S Total Metals 10/29/2012	MW-811S Total Metals 7/16/2013	MW-811S Total Metals 9/13/2017	MW-811S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																																
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0016 J	0.00047 J	< 0.00005	< 0.0002	67%	0.0007	0.0001	0.0016	0.00082 J	0.00083 J	< 0.00052 UJ	< 0.00052 UJ	0.00037 J	0.00048 J	50%	0.0007	0.0005	0.0008	0.00066 J	0.00025 J	< 0.0008 UJ	< 0.0002	67%	0.0006	0.0003	0.0008
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	0.0015 J	0.0013 J	< 0.0008	< 0.0032	67%	0.001	0.0008	0.002	**0.0069** J A(I)	**0.0028** J A(I)	**0.0035** J A(I)	**0.0029** J A(I)	**0.004** J A(I)	**0.0037** J A(I)	100%	0.0040	0.0028	0.0069	**0.0033** J A(I)	0.0005 J	< 0.0008	**0.0033** J A(I)	67%	0.002	0.0005	0.003
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00013	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.39	0.24	0.2	0.2 J+	100%	0.28	0.20	0.39	0.25	0.19	0.14	0.14	0.14 J+	0.15 J+	100%	0.18	0.14	0.25	0.069	0.012 J	< 0.0032	0.027 J+	67%	0.028	0.003	0.069
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0051	0.0031	0.0018 J	< 0.004	100%	0.003	0.0018	0.005	0.0016 J	0.002 J	< 0.001	< 0.001	< 0.001	< 0.001	50%	0.001	0.001	0.002	0.0014 J	0.018	0.0073	0.006 J	100%	0.009	0.0014	0.018
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	< 0.001	NP	NP	0%				NP	NP	**0.13** A(MCL)	NP	100%	0.130	0.130	0.130
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.014* B	*0.029* B	< 0.0004	< 0.0016	67%	0.0145	0.0004	0.029	*0.0025* J B	*0.0026* J B	0.00044 J	< 0.0004	0.00044 J	0.00052 J	75%	0.0015	0.0004	0.0026	*0.0091* J B	*0.02* B	*0.014* B	*0.012* J B	100%	0.0144	0.0091	0.020
Iron	7439-89-6	NE	NE	NE	NE	NE	3.2	1.1	0.7 J	0.230 J	100%	1.7	0.7	3.2	0.13	< 0.0015	0.53 J	0.55 J	0.010 J	< 0.009	75%	0.30	0.0015	0.55	0.037 J	< 0.0015	0.78 J	< 0.009	67%	0.273	0.002	0.78
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00049 J	< 0.0001	< 0.0001	< 0.0004	33%	0.00023	0.00010	0.00049	0.00013 J	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	25%	0.00011	0.00010	0.00013	0.00085 J	*0.0094* B	***0.024*** A(MCL),B	***0.022*** A(MCL),B	100%	0.01142	0.00085	0.024
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.056	0.049	0.019	0.017	100%	0.041	0.0190	0.056	0.067	0.052	0.065	0.067	0.064	0.067	100%	0.063	0.052	0.067	0.0012 J	0.00069 J	0.0015 J	< 0.00035	100%	0.0011	0.0007	0.0015
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 2E-05	NP	0%				< 0.000020	< 0.000030	< 2E-05	< 2E-05	NP	NP	0%				< 0.000020	< 0.000030	< 2E-05	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0088 J	0.0015 J	0.0035 J	0.0011 J	100%	0.0046	0.0015	0.0088	0.0082 J	0.012 J	0.013	0.012	0.013	0.013	100%	0.0113	0.0082	0.0130	0.012 J	0.0043 J	< 0.0045 UJ	0.007 J	67%	0.0069	0.0043	0.0120
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0047 J	0.002 J	< 0.00035	< 0.0014	67%	0.002	0.0004	0.005	0.004 J	0.002 J	0.0016 J	0.0017 J	0.0016 J	0.0017 J	100%	0.0023	0.0016	0.0040	0.023	*0.033* B	0.019	0.01 J	100%	0.025	0.0190	0.033
Potassium	7440-09-7	NE	NE	NE	NE	NE	33	31	22	21.0	100%	29	22	33	58	22	26	22	27	23	100%	32	22	58	59 E	31	73	71.0	100%	54	31	73
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0097* B	0.0044 J	0.00086 J	< 0.0016	100%	0.005	0.0009	0.010	*0.011* B	*0.0086* B	< 0.00099 UJ	< 0.00084 UJ	0.00096 J	0.0011 J	50%	0.0054	0.0008	0.011	0.0033 J	*0.0058* B	*0.0077* J+ B	< 0.0016	100%	0.006	0.0033	0.008
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001 W	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001 W	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	940	820	560	550	100%	773	560	940	68	97	290	250	310	280	100%	176	68	290	600	830	560	480	100%	663	560	830
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.0012 J	< 0.00019	< 0.0001	< 0.0004	33%	0.0005	0.0001	0.0012	< 0.00015	0.00017 J	< 0.0001	< 0.0001	< 0.0001	< 0.0001	25%	0.0001	0.0001	0.0002	0.00028 J	< 0.00015	< 0.0001	< 0.0004	33%	0.0002	0.0001	0.0003
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0051 J	0.00045 J	< 0.00015	< 0.0006	67%	0.0019	0.0002	0.0051	0.00052 J	< 0.0003	< 0.00015	< 0.00015	0.00039 J	< 0.00015	25%	0.0003	0.0002	0.0005	< 0.0002	< 0.0004	< 0.00015	< 0.0006	0%			
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00490 J	0.00430 J	0.0031 J	< 0.0054	100%	0.004	0.0031	0.005	0.01100	0.00360 J	< 0.0014	0.0014 J	< 0.0014	< 0.0014	75%	0.0044	0.0014	0.0110	0.00350 J	0.00064 J	< 0.0014	< 0.0054	67%	0.002	0.0006	0.004
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0035 J	0.0045 J	< 0.0027	< 0.011	67%	0.004	0.0027	0.005	0.0027 J	0.025	< 0.0027	< 0.0027	< 0.0027	< 0.0027	50%	0.0083	0.0027	0.0250	0.0029 J	0.025	0.035	0.035 J	100%	0.021	0.0029	0.035

Notes:

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[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

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B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-812S Total Metals 10/31/2012	MW-812S Total Metals 7/16/2013	MW-812S Total Metals 9/13/2017	MW-812S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-813S Total Metals 10/31/2012	MW-813S Total Metals 7/15/2013	MW-813S Total Metals 9/13/2017	MW-813S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-814S Total Metals 10/29/2012	MW-814S Total Metals 7/16/2013	MW-814S Total Metals 9/13/2017	MW-814S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																														
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0002	< 0.0002	< 0.00047 U	< 0.00005	0%	0.0003	0.0002	0.0005	< 0.0002	0.00037 J	< 0.001 U	0.00017 J	33%	0.0005	0.0002	0.0010	0.00047 J	< 0.0002	< 0.0015 U	< 0.00031 U	33%	0.0007	0.0002	0.0013
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.027** A(MCL,I,DCL)	**0.03** A(MCL,I,DCL)	**0.019** J A(MCL,I,DCL)	**0.016** A(MCL,I,DCL)	100%	0.025	0.0190	0.030	< 0.00015	0.0018 J	< 0.0008	< 0.0008	33%	0.001	0.0002	0.002	**0.0072** J A(I)	0.00047 J	**0.008** J A(I)	**0.0084** A(I)	100%	0.005	0.0005	0.008
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015 U	< 0.00015	< 0.00015 U	< 0.00015 UJ	0%				< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.19 J	0.17	0.18	0.17 J+	100%	0.180	0.170	0.190	0.23	0.18	0.12 J+	0.11 J+	100%	0.177	0.120	0.230	0.21	0.055	0.18	0.15 J+	100%	0.148	0.055	0.210
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.0002	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0016 J	< 0.0003	< 0.0027 U	< 0.001	33%	0.002	0.0003	0.003	0.0023 J	0.00099 J	< 0.003 U	< 0.001	67%	0.002	0.0010	0.003	0.0042	0.023	0.0064 J+	0.003 J	100%	0.011	0.0042	0.023
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.001 J	*0.0016* J B	0.00092 J	< 0.0004	100%	0.0012	0.0009	0.002	*0.002* J B	*0.0018* J B	*0.002* J B	< 0.0004	100%	0.0019	0.0018	0.002	0.00068 J	*0.0026* J B	*0.0017* J B	0.00083 J	100%	0.0017	0.0007	0.003
Iron	7439-89-6	NE	NE	NE	NE	NE	1.7	1.8	1.1	0.017 J	100%	1.533	1.100	1.80	0.35	0.15	1.1	0.940	100%	0.53	0.15	1.10	0.095 J	< 0.0015	< 0.050 U	0.063 J	33%	0.06	0.00	0.10
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%				0.00012 J	< 0.0001	0.0004 J	< 0.0001	67%	0.00021	0.00010	0.00040	< 0.0001	0.00014 J	0.00033 J	< 0.0001	67%	0.00019	0.00010	0.00033
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.17	0.18	0.11	0.1	100%	0.1533	0.1100	0.1800	0.17	0.13	0.043	0.037	100%	0.1143	0.0430	0.1700	0.041	0.00088 J	0.016	0.0091 J+	100%	0.0193	0.0009	0.0410
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 0.00013 U	NP	0%	0.00006	0.00002	0.00013	< 0.000020	< 0.000030	< 0.00013 U	NP	0%	0.00006	0.00002	0.00013	< 0.000020	< 0.000030	< 0.00013 U	NP	0%	0.00006	0.00002	0.00013
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0069 J	0.0096 J	< 0.0014 U	0.00058 J	67%	0.0060	0.0014	0.0096	0.0028 J	0.0058 J	0.016	0.014	100%	0.0082	0.0028	0.0160	0.009 J	0.0083 J	0.012	0.011 J+	100%	0.0098	0.0083	0.0120
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0049 J	0.0038 J	< 0.00035	< 0.00035	67%	0.003	0.0004	0.005	0.0031 J	0.00078 J	0.001 J	0.00043 J	100%	0.002	0.0008	0.003	0.0011 J	0.0011 J	0.0014 J	0.00091 J	100%	0.001	0.0011	0.001
Potassium	7440-09-7	NE	NE	NE	NE	NE	39	23	15	14.0	100%	26	15	39	42	33	17	15.0	100%	31	17	42	33	39	32	29.0	100%	35	32	39
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0025 J	0.0022 J	0.00055 J	< 0.0004	100%	0.002	0.0006	0.003	0.0041 J	0.0042 J	0.0013 J	< 0.0004	100%	0.003	0.0013	0.004	0.0021 J	0.0016 J	0.003 J	< 0.0004	100%	0.002	0.0016	0.003
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	100	150	51	51	100%	100	51	150	160	140	59	62	100%	120	59	160	130	130	250	190	100%	170	130	250
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	0.00026 J	< 0.00098 U	< 0.0001	33%	0.0005	0.0002	0.0010	< 0.00015	0.00031 J	< 0.002 U	0.0001 J	33%	0.0008	0.0002	0.0020	0.00039 J	0.00038 J	< 0.0053 U	< 0.0001 B	67%	0.0020	0.0004	0.0053
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	0.00064 J	< 0.00015	< 0.00015	33%	0.00040	0.00015	0.00064	< 0.0004	0.001 J	0.0011 J	< 0.00015	67%	0.00083	0.00040	0.00110	0.00054 J	< 0.0004	0.0016 J	< 0.00015	67%	0.00085	0.00040	0.00160
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.00050	0.00360 J	0.0036 J	< 0.0014	67%	0.003	0.0005	0.004	< 0.00050	0.00480 J	0.0057 J	0.0027 J	67%	0.004	0.0005	0.006	*0.01400* B	*0.03000* B	*0.029* B	*0.036* B	100%	0.024	0.0140	0.030
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0036 J	0.0085 J	< 0.0027	< 0.0027	67%	0.005	0.0027	0.009	0.0034 J	0.0053 J	< 0.0027	< 0.0027	67%	0.004	0.0027	0.005	< 0.0005	0.005 J	< 0.0027	< 0.0027	33%	0.003	0.0005	0.005

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
U Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
J+ Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
J- Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
UJ Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-815D Total Metals 10/29/2012	MW-815D Total Metals 7/15/2013	MW-815D Total Metals 9/11/2017	MW-815D Dissolved Metals 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815S Total Metals 10/29/2012	MW-815S Total Metals 7/17/2013	MW-815S Total Metals 9/11/2017	MW-815S Dissolved Metals 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-816D Total Metals 11/1/2012	MW-816D Total Metals 7/17/2013	MW-816D Total Metals 9/12/2017	MW-816D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																													
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00084 J	0.00043 J	0.00031 J	< 0.00005	100%	0.0005	0.0003	0.0008	0.0048 J	< 0.0002	0.00026 J	< 0.00005	67%	0.0018	0.0002	0.0048	0.0034 J	< 0.0002	0.00059 J	< 0.00066 U	67%	0.0014	0.0002	0.0034
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0041** J A(I)	**0.0043** J A(I)	< 0.0008	< 0.0008	67%	0.003	0.0008	0.004	**0.015** A(MCL,I,DCL)	0.0016 J	**0.0019** J A(I)	0.0016 J	100%	0.006	0.0016	0.015	**0.068** A(MCL,I,DCL)	**0.072** A(MCL,I,DCL)	**0.017** J A(MCL,I,DCL)	**0.046** A(MCL,I,DCL)	100%	0.052	0.0170	0.072
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.34	0.36	0.43	0.38	100%	0.377	0.340	0.430	0.35	0.28	0.26	0.23	100%	0.297	0.260	0.350	0.18 J	0.2	0.097	0.16	100%	0.159	0.097	0.200
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0022 J	0.0014 J	< 0.0019 U	< 0.001	67%	0.002	0.0014	0.002	0.0017 J	0.0012 J	< 0.0019 U	< 0.001	67%	0.002	0.0012	0.002	0.0044	0.0055	< 0.001	0.0019 J	67%	0.004	0.0010	0.006
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0023* J B	*0.0036* J B	*0.0061* B	*0.0016* J B	100%	0.0040	0.0023	0.006	< 0.00015	0.0013 J	*0.0024* B	< 0.0004	67%	0.0013	0.0002	0.002	0.00083 J	*0.0021* J B	0.00045 J	0.0012 J	100%	0.0011	0.0005	0.002
Iron	7439-89-6	NE	NE	NE	NE	NE	0.81	0.57	0.81	0.220 J	100%	0.73	0.57	0.81	2.9	1.6	1.8	0.038 J	100%	2.1	1.6	2.9	0.98	1.4	0.35	0.730 J-	100%	0.9	0.4	1.4
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00026 J	0.00023 J	0.00032 J	< 0.0001	100%	0.00027	0.00023	0.00032	0.0002 J	< 0.0001	< 0.0001	< 0.0001	33%	0.00013	0.00010	0.00020	0.00037 J	< 0.0001	0.00033 J	0.00019 J	67%	0.00027	0.00010	0.00037
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.026	0.024	0.023	0.019 J+	100%	0.0243	0.0230	0.0260	0.25	0.21	0.28	0.28	100%	0.2467	0.2100	0.2800	0.013	0.0094	0.0031 J	0.0046 J	100%	0.0085	0.0031	0.0130
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 0.000036 U	NP	0%	0.00003	0.00002	0.00004	< 0.000020	< 0.000030	< 0.000032 U	NP	0%	0.00003	0.00002	0.00003	< 0.000020	< 0.000030 B	< 0.000078 U	NP	0%	0.00004	0.00002	0.00008
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0043 J	0.0063 J	0.0014 J	0.00063 J	100%	0.0040	0.0014	0.0063	0.034	0.006 J	0.011	0.01	100%	0.0170	0.0060	0.0340	0.028	0.0037 J	0.0058 J+	0.0077	100%	0.0125	0.0037	0.0280
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0012 J	0.00058 J	0.0024 J	0.00067 J	100%	0.001	0.0006	0.002	0.001 J	0.0015 J	0.0043 J	0.00054 J	100%	0.002	0.0010	0.004	0.0033 J	0.0038 J	0.0016 J	0.0029 J	100%	0.003	0.0016	0.004
Potassium	7440-09-7	NE	NE	NE	NE	NE	19	17	15	14.0	100%	17	15	19	22	43	18	18.0	100%	28	18	43	12	13	4.5	9.6 J-	100%	10	5	13
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0089* B	*0.012* B	*0.0099* B	< 0.0004	100%	0.010	0.0089	0.012	*0.012* B	0.003 J	< 0.0004	< 0.0004	67%	0.005	0.0004	0.012	*0.015* B	*0.0073* B	0.0043 J	< 0.0004	100%	0.009	0.0043	0.015
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	250	260	250	250	100%	253	250	260	42	110	45	45	100%	66	42	110	51	64	24	50	100%	46	24	64
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00078 J	0.00059 J	0.00011 J	< 0.0001	100%	0.0005	0.0001	0.0008	**0.0054** A(MCL)	0.00024 J	< 0.0001	< 0.0001	67%	0.0019	0.0001	0.0054	**0.0032** J A(MCL)	< 0.00015	0.0017 J+	0.0015 J	67%	0.0017	0.0002	0.0032
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0019 J	0.002 J	< 0.00015	< 0.00015	67%	0.00135	0.00015	0.00200	0.016 J	< 0.0004	< 0.00015	< 0.00015	33%	0.00552	0.00015	0.016	0.013 J	< 0.0004	0.0018	0.00017 J	67%	0.00507	0.00040	0.013
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00280 J	0.00350 J	< 0.0014	< 0.0014	67%	0.003	0.0014	0.004	0.00290 J	< 0.00060	< 0.0014	< 0.0014	33%	0.002	0.0005	0.003	0.00870	0.00850	*0.012* B	0.01	100%	0.010	0.0085	0.012
Zinc	7440-66-6	NE	NE	31	31	0.0657	< 0.0005	0.0035 J	< 0.0098 U	< 0.0027	33%	0.005	0.0005	0.010	< 0.0005	0.0036 J	< 0.0049 U	< 0.0027	33%	0.003	0.0005	0.005	0.0068 J	0.0049 J	< 0.0042 U	0.0027 J	67%	0.005	0.0042	0.007

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-816S Total Metals 11/1/2012	MW-816S Total Metals 7/16/2013	MW-816S Total Metals 9/12/2017	MW-816S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-817D Total Metals 11/1/2012	MW-817D Dup Total Metals 11/1/2012	MW-817D Total Metals 7/17/2013	MW-817D Total Metals 9/14/2017	MW-817D Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00057 J	0.0056 J	< 0.0021 UJ-	0.0015 J	67%	0.0028	0.0006	0.0056	0.00075 J	0.00058 J	0.00078 J	0.00015 J	0.00013 J	100%	0.0006	0.0002	0.0008
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.057** A(MCL,I,DCL)	**0.03** A(MCL,I,DCL)	**0.037** A(MCL,I,DCL)	**0.0053** A(I)	100%	0.041	0.0300	0.057	**0.047** A(MCL,I,DCL)	**0.047** A(MCL,I,DCL)	**0.042** A(MCL,I,DCL)	**0.033** A(MCL,I,DCL)	**0.03** A(MCL,I,DCL)	100%	0.042	0.033	0.047
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00013	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.31	0.26	0.16	0.13	100%	0.243	0.160	0.310	0.21	0.19 J	0.15	0.13	0.11 J+	100%	0.17	0.13	0.21
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				*0.00016* J B	*0.0002* J B	< 0.00015	< 0.0001	< 0.0001	50%	0.00015	0.00010	0.00020
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0039	< 0.0003	0.0013 J	< 0.001	67%	0.002	0.0003	0.004	0.0082	0.0089	0.0054	0.004 J	0.004 J	100%	0.0066	0.0040	0.0089
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	0.0058 J	NP	100%	0.0058	0.0058	0.0058	NP	NP	NP	0.079	NP	100%	0.0790	0.0790	0.0790
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.018* B	*0.013* B	*0.0049* B	0.00054 J	100%	0.0120	0.0049	0.018	*0.0037* J B	*0.0036* J B	*0.0023* J B	0.00047 J	0.00071 J	100%	0.0025	0.0005	0.0037
Iron	7439-89-6	NE	NE	NE	NE	NE	0.61	< 0.0015	0.66	0.310 J	67%	0.4	0.0	0.7	1.3	1.3	0.85	0.47 J	0.400 J	100%	0.98	0.47	1.30
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00055 J	0.00051 J	0.00049 J	< 0.0001	100%	0.00052	0.00049	0.00055	0.00035 J	0.0004 J	0.00012 J	0.00012 J	< 0.0001	100%	0.00025	0.00012	0.00040
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.2	0.00068 J	0.044	< 0.00086 UJ-	100%	0.0816	0.0007	0.2000	0.028	0.038	0.02	0.016	0.012	100%	0.026	0.016	0.038
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	*0.000280* B	< 0.00011 UJ-	NP	33%	0.00014	0.00002	0.00028	*0.000120* J B	< 0.000020	< 0.000030	< 2E-05	NP	25%	0.00005	0.00002	0.00012
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.011 J	0.017 J	0.013	0.012	100%	0.0137	0.0110	0.0170	0.0085 J	0.0076 J	0.0049 J	0.0044 J	0.0044 J	100%	0.0064	0.0044	0.0085
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0033 J	0.0045 J	0.0056 J	0.0021 J	100%	0.004	0.0033	0.006	0.0064 J	0.0064 J	0.0045 J	0.0037 J	0.0035 J	100%	0.0053	0.0037	0.0064
Potassium	7440-09-7	NE	NE	NE	NE	NE	35	31	21	22	100%	29	21	35	29	29	24	22	19	100%	26	22	29
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.011* B	*0.019* B	0.0044 J	0.0027 J	100%	0.011	0.0044	0.019	*0.044* B	*0.046* B	*0.04* B	0.003 J	0.003 J	100%	0.033	0.003	0.046
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	84	73	20	21	100%	59	20	84	220	210	190	190	160	100%	203	190	220
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	0.00018 J	0.00027 J	< 0.0001	67%	0.0002	0.0002	0.0003	0.00043 J	0.00028 J	< 0.00015	< 0.0001	< 0.0001	50%	0.00024	0.00010	0.00043
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	0.00042 J	0.0005 J	< 0.00015	67%	0.00044	0.00040	0.001	0.0025 J	0.002 J	< 0.0004	0.00017 J	0.00017 J	75%	0.0013	0.0002	0.0025
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00270 J	0.00660 J	< 0.0014	< 0.0014	67%	0.004	0.0014	0.007	0.00900	0.00950	0.00930	*0.014* B	*0.012* B	100%	0.010	0.009	0.014
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0031 J	0.0069 J	< 0.0085 UJ-	< 0.0027	67%	0.006	0.0031	0.009	0.0044 J	0.0066 J	0.0063 J	< 0.0027	0.0029 J	75%	0.0050	0.0027	0.0066

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-817S Total Metals 11/1/2012	MW-817S Total Metals 7/17/2013	MW-817S Total Metals 9/14/2017	MW-817S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-818S Total Metals 11/1/2012	MW-818S Total Metals 7/17/2013	MW-818S Total Metals 9/14/2017	MW-818S DUP Total Metals 9/14/2017	MW-818S Dissolved Metals 9/14/2017	MW-818S DUP Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																								
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00031 J	< 0.0002	< 0.00034 U	< 0.00005	33%	0.0003	0.0002	0.0003	< 0.0002	0.00024 J	< 0.00029 U	< 0.00033 U	< 0.0002	< 0.0002	25%	0.0003	0.0002	0.0003
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0022** J A(I)	**0.0036** J A(I)	< 0.0008	**0.0041** J A(I)	67%	0.002	0.0008	0.004	**0.021** A(MCL,I,DCL)	**0.015** A(MCL,I,DCL)	**0.015** A(MCL,I,DCL)	**0.012** A(MCL,I,DCL)	**0.015** J A(MCL,I,DCL)	**0.014** J A(MCL,I,DCL)	100%	0.016	0.012	0.021
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.28	0.15	0.14	0.14 J+	100%	0.19	0.14	0.28	0.66	0.63	0.32 J	0.44 J	0.47	0.44	100%	0.51	0.32	0.66
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.00011	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0004	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0039	0.0023 J	0.0023 J	0.0027 J	100%	0.003	0.0023	0.004	0.0044	0.0015 J	0.0028 J	0.0015 J	< 0.004	< 0.004	100%	0.0026	0.0015	0.0044
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	< 0.001	NP	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.0004 J	*0.0017* J B	< 0.0004	< 0.0004	67%	0.0008	0.0004	0.002	< 0.00015	0.0014 J	0.0015 J	0.00041 J	< 0.0016	< 0.0016	75%	0.0009	0.0002	0.0015
Iron	7439-89-6	NE	NE	NE	NE	NE	0.29	7.7	0.68 J	0.560	100%	2.9	0.3	7.7	0.49	4.2	1.4	1.1	0.340 J	0.340 J	100%	1.80	0.49	4.20
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00015 J	0.00054 J	< 0.0001	< 0.0001	67%	0.00026	0.00010	0.00054	< 0.0001	0.00025 J	0.00063 J	0.00057 J	< 0.0004	< 0.0004	75%	0.00039	0.00010	0.00063
Manganese	7439-96-5	NE	NE	NE	NE	NE	1.5	0.81	0.35	0.38	100%	0.89	0.35	1.50	0.38	1.4	0.43	0.38	0.40	0.43	100%	0.65	0.38	1.40
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 2E-05	NP	0%				< 0.000020	< 0.000030	< 2E-05	< 2E-05	NP	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0042 J	0.0096 J	0.0011 J	0.0011 J	100%	0.0050	0.0011	0.0096	0.0017 J	0.022	0.011	0.01	0.0088 J	0.011 J	100%	0.0112	0.0017	0.0220
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0041 J	0.0016 J	0.00099 J	0.001 J	100%	0.002	0.0010	0.004	0.0021 J	0.0022 J	0.0013 J	0.0011 J	< 0.0014	< 0.0014	100%	0.0017	0.0011	0.0022
Potassium	7440-09-7	NE	NE	NE	NE	NE	28	20	18	18	100%	22	18	28	5.5	9.8	7.2	6.5	6.7	6.4	100%	7.3	5.5	9.8
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0013 J	0.0024 J	< 0.0004	< 0.0004	67%	0.0014	0.0004	0.0024	0.0032 J	0.0016 J	*0.005* J+ B	< 0.0004	< 0.0016	< 0.0016	75%	0.0026	0.0004	0.0050
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	56	66	160	160	100%	94	56	160	19	34	55	47	51	49	100%	39	19	55
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	0.00031 J	< 0.0001	< 0.0001	33%	0.00019	0.00010	0.00031	< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0004	< 0.0004	0%			
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	0.00045 J	< 0.00015	< 0.00015	33%	0.00033	0.00015	0.0005	< 0.0004	< 0.00015	< 0.0004	< 0.00015	< 0.0006	< 0.0006	0%			
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00240 J	0.00620 J	0.0035 J	0.003 J	100%	0.004	0.0024	0.006	0.00430 J	0.00100 J	< 0.0014	0.0043 J	< 0.0054	< 0.0054	75%	0.0028	0.0010	0.0043
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0014 J	0.0065 J	< 0.0027	< 0.0027	67%	0.004	0.0014	0.007	0.0022 J	0.0077 J	0.0032 J	< 0.0027	< 0.011	< 0.011	75%	0.0040	0.0022	0.0077

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
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NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-819D Total Metals 11/2/2012	MW-819D Total Metals 7/17/2013	MW-819D Total Metals 9/12/2017	MW-819D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-819S Total Metals 11/2/2012	MW-819S Total Metals 7/17/2013	MW-819S Total Metals 9/12/2017	MW-819S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-820S Total Metals 11/2/2012	MW-820S Total Metals 7/18/2013	MW-820S Total Metals 9/12/2017	MW-820S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																													
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00084 J	0.00021 J	0.000079 J	< 0.00083 UJ	100%	0.00038	0.00008	0.00084	0.00032 J	< 0.0002	< 0.0004 UJ	< 0.00017 UJ	33%	0.00031	0.00020	0.00040	0.0018 J	0.0019 J	0.0024 J	0.00096 J-	100%	0.00203	0.00180	0.00240
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0057** J A(I)	**0.0054** J A(I)	< 0.0008	< 0.0008	67%	0.0040	0.0008	0.0057	**0.0058** J A(I)	**0.0054** J A(I)	< 0.0008	< 0.0008	67%	0.0040	0.0008	0.0058	**0.062** A(MCL,I,DCL)	**0.027** A(MCL,I,DCL)	**0.013** J A(MCL,I,DCL)	**0.011** J- A(MCL,I,DCL)	100%	0.0340	0.0130	0.0620
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.16 J	0.16	0.16	0.15	100%	0.16	0.16	0.16	0.22	0.24	0.19	0.18	100%	0.22	0.19	0.24	0.094 J	0.045	0.12	0.11	100%	0.09	0.05	0.12
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0024 J	0.0015 J	< 0.001 UJ	< 0.001 UJ	67%	0.002	0.0010	0.002	0.0024 J	0.0019 J	0.0014 J	< 0.001 UJ	100%	0.002	0.0014	0.002	0.0076	0.002 J	0.0017 J	0.0011 J	100%	0.004	0.0017	0.008
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	0.0065 J	NP	100%	0.0065	0.0065	0.0065	NP	NP	0.001 R	NP	0%				NP	NP	0.001 R	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0084* J B	*0.0072* J B	*0.0025* B	< 0.0004 UJ	100%	0.0060	0.0025	0.008	0.00029 J	0.0013 J	*0.01* B	0.00048 J	100%	0.0039	0.0003	0.010	*0.0031* J B	*0.0035* J B	*0.0024* B	0.0008 J	100%	0.0030	0.0024	0.004
Iron	7439-89-6	NE	NE	NE	NE	NE	20	19	14	0.061 J	100%	18	14	20	4.8	5.6	18	0.370 J	100%	9	5	18	0.69	< 0.0015	0.12	0.071 J	67%	0.2705	0.0015	0.69
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00033 J	0.00037 J	0.00039 J	< 0.0001 UJ	100%	0.00036	0.00033	0.00039	0.00021 J	0.00071 J	*0.0053* B	0.00025 J	100%	0.00207	0.00021	0.00530	0.00068 J	0.00016 J	*0.0013* B	0.00014 J	100%	0.00071	0.00016	0.00130
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.13 B	0.11	0.091	0.087	100%	0.11	0.09	0.13	0.73 B	0.47	0.74	0.72	100%	0.65	0.47	0.74	0.0019 BJ	0.00087 J	0.0016 J	< 0.0015 UJ	100%	0.0015	0.0009	0.0019
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020 UJ	< 0.000030 UJ	< 0.000099 UJ	NP	0%	0.00005	0.00002	0.00010	< 0.000020 UJ	< 0.000030 UJ	< 0.000084 UJ	NP	0%	0.00004	0.00002	0.00008	*0.000066* J B	*0.000430* B	< 0.000074 UJ	NP	67%	0.00019	0.00007	0.00043
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0055 J	0.0052 J	0.0013 J+	0.004 J	100%	0.0040	0.0013	0.0055	0.002 J	0.0026 J	0.0013	0.00073 J	100%	0.0020	0.0013	0.0026	0.026	0.02 J	0.013	0.0084 J-	100%	0.0197	0.0130	0.0260
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.002 J	0.0011 J	0.0026 J	< 0.00035 UJ	100%	0.002	0.0011	0.003	0.004 J	0.0015 J	0.0032 J	0.0018 J	100%	0.003	0.0015	0.004	0.0064 J	0.0062 J	0.003 J	0.0021 J	100%	0.005	0.0030	0.006
Potassium	7440-09-7	NE	NE	NE	NE	NE	6.6	6.5	5.3	6	100%	6	5	7	20	11	7	7 J-	100%	13	7	20	15	14	9.9	11 J+	100%	13	10	15
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0028 J	0.0026 J	0.0035 J	< 0.0004 UJ	100%	0.0030	0.0026	0.0035	0.0025 J	0.00068 J	0.0011 J	< 0.0004 UJ	100%	0.0014	0.0007	0.0025	0.0033 J	0.0032 J	0.0025 J	< 0.0004 UJ	100%	0.0030	0.0025	0.0033
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%				< 0.00015 UJ	< 0.00015 UJ	< 0.0001 UJ	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	230	220	310	290	100%	253	220	310	57	34	23	25 J-	100%	38	23	57	220	270	32	36 J-	100%	174	32	270
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00074 J	0.00086 J	< 0.00035 UJ	< 0.002 UJ	67%	0.00065	0.00036	0.00086	< 0.00015 UJ	0.00032 J	0.00012 J	< 0.0001 UJ	67%	0.00020	0.00012	0.00032	< 0.00015 UJ	< 0.00015 UJ	0.0018	< 0.0001 UJ	33%	0.0007	0.0002	0.0018
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0033 J	0.002 J	0.00066 J	< 0.003 UJ	100%	0.00199	0.00066	0.0033	0.0005 J	0.00065 J	0.00068 J	< 0.00015 UJ	100%	0.00061	0.00050	0.0007	0.0004 J	< 0.0003 UJ	0.0022	< 0.0002 UJ	33%	0.0010	0.0004	0.0022
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00100 J	0.00051 J	0.0032 J	< 0.0014 UJ	100%	0.002	0.0005	0.003	0.00380 J	0.00330 J	0.0041 J	< 0.0014 UJ	100%	0.004	0.0033	0.004	*0.04300* B	*0.03000* B	*0.012* B	0.011 J-	100%	0.028	0.0120	0.043
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.014 J	0.012 J	0.012 J+	0.0064 J	100%	0.013	0.0120	0.014	0.011 J	0.004 J	0.02 J+	0.0094 J	100%	0.012	0.0040	0.020	0.0021 J	0.024	0.011	< 0.0027 UJ	100%	0.012	0.0021	0.024

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

UJ Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

J+ Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

J- Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

UJ Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-821D Total Metals 11/2/2012	MW-821D Total Metals 7/18/2013	MW-821D Total Metals 9/12/2017	MW-821D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-821S Total Metals 11/2/2012	MW-821S Total Metals 7/18/2013	MW-821S Total Metals 9/12/2017	MW-821S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0016 J	0.00068 J	< 0.0013 U	0.0002 J	67%	0.00119	0.00068	0.00160	0.00027 J	< 0.0002	< 0.00005	0.00014 J	33%	0.00017	0.00005	0.00027
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.019** A(MCL,I,DCL)	**0.024** A(MCL,I,DCL)	**0.023** A(MCL,I,DCL)	**0.015** A(MCL,I,DCL)	100%	0.022	0.019	0.024	**0.0077** J A(I)	**0.0042** J A(I)	< 0.0008	0.0011 J	67%	0.0042	0.0008	0.0077
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.15 J	0.15	0.11	0.12 J+	100%	0.14	0.11	0.15	0.2	0.13	0.083 J+	0.12 J+	100%	0.14	0.08	0.20
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	*0.00034* J B	< 0.0001	33%	0.00021	0.00015	0.00034	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.011	0.0076	0.0059 J+	0.0052	100%	0.008	0.0059	0.011	0.0011 J	0.0012 J	< 0.001	< 0.001	67%	0.001	0.0010	0.001
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.018* B	*0.0078* J B	*0.0066* B	*0.0039* J B	100%	0.0108	0.0066	0.018	< 0.00015	0.00051 J	0.00065 J	< 0.0004	67%	0.0004	0.0002	0.001
Iron	7439-89-6	NE	NE	NE	NE	NE	0.77	0.95	0.96 J	0.760	100%	0.8933	0.77	0.96	34	14	6.3	0.045 J	100%	18.1000	6.30	34.00
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00097 J	0.0008 J	0.00097 J	0.00066 J	100%	0.00091	0.00080	0.00097	0.00028 J	0.00034 J	0.00019 J	< 0.0001	100%	0.00027	0.00019	0.00034
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.14 B	0.064	0.047	0.038	100%	0.084	0.047	0.140	0.89 B	0.52	0.38	0.53	100%	0.597	0.380	0.890
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000050 B	< 0.000092 U	NP	0%	0.000047	0.000020	0.000092	< 0.000020	< 0.000030 B	< 0.0001 U	NP	0%	0.00005	0.00002	0.00010
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.014 J	0.028	0.009	0.0052	100%	0.017	0.009	0.028	0.0013 J	0.00033 J	< 0.00064 U	0.0041 J	67%	0.0008	0.0003	0.0013
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0045 J	0.0055 J	0.0038 J	0.0027 J	100%	0.005	0.0038	0.006	0.0022 J	0.00086 J	0.0014 J	0.00091 J	100%	0.0015	0.0009	0.0022
Potassium	7440-09-7	NE	NE	NE	NE	NE	3.1	2.8	2.7	3	100%	2.9	2.7	3.1	6.7	7.5	5.8	9	100%	6.7	5.8	7.5
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0048 J	*0.021* B	*0.026* B	0.0017 J	100%	0.0173	0.0048	0.0260	0.0013 J	0.00039 J	< 0.0004	< 0.0004	67%	0.0007	0.0004	0.0013
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	910	860	910	740	100%	893	860	910	18	31	16	25	100%	22	16	31
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.0013 J	**0.0039** J A(MCL)	0.0017	< 0.0001	100%	0.0023	0.0013	0.0039	< 0.00015	< 0.00015	< 0.0001	0.0001 J	0%			
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0069 J	0.0092 J	0.0029 J	0.00015 J	100%	0.0063	0.0029	0.0092	< 0.0004	< 0.0004	0.00048 J	< 0.00015	33%	0.0004	0.0004	0.0005
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	*0.04900* B	*0.05100* B	*0.032* B	*0.036* B	100%	0.044	0.0320	0.051	0.007 J	0.00330 J	0.0097	< 0.0014	100%	0.007	0.0033	0.010
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0043 J	0.0047 J	0.016 J+	0.0037 J	100%	0.008	0.0043	0.016	0.0034 J	0.0023 J	< 0.0077 U	< 0.0027	67%	0.004	0.0023	0.008

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

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[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-822D Total Metals 10/31/2012	MW-822D Total Metals 7/16/2013	MW-822D Total Metals 9/13/2017	MW-822D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-822S Total Metals 10/31/2012	MW-822S Total Metals 7/16/2013	MW-822S Total Metals 9/13/2017	MW-822S DUP Total Metals 9/13/2017	MW-822S Dissolved Metals 9/13/2017	MW-822S DUP Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																								
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0047 J	0.00075 J	< 0.000073 UJ	< 0.000053 UJ	67%	0.00184	0.00007	0.00470	0.00026 J	< 0.0002	0.00039 J	< 0.00028 UJ	< 0.000086 UJ	< 0.000072 UJ	50%	0.0003	0.0002	0.0004
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0094** J A(I)	**0.014** A(MCL,I,DCL)	**0.0038** J A(I)	< 0.0008	100%	0.0091	0.0038	0.0140	**0.0033** J A(I)	**0.0033** J A(I)	< 0.0008	< 0.0008	< 0.0008	< 0.0008	50%	0.0021	0.0008	0.0033
Beryliium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015 UJ	0%				< 0.00015	< 0.00015	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	< 0.00015 UJ	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.62	0.45	0.45	0.48	100%	0.51	0.45	0.62	0.29	0.23	0.21 J+	0.21	0.21 B	0.2 J+	100%	0.24	0.21	0.29
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.00083 J	< 0.0003	< 0.0016 UJ	< 0.001	33%	0.0009	0.0003	0.0016	0.0012 J	< 0.0003	< 0.0013 UJ	< 0.0015 UJ	< 0.001	< 0.001	25%	0.0011	0.0003	0.0015
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	< 0.001 NP	0%				NP	NP	< 0.001	< 0.001	NP	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0086* J B	*0.0071* J B	0.00064 J	0.00055 J	100%	0.0054	0.0006	0.009	< 0.00015	0.00076 J	0.0012 J	0.0012 J	< 0.0004	< 0.0004	75%	0.0008	0.0002	0.0012
Iron	7439-89-6	NE	NE	NE	NE	NE	10	8.8	4.1	0.052 J	100%	7.6333	4.10	10.00	4.6	7.4	3.9	3.3	< 0.009	0.018 J	100%	4.80	3.30	7.40
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	*0.0013* J B	0.0004 J	0.00031 J	0.00014 J	100%	0.00067	0.00031	0.00130	0.00018 J	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	25%	0.00012	0.00010	0.00018
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.42	0.11	0.037	0.029	100%	0.189	0.037	0.420	0.63	0.64	0.48	0.4	0.4	0.35	100%	0.54	0.40	0.64
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 0.00013 UJ	NP	0%	0.00006	0.00002	0.00013	< 0.000020	< 0.000030	< 0.00013 UJ	< 0.00012 UJ	NP	NP	0%	0.00008	0.00002	0.00013
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.033	0.024	< 0.0011 UJ	< 0.0011 UJ	67%	0.0194	0.0011	0.0330	0.0062 J	0.0034 J	0.0079 J+	0.0078 J+	0.012 J	0.0079 J	100%	0.0063	0.0034	0.0079
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0039 J	0.0015 J	0.0004 J	0.00049 J	100%	0.0019	0.0004	0.0039	0.0021 J	0.00037 J	< 0.00035	< 0.00035	< 0.00035	0.00039 J	50%	0.0008	0.0004	0.0021
Potassium	7440-09-7	NE	NE	NE	NE	NE	9.6	6.4	3.4	3	100%	6.5	3.4	9.6	3.6	2.9	4.3	4.2	4.0	3.9	100%	3.8	2.9	4.3
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.012* B	*0.01* B	< 0.0004	< 0.0004	67%	0.0075	0.0004	0.0120	0.0011 J	0.00078 J	< 0.0004	< 0.0004	< 0.0004	< 0.0004	50%	0.0007	0.0004	0.0011
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	< 0.0001 UJ	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	580	650	130	310	100%	453	130	650	30	27	25	24	23	22	100%	27	24	30
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	**0.0039** J A(MCL)	**0.0028** J A(MCL)	< 0.00037 UJ	< 0.0001 B	67%	0.0024	0.0004	0.0039	< 0.00015	< 0.00015	< 0.00068 UJ	< 0.00049 UJ	< 0.0001 B	< 0.0001 B	0%	0.00037	0.00015	0.00068
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.015 J	0.0074 J	< 0.00015	< 0.00015	67%	0.0075	0.0002	0.0150	0.00063 J	< 0.0004	< 0.00015	< 0.00015	< 0.00015	< 0.00015	25%	0.00033	0.00015	0.00063
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00340 J	0.00140 J	< 0.0014	< 0.0014	67%	0.002	0.0014	0.003	< 0.00050	0.00150 J	0.0048 J	0.0028 J	< 0.0014	< 0.0014	75%	0.0024	0.0005	0.0048
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.019 J	0.01 J	0.0094 J	0.0086 J	100%	0.013	0.0094	0.019	0.0029 J	0.0034 J	< 0.0027	< 0.0027	< 0.0027	< 0.0027	50%	0.0029	0.0027	0.0034

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
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NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-823D Total Metals 11/1/2012	MW-823D Total Metals 7/17/2013	MW-823D Total Metals 9/12/2017	MW-823D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-823S Total Metals 11/1/2012	MW-823S Total Metals 7/17/2013	MW-823S-Dup Total Metals 7/17/2013	MW-823S Total Metals 9/12/2017	MW-823S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00033 J	0.00038 J	< 0.00005	< 0.000075 UJ	67%	0.00025	0.00005	0.00038	0.00065 J	0.004 J	0.0039 J	0.0017 J	< 0.0015 UJ	100%	0.0026	0.0007	0.0040
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.052** A(MCL,I,DCL)	**0.044** A(MCL,I,DCL)	**0.011** J A(MCL,I,DCL)	**0.031** A(MCL,I,DCL)	100%	0.0357	0.0110	0.0520	**0.0094** J A(I)	0.0003 J	0.00085 J	< 0.0008	**0.0024** J A(I)	75%	0.0028	0.0003	0.0094
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.14 J	0.096	0.1	0.17 J+	100%	0.11	0.10	0.14	0.38	0.32	0.33	0.23	0.26	100%	0.32	0.23	0.38
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	*0.00029* J B	*0.00032* J B	< 0.0001	< 0.0001	50%	0.00022	0.00010	0.00032
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0052	0.0072	< 0.001	0.0011 J	67%	0.0045	0.0010	0.0072	0.0016 J	0.0052	0.0042	< 0.001	< 0.001	75%	0.0030	0.0010	0.0052
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	< 0.001	NP	0%				NP	NP	NP	0.0021 J	NP	100%	0.0021	0.0021	0.0021
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0068* J B	*0.0064* J B	0.0008 J	0.00084 J	100%	0.0047	0.0008	0.007	0.0012 J	*0.0051* J B	*0.0049* J B	*0.0048* J B	*0.0044* J B	100%	0.0040	0.0012	0.0051
Iron	7439-89-6	NE	NE	NE	NE	NE	0.64	1.1	1.2	0.650 J+	100%	0.9800	0.64	1.20	6.6	1	1.1	0.57 J	0.061 J	100%	2.3	0.6	6.6
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00043 J	0.0011 J	0.00024 J	0.00011 J	100%	0.00059	0.00024	0.00110	0.00054 J	0.00011 J	0.00011 J	0.00015 J	< 0.0001	100%	0.0002	0.0001	0.0005
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.034	0.027	0.014	0.0075	100%	0.025	0.014	0.034	0.97	0.67	0.68	0.25	0.31	100%	0.64	0.25	0.97
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 0.000091 UJ	NP	0%	0.00005	0.00002	0.00009	< 0.000020	< 0.000030	< 0.000030	< 0.00012 UJ	NP	0%	0.00005	0.00002	0.00012
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0047 J	0.0032 J	< 0.00082 UJ	0.0013 J	67%	0.0029	0.0008	0.0047	0.0097 J	0.015 J	0.015 J	0.0072	0.0096	100%	0.012	0.007	0.015
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0021 J	0.0027 J	0.00084 J	0.00059 J	100%	0.0019	0.0008	0.0027	0.0036 J	0.004 J	0.0035 J	0.002 J	0.0008 J	100%	0.003	0.002	0.004
Potassium	7440-09-7	NE	NE	NE	NE	NE	11	11	3.6	7 J+	100%	8.5	3.6	11.0	10	43	43	8	10	100%	26	8	43
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0047 J	0.0035 J	0.00071 J	< 0.0004	100%	0.0030	0.0007	0.0047	*0.014* B	*0.0078* B	*0.0072* B	0.0036 J	0.0026 J	100%	0.0082	0.0036	0.0140
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	490	560	210	340	100%	420	210	560	47	57	58	16	20 J+	100%	45	16	58
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				0.00021 J	< 0.00015	< 0.00015	< 0.0001	< 0.0001	25%	0.00015	0.00010	0.00021
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.00089 J	< 0.0004	< 0.00015	< 0.00015	33%	0.0005	0.0002	0.0009	0.0011 J	< 0.0004	< 0.0004	< 0.00015	< 0.00015	25%	0.0005	0.0002	0.0011
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	*0.02000* B	*0.01400* B	0.0082	0.0065	100%	0.014	0.0082	0.020	0.00079 J	< 0.00050	< 0.00050	0.008	0.0033 J	50%	0.0024	0.0005	0.0080
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.011 J	0.013 J	< 0.0053 UJ	< 0.0027	67%	0.010	0.0053	0.013	0.0056 J	0.01 J	0.0099 J	0.0046 J	< 0.0027	100%	0.0075	0.0046	0.010

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-824D Total Metals 11/1/2012	MW-824D Total Metals 7/18/2013	MW-824D Total Metals 9/12/2017	MW-824D Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-824S Total Metals 11/1/2012	MW-824S Total Metals 7/15/2013	MW-824S Total Metals 9/12/2017	MW-824S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																						
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.0033 J	< 0.0002	< 0.00056 U	< 0.00005	33%	0.00135	0.00020	0.00330	< 0.0002	< 0.0002	< 0.0015 U	< 0.00005	0%	0.00063	0.00020	0.00150
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0077** J A(I)	**0.0042** J A(I)	< 0.0008	**0.002** J A(I)	67%	0.0042	0.0008	0.0077	0.00075 J	0.0016 J	< 0.0008	0.0017 J	67%	0.0011	0.0008	0.0016
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.19 J	0.18	0.25	0.22	100%	0.21	0.18	0.25	0.26	0.24	0.13	0.095	100%	0.21	0.13	0.26
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	0.0001 J	< 0.0001	33%	0.00013	0.00010	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0044	0.004 J	< 0.001	< 0.001	67%	0.0023	0.0010	0.0044	0.0035	0.001 J	< 0.001	< 0.001	67%	0.0018	0.0010	0.0035
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	0.0016 J	NP	100%	0.0016	0.0016	0.0016	NP	NP	< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0048* J B	*0.0034* J B	0.001	< 0.0004	100%	0.0031	0.0010	0.005	0.00035 J	*0.0017* J B	*0.0016* B	< 0.0004	100%	0.0012	0.0004	0.002
Iron	7439-89-6	NE	NE	NE	NE	NE	1.6	2	6.2	0.091 J	100%	3.3	1.6	6.2	0.4	0.1	0.3	0.110 J	100%	0.27	0.10	0.40
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00045 J	0.00017 J	0.00013 J	< 0.0001	100%	0.00025	0.00013	0.00045	0.00011 J	< 0.0001	0.00036 J	< 0.0001	67%	0.00019	0.00010	0.00036
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.14	0.11	0.12	0.11	100%	0.123	0.110	0.140	0.13	0.2	0.026	0.025 J+	100%	0.119	0.026	0.200
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030 B	< 0.000038 U	NP	0%	0.000029	0.000020	0.000038	< 0.000020	< 0.000030	< 0.000023 U	NP	0%	0.000024	0.000020	0.000030
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.028	0.0035 J	0.0031	0.0012 J	100%	0.0115	0.0031	0.0280	0.0019 J	0.0029 J	0.006	0.00076 J	100%	0.0036	0.0019	0.0060
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0025 J	0.0018 J	0.0031 J	< 0.00035	100%	0.0025	0.0018	0.0031	0.0021 J	0.00049 J	0.0019 J	< 0.00035	100%	0.0015	0.0005	0.0021
Potassium	7440-09-7	NE	NE	NE	NE	NE	7.7	5.2	5.6	6	100%	6.2	5.2	7.7	31	38	21	24	100%	30	21	38
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.011* B	0.0002 J	0.0023 J	< 0.0004	100%	0.0045	0.0002	0.0110	0.0031 J	0.0036 J	0.003 J	< 0.0004	100%	0.0032	0.0030	0.0036
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	310	310	270	280	100%	297	270	310	55	79	70	70	100%	68	55	79
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	**0.0031** J A(MCL)	< 0.00015	0.00055 J	< 0.0001	67%	0.0013	0.0002	0.0031	< 0.00015	0.0002 J	**0.002** A(MCL)	< 0.0001	67%	0.0008	0.0002	0.0020
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.013 J	< 0.0004	0.0022	< 0.00015	67%	0.0052	0.0004	0.0130	< 0.0004	0.00068 J	0.0033	< 0.00015	67%	0.0015	0.0004	0.0033
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00740 J	0.00810	0.0052	< 0.0014	100%	0.007	0.0052	0.008	0.00240 J	0.00200 J	0.0026 J	0.003 J	100%	0.002	0.0020	0.003
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0067 J	0.0064 J	0.013 J+	0.0074 J	100%	0.009	0.0064	0.013	0.0033 J	*0.1* B	< 0.0073 U	0.0035 J	67%	0.037	0.0033	0.100

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-825S Total Metals 11/1/2012	MW-825S Total Metals 7/15/2013	MW-825S-Dup Total Metals 7/15/2013	MW-825S Total Metals 9/12/2017	MW-825S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-826M Total Metals 11/2/2012	MW-826M Total Metals 7/16/2013	MW-826M Total Metals 9/14/2017	MW-826M Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	**0.0061** A(MCL)	0.0019 J	0.0019 J	< 0.005 UJ	< 0.0038 UJ	75%	0.0037	0.0019	0.0061	0.00052 J	< 0.0002	< 0.00005	< 0.00005	33%	0.00026	0.00005	0.00052
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0096** J A(I)	**0.0029** J A(I)	**0.0022** J A(I)	0.00084 J	**0.0029** J A(I)	100%	0.0039	0.0008	0.0096	**0.007** J A(I)	**0.0078** J A(I)	**0.013** A(MCL,I,DCL)	**0.014** A(MCL,I,DCL)	100%	0.0093	0.0070	0.0130
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00017	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.12 J	0.088	0.081	0.14	0.12	100%	0.11	0.08	0.14	0.28	0.33	0.28	0.28 J+	100%	0.30	0.28	0.33
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	*0.0014* B	< 0.0001	33%	0.0006	0.0002	0.0014
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0067	0.0039	0.0035	< 0.001	< 0.001	75%	0.0038	0.0010	0.0067	0.0041	0.00089 J	0.0023 J	0.0012 J	100%	0.0024	0.0009	0.0041
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	NP	0.0039 J	NP	100%	0.0039	0.0039	0.0039	NP	NP	**0.13** A(MCL)	NP	100%	0.1300	0.1300	0.1300
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.004* J B	*0.0042* J B	*0.0042* J B	*0.0032* B	0.0014 J	100%	0.0039	0.0032	0.0042	*0.0027* J B	0.0011 J	< 0.0001	< 0.0004	67%	0.0014	0.0004	0.003
Iron	7439-89-6	NE	NE	NE	NE	NE	0.048 J	< 0.0015	< 0.0015	0.13	0.026 J	50%	0.045	0.002	0.13	0.83	0.19	0.34 J	0.210 J	100%	0.45	0.19	0.83
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00072 J	0.00027 J	0.00027 J	0.00018 J	< 0.0001	100%	0.0004	0.0002	0.0007	0.00023 J	< 0.0001	0.00013 J	< 0.0001	67%	0.00015	0.00010	0.00023
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.0023	0.00091 J	0.00062 J	0.00079 J	0.0007 J	100%	0.0012	0.0006	0.0023	0.035	0.021	0.018	0.017	100%	0.025	0.018	0.035
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	*0.000093* J B	< 0.000030	< 0.00015 UJ	NP	25%	0.00007	0.00002	0.00015	< 0.000020	< 0.000030	< 0.00002	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.066	0.038	0.038	0.024	0.024	100%	0.042	0.024	0.066	0.003 J	0.0007 J	0.0077	0.00044 J	100%	0.0038	0.0007	0.0077
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0082 J	0.0059 J	0.006 J	0.0047 J	0.0034 J	100%	0.0062	0.0047	0.0082	0.0027 J	< 0.0001	0.002 J	< 0.00035	67%	0.0016	0.0001	0.0027
Potassium	7440-09-7	NE	NE	NE	NE	NE	85	80	82	46	45 J+	100%	73	46	85	13	12	19	19	100%	15	12	19
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.015* B	0.0045 J	0.0039 J	0.0035 J	0.0012 J	100%	0.0067	0.0035	0.0150	0.0046 J	0.0021 J	< 0.0004	0.00041 J	67%	0.0024	0.0004	0.0046
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001	0%				< 0.00015	< 0.00015	*0.00063* J B	< 0.0001 UJ	33%	0.0003	0.0002	0.0006
Sodium	7440-23-5	NE	NE	NE	NE	NE	170	300	290	110	110	100%	218	110	300	120	97	240	260	100%	152	97	240
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	**0.0042** J A(MCL)	< 0.00015	< 0.00015	0.00016 J	0.00011 J	50%	0.00117	0.00015	0.00420	0.0005 J	< 0.00015	< 0.0001	< 0.0001	33%	0.0003	0.0001	0.0005
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.015 J	< 0.0004	< 0.0004	< 0.00016	< 0.00016	25%	0.0040	0.0002	0.0150	0.002 J	< 0.0004	< 0.00016	0.00017 J	33%	0.0009	0.0002	0.0020
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	*0.03100* B	*0.02500* B	*0.02400* B	*0.031* B	*0.03* B	100%	0.0278	0.0240	0.0310	0.00083 J	0.00280 J	0.0044 J	0.0036 J	100%	0.003	0.0008	0.004
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0028 J	0.0029 J	0.0027 J	< 0.009 UJ	< 0.0027	75%	0.0044	0.0027	0.009	0.0064 J	0.0088 J	0.013 J	0.011	100%	0.009	0.0064	0.013

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
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NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
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A(I)=IDEM DQO Exceedance of the Industrial Level
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[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-826S Total Metals 11/2/2012	MW-826S Total Metals 7/16/2013	MW-826S Total Metals 9/14/2017	MW-826S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-827S Total Metals 10/31/2012	MW-827S-Dup Total Metals 10/31/2012	MW-827S Total Metals 7/16/2013	MW-827S Total Metals 9/14/2017	MW-827S Dissolved Metals 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																							
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0002	0.0012 J	0.00015 J	< 0.0002	67%	0.00052	0.00015	0.00120	0.0003 J	< 0.0002	0.00023 J	< 0.0017 U	0.00026 J	50%	0.0006	0.0002	0.0017
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.045** A(MCL,I,DCL)	**0.037** A(MCL,I,DCL)	**0.029** A(MCL,I,DCL)	**0.023** A(MCL,I,DCL)	100%	0.0370	0.0290	0.0450	**0.007** J A(I)	**0.0069** J A(I)	**0.0088** J A(I)	**0.022** A(MCL,I,DCL)	**0.02** J A(MCL,I,DCL)	100%	0.0112	0.0069	0.0220
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.21	0.24	0.16	0.15 J+	100%	0.20	0.16	0.24	0.17 J	0.15 J	0.13	0.07	0.078 J+	100%	0.13	0.07	0.17
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0013 J	< 0.0003	< 0.001	< 0.004	33%	0.0009	0.0003	0.0013	0.0013 J	0.0025 J	< 0.0003	< 0.001	< 0.004	50%	0.0013	0.0003	0.0025
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	NP	NP	**0.14** A(MCL)	NP	100%	0.1400	0.1400	0.1400	NP	NP	NP	< 0.001 R	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.001 J	*0.0019* J B	< 0.0004	< 0.0016	67%	0.0011	0.0004	0.002	*0.0021* J B	*0.002* J B	*0.0033* J B	0.00083 J	< 0.0016	100%	0.0021	0.0008	0.0033
Iron	7439-89-6	NE	NE	NE	NE	NE	7.3	5.9	1.3	0.026 J	100%	4.8	1.3	7.3	0.019 J	0.018 J	0.047 J	0.64 J	0.046 J	100%	0.181	0.018	0.64
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	< 0.0001	0.00017 J	< 0.0001	< 0.0004	33%	0.00012	0.00010	0.00017	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0004	0%			
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.16 B	0.14	0.056	0.051	100%	0.119	0.056	0.160	0.035	0.033	0.023	0.11	0.091	100%	0.0503	0.0230	0.1100
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000020	< 0.000030	< 2E-05	NP	0%				< 0.000020	< 0.000020	< 0.000030	< 0.00013 U	NP	0%	0.00005	0.00002	0.00013
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.0015 J	0.002 J	0.00052 J	0.0016 J	100%	0.0013	0.0005	0.0020	0.011 J	0.011 J	0.014 J	0.02	0.02 J	100%	0.014	0.011	0.020
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0025 J	0.00059 J	< 0.00035	< 0.0014	67%	0.0011	0.0004	0.0025	0.0045 J	0.0046 J	0.0048 J	0.0038 J	0.0026 J	100%	0.0044	0.0038	0.0048
Potassium	7440-09-7	NE	NE	NE	NE	NE	20	30	15	14	100%	22	15	30	62	59	57	69	58	100%	62	57	69
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0024 J	0.0021 J	< 0.0004	< 0.0016	67%	0.0016	0.0004	0.0024	0.0019 J	0.0015 J	*0.0055* B	*0.0079* B	< 0.0016	100%	0.0042	0.0015	0.0079
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%				< 0.00015	< 0.00015	< 0.00015	< 0.0001	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	110	150	45	42	100%	102	45	150	180	170	260	360	46	100%	243	170	360
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.00015	< 0.00015	< 0.0001	< 0.0004	0%				< 0.00015	< 0.00015	0.00082 J	0.00016 J	< 0.0004	50%	0.00032	0.00015	0.00082
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.0004	0.00043 J	< 0.00015	< 0.0006	33%	0.0003	0.0002	0.0004	0.00048 J	< 0.0004	0.0025 J	< 0.00015	< 0.0006	50%	0.0009	0.0002	0.0025
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.00260 J	0.00068 J	< 0.0014	< 0.0054	67%	0.002	0.0007	0.003	0.00150 J	< 0.00050	0.00350 J	0.0019 J	< 0.0054	75%	0.0019	0.0005	0.0035
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.018 J	0.01 J	0.0065 J	< 0.011	100%	0.012	0.0065	0.018	0.0023 J	0.0027 J	0.01 J	< 0.0027	< 0.011	75%	0.0044	0.0023	0.010

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
U Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
J+ Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
J- Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
UJ Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-828S Total Metals 9/12/2017	MW-828S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-829S Total Metals 9/12/2017	MW-829S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-830S Total Metals 9/12/2017	MW-830S DUP Total Metals 9/12/2017	MW-830S Dissolved Metals 9/12/2017	MW-830S DUP Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																										
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.00005	< 0.000098 U	0%				< 0.00005	< 0.00011 U	0%				< 0.00005	< 0.00047 U	0.000068 J	< 0.00005	0%	0.0003	0.0001	0.0005
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	< 0.0008	**0.009** A(I)	0%				**0.0046** J A(I)	0.0016 J	100%	0.0046	0.0046	0.0046	< 0.0008	**0.0033** J A(I)	0.0011 J	0.00087 J	50%	0.0021	0.0008	0.0033
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.15	0.25	100%	0.15	0.15	0.15	0.12	0.11 J+	100%	0.12	0.12	0.12	0.42	0.39	0.4	0.42	100%	0.405	0.39	0.42
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	< 0.001	< 0.001	0%				< 0.001	< 0.001	0%				< 0.001	0.005 J+	< 0.001	< 0.001	50%	0.003	0.001	0.005
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	< 0.001	NP	0%				0.0018 J	NP	100%	0.0018	0.0018	0.0018	< 0.001	< 0.001	NP	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.00084 J	< 0.0004	100%	0.00084	0.00084	0.00084	*0.002* J B	< 0.0004	100%	0.002	0.002	0.002	0.0011 J	0.0011 J	< 0.0004	< 0.0004	100%	0.0011	0.0011	0.0011
Iron	7439-89-6	NE	NE	NE	NE	NE	0.38 J	0.240 J	100%	0.38	0.38	0.38	2.7	0.077 J	100%	2.7	2.7	2.7	1.9	1.9	0.052 J	0.059 J	100%	1.9	1.9	1.9
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00018 J	< 0.0001	100%	0.00018	0.00018	0.00018	0.0001 J	< 0.0001	100%	0.0001	0.0001	0.0001	0.00014 J	0.00015 J	< 0.0001	< 0.0001	100%	0.00015	0.00014	0.00015
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.17	0.29	100%	0.17	0.17	0.17	0.42	0.43	100%	0.42	0.42	0.42	0.25	0.25	0.25	0.26	100%	0.25	0.25	0.25
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000087 U	NP	0%	0.000081	0.000081	0.000081	< 0.000089 U	NP	0%	0.000088	0.000088	0.000088	< 0.00009 U	< 0.000082 U	NP	NP	0%	0.00009	0.000082	0.00009
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	< 0.001 U	0.0015 J	0%	0.001	0.001	0.001	0.013	0.014	100%	0.013	0.013	0.013	< 0.0029 U	0.0046 J	0.0039 J	0.0031 J	50%	0.0038	0.0029	0.0046
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0012 J	0.00064 J	100%	0.0012	0.0012	0.0012	0.0024 J	< 0.00035	100%	0.0024	0.0024	0.0024	0.0019 J	0.0035 J	< 0.00035	< 0.00035	100%	0.0027	0.0019	0.0035
Potassium	7440-09-7	NE	NE	NE	NE	NE	8.2	15 J+	100%	8.2	8.2	8.2	23	23	100%	23	23	23	11	12	11	12	100%	11.5	11	12
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	< 0.0004	< 0.0004	0%				< 0.0004	< 0.0004	0%				< 0.0004	< 0.0024 U	< 0.0004	< 0.0004	0%	0.0014	0.0004	0.0024
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	6	11 J+	100%	6	6	6	12	13	100%	12	12	12	10	11	11	11	100%	10.5	10	11
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	0%				< 0.0001	0.00055 J	< 0.0001	< 0.0001	50%	0.0003	0.0001	0.00055
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.00014	0.00027 J	0%				< 0.00015	< 0.00015	0%				< 0.00015	0.00066 J	< 0.00015	< 0.00015	50%	0.00041	0.00015	0.00066
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.0099	0.0055	100%	0.0099	0.0099	0.0099	< 0.0014	< 0.0014	0%				< 0.0014	< 0.0014	< 0.0014	< 0.0014	0%			
Zinc	7440-66-6	NE	NE	31	31	0.0657	< 0.0055 U	< 0.0027	0%	0.0055	0.0055	0.0055	< 0.0045 U	< 0.0027	0%	0.0045	0.0045	0.0045	< 0.0068 U	0.2 B	< 0.0027	< 0.0027	50%	0.1034	0.0068	0.2

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-831S Total Metals 9/13/2017	MW-831S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832D Total Metals 9/11/2017	MW-832D DUP Total Metals 9/11/2017	MW-832D Dissolved Metals 9/11/2017	MW-832D DUP Dissolved Metals 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832S Total Metals 9/11/2017	MW-832S Dissolved Metals 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																										
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.00047 U	0.00012 J	0%	0.00047	0.00047	0.00047	0.00047 J	0.00052 J	0.00016 J	0.000058 J	100%	0.0005	0.0005	0.0005	0.0019 J	0.0011 J	100%	0.0019	0.0019	0.0019
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	0.001 J	< 0.0008	100%	0.001	0.001	0.001	**0.0061** J A(I)	**0.0044** J A(I)	**0.0024** J A(I)	**0.0022** J A(I)	100%	0.0053	0.0044	0.0061	< 0.0008	< 0.0008	0%			
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.43	0.39	100%	0.43	0.43	0.43	0.26	0.25	0.22	0.21	100%	0.255	0.25	0.26	0.4	0.34	100%	0.4	0.4	0.4
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.0001	< 0.0001	0%				< 0.0001	0.0001 J	< 0.0001	< 0.0001	50%	0.0001	0.0001	0.0001	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	< 0.0039 U	< 0.001	0%	0.0033	0.0033	0.0033	< 0.0019 U	< 0.0025 U	< 0.001	< 0.001	0%	0.0024	0.0019	0.0029	< 0.0014 U	< 0.001	0%	0.0014	0.0014	0.0014
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	< 0.001	NP	0%				< 0.001	< 0.001	NP	NP	0%				< 0.001	NP	0%			
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0033* J B	< 0.0004	100%	0.0033	0.0033	0.0033	*0.0018* B	*0.0029* B	< 0.0004	< 0.0004	100%	0.0024	0.0018	0.0029	*0.0016* B	< 0.0004	100%	0.0016	0.0016	0.0016
Iron	7439-89-6	NE	NE	NE	NE	NE	2.9	< 0.009	100%	2.9	2.9	2.9	4.5	5.1	0.029 J	0.021 J	100%	4.8	4.5	5.1	0.82	< 0.009	100%	0.82	0.82	0.82
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00012 J	< 0.0001	100%	0.00012	0.00012	0.00012	0.00068 J	*0.0022* B	< 0.0001	< 0.0001	100%	0.0014	0.00068	0.0022	0.00033 J	< 0.0001	100%	0.00033	0.00033	0.00033
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.83	0.77	100%	0.83	0.83	0.83	0.24 J	0.41 J	0.21 J	0.36 J	100%	0.33	0.24	0.41	0.79	0.78	100%	0.79	0.79	0.79
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< 0.000094 U	NP	0%	0.000094	0.000094	0.000094	< 0.000034 U	< 0.000035 U	NP	NP	0%	0.00003	0.000034	0.00004	< 0.000027 U	NP	0%	0.000027	0.000027	0.000027
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.031	0.025	100%	0.031	0.031	0.031	0.0059 J	0.0082 J	0.0043 J	0.0081 J	100%	0.0071	0.0059	0.0082	0.019	0.016	100%	0.019	0.019	0.019
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0019 J	< 0.00035	100%	0.0019	0.0019	0.0019	0.0032 J	0.0045 J	0.00036 J	0.00058 J	100%	0.0039	0.0032	0.0045	0.0047 J	0.0016 J	100%	0.0047	0.0047	0.0047
Potassium	7440-09-7	NE	NE	NE	NE	NE	44	40	100%	44	44	44	7.4	7.7	7	7	100%	7.6	7.4	7.7	13	13	100%	13	13	13
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	< 0.0046 U	0.00047 J	0%	0.0046	0.0046	0.0046	0.0023 J	0.0019 J	< 0.0004	< 0.0004	100%	0.0021	0.0019	0.0023	0.0034 J	0.00069 J	100%	0.0034	0.0034	0.0034
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	160	130	100%	160	160	160	130	130	120	110	100%	130	130	130	19	18	100%	19	19	19
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.00026 J	< 0.0001	100%	0.00026	0.00026	0.00026	0.0004 J	0.00033 J	< 0.0001	< 0.0001	100%	0.0004	0.00033	0.0004	0.0017	0.0019 J	100%	0.0017	0.0017	0.0017
Tin	7440-31-5	NE	NE	NE	NE	0.18	< 0.00015	< 0.00015	0%				0.00073 J	0.00046 J	< 0.00015	< 0.00015	100%	0.00060	0.00046	0.00073	0.0022 J	< 0.00015	100%	0.0022	0.0022	0.0022
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.0014	< 0.0014	0%				< 0.0014	< 0.0014	< 0.0014	< 0.0014	0%				< 0.0014	< 0.0014	0%			
Zinc	7440-66-6	NE	NE	31	31	0.0657	< 0.0062 U	< 0.0027	0%	0.0062	0.0062	0.0062	< 0.014 U	< 0.021 U	0.0066 J	0.0058 J	0%	0.0175	0.014	0.021	< 0.0081 U	< 0.0027	0%	0.0081	0.0081	0.0081

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
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NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
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A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-833S Total Metals 9/11/2017	MW-833S Dissolved Metals 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-834D Total Metals 9/13/2017	MW-834D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-835D Total Metals 9/13/2017	MW-835D Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																								
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	0.00051 J	0.00016 J	100%	0.00051	0.00051	0.00051	< 0.00026 UJ	< 0.0002	0%	0.00026	0.00026	0.00026	< 0.00011 UJ	< 0.00005	0%	0.00011	0.00011	0.00011
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.018** J A(MCL,I,DCL)	**0.017** A(MCL,I,DCL)	100%	0.018	0.018	0.018	< 0.0008	< 0.0032	0%				< 0.0008	< 0.0008	0%			
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	0%				< 0.00015 UJ	< 0.00015	0%				< 0.00015 UJ	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.11	0.09	100%	0.11	0.11	0.11	0.43	0.44	100%	0.43	0.43	0.43	0.47	0.98 J+	100%	0.47	0.47	0.47
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0034	0%				< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	< 0.0018 UJ	< 0.001	0%	0.0018	0.0018	0.0018	0.0064 J+	< 0.004	100%	0.0064	0.0064	0.0064	< 0.0018 UJ	< 0.001	0%	0.0018	0.0018	0.0018
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	< 0.001	NP	0%				0.0015 J	NP	100%	0.0015	0.0015	0.0015	**0.14** A(MCL)	NP	100%	0.1400	0.1400	0.1400
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0024* B	0.00061 J	100%	0.0024	0.0024	0.0024	*0.0065* J B	*0.0024* J B	100%	0.0065	0.0065	0.0065	0.00092 J	0.00081 J	100%	0.00092	0.00092	0.00092
Iron	7439-89-6	NE	NE	NE	NE	NE	0.69	0.093 J	100%	0.69	0.69	0.69	9.9	0.077 J	100%	9.9	9.9	9.9	2.9	0.071 J	100%	2.9	2.9	2.9
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00083 J	< 0.0001	100%	0.00083	0.00083	0.00083	*0.0034* B	< 0.0004	100%	0.0034	0.0034	0.0034	0.00041 J	0.00018 J	100%	0.00041	0.00041	0.00041
Manganese	7439-96-5	NE	NE	NE	NE	NE	0.31	0.29 J+	100%	0.31	0.31	0.31	0.19	0.14	100%	0.19	0.19	0.19	0.13	0.14	100%	0.13	0.13	0.13
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< *0.000035* UJ	NP	0%	0.000035	0.000035	0.000035	*0.00032* J+ B	NP	100%	0.00032	0.00032	0.00032	< *0.00024* UJ	NP	0%	0.00014	0.00014	0.00014
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.017	0.014	100%	0.017	0.017	0.017	0.0084 J+	< 0.0086 UJ	100%	0.0084	0.0084	0.0084	< 0.0037 UJ	< 0.0042 UJ	0%	0.0037	0.0037	0.0037
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0018 J	0.00057 J	100%	0.0018	0.0018	0.0018	0.0034 J	< 0.0014	100%	0.0034	0.0034	0.0034	0.0007 J	0.00067 J	100%	0.0007	0.0007	0.0007
Potassium	7440-09-7	NE	NE	NE	NE	NE	14	14	100%	14	14	14	8.8	8	100%	8.8	8.8	8.8	4.9	5	100%	4.9	4.9	4.9
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	< 0.0004	< 0.0004	0%				< 0.0004	< 0.0016	0%				0.00071 J	< 0.0004	100%	0.00071	0.00071	0.00071
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0004	0%				< 0.0001	< 0.0001 UJ	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	39	38	100%	39	39	39	680	690	100%	680	680	680	190	430	100%	190	190	190
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.0001	< 0.0001	0%				< 0.00032 UJ	< 0.0004	0%	0.00032	0.00032	0.00032	< 0.00032 UJ	< 0.0001	0%	0.00032	0.00032	0.00032
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.00019 J	0.00084 J	100%	0.00019	0.00019	0.00019	< 0.00015	< 0.0006	0%				< 0.00015	< 0.00015	0%			
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.0014	0.003 J	0%				0.0058 J	< 0.0054	100%	0.0058	0.0058	0.0058	< 0.0014	< 0.0014	0%			
Zinc	7440-66-6	NE	NE	31	31	0.0657	< 0.0093 UJ	< 0.0027	0%	0.0093	0.0093	0.0093	0.024 J	0.026 J	100%	0.024	0.024	0.024	0.0093 J	0.012	100%	0.0093	0.0093	0.0093

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-836S Total Metals 9/13/2017	MW-836S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-837S Total Metals 9/13/2017	MW-837S DUP Total Metals 9/13/2017	MW-837S Dissolved Metals 9/13/2017	MW-837S DUP Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																				
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0046 [U]	0.0017 [J]	0%	0.0046	0.0046	0.0046	< 0.0018 [U]	< 0.0014 [U]	0.00078 [J]	0.00078 [J]	0%	0.0015	0.0014	0.0016
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0082** [J] A(I)	**0.024** A(MCL,I,DCL)	100%	0.0082	0.0082	0.0082	**0.014** A(MCL,I,DCL)	**0.011** A(MCL,I,DCL)	**0.014** A(MCL,I,DCL)	**0.014** A(MCL,I,DCL)	100%	0.013	0.011	0.014
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	0.00023 [J]	< 0.00015	100%	0.00023	0.00023	0.00023	< 0.00015	< 0.00015	< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.23 [J*]	0.22 [J*]	100%	0.23	0.23	0.23	0.14	0.13	0.15 [J*]	0.14 [J*]	100%	0.14	0.13	0.14
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	*0.00032* [J] B	< 0.0001	100%	0.00032	0.00032	0.00032	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	< 0.0043 [U]	< 0.001	0%	0.0043	0.0043	0.0043	0.0017 [J]	0.001 [J]	< 0.001	< 0.001	100%	0.0014	0.001	0.0017
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	< 0.001	NP	0%				0.0011 [J]	< 0.001	NP	NP	50%	0.0011	0.001	0.0011
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	*0.0019* [J] B	< 0.0004	100%	0.0019	0.0019	0.0019	*0.0031* [J] B	*0.0028* [J] B	*0.0022* [J] B	*0.0023* [J] B	100%	0.0030	0.0028	0.0031
Iron	7439-89-6	NE	NE	NE	NE	NE	1.1	0.850	100%	1.1	1.1	1.1	0.23 [J]	0.21 [J]	0.170 [J]	0.170 [J]	100%	0.22	0.21	0.23
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	*0.0033* B	< 0.0001	100%	0.0033	0.0033	0.0033	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0%			
Manganese	7439-96-5	NE	NE	NE	NE	NE	< 0.0039 [U]	0.00088 [J]	0%	0.0039	0.0039	0.0039	0.00066 [J]	0.00043 [J]	< 0.00035	< 0.00035	100%	0.00055	0.00043	0.00066
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	*0.00024* B	NP	100%	0.00024	0.00024	0.00024	*2E-05*	*2E-05*	NP	NP	0%			
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.016	0.035	100%	0.016	0.016	0.016	0.018	0.015	0.015	0.015	100%	0.017	0.015	0.018
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0085	0.0052	100%	0.0085	0.0085	0.0085	0.0019 [J]	0.0017 [J]	0.0014 [J]	0.0014 [J]	100%	0.0018	0.0017	0.0019
Potassium	7440-09-7	NE	NE	NE	NE	NE	44	42	100%	44	44	44	51	49	47	47	100%	50	49	51
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	0.0039 [J]	0.0019 [J]	100%	0.0039	0.0039	0.0039	*0.0088* [J*] B	*0.0055* [J*] B	0.002 [J]	0.0022 [J]	100%	0.0072	0.0055	0.0088
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	*0.00028* [J] B	< 0.0001	100%	0.00028	0.00028	0.00028	< 0.0001	< 0.0001	< 0.0001 [UJ]	< 0.0001 [UJ]	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	180	170	100%	180	180	180	160	150	130	140	100%	155	150	160
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	< 0.0092 [U]	< 0.0001	0%	0.0082	0.0082	0.0082	0.00053 [J]	0.00011 [J]	< 0.0001	< 0.0001	100%	0.00032	0.00011	0.00053
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0035 [J]	< 0.00015	100%	0.0035	0.0035	0.0035	0.0006 [J]	< 0.00015	< 0.00015	< 0.00015	50%	0.00038	0.00015	0.00060
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	0.011	0.008	100%	0.011	0.011	0.011	*0.062* B	*0.059* B	*0.058* B	*0.059* B	100%	0.06050	0.05900	0.06200
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0055 [J]	< 0.0027	100%	0.0055	0.0055	0.0055	< 0.0027	< 0.0027	< 0.0027	< 0.0027	0%	0.0027	0.0027	0.0027

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample

[J*] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

NP = Not Performed

A(GW)=IDEM DQO Exceedance of the GW Solubility

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8C
Groundwater Sample Laboratory Results - Metals

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-838S Total Metals 9/13/2017	MW-838S Dissolved Metals 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-839S Total Metals 9/12/2017	MW-839S Dissolved Metals 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Metals (mg/L)																		
Antimony	7440-36-0	NE	0.006	0.041	0.041	0.08	< 0.0013 [UJ]	< 0.00005	0%	0.0013	0.0013	0.0013	0.0027 [J]	0.0017 [J]	100%	0.0027	0.0027	0.0027
Arsenic	7440-38-2	NE	0.01	0.0019	0.01	0.148	**0.0057** A(I)	**0.0022** [J] A(I)	100%	0.0057	0.0057	0.0057	**0.015** A(MCL,I,DCL)	**0.012** A(MCL,I,DCL)	100%	0.015	0.015	0.015
Beryllium	7440-41-7	NE	0.004	0.2	0.2	0.0036	< 0.00015	< 0.00015	0%				< 0.00015	< 0.00015	0%			
Boron	7440-42-8	NE	NE	NE	NE	NE	0.21	0.19	100%	0.21	0.21	0.21	0.12	0.13 [J+]	100%	0.12	0.12	0.12
Cadmium	7440-43-9	NE	0.005	0.051	0.051	0.00015	< 0.0001	< 0.0001	0%				< 0.0001	< 0.0001	0%			
Chromium	7440-47-3	NE	0.1	150	150	0.042	0.0028 [J]	< 0.001	100%	0.0028	0.0028	0.0028	0.0029 [J]	< 0.001	100%	0.0029	0.0029	0.0029
Chromium, Hexavalent	18540-29-9	NE	0.1	0.31	0.31	NE	< 0.001	NP	0%				0.0035 [J]	NP	100%	0.0035	0.0035	0.0035
Copper	7440-50-8	NE	1.3	4.1	4.1	0.00158	0.00083 [J]	< 0.0004	100%	0.00083	0.00083	0.00083	*0.0021* [J] B	0.00098 [J]	100%	0.0021	0.0021	0.0021
Iron	7439-89-6	NE	NE	NE	NE	NE	12	0.033 [J]	100%	12	12	12	0.92 [J]	0.600	100%	0.92	0.92	0.92
Lead	7439-92-1	NE	0.015	0.042	0.042	0.00117	0.00056 [J]	< 0.0001	100%	0.00056	0.00056	0.00056	*0.0016* B	< 0.0001	100%	0.0016	0.0016	0.0016
Manganese	7439-96-5	NE	NE	NE	NE	NE	1.5	1.4	100%	1.5	1.5	1.5	0.011	0.0015 [J]	100%	0.011	0.011	0.011
Mercury	7439-97-6	69,000	0.002	0.031	0.031	0.0000013	< *2E-05*	NP	0%				< *0.000093* [U]	NP	0%	0.000093	0.000093	0.000093
Molybdenum	7439-98-7	NE	NE	NE	NE	NE	0.005	0.001 [J]	100%	0.005	0.005	0.005	0.012	0.0078	100%	0.012	0.012	0.012
Nickel	7440-2-0	NE	NE	2	2	0.0289	0.0015 [J]	0.00045 [J]	100%	0.0015	0.0015	0.0015	0.0019 [J]	0.0014 [J]	100%	0.0019	0.0019	0.0019
Potassium	7440-09-7	NE	NE	NE	NE	NE	16	13	100%	16	16	16	25	22	100%	25	25	25
Selenium	7782-49-2	NE	0.05	0.51	0.51	0.005	*0.0094* [J+] B	< 0.0004	100%	0.0094	0.0094	0.0094	0.0045 [J]	0.0018 [J]	100%	0.0045	0.0045	0.0045
Silver	7440-22-4	NE	NE	0.51	0.51	0.00012	< 0.0001 [UJ]	< 0.0001	0%				< 0.0001	< 0.0001	0%			
Sodium	7440-23-5	NE	NE	NE	NE	NE	86	66	100%	86	86	86	27	26	100%	27	27	27
Thallium	7440-28-0	NE	0.002	0.0072	0.0072	0.01	0.0018	< 0.0001	100%	0.0018	0.0018	0.0018	0.0014	< 0.0001	100%	0.0014	0.0014	0.0014
Tin	7440-31-5	NE	NE	NE	NE	0.18	0.0025 [J]	< 0.00015	100%	0.0025	0.0025	0.0025	0.002 [J]	< 0.00015	100%	0.002	0.002	0.002
Vanadium	7440-62-2	NE	NE	NE	NE	0.012	< 0.0014	< 0.0014	0%				0.0077	0.0078	100%	0.0077	0.0077	0.0077
Zinc	7440-66-6	NE	NE	31	31	0.0657	0.0059 [J]	0.0034 [J]	100%	0.0059	0.0059	0.0059	0.011	< 0.0027	100%	0.011	0.011	0.011

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.
[B] EPA - US EPA Region V Ecological Screening Levels August 2003.
[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.
[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.
NP = Not Performed
A(GW)=IDEM DQO Exceedance of the GW Solubility
A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance
[1] Percent detection, average, minimum detected, and maximum detected values calculated using Total Metals resu

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-801D 10/29/2012	MW-801D Dup 10/29/2012	MW-801D 7/16/2013	MW-801D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-801S 10/29/2012	MW-801S 7/16/2013	MW-801S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																					
Alkalinity	None1	NE	NE	NE	NE	NE	450	400	560	450	100%	465	400	560	400	< 2	400	67%	267	2	400
Ammonia	7664-41-7	NE	NE	NE	NE	NE	14	14	17	11	100%	14	11	17	2.4	2.9	2.6	100%	3	2	3
Hardness	None2	NE	NE	NE	NE	NE				620	100%	620	620	620			270	100%	270	270	270
Sulfide	18496-25-8	NE	NE	NE	NE	NE	< 0.022	< 0.022	0.04	< 0.015	0%				3.2	1.3	1.6	100%	2.0	1.3	3.2
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.061* B	*0.062* B	*0.049* B	*0.052* B	100%	0.056	0.049	0.062		*0.93* B	*0.89* B	100%	0.91	0.89	0.93
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	< 0.0050	< 0.0050	0.0080	0.0062 J	25%	0.0056	0.0050	0.0062	0.15	0.11	*0.3* B	100%	0.19	0.11	0.30
Total Organic Carbon	None3	NE	NE	NE	NE	NE	7.2	7.3	7.2	9.8	100%	7.8	7.2	9.6	17	7	8.3	100%	11	7	17
Chloride	16887-00-6	NE	NE	NE	NE	NE	150	150	250	220	100%	193	150	250	650	1000	170	100%	607	170	1000
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	21	21	23	39	100%	26	21	39	52	34	54	100%	47	34	54
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*8.6* J B	*9.2* J B	*2.4* J B	*4.2* J B	100%	6.1	2.4	9.2	*190* B	*240* B	*86* B	100%	172	86	240

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

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A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-802S 10/31/2012	MW-802S-Dup 10/31/2012	MW-802S 7/16/2013	% Detect	Average	Minimum Detected	Maximum Detected	MW-803D 10/31/2012	MW-803D 7/17/2013	MW-803D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-803M 10/31/2012	MW-803M 7/17/2013	MW-803M 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																											
Alkalinity	None1	NE	NE	NE	NE	NE	400	400	360	100%	386.67	360	400	2900	2900	3200	100%	3000	2900	3200	450	440	300	100%	397	300	450
Ammonia	7664-41-7	NE	NE	NE	NE	NE	1	3.6	0.15	100%	1.58333	0.15	3.6	990	950	750	100%	897	750	990	83	110	46	100%	80	46	110
Hardness	None2	NE	NE	NE	NE	NE										930	100%	930	930	930			180	100%	180	180	180
Sulfide	18496-25-8	NE	NE	NE	NE	NE	< 0.022	< 0.022	< 0.04	0%				1.1	8.1	19	100%	9.4	1.1	19	1.8	3	0.24	100%	1.68	0.24	3.00
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.096* B	*0.11* B	*0.011* B	100%	0.07233	0.011	0.11	*0.68* B	*0.49* B	*0.43* B	100%	0.53	0.43	0.68	*0.12* B	*0.069* B	*0.0052* B	100%	0.0647	0.0052	0.1200
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	< 0.0050	< 0.0050	0.0075 J	33%	0.00583	0.005	0.0075	3.9 B	*5.1* B	*15* B	100%	8.0	3.9	15.0	0.11	0.13	0.047	100%	0.10	0.05	0.13
Total Organic Carbon	None3	NE	NE	NE	NE	NE	7.7	7.6	4.1	100%	6.47	4.1	7.7	150	160	260	100%	190	150	260	20	12	7.9	100%	13	8	20
Chloride	16887-00-6	NE	NE	NE	NE	NE	580	570	250	100%	467	250	580	910	880	820	100%	870	820	910	60	90	96	100%	82	60	96
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	61	68	16	100%	48.3	16	68	690	700	930	100%	773	690	930	66	52	< 9.3	67%	42	9	66
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*510* B	*570* B	*330* B	100%	470	330	570	*1600* B	*1200* B	*390* B	100%	1063	390	1600	*190* B	*94* B	*15* B	100%	100	15	190

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.
[C] IDEM = Bromodichloromethane.
[D] Listed by EPA as Methane [bis (2-chloroethoxy)].
[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].
[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.
[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.
[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.
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A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level
A(I)=IDEM DQO Exceedance of the Industrial Level
A(DCL)=IDEM DQO Exceedance of the Default Closure Level
B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-803S 10/31/2012	MW-803S 7/17/2013	MW-803S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-804S 10/29/2012	MW-804S 7/16/2013	MW-804S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-805D 10/31/2012	MW-805D 7/16/2013	MW-805D-Dup 7/16/2013	MW-805D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	400	300	350	100%	350	300	400	250	380	400	100%	343	250	400	600	600	600	800	100%	650	600	800
Ammonia	7664-41-7	NE	NE	NE	NE	NE	8.2	9.4	8.3	100%	8.6	8.2	9.4	11	6.6	1.5	100%	6.4	1.5	11.0	23	2.6	2.4	39	100%	16.8	2.4	39
Hardness	None2	NE	NE	NE	NE	NE			730	100%	730	730	730			490	100%	490	490	490				660	100%	660	660	660
Sulfide	18496-25-8	NE	NE	NE	NE	NE	23	11	8.3	100%	14.1	8.3	23.0	< 0.022	< 0.04	< 0.015	0%				0.03 J	< 0.04	< 0.04	< 0.015	25%	0.031	0.015	0.04
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*1.1* B	*0.99* B	*1.5* B	100%	1.20	0.99	1.50	*0.13* B	*0.12* B	*0.027* B	100%	0.09	0.03	0.13	*0.19* B	*0.047* B	*0.14* B	*0.2* B	100%	0.144	0.047	0.2
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.0210	0.0150	0.032	100%	0.023	0.015	0.032	< 0.0050	< 0.0060	0.15 J+	33%	0.0537	0.0050	0.15	< 0.0050	< 0.0060	< 0.0060	0.023	25%	0.010	0.005	0.023
Total Organic Carbon	None3	NE	NE	NE	NE	NE	9.5	8.1	7.8	100%	8.5	7.8	9.5	6.3	5.9	6.2	100%	6.1	5.9	6.3	15	12	14	40	100%	20	12	40
Chloride	16887-00-6	NE	NE	NE	NE	NE	83	110	85	100%	93	83	110	24	38	15	100%	26	15	38	150	350	320	130	100%	238	130	350
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	94	56	52	100%	67	52	94	39	14	20	100%	24	14	39	54	50	43	130	100%	69	43	130
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*440* B	*490* B	*340* B	100%	423	340	490	*200* B	*260* B	*180* B	100%	213	180	260	*5.9* J B	*68* B	*45* B	*3.7* J B	100%	30.7	3.7	68.0

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-805S 10/31/2012	MW-805S 7/17/2013	MW-805S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-806D 10/31/2012	MW-806D 7/17/2013	MW-806D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-806S 10/31/2012	MW-806S 7/16/2013	MW-806S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																											
Alkalinity	None1	NE	NE	NE	NE	NE	600	600	250	100%	483	250	600	2000	1400	1100	100%	1500	1100	2000	300	440	150	100%	297	150	440
Ammonia	7664-41-7	NE	NE	NE	NE	NE	3.7	5.2	1.7	100%	3.5	1.7	5.2	410	460	340	100%	403.3	340.0	460.0	1.9	0.86	2.9	100%	1.9	0.9	2.9
Hardness	None2	NE	NE	NE	NE	NE			190	100%	190	190	190			1300	100%	1300	1300	1300			460	100%	460	460	460
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.53	< 0.04	0.042 J	67%	0.204	0.040	0.53	0.42	1.2	< 0.015	67%	0.545	0.015	1.20	0.028 J	< 0.04	< 0.015	33%	0.028	0.015	0.04
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	0.0045 J	*0.048* B	*0.062* B	100%	0.0382	0.0045	0.062	*0.78* B	*0.14* B	*0.17* B	100%	0.3633	0.1400	0.780	*0.056* B	*0.074* B	*0.046* B	100%	0.0587	0.0460	0.074
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	< 0.0050	0.0190	0.098	67%	0.0407	0.0050	0.098	0.0780	0.0180	0.027	100%	0.0410	0.0180	0.078	< 0.0050	< 0.0050	0.093	33%	0.0347	0.0050	0.093
Total Organic Carbon	None3	NE	NE	NE	NE	NE	7.6	6.4	8.3	100%	7.4	6.4	8.3	74	53	48	100%	58.3	48.0	74.0	4.8	4.3	5.5	100%	4.9	4.3	5.5
Chloride	16887-00-6	NE	NE	NE	NE	NE	270	680	16	100%	322	16	680	410	420	340	100%	390	340	420	49	320	120	100%	163	49	320
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	43	28	13	100%	28	13	43	390	220	170	100%	260	170	390	16	14	24	100%	18	14	24
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*39* B	*91* B	*18* B	100%	49	18	91	*1800* B	*2500* B	*2400* B	100%	2233	1800	2500	*40* B	*360* B	*190* B	100%	197	40	360

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

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B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-807D 11/1/2012	MW-807D 7/18/2013	MW-807D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-807S 11/1/2012	MW-807S 7/16/2013	MW-807S-Dup 7/16/2013	MW-807S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																					
Alkalinity	None1	NE	NE	NE	NE	NE	5000	5000	3900	100%	4633	3900	5000	300	210	190	450	100%	288	190	450
Ammonia	7664-41-7	NE	NE	NE	NE	NE	650	640	620	100%	636.7	620.0	650.0	1.8	1.7	1.6	2.6	100%	1.9	1.6	2.6
Hardness	None2	NE	NE	NE	NE	NE			4.1	100%	4.1	4.1	4.1				510	100%	510	510	510
Sulfide	18496-25-8	NE	NE	NE	NE	NE	11	2.4	< 0.015	67%	4.472	0.015	11.00	2.2	1.8	1.1	1.1	100%	1.6	1.1	2.2
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*6* B	*5.4* B	*1.8* B	100%	4.4000	1.8000	6.000	*2.2* B	*1.5* B	*2.4* B	*3.6* B	100%	2.4	1.5	3.6
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	*160* B	*150* B	*110* B	100%	140.0000	110.0000	160.000	0.0430	< 0.0001	< 0.0001	0.15	50%	0.0513	0.0060	0.15
Total Organic Carbon	None3	NE	NE	NE	NE	NE	330	350	250	100%	310.0	250.0	350.0	13	12	12	16	100%	13	12	16
Chloride	16887-00-6	NE	NE	NE	NE	NE	1500	1200	10	100%	903	10	1500	44	86	84	16	100%	58	16	86
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	1500	1200	1000	100%	1233	1000	1500	55	42	42	73	100%	53	42	73
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*83* B	*81* B	*42* B	100%	69	42	83	*110* B	*130* B	*130* B	*150* B	100%	130	110	150

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-808D 11/2/2012	MW-808D 7/17/2013	MW-808D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-808S 11/2/2012	MW-808S 7/17/2013	MW-808S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																				
Alkalinity	None1	NE	NE	NE	NE	NE	2000	2500	2100	100%	2200	2000	2500	500	580	650	100%	577	500	650
Ammonia	7664-41-7	NE	NE	NE	NE	NE	370	320	290	100%	327	290	370	5.5	0.65	4.0	100%	3.38	0.65	5.5
Hardness	None2	NE	NE	NE	NE	NE			5800	100%	5800	5800	5800			*2000*	100%	2000	2000	2000
Sulfide	18496-25-8	NE	NE	NE	NE	NE	16	13	33	100%	21	13	33	0.19	8.7	84	100%	30.96	0.19	84
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*4.4* B	*4.6* B	5.3 B	100%	4.77	4.40	5.30	*0.37* B	*0.31* B	*0.38* B	100%	0.35	0.31	0.38
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	*0.4400* B	*420* B	*300* B	100%	240.15	0.44	420	0.1300	*23* B	*24* B	100%	15.71	0.13	24
Total Organic Carbon	None3	NE	NE	NE	NE	NE	1100	1000	770	100%	956.7	770	1100	200	75	74	100%	116.3	74	200
Chloride	16887-00-6	NE	NE	NE	NE	NE	300	320	50	100%	223	50	320	4	5	5.5	100%	4.8	4.0	5.5
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	3000	1300	2000	100%	2100	1300	3000	1300	260	370	100%	643	260	1300
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*9200* B	*8700* B	*5800* B	100%	7900	5800	9200	*1600* B	*730* B	*1200* B	100%	1177	730	1600

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809D 11/2/2012	MW-809D 7/18/2013	MW-809D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-809M 11/2/2012	MW-809M 7/18/2013	MW-809M-Dup 7/18/2013	MW-809M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																					
Alkalinity	None1	NE	NE	NE	NE	NE	3400	4200	4700	100%	4100	3400	4700	450	820	330	750	100%	588	330	820
Ammonia	7664-41-7	NE	NE	NE	NE	NE	130	360	470	100%	320	130	470	120	120	120	110	100%	118	110	120
Hardness	None2	NE	NE	NE	NE	NE			4100	100%	4100	4100	4100				360	100%	360	360	360
Sulfide	18496-25-8	NE	NE	NE	NE	NE	350	170	130	100%	217	130	350	1.8	3.7	3.6	0.032 J	100%	2	0.032	3.7
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*33* B	*.5* B	*.15* B	100%	18	5	33	*0.52* B	*0.73* B	*0.66* B	*0.33* B	100%	1	0.33	0.73
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	*88* B	*170* B	*38* B	100%	99	38	170	*0.9800* B	*1.7* B	*3.0* B	*0.47* B	100%	1.54	0.47	3
Total Organic Carbon	None3	NE	NE	NE	NE	NE	580	890	49	100%	506	49	890	20	26	26	16	100%	22	16	26
Chloride	16887-00-6	NE	NE	NE	NE	NE	3.5	2.5	4.0	100%	3.3	2.5	4.0	90	150	140	130	100%	128	90	150
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	2400	2500	2100	100%	2333	2100	2500	91	140	140	66	100%	109	66	140
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*3200* B	*3800* B	*3200* B	100%	3400	3200	3800	*340* B	*170* B	*180* B	*46* B	100%	184	46	340

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-809S 11/2/2012	MW-809S 7/15/2013	MW-809S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810D 10/31/2012	MW-810D 7/16/2013	MW-810D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-810S 10/31/2012	MW-810S 7/16/2013	MW-810S 9/14/2017	MW-810S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	250	740	700	100%	563	250	740	1400	1300	1100	100%	1267	1100	1400	200	220	250	250	100%	230	200	250
Ammonia	7664-41-7	NE	NE	NE	NE	NE	9.6	7.5	28	100%	15	7.5	28	130	120	86	100%	112	86	130	2.4	0.79	0.99	0.8	100%	1.25	0.79	2.4
Hardness	None2	NE	NE	NE	NE	NE			950	100%	950	950	950			1800	100%	1800	1800	1800			260	310	100%	285	260	310
Sulfide	18496-25-8	NE	NE	NE	NE	NE	1.5	0.29	0.31	100%	0.70	0.29	1.5	0.33	8	< 0.015	67%	2.8	0.015	8	< 0.022	< 0.04	< 0.015	< 0.015	0%			
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.34* B	*0.19* B	*0.13* B	100%	0.22	0.13	0.34	*0.19* B	*0.26* B	*0.29* B	100%	0.25	0.19	0.29	*0.049* B	*0.031* B	*0.034* B	*0.032* B	100%	0.037	0.031	0.049
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.0180	< 0.0060	*0.18* B	67%	0.068	0.006	0.18	0.0410	< 0.0060	< 0.0060	33%	0.0177	0.0060	0.0410	< 0.0060	< 0.0060	0.01 J	0.038 J	50%	0.0148	0.005	0.038
Total Organic Carbon	None3	NE	NE	NE	NE	NE	14	16	11	100%	13.7	11	16	220	180	120	100%	173	120	220	4.5	3.3	2.4	2.6	100%	3.2	2.4	4.5
Chloride	16887-00-6	NE	NE	NE	NE	NE	62	110	200	100%	124	62	200	400	450	15	100%	288.3	15	450.0	160	300	480	400	100%	335	160	480
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	48	100	49	100%	66	48	100	980	750	710	100%	813	710	980	21	11	21 J	13 J	100%	16.5	11	21
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*700* B	*1100* B	*310* B	100%	703	310	1100	*4200* B	< 0.81	*1900* B	67%	2034	0.81	4200	*170* B	*160* B	*90* B	*99* B	100%	129.75	90	170

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

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[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

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B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-811S 10/29/2012	MW-811S 7/16/2013	MW-811S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-812S 10/31/2012	MW-812S 7/16/2013	MW-812S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-813S 10/31/2012	MW-813S 7/15/2013	MW-813S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																											
Alkalinity	None1	NE	NE	NE	NE	NE	900	2000	2200	100%	1700	900	2200	300	250	200	100%	250	200	300	300	220	150	100%	223	150	300
Ammonia	7664-41-7	NE	NE	NE	NE	NE	3	0.96	3.1	100%	2.4	1.0	3.1	9.2	10	7.1	100%	8.8	7.1	10	4.4	5.6	2.5	100%	4.2	2.5	5.6
Hardness	None2	NE	NE	NE	NE	NE			2000	100%	2000	2000	2000			310	100%	310	310	310			220	100%	220	220	220
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.43	0.12	< 0.015	67%	0.19	0.015	0.43	0.99	0.27	< 0.015	67%	0.43	0.015	0.99	0.52	0.092	0.06	100%	0.22	0.060	0.52
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.0053* B	*0.025* B	*0.01* J- B	100%	0.013	0.005	0.025	*0.1* B	*0.086* B	*0.054* B	100%	0.08	0.054	0.1	*0.5* B	*0.2* B	*2.6* B	100%	1.1	0.2	2.6
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.0180	0.0580	*0.3* B	100%	0.125	0.018	0.3	0.0310	< 0.0060	0.051 J+	67%	0.029	0.006	0.051	< 0.0057	< 0.0060	0.026 J+	33%	0.012	0.005	0.026
Total Organic Carbon	None3	NE	NE	NE	NE	NE	8.1	6.7	9.9	100%	8.2	6.7	9.9	11	8.8	7.3	100%	9.0	7.3	11	5.6	9.1	5.8	100%	6.8	5.6	9.1
Chloride	16887-00-6	NE	NE	NE	NE	NE	1100	1300	720	100%	1040	720	1300	240	380	84	100%	235	84	380	350	300	62	100%	237	62	350
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	54	34	68	100%	52	34	68	52	34	24	100%	37	24	52	25	16	35	100%	25	16	35
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*120* B	*18* B	*13* B	100%	50	13	120	*120* B	*160* B	*84* B	100%	121	84	160	*310* B	*270* B	*130* B	100%	237	130	310

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-814S 10/29/2012	MW-814S 7/16/2013	MW-814S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815D 10/29/2012	MW-815D 7/15/2013	MW-815D 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-815S 10/29/2012	MW-815S 7/17/2013	MW-815S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																											
Alkalinity	None1	NE	NE	NE	NE	NE	200	200	150	100%	183	150	200	350	680	650	100%	560	350	680	< 2	270	250	67%	174	2	270
Ammonia	7664-41-7	NE	NE	NE	NE	NE	9.1	3	1.9	100%	4.7	1.9	9.1	240	< 0.095	240	67%	160	0.10	240	2.1	1.7	1.5	100%	1.8	1.5	2.1
Hardness	None2	NE	NE	NE	NE	NE			140	100%	140	140	140			480	100%	480	480	480			500	100%	500	500	500
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.022	< 0.04	0.010	0%				0.028 J	0.062	< 0.010	67%	0.035	0.015	0.062	0.024 J	< 0.04	< 0.010	33%	0.026	0.015	0.040
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.058* B	*0.049* B	*0.12* B	100%	0.076	0.049	0.12	*0.23* B	*0.2* B	*0.13* B	100%	0.19	0.13	0.23	*0.14* B	*0.14* B	*0.085* B	100%	0.12	0.085	0.14
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.0057	0.0110	0.01	67%	0.009	0.005	0.011	< 0.0050	< 0.0060	0.061	33%	0.024	0.005	0.061	< 0.0050	< 0.0060	0.028	33%	0.013	0.005	0.028
Total Organic Carbon	None3	NE	NE	NE	NE	NE	7.8	4	6.9	100%	6.2	4.0	7.8	24	16	20	100%	20	16	24	4.8	4.2	5.6	100%	4.9	4.2	5.6
Chloride	16887-00-6	NE	NE	NE	NE	NE	500	350	260	100%	370	260	500	600	500	540	100%	547	500	600	60	300	45	100%	135	45	300
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	68	8.0 J	31	100%	36	8.0	68	130	130	69	100%	110	69	130	9.6 J	< 7.8	14	67%	10	7.8	14
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*140* B	*180* B	*130* B	100%	150	130	180	*1500* B	*840* B	*500* B	100%	947	500	1500	*880* B	*580* B	*280* B	100%	580	280	880

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-816D 11/1/2012	MW-816D 7/17/2013	MW-816D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-816S 11/1/2012	MW-816S 7/16/2013	MW-816S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-817D 11/1/2012	MW-817D Dup 11/1/2012	MW-817D 7/17/2013	MW-817D 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	2400	2800	2200	100%	2467	2200	2800	150	320	300	100%	257	150	320	2600	2800	2600	2600	100%	2650	2600	2800
Ammonia	7664-41-7	NE	NE	NE	NE	NE	550	760	660	100%	657	550	760	7.7	7.6	5.5 J-	100%	6.9	5.5	7.7	710	810	730	800	100%	763	710	810
Hardness	None2	NE	NE	NE	NE	NE			65	100%	65	65	65			420	100%	420	420	420				1800	100%	1800	1800	1800
Sulfide	18496-25-8	NE	NE	NE	NE	NE	16	3.2	0.015 U	67%	6.4	0.015	16	3.2	3.1	2.6	100%	3.0	2.6	3.2	6.7	3.8	1.8	0.015 U	75%	3.1	0.015	6.7
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*1.8* B	*1.9* B	*0.97* B	100%	1.56	0.97	1.9	*0.47* B	*0.15* B	*0.86* B	100%	0.49	0.15	0.9	*0.59* B	*0.52* B	*0.48* B	*0.39* B	100%	0.50	0.39	0.59
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	*1.1* B	*0.93* B	*0.9* B	100%	0.977	0.90	1.1	*0.19* B	*0.33* B	*0.26* B	100%	0.26	0.19	0.3	*0.48* B	*0.52* B	*1.0* B	*0.44* B	100%	0.61	0.44	1.0
Total Organic Carbon	None3	NE	NE	NE	NE	NE	88	83	62	100%	78	62	88	13	8.8	14	100%	11.9	8.8	14	260	240	150	150	100%	200	150	260
Chloride	16887-00-6	NE	NE	NE	NE	NE	390	360	250	100%	333	250	390	220	250	3.5	100%	158	3.5	250	980	900	800	640	100%	830	640	980
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	450	440	290	100%	393	290	450	44	38	66	100%	49	38	66	890	920	720	640	100%	793	640	920
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*210* B	*140* B	*48* B	100%	133	48	210	*150* B	*130* B	*34* B	100%	105	34	150	*3000* B	*3000* B	*2300* B	*1900* B	100%	2550	1900	3000

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

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Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-817S 11/1/2012	MW-817S 7/17/2013	MW-817S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-818S 11/1/2012	MW-818S 7/17/2013	MW-818S 9/14/2017	MW-818S DUP 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-819D 11/2/2012	MW-819D 7/17/2013	MW-819D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	450	200	200	100%	283	200	450	250	580	200	160	100%	298	160	580	900	990	1200	100%	1030	900	1200
Ammonia	7664-41-7	NE	NE	NE	NE	NE	5.7	2.2	2.5	100%	3.5	2.2	5.7	9.7	7.3	2.0	2.1	100%	5.3	2.0	9.7	14	14	13	100%	14	13	14
Hardness	None2	NE	NE	NE	NE	NE			370	100%	370	370	370			*220*	230	100%	225	220	230			590	100%	590	590	590
Sulfide	18496-25-8	NE	NE	NE	NE	NE	8	0.044 J	0.17	100%	2.7	0.044	8.0	2	0.94	0.12 J	0.076 J	100%	0.78	0.076	2.0	0.19	< 0.04	0.029 J	67%	0.09	0.029	0.19
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.51* B	*0.11* B	*3.3* B	100%	1.31	0.11	3.3	*0.39* B	*1.9* B	*0.58* B	0.55 B	100%	0.86	0.39	1.9	*0.048* B	*0.062* B	*0.089* B	100%	0.066	0.048	0.089
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.03	0.012	0.0069 J	100%	0.016	0.0069	0.03	0.0260	< 0.0120	*0.24* J B	0.13 J	75%	0.10	0.012	0.24	0.0670	0.0440	0.041	100%	0.051	0.041	0.067
Total Organic Carbon	None3	NE	NE	NE	NE	NE	14	11	6.7	100%	10.6	6.7	14	13	17	13	13	100%	14	13	17	130	120	110	100%	120	110	130
Chloride	16887-00-6	NE	NE	NE	NE	NE	150	250	380	100%	260	150	380	26	38	28	27	100%	30	26	38	80	110	54	100%	81	54	110
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	57	45	33	100%	45	33	57	39	45	47	47	100%	45	39	47	580	470	400	100%	483	400	580
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*200* B	*250* B	*74* B	100%	175	74	250	*130* B	*280* B	*100* B	*88* B	100%	150	88	280	*16* B	*8.4* J B	*6.0* J B	100%	10	6.0	16

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

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A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-819S 11/2/2012	MW-819S 7/17/2013	MW-819S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-820S 11/2/2012	MW-820S 7/18/2013	MW-820S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-821D 11/2/2012	MW-821D 7/18/2013	MW-821D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																											
Alkalinity	None1	NE	NE	NE	NE	NE	500	530	450	100%	493	450	530	150	450	100	100%	233	100	450	1800	2000	1600	100%	1800	1600	2000
Ammonia	7664-41-7	NE	NE	NE	NE	NE	3.7	1.4	3.4	100%	2.8	1.4	3.7	5.4	2.2	2.2	100%	3.3	2.2	5.4	33	26	32	100%	30	26	33
Hardness	None2	NE	NE	NE	NE	NE			410	100%	410	410	410			110	100%	110	110	110			53	100%	53	53	53
Sulfide	18496-25-8	NE	NE	NE	NE	NE	1.8	0.62	0.13	100%	0.85	0.13	1.8	4.7	3	0.047 J	100%	2.58	0.05	4.7	10	0.34	0.047 J	100%	3.46	0.047	10
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.065* B	*0.083* B	*0.15* B	100%	0.099	0.065	0.15	*1.4* B	*0.18* B	*0.18* J+ B	100%	0.587	0.18	1.4	*1.3* B	*1.2* B	*2.1* B	100%	1.533	1.2	2.1
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.14	0.074	*0.21* B	100%	0.141	0.074	0.21	*0.23* B	0.092	0.10	100%	0.141	0.092	0.23	*0.22* B	*0.44* B	*0.34* B	100%	0.333	0.22	0.44
Total Organic Carbon	None3	NE	NE	NE	NE	NE	31	30	44	100%	35	30	44	32	26	24	100%	27	24	32	180	170	140	100%	163	140	180
Chloride	16887-00-6	NE	NE	NE	NE	NE	160	23	15	100%	66	15	160	370	510	2.0 J+	100%	294	2.0	510	8.5	16	35	100%	20	8.5	35
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	240	170	260	100%	223	170	260	230	94	120 J+	100%	148	94	230	1200	< 7.80	1300	67%	836	7.8	1300
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*360* B	*110* B	*20* B	100%	163	20	360	*39* B	*57* B	*22* B	100%	39	22	57	*270* B	*250* B	*270* B	100%	263	250	270

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

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A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-821S 11/2/2012	MW-821S 7/18/2013	MW-821S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-822D 10/31/2012	MW-822D 7/16/2013	MW-822D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-822S 10/31/2012	MW-822S 7/16/2013	MW-822S 9/13/2017	MW-822S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	2200	320	250	100%	923	250	2200	500	480	500	100%	493	480	500	300	500	300	350	100%	363	300	500
Ammonia	7664-41-7	NE	NE	NE	NE	NE	4.3	4.8	3.8	100%	4.3	3.8	4.8	5.7	7.1	4.1	100%	5.6	4.1	7.1	0.41	0.31	0.86	0.86	100%	0.61	0.31	0.86
Hardness	None2	NE	NE	NE	NE	NE			230	100%	230	230	230			490	100%	490	490	490			360	360	100%	360	360	360
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.84	0.97	0.03 J	100%	0.61	0.030	0.97	< 0.022	< 0.04	< 0.015	0%				< 0.022	< 0.04	< 0.015	0.015 J	25%	0.023	0.015	0.04
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.12* B	*0.082* B	*0.081* B	100%	0.094	0.081	0.12	*0.031* B	*0.034* B	*0.063* B	100%	0.043	0.031	0.06	0.0027 J	< 0.003	*0.008* B	*0.0073* B	75%	0.0053	0.0027	0.008
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.078	0.052	0.08	100%	0.07	0.05	0.08	< 0.0050	< 0.0050	0.036 J+	33%	0.02	0.0050	0.04	< 0.0050	< 0.0080	0.058 J	0.024 J	50%	0.023	0.005	0.058
Total Organic Carbon	None3	NE	NE	NE	NE	NE	55	22	22	100%	33	22	55	5.5	3.4 M2	8.6	100%	5.8	3.4	8.6	3.3	2.4	< 1.0	< 1.0	50%	1.9	1.0	3.3
Chloride	16887-00-6	NE	NE	NE	NE	NE	22	38	28	100%	29	22	38	1400	1600	220	100%	1073	220	1600	20	56	14	13	100%	26	13	56
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	250	110	140	100%	167	110	250	71	27	36	100%	45	27	71	13	< 7.8	21	23	75%	16	7.8	23
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*24* B	*17* B	*9.6* J B	100%	17	10	24	*290* B	*150* B	*2.8* J B	100%	148	2.8	290	*40* B	*55* B	*91* J B	*85* B	100%	68	40	91

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

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A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-823D 11/1/2012	MW-823D 7/17/2013	MW-823D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-823S 11/1/2012	MW-823S 7/17/2013	MW-823S-Dup 7/17/2013	MW-823S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-824D 11/1/2012	MW-824D 7/18/2013	MW-824D 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	2200	2500	1400	100%	2033	1400	2500	350	220	220	250	100%	260	220	350	850	1100	1000	100%	983	850	1100
Ammonia	7664-41-7	NE	NE	NE	NE	NE	310	320	200	100%	277	200	320	2.4	1.3	1	0.7	100%	1.35	0.7	2.4	10	10	11	100%	10	10	11
Hardness	None2	NE	NE	NE	NE	NE			130	100%	130	130	130				410	100%	410	410	410			560	100%	560	560	560
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.13	0.38	0.084	100%	0.20	0.08	0.38	0.022	< 0.04	< 0.04	< 0.015	0%	0.029	0.015	0.04	0.2	0.12	< 0.015	67%	0.11	0.015	0.2
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.12* B	*0.13* B	*0.048* B	100%	0.099	0.048	0.13	*0.22* B	*0.22* B	*0.18* B	*0.16* B	100%	0.1950	0.16	0.22	*0.29* B	*0.35* B	*0.13* B	100%	0.257	0.130	0.35
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	*0.46* B	*0.70* B	*0.53* B	100%	0.56	0.46	0.70	0.0062 [J]	< 0.0060	< 0.0060	0.034	50%	0.013	0.006	0.034	0.1300	0.1400	*0.18* B	100%	0.15	0.13	0.18
Total Organic Carbon	None3	NE	NE	NE	NE	NE	160	160	64	100%	128	64	160	11	5.3	5.3	6.9	100%	7.1	5.3	11	52	43	38	100%	44	38	52
Chloride	16887-00-6	NE	NE	NE	NE	NE	190	170	120	100%	160	120	190	250	38	42	20	100%	88	20	250	120	60	91	100%	90	60	120
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	620	290	300	100%	403	290	620	31	15	< 7.8	36	75%	22	7.8	36	360	200	320	100%	293	200	360
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*60* B	*29* B	*21* B	100%	37	21	60	*270* B	*750* B	*750* B	*140* B	100%	478	140	750	*19* B	*28* B	*6.5* [J] B	100%	18	6.5	28

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-824S 11/1/2012	MW-824S 7/15/2013	MW-824S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-825S 11/1/2012	MW-825S 7/15/2013	MW-825S-Dup 7/15/2013	MW-825S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-826M 11/2/2012	MW-826M 7/16/2013	MW-826M 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	250	310	110	100%	223	110	310	160	250	280	200	100%	223	160	280	800	960	1200	100%	987	800	1200
Ammonia	7664-41-7	NE	NE	NE	NE	NE	1.6	2.1	2.7	100%	2.1	1.6	2.7	5.3	6.2	5.8	3.4	100%	5.2	3.4	6.2	86	80	120	100%	95	80	120
Hardness	None2	NE	NE	NE	NE	NE			240	100%	240	240	240				160	100%	160	160	160			940	100%	940	940	940
Sulfide	18496-25-8	NE	NE	NE	NE	NE	1.0	0.4	0.35	100%	0.58	0.35	1.00	1.0	0.26	0.23	2.7	100%	1.05	0.23	2.7	0.5	0.63	4.3	100%	1.81	0.50	4.3
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.49* B	*0.31* B	*0.11* B	100%	0.303	0.110	0.49	*0.073* B	< 0.005	0.004 J	*0.064* J B	75%	0.0360	0.0030	0.073	*0.15* B	*0.15* B	*0.39* B	100%	0.230	0.150	0.39
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.0250	< 0.0060	0.033	67%	0.02	0.01	0.03	0.0350	0.0560	0.0340	0.057	100%	0.046	0.034	0.057	0.0100	< 0.0060	0.0067 J	67%	0.0076	0.006	0.010
Total Organic Carbon	None3	NE	NE	NE	NE	NE	11	28	5.6	100%	15	5.6	28	17	17	17	13	100%	16	13	17	37	28	54	100%	40	28	54
Chloride	16887-00-6	NE	NE	NE	NE	NE	200	300	48	100%	183	48	300	350	680	600	120	100%	438	120	680	110	120	300	100%	177	110	300
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	35	32	30	100%	32	30	35	57	74	60	58	100%	62	57	74	120	93	310	100%	174	93	310
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*140* B	*230* B	*230* B	100%	200	140	230	*160* B	*240* B	*240* B	*130* B	100%	193	130	240	*230* B	*140* B	*190* B	100%	187	140	230

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-826S 11/2/2012	MW-826S 7/16/2013	MW-826S 9/14/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-827S 10/31/2012	MW-827S-Dup 10/31/2012	MW-827S 7/16/2013	MW-827S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-828S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																										
Alkalinity	None1	NE	NE	NE	NE	NE	400	650	350	100%	467	350	650	100	100	110	130	100%	110	100	130	250	100%	250	250	250
Ammonia	7664-41-7	NE	NE	NE	NE	NE	17	23	13	100%	18	13	23	2.8	2.7	3.1	3.0 J+	100%	2.9	2.7	3.1	0.87	100%	0.87	0.87	0.87
Hardness	None2	NE	NE	NE	NE	NE			260	100%	260	260	260				140	100%	140	140	140	350	100%	350	350	350
Sulfide	18496-25-8	NE	NE	NE	NE	NE	< 0.022	< 0.04	< 0.015	0%				3.0	3.0	1.1	< 0.015	75%	1.78	0.015	3.0	0.047 J	100%	0.047	0.047	0.047
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.064* B	*0.064* B	*0.056* B	100%	0.061	0.056	0.06	*0.06* B	*0.077* B	*0.061* B	*0.12* B	100%	0.0795	0.0600	0.12	*0.61* B	100%	0.61	0.61	0.61
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	< 0.0050	< 0.0050	0.0099 J	33%	0.0070	0.0050	0.0099	0.0150	< 0.0050	< 0.0060	0.015	50%	0.010	0.0050	0.015	0.12	100%	0.12	0.12	0.12
Total Organic Carbon	None3	NE	NE	NE	NE	NE	15	17	11	100%	14	11	17	4.7	4.8	5.3	3.5	100%	4.6	3.5	5.3	12	100%	12	12	12
Chloride	16887-00-6	NE	NE	NE	NE	NE	250	450	61	100%	254	61	450	300	320	440	500	100%	390	300	500	3.5	100%	3.5	3.5	3.5
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	58	53	38	100%	50	38	58	30	36	21	14	100%	25	14	36	220	100%	220	220	220
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*160* B	*130* B	*13* B	100%	101	13	160	*130* B	*140* B	*87* B	*140* B	100%	124	87	140	*110* B	100%	110	110	110

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

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TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-829S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-830S 9/12/2017	MW-830S DUP 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-831S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-832D 9/11/2017	MW-832D DUP 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																												
Alkalinity	None1	NE	NE	NE	NE	NE	130	100%	130	130	130	300	300	100%	300	300	300	550	100%	550	550	550	950	950	100%	950	950	950
Ammonia	7664-41-7	NE	NE	NE	NE	NE	0.3	100%	0.3	0.3	0.3	0.42	0.47	100%	0.445	0.420	0.47	1.3	100%	1.3	1.3	1.3	8.3	8.5	100%	8.4	8.3	8.5
Hardness	None2	NE	NE	NE	NE	NE	420	100%	420	420	420	460	440	100%	450	440	460	760	100%	760	760	760	750	780	100%	765	750	780
Sulfide	18496-25-8	NE	NE	NE	NE	NE	< 0.015	0%				0.072	< 0.015	50%	0.044	0.015	0.072	0.037 J	100%	0.037	0.037	0.037	0.026 J	0.034 J	100%	0.030	0.026	0.034
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.21* B	100%	0.21	0.21	0.21	*0.17* B	*0.16* B	100%	0.17	0.16	0.17	*0.017* B	100%	0.017	0.017	0.017	*0.024* J B	*0.035* J B	100%	0.0295	0.024	0.035
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.033	100%	0.03	0.03	0.03	0.16 J	0.069 J	100%	0.115	0.069	0.16	0.04 J+	100%	0.04	0.04	0.04	0.11	0.11	100%	0.11	0.11	0.11
Total Organic Carbon	None3	NE	NE	NE	NE	NE	34	100%	34	34	34	6.4	6.4	100%	6.4	6.4	6.4	19	100%	19	19	19	63	61	100%	62	61	63
Chloride	16887-00-6	NE	NE	NE	NE	NE	7.0	100%	7.0	7.0	7.0	3.5 J	5.5 J	100%	4.5	3.5	5.5	37	100%	37	37	37	71	70	100%	71	70	71
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	< 9.3	0%				31	36	100%	34	31	36	77	100%	77	77	77	400	460	100%	430	400	460
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*310* B	100%	310	310	310	*130* B	*150* B	100%	140	130	150	*520* B	100%	520	520	520	*23* J B	*13* J B	100%	18	13	23

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

[J-] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased low.

[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-832S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-833S 9/11/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-834D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-835D 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-836S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																															
Alkalinity	None1	NE	NE	NE	NE	NE	350	100%	350	350	350	250	100%	250	250	250	400	100%	400	400	400	450	100%	450	450	450	110	100%	110	110	110
Ammonia	7664-41-7	NE	NE	NE	NE	NE	0.1	100%	0.1	0.1	0.1	3.1	100%	3.1	3.1	3.1	13	100%	13	13	13	3.3	100%	3.3	3.3	3.3	5.3	100%	5.3	5.3	5.3
Hardness	None2	NE	NE	NE	NE	NE	420	100%	420	420	420	170	100%	170	170	170	950	100%	950	950	950	530	100%	530	530	530	260	100%	260	260	260
Sulfide	18496-25-8	NE	NE	NE	NE	NE	0.019 U	0%				0.019 U	0%				0.044 J	100%	0.044	0.044	0.044	0.028 J	100%	0.028	0.028	0.028	6.1	100%	6.1	6.1	6.1
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.012* B	100%	0.012	0.012	0.012	*0.11* B	100%	0.11	0.11	0.11	0.0029 J	100%	0.0029	0.0029	0.0029	*0.04* B	100%	0.04	0.04	0.04	*2.7* B	100%	2.7	2.7	2.7
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.056	100%	0.056	0.056	0.056	0.029	100%	0.029	0.029	0.029	0.052 J+	100%	0.052	0.052	0.052	0.052 J+	100%	0.052	0.052	0.052	0.12	100%	0.12	0.12	0.12
Total Organic Carbon	None3	NE	NE	NE	NE	NE	1.0 U	0%				15	100%	15	15	15	7.3	100%	7.3	7.3	7.3	9.1	100%	9.1	9.1	9.1	16	100%	16	16	16
Chloride	16887-00-6	NE	NE	NE	NE	NE	8.0	100%	8.0	8.0	8.0	24	100%	24	24	24	1400	100%	1400	1400	1400	320	100%	320	320	320	380	100%	380	380	380
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	9.3 U	0%				73	100%	73	73	73	70	100%	70	70	70	36	100%	36	36	36	94	100%	94	94	94
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*95* B	100%	95	95	95	*7.7* J B	100%	7.7	7.7	7.7	*67* B	100%	67	67	67	*2.7* J B	100%	2.7	2.7	2.7	*140* B	100%	140	140	140

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

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A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

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A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

TABLE 8D
Groundwater Sample Laboratory Results - Other Parameters

Parameters	CAS #	IDEM [A] GW Solubility (mg/L)	IDEM [A] MCL (mg/L)	IDEM [A] Industrial (mg/L)	IDEM [A] Default Closure Level (mg/L)	EPA [B] ESLs - water (mg/L)	MW-837S 9/13/2017	MW-837S DUP 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-838S 9/13/2017	% Detect	Average	Minimum Detected	Maximum Detected	MW-839S 9/12/2017	% Detect	Average	Minimum Detected	Maximum Detected
Other (mg/L)																						
Alkalinity	None1	NE	NE	NE	NE	NE	110	110	100%	110	110	110	500	100%	500	500	500	85	100%	85	85	85
Ammonia	7664-41-7	NE	NE	NE	NE	NE	0.87	0.97	100%	0.92	0.87	0.97	3.5	100%	3.5	3.5	3.5	1.8	100%	1.8	1.8	1.8
Hardness	None2	NE	NE	NE	NE	NE	120	120	100%	120	120	120	410	100%	410	410	410	130	100%	130	130	130
Sulfide	18496-25-8	NE	NE	NE	NE	NE	< 0.015	< 0.015	0%				< 0.015	0%				< 0.015	0%			
Total Cyanides	57-12-5	NE	NE	NE	NE	0.0052	*0.3* [J] B	*0.55* [J] B	100%	0.43	0.30	0.55	*0.067* B	100%	0.067	0.067	0.067	*2.1* B	100%	2.1	2.1	2.1
Total Phenolics	64743-03-9	NE	NE	NE	NE	0.18	0.012	0.015	100%	0.014	0.012	0.015	0.16	100%	0.16	0.16	0.16	0.17	100%	0.17	0.17	0.17
Total Organic Carbon	None3	NE	NE	NE	NE	NE	6.6	6.2	100%	6.4	6.2	6.6	17	100%	17	17	17	8.5	100%	8.5	8.5	8.5
Chloride	16887-00-6	NE	NE	NE	NE	NE	220	220	100%	220	220	220	90	100%	90	90	90	28	100%	28	28	28
Chemical Oxygen Demand	None4	NE	NE	NE	NE	NE	24	30	100%	27	24	30	200	100%	200	200	200	36	100%	36	36	36
Sulfate	18785-72-3	NE	NE	NE	NE	0.18	*83* B	*93* B	100%	88	83	93	*5.0* [J] B	100%	5.0	5.0	5.0	*59* B	100%	59	59	59

Notes:

[A] IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure, Appendix 1 Table A - Default Closure Table - Industrial with 2006 & 2009 updates.

[B] EPA - US EPA Region V Ecological Screening Levels August 2003.

[B] Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

[C] IDEM = Bromodichloromethane.

[D] Listed by EPA as Methane [bis (2-chloroethoxy)].

[E] Listed by EPA as Chloro-2-methylethyl ether [bis(2-)].

[J] Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

[U] Laboratory flag indicating analyte was analyzed for, but not detected above the level of the reported sample quantitation limit.

[J+] Laboratory flag indicating analyte concentrations detected between RL and MDL may be biased high.

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[UJ] Laboratory flag indicating analyte was analyzed for, but not detected. The value is approximate and may be inaccurate or imprecise.

A(MCL)=IDEM DQO Exceedance of the Maximum Contaminant Level

A(I)=IDEM DQO Exceedance of the Industrial Level

A(DCL)=IDEM DQO Exceedance of the Default Closure Level

B=EPA Ecological Screening Level Exceedance

Table 9
Groundwater Sample Method Detection Limits

	IDEM - Data Quality Objectives[1]				EPA - Screening Criteria[2]	
Parameters	**IDEM** GW Solubility	**IDEM** MCL	**IDEM** Industrial	**IDEM** Default Closure Level	**EPA** ESLs - water	**Range of Method Detection Limits**
VOCs (mg/L)						
1,1,1-Trichloroethane	1,300	0.2	29	29	0.076	0.00019 - 0.00019
1,1-Dichloroethane	5,100	NE	10	10	0.047	0.00016 - 0.00016
Benzene	1,800	0.005	0.052	0.052	0.114	0.00018 - 0.9
Chlorobenzene	470	0.1	2	2	0.047	0.00016 - 0.00016
Chloroethane	5,700	NE	0.99	0.99	NE	0.00041 - 0.00041
Ethylbenzene	170	0.7	10	10	0.014	0.00015 - 0.075
Methylene chloride	13,000	0.005	0.38	0.38	0.94	0.00031 - 0.16
Toluene	530	1	8.2	8.2	0.253	0.00015 - 0.15
SVOCs (mg/L)						
2,4-Dimethylphenol	7,900	NE	2	2	0.1	0.00068 - 0.037
Bis(2-ethylhexyl)phthalate	0.34	0.006	0.2	0.2	0.0003	0.0012 - 0.0012
Diethyl phthalate	1,100	NE	82	82	0.11	0.0014 - 0.0014
Isophorone	12,000	NE	3	3	0.92	0.0008 - 0.00082
Pentachlorophenol	2,000	0.001	0.024	0.024	0.004	0.00031 - 0.00034
Phenol	83,000	NE	31	31	0.18	0.00037 - 0.19
PAHs (mg/L)						
Acenaphthene	4.2	NE	6.1	6.1	0.038	0.000039 - 0.00043
Acenaphthylene	3.9	NE	0.73	0.73	4.84	0.000014 - 0.0014
Anthracene	0.043	NE	31	31	0.000035	0.000014 - 0.00016
Benzo[a]anthracene	0.0094	NE	0.0039	0.0039	0.000025	0.000011 - 0.00012
Benzo[a]pyrene	0.0016	0.0002	0.00039	0.00039	0.000014	0.000023 - 0.00023
Benzo[b]fluoranthene	0.0015	NE	0.0039	0.0039	0.00907	0.000019 - 0.0002
Benzo[g,h,i]perylene	NE	NE	NE	NE	0.00764	0.000011 - 0.00011
Benzo[k]fluoranthene	0.0008	NE	0.039	0.039	NE	0.000016 - 0.00016
Chrysene	0.0016	NE	0.39	0.39	NE	0.000019 - 0.0002
Dibenz[a,h]anthracene	0.0025	NE	0.00039	0.00039	NE	0.000014 - 0.00015
Fluoranthene	0.21	NE	4.1	4.1	0.0019	0.000022 - 0.00025
Fluorene	2	NE	4.1	4.1	0.019	0.0002 - 0.0022
Indeno[1,2,3cd]pyrene	0.000022	NE	0.0039	0.0039	0.00431	0.000011 - 0.00011
Naphthalene	31	NE	2	2	0.013	0.000032 - 0.017
Phenanthrene	1.2	NE	0.31	0.31	0.0036	0.000041 - 0.00046
Pyrene	0.14	NE	3.1	3.1	0.0003	0.000016 - 0.00018
Metals (mg/L)						
Antimony	NE	0.006	0.041	0.041	0.08	0.00005 - 0.00005
Arsenic	NE	0.01	0.0019	0.01	0.148	0.0008 - 0.0008
Beryllium	NE	0.004	0.2	0.2	0.0036	0.00015 - 0.00015
Boron	NE	NE	NE	NE	NE	0.0032 - 0.0032
Cadmium	NE	0.005	0.051	0.051	0.00015	0.0001 - 0.0001
Chromium	NE	0.1	150	150	0.042	0.001 - 0.001
Copper	NE	1.3	4.1	4.1	0.00158	0.0004 - 0.0004
Iron	NE	NE	NE	NE	NE	0.0085 - 0.0085
Lead	NE	0.015	0.042	0.042	0.00117	0.0001 - 0.0001
Manganese	NE	NE	NE	NE	NE	0.00035 - 0.00035
Mercury	69,000	0.002	0.031	0.031	0.0000013	0.00002 - 0.00002
Molybdenum	NE	NE	NE	NE	NE	0.00005 - 0.00005
Nickel	NE	NE	2	2	0.0289	0.00035 - 0.00035
Potassium	NE	NE	NE	NE	NE	0.006 - 0.006
Selenium	NE	0.05	0.51	0.51	0.005	0.0004 - 0.0004
Silver	NE	NE	0.51	0.51	0.00012	0.0001 - 0.0001
Sodium	NE	NE	NE	NE	NE	0.00005 - 0.00005
Thallium	NE	0.002	0.0072	0.0072	0.01	0.0001 - 0.0001
Tin	NE	NE	NE	NE	0.18	0.00015 - 0.00015
Vanadium	NE	NE	NE	NE	0.012	0.0014 - 0.0014
Zinc	NE	NE	31	31	0.0657	0.0027 - 0.0027
Other (mg/L)						
Alkalinity	NE	NE	NE	NE	NE	2 - 2
Ammonia	NE	NE	NE	NE	NE	0.054 - 11
Carbon, Total Organic	NE	NE	NE	NE	NE	1 - 1
Chemical Oxygen Demand	NE	NE	NE	NE	NE	9.3 - 93
Chloride	NE	NE	NE	NE	NE	1 - 1
Cyanide, Total	NE	NE	NE	NE	0.0052	0.002 - 0.4
Hardness	NE	NE	NE	NE	NE	0.31 - 3.1
Phenolics, Total Recoverable	NE	NE	NE	NE	0.18	0.006 - 6
Sulfate	NE	NE	NE	NE	0.18	0.47 - 240
Sulfide	NE	NE	NE	NE	NE	0.015 - 3

Notes:

[1]IDEM - Indiana Department of Environmental Management, 2001, Risk Integrated System of Closure Appendix 1 Table A - Default Closure Table - Industrial with 2006 and 2009 Table A updates

[2]US EPA Region V Ecological Screening Levels (ESLs), August 2003

Only exceedances of Data Quality Objectives are displayed.

NE = Not Established

mg/L = milligrams per liter

Table 10
Groundwater Sample Laboratory Results Above DQOs

Location	Date	Zone	Hyrogeologic Unit	Analyte	Units	Results	RL	MDL	Lab Qualifier	IDEM - Data Quality Objectives - Industrial			
										IDEM GW Solubility	IDEM MCL	IDEM Industrial	IDEM Default Closure Level
MW808D	9/14/2017	D	Calumet Sand	2,4-Dimethylphenol	mg/L	**2.5**	0.52	0.035				2.0	2.0
MW809D	9/14/2017	D	Calumet Sand	2,4-Dimethylphenol	mg/L	**2.4**	0.51	0.034				2.0	2.0
MW801S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.011**	0.025	0.0008	J		0.01	0.0019	0.01
MW804S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0032**	0.025	0.0008	J			0.0019	
MW805S	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0039**	0.025	0.0008	J			0.0019	
MW806S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.016**	0.025	0.0008			0.01	0.0019	0.01
MW808S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.017**	0.025	0.0008			0.01	0.0019	0.01
MW810S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0035**	0.025	0.0008	J			0.0019	
MW810S DUP	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0029**	0.025	0.0008	J			0.0019	
MW812S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.019**	0.025	0.0008	J		0.01	0.001	0.01
MW814S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.008**	0.025	0.0008	J			0.0019	
MW815S	9/11/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0019**	0.0019	0.00080	J			0.0019	
MW816S	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.037**	0.025	0.0008			0.01	0.0019	0.01
MW818S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.015**	0.025	0.0008			0.01	0.0019	0.01
MW818S DUP	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.012**	0.025	0.0008			0.01	0.0019	0.01
MW820S	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.013**	0.025	0.0008	J		0.01	0.0019	0.01
MW826S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.029**	0.025	0.0008			0.01	0.0019	0.01
MW827S	9/14/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.022**	0.025	0.0008			0.01	0.0019	0.01
MW829S	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0046**	0.025	0.0008	J			0.0019	
MW830S DUP	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0033**	0.025	0.0008	J			0.0019	
MW833S	9/11/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.018**	0.025	0.0008	J		0.01	0.0019	0.01
MW836S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0082**	0.025	0.0008	J			0.0019	
MW837S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.014**	0.025	0.0008			0.01	0.0019	0.01
MW837S DUP	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.011**	0.025	0.0008			0.01	0.0019	0.01
MW838S	9/13/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.0057**	0.025	0.0008				0.0019	
MW839S	9/12/2017	WT	Slag-fill/Soil	Arsenic	mg/L	**0.015**	0.025	0.0008			0.01	0.0019	0.01
MW809M	9/14/2017	M	Calumet Sand	Arsenic	mg/L	**0.022**	0.025	0.0008			0.01	0.0019	0.01
MW826M	9/14/2017	M	Calumet Sand	Arsenic	mg/L	**0.013**	0.025	0.0008			0.01	0.0019	0.01
MW803D	9/13/2017	D	Calumet Sand	Arsenic	mg/L	**0.039**	0.025	0.0008			0.01	0.0019	0.01
MW807D	9/13/2017	D	Calumet Sand	Arsenic	mg/L	**0.12**	0.025	0.0008			0.01	0.0019	0.01
MW808D	9/14/2017	D	Calumet Sand	Arsenic	mg/L	**0.11**	0.025	0.0008			0.01	0.0019	0.01
MW809D	9/14/2017	D	Calumet Sand	Arsenic	mg/L	**0.24**	0.025	0.0008			0.01	0.0019	0.01
MW816D	9/12/2017	D	Calumet Sand	Arsenic	mg/L	**0.017**	0.025	0.0008	J		0.01	0.0019	0.01
MW817D	9/14/2017	D	Calumet Sand	Arsenic	mg/L	**0.033**	0.025	0.0008			0.01	0.0019	0.01
MW821D	9/12/2017	D	Calumet Sand	Arsenic	mg/L	**0.023**	0.025	0.0008			0.01	0.0019	0.01
MW822D	9/13/2017	D	Calumet Sand	Arsenic	mg/L	**0.0038**	0.025	0.0008	J			0.0019	
MW823D	9/12/2017	D	Calumet Sand	Arsenic	mg/L	**0.011**	0.025	0.0008	J		0.01	0.0019	0.01
MW832D	9/11/2017	D	Calumet Sand	Arsenic	mg/L	**0.0061**	0.025	0.0008	J			0.0019	
MW832D DUP	9/11/2017	D	Calumet Sand	Arsenic	mg/L	**0.0044**	0.025	0.0008	J			0.0019	
MW801S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.014**	0.005	0.0008			0.01	0.0019	0.01
MW805S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0047**	0.005	0.0008	J			0.0019	
MW806S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0076**	0.02	0.0032	J			0.0019	
MW808S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.014**	0.02	0.0032	J		0.01	0.0019	0.01
MW810S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.004**	0.005	0.0008	J			0.0019	
MW810S DUP	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0037**	0.005	0.0008	J			0.0019	
MW811S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0033**	0.02	0.0032	J			0.0019	
MW812S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.016**	0.005	0.0008			0.01	0.0019	0.01
MW814S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0084**	0.005	0.0008				0.0019	
MW816S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0053**	0.005	0.0008				0.0019	
MW817S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0041**	0.005	0.0008	J			0.0019	
MW818S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.015**	0.02	0.0032	J		0.01	0.0019	0.01
MW818S DUP	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.014**	0.02	0.0032	J		0.01	0.0019	0.01
MW820S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.011**	0.005	0.0008	J-		0.01	0.0019	0.01
MW823S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0024**	0.005	0.0008	J			0.0019	
MW825S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0029**	0.005	0.0008	J			0.0019	
MW826S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.023**	0.02	0.0032			0.01	0.0019	0.01
MW827S	9/14/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.02**	0.02	0.0032	J		0.01	0.0019	0.01
MW828S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.009**	0.005	0.0008				0.0019	
MW833S	9/11/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.017**	0.005	0.0008			0.01	0.0019	0.01
MW836S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.024**	0.005	0.0008			0.01	0.0019	0.01
MW837S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.014**	0.005	0.0008			0.01	0.0019	0.01
MW837S DUP	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.014**	0.005	0.0008			0.01	0.0019	0.01
MW838S	9/13/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.0022**	0.005	0.0008	J			0.0019	
MW839S	9/12/2017	WT	Slag-fill/Soil	Arsenic (Dissolved)	mg/L	**0.012**	0.005	0.0008			0.01	0.0019	0.01
MW809M	9/14/2017	M	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.023**	0.02	0.0032			0.01	0.0019	0.01
MW826M	9/14/2017	M	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.014**	0.005	0.0008			0.01	0.0019	0.01
MW803D	9/13/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.046**	0.005	0.0008			0.01	0.0019	0.01
MW806D	9/14/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.0034**	0.005	0.0008	J			0.0019	
MW807D	9/13/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.088**	0.02	0.0032			0.01	0.0019	0.01
MW808D	9/14/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.1**	0.005	0.0008			0.01	0.0019	0.01
MW809D	9/14/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.27**	0.005	0.0008			0.01	0.0019	0.01
MW816D	9/12/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.046**	0.005	0.0008			0.01	0.0019	0.01
MW817D	9/14/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.03**	0.005	0.0008			0.01	0.0019	0.01
MW821D	9/12/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.015**	0.005	0.0008			0.01	0.0019	0.01
MW823D	9/12/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.031**	0.005	0.0008			0.01	0.0019	0.01
MW824D	9/12/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.002**	0.005	0.0008	J			0.0019	
MW832D	9/11/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.0024**	0.005	0.0008	J			0.0019	
MW832D DUP	9/11/2017	D	Calumet Sand	Arsenic (Dissolved)	mg/L	**0.0022**	0.005	0.008	J			0.0019	
MW801S	9/13/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.014**	0.05	0.00018			0.005		
MW803S	9/13/2017	WT	Slag-fill/Soil	Benzene	mg/L	**5.7**	0.5	0.018			0.005	0.052	0.052
MW805S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**13**	0.5	0.018			0.005	0.052	0.052
MW807S	9/13/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.04**	0.05	0.0018	J		0.005		
MW808S	9/14/2017	WT	Slag-fill/Soil	Benzene	mg/L	**36**	2.5	0.09			0.005	0.052	0.052
MW809S	9/14/2017	WT	Slag-fill/Soil	Benzene	mg/L	**2.2**	0.5	0.018			0.005	0.052	0.052
MW816S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.069**	0.005	0.00018			0.005	0.052	0.052
MW819S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**57**	5	0.18			0.005	0.052	0.052

Table 10
Groundwater Sample Laboratory Results Above DQOs

Location	Date	Zone	Hyrogeologic Unit	Analyte	Units	Results	RL	MDL	Lab Qualifier	IDEM - Data Quality Objectives - Industrial			
										IDEM GW Solubility	IDEM MCL	IDEM Industrial	IDEM Default Closure Level
MW820S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**3.5**	0.25	0.009			0.005	0.052	0.052
MW821S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**5.7**	0.5	0.018			0.005	0.052	0.052
MW823S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**1.8**	0.05	0.0018			0.005	0.052	0.052
MW825S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.032**	0.005	0.00018			0.005		
MW828S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**40**	5	0.18			0.005	0.052	0.052
MW830S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.011**	0.005	0.00018			0.005		
MW830S DUP	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.12**	0.005	0.00018			0.005	0.052	0.052
MW832S	9/11/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.66**	0.05	0.0018			0.005	0.052	0.052
MW833S	9/11/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.16**	0.005	0.00018			0.005	0.052	0.052
MW838S	9/13/2017	WT	Slag-fill/Soil	Benzene	mg/L	**54**	2.5	0.09			0.005	0.052	0.052
MW839S	9/12/2017	WT	Slag-fill/Soil	Benzene	mg/L	**0.12**	0.005	0.00018	J		0.005	0.052	0.052
MW803M	9/13/2017	M	Calumet Sand	Benzene	mg/L	**0.65**	0.05	0.0018			0.005	0.052	0.052
MW809M	9/14/2017	M	Calumet Sand	Benzene	mg/L	**6.1**	0.25	0.009			0.005	0.052	0.052
MW826M	9/14/2017	M	Calumet Sand	Benzene	mg/L	**0.0098**	0.005	0.00018	J		0.005		
MW803D	9/13/2017	D	Calumet Sand	Benzene	mg/L	**3.3**	0.12	0.0045	J		0.005	0.052	0.052
MW806D	9/14/2017	D	Calumet Sand	Benzene	mg/L	**0.058**	0.005	0.00018			0.005	0.052	0.052
MW807D	9/13/2017	D	Calumet Sand	Benzene	mg/L	**5.1**	0.25	0.009	J		0.005	0.052	0.052
MW808D	9/14/2017	D	Calumet Sand	Benzene	mg/L	**15**	0.5	0.018	J		0.005	0.052	0.052
MW809D	9/14/2017	D	Calumet Sand	Benzene	mg/L	**34**	2.5	0.09	J		0.005	0.052	0.052
MW816D	9/12/2017	D	Calumet Sand	Benzene	mg/L	**12**	0.5	0.018	J		0.005	0.052	0.052
MW817D	9/14/2017	D	Calumet Sand	Benzene	mg/L	**0.11**	0.005	0.00018	J		0.005	0.052	0.052
MW819D	9/12/2017	D	Calumet Sand	Benzene	mg/L	**5.7**	0.5	0.018	J		0.005	0.052	0.052
MW821D	9/12/2017	D	Calumet Sand	Benzene	mg/L	**300**	25	0.9	J		0.005	0.052	0.052
MW823D	9/12/2017	D	Calumet Sand	Benzene	mg/L	**48**	5	0.18	J		0.005	0.052	0.052
MW824D	9/12/2017	D	Calumet Sand	Benzene	mg/L	**71**	2.5	0.09	J		0.005	0.052	0.052
MW832D	9/11/2017	D	Calumet Sand	Benzene	mg/L	**110**	5	0.18	J		0.005	0.052	0.052
MW832D DUP	9/11/2017	D	Calumet Sand	Benzene	mg/L	**100**	5	0.18	J		0.005	0.052	0.052
MW817S	9/14/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.00032**	0.00011	0.000023			0.0002		
MW818S	9/14/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.00031**	0.00011	0.000023			0.0002		
MW818S DUP	9/14/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.0003**	0.00011	0.000023			0.0002		
MW821S	9/12/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.0027**	0.00011	0.000023		0.0016	0.0002	0.00039	0.00039
MW823S	9/12/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.00021**	0.00011	0.000023			0.0002		
MW828S	9/12/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.0022**	0.00011	0.000023		0.0016	0.0002	0.00039	0.00039
MW830S	9/12/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.0004**	0.00011	0.000023			0.0002	0.00039	0.00039
MW830S DUP	9/12/2017	WT	Slag-fill/Soil	Benzo[a]pyrene	mg/L	**0.00045**	0.00011	0.000023			0.0002	0.00039	0.00039
MW834D	9/13/2017	D	Calumet Sand	Benzo[a]pyrene	mg/L	**0.00043**	0.00011	0.000023			0.0002	0.00039	0.00039
MW803S	9/13/2017	WT	Slag-fill/Soil	Chromium, Hexavalent	mg/L	**0.13**	0.010	0.001	J-		0.1		
MW806S	9/14/2017	WT	Slag-fill/Soil	Chromium, Hexavalent	mg/L	**0.14**	0.010	0.001	J-		0.1		
MW811S	9/13/2017	WT	Slag-fill/Soil	Chromium, Hexavalent	mg/L	**0.13**	0.010	0.001			0.1		
MW826S	9/14/2017	WT	Slag-fill/Soil	Chromium, Hexavalent	mg/L	**0.14**	0.010	0.001			0.1		
MW826M	9/14/2017	M	Slag-fill/Soil	Chromium, Hexavalent	mg/L	**0.13**	0.010	0.001			0.1		
MW835D	9/13/2017	D	Calumet Sand	Chromium, Hexavalent	mg/L	**0.14**	0.010	0.001			0.1		
MW821S	9/12/2017	WT	Slag-fill/Soil	Chrysene	mg/L	**0.0018**	0.0052	0.0002	J	0.0016			
MW807S	9/13/2017	WT	Slag-fill/Soil	Ethylbenzene	mg/L	**0.84**	0.05	0.0015			0.7		
MW819S	9/12/2017	WT	Slag-fill/Soil	Ethylbenzene	mg/L	**1.3**	0.5	0.015			0.7		
MW828S	9/12/2017	WT	Slag-fill/Soil	Ethylbenzene	mg/L	**0.99**	0.5	0.015			0.7		
MW833S	9/11/2017	WT	Slag-fill/Soil	Ethylbenzene	mg/L	**0.7**	0.1	0.003			0.7		
MW817S	9/14/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00028**	0.00011	0.000012		0.000022			
MW818S	9/14/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00023**	0.00011	0.000012		0.000022			
MW818S DUP	9/14/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00024**	0.00011	0.000012		0.000022			
MW823S	9/12/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00019**	0.00011	0.000012		0.000022			
MW825S	9/12/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00025**	0.00011	0.000012		0.000022			
MW828S	9/12/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.002**	0.00011	0.000012		0.000022			
MW830S	9/12/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00027**	0.00011	0.000012		0.000022			
MW830S DUP	9/12/2017	WT	Slag-fill/Soil	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00029**	0.00011	0.000012		0.000022			
MW819D	9/12/2017	D	Calumet Sand	Indeno (1,2,3-c,d) pyrene	mg/L	**0.0004**	0.00011	0.000012		0.000022			
MW834D	9/13/2017	D	Calumet Sand	Indeno (1,2,3-c,d) pyrene	mg/L	**0.00033**	0.00011	0.000012		0.000022			
MW811S	9/13/2017	WT	Slag-fill/Soil	Lead	mg/L	**0.024**	0.001	0.0001			0.015		
MW811S	9/13/2017	WT	Slag-fill/Soil	Lead (Dissolved)	mg/L	**0.022**	0.02	0.0004			0.015		
MW828S	9/12/2017	WT	Slag-fill/Soil	Naphthalene	mg/L	**2**	1.0	0.033				2	2
MW825S	9/12/2017	WT	Slag-fill/Soil	Pentachlorophenol	mg/L	**0.022**	0.05	0.00031	J		0.001		
MW836S	9/13/2017	WT	Slag-fill/Soil	Pentachlorophenol	mg/L	**0.0073**	0.056	0.00034	J		0.001		
MW808D	9/14/2017	D	Calumet Sand	Phenol	mg/L	**55**	5.2	0.19				31	31
MW806S	9/14/2017	WT	Slag-fill/Soil	Thallium	mg/L	**0.002**	0.001	0.0001			0.002		
MW824S	9/12/2017	WT	Slag-fill/Soil	Thallium	mg/L	**0.002**	0.001	0.0001			0.002		
MW808S	9/14/2017	WT	Slag-fill/Soil	Toluene	mg/L	**1.2**	0.5	0.015			1.0		
MW819S	9/12/2017	WT	Slag-fill/Soil	Toluene	mg/L	**17**	0.5	0.015			1.0	8.2	8.2
MW828S	9/12/2017	WT	Slag-fill/Soil	Toluene	mg/L	**33**	0.5	0.015			1.0	8.2	8.2
MW833S	9/11/2017	WT	Slag-fill/Soil	Toluene	mg/L	**1.3**	0.5	0.015			1.0		
MW808D	9/14/2017	D	Calumet Sand	Toluene	mg/L	**3.8**	0.5	0.015	J		1.0		

Notes:
Only exceedances of Data Quality Objectives and 2018 Screening Levels are displayed.
WT = Water table well (across the water table)
D = Deep well (screened near base of Calumet Sand)
M = Intermediate well (within Calumet Sand)
RL = Reporting limit
MDL = Method detection limit
IDEM = Indiana Department of Environmental Management
J = Estimated concentration between the method detection limit and the reporting limit
J- = Estimated concentration between the method detectino limit and reporting limit biased low.
B = Analyte detected in the laboratory method blank, results are estimated

TABLE 11
Groundwater Sample Laboratory Results - MW-820S

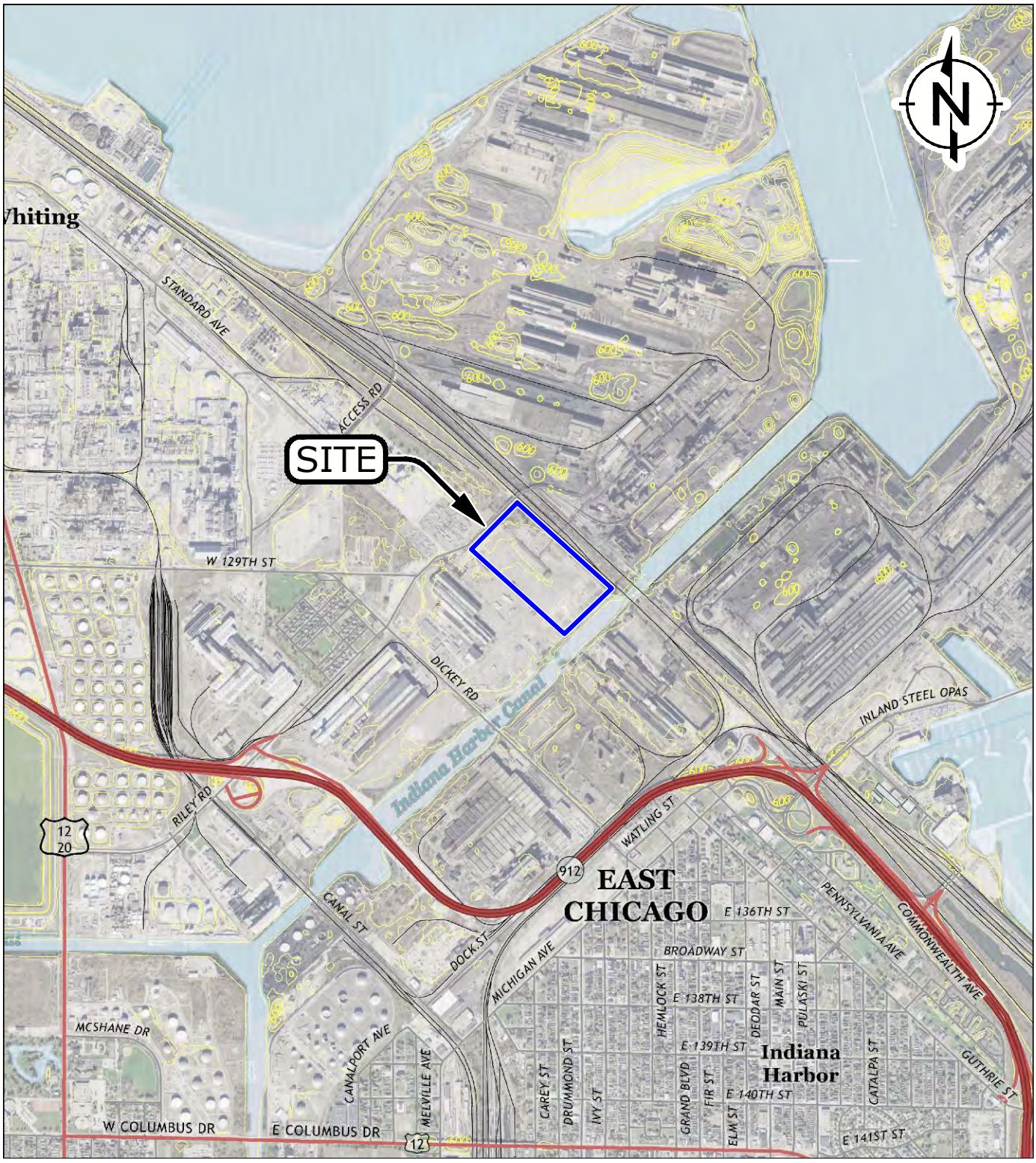
Parameters	CAS #	MW-820S 9/12/2017	MW-820S 11/20/2017	MW-820S 12/20/2017	MW-820S 1/26/2018	MW-820S 2/27/2018	MW-820S 3/28/2018	MW-820S 5/1/2018
VOCs (mg/L)								
Benzene	71-43-2	3.5	2.2	3.8	3.5	1.8	5.1	3.6
Chlorobenzene	108-90-7	< 0.0016	0.00049 J	< 0.0032	0.00084 J	0.00081 J	< 0.0016	0.00063 J
1,1-Dichloroethane	75-34-3	< 0.0016	0.00021 J	< 0.0032	< 0.00016	0.00019 J	< 0.0016	0.00023 J
1,2-Dichloroethane	107-6-2	< 0.0014	< 0.00014	< 0.0028	< 0.00014	< 0.00014	< 0.0014	0.054
Ethylbenzene	100-41-4	0.27	0.35	0.51	0.54	0.26	0.67	0.43
Methylene chloride	75-9-2	0.031 J	< 0.00031	< 0.0062	< 0.00031	< 0.00031	< 0.0066 U	< 0.00031
Toluene	108-88-3	0.21	0.19	0.65	0.89	0.14	1.1	0.63
PAHs (mg/L)								
Acenaphthene	83-32-9	0.027	0.034	0.030	0.025	0.037	0.031	0.027
Acenaphthylene	208-96-8	0.0029 J	0.011	0.019	0.017	0.0082	0.015	0.0076
Anthracene	120-12-7	0.0015 J	0.0018 J	0.0018 J	0.0016 J	0.0023	0.0016	0.0011 J
Benzo[a]anthracene	56-55-3	0.00061 J	0.00031 J	0.00053 J	0.00032 J	0.00066	0.00035	0.00021 J
Benzo[a]pyrene	50-32-8	< 0.00022	< 0.00011	< 0.00058	0.00016 J	0.00050	0.00029	< 0.00012
Benzo[b]fluoranthene	205-99-2	0.00051 J	0.00020 J	< 0.00050	0.00022 J	0.00071	0.00037	0.00016 J
Benzo[g,h,i]perylene	191-24-2	0.0002 J	0.00010 J	< 0.00029	0.00011 J	0.00024 J	0.00016	0.00011 J
Benzo[k]fluoranthene	207-08-9	0.0002 J	0.00010 J	< 0.00042	< 0.000086	0.00024 J	0.00014	< 0.00008
Chrysene	218-01-9	0.0004 J	0.00020 J	< 0.00050	0.00022 J	0.00053 J	0.00032	0.00011 J
Dibenzo[a,h]anthracene	53-70-3	< 0.00014	< 0.000071	< 0.00037	< 0.000075	0.000079	0.000041	< 0.00007
Fluoranthene	206-44-0	0.0021 J	0.0018 J	0.0018 J	0.0018 J	0.0033	0.0021	0.0012 J
Fluorene	86-73-7	0.0094	0.012	0.011 J	0.0096	0.012	0.011	0.0097
Indeno[1,2,3cd]pyrene	193-39-5	< 0.00011	0.00010 J	< 0.00029	0.00011 J	0.00024 J	0.00015	0.00011 J
Naphthalene	91-20-3	1.7	2.4	3.1	2.8	2.0 B	3.0	2.1
Phenanthrene	85-01-8	0.007	0.0080	0.0076 J	0.0068	0.0092	0.0070	0.0050
Pyrene	129-00-0	0.0016 J	0.0012 J	0.0011 J	0.0016 J	0.0022	0.0013	0.00063 J
Other								
Nitrogen, Ammonia (As N) (mg/L)	7664-41-7	2.2	2.0	2.8	2.6	1.0	2.0	1.9
Nitrogen, Nitrate-Nitrite (as N) (mg/L)	14797-55-8/14797-65-0	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
pH (Standard Units)	--	10.77	10.90	9.45	11.50	9.49	9.42	10.17
Dissolved Oxygen (mg/L)	--	0.64	2.12	0.60	0.52	0.00	1.53	0.00
Oxidation Reduction Potential (mV)	--	-124	-257	-171	-216	-162	-161	-240
Measured LNAPL Thickness (feet)	--	1.20	0.00	0.00	0.00	0.97	0.00	0.00

Notes:

B Laboratory flag indicating analyte detected in the laboratory method blank, results are estimated.

J Laboratory flag indicating estimated concentration between the method detection limit and the reporting limit.

FIGURES



CONTOUR INTERVAL 10 FEET

0 1/2 1 MILE

0 2000 4000 FEET

LEGEND:

PROPERTY BOUNDARY (APPROXIMATE)

QUADRANGLE LOCATION

SOURCE:
2016 USGS 7.5 Minute Series Whiting, Indiana Topographic Quadrangle.
Site Location; N: 41.661314° W: 87.457289° WGS84

M:\CAD\1690009091_ArcelorMittal - Coke Plant\Acad\01_Site Location Map.dwg

RAMBOLL

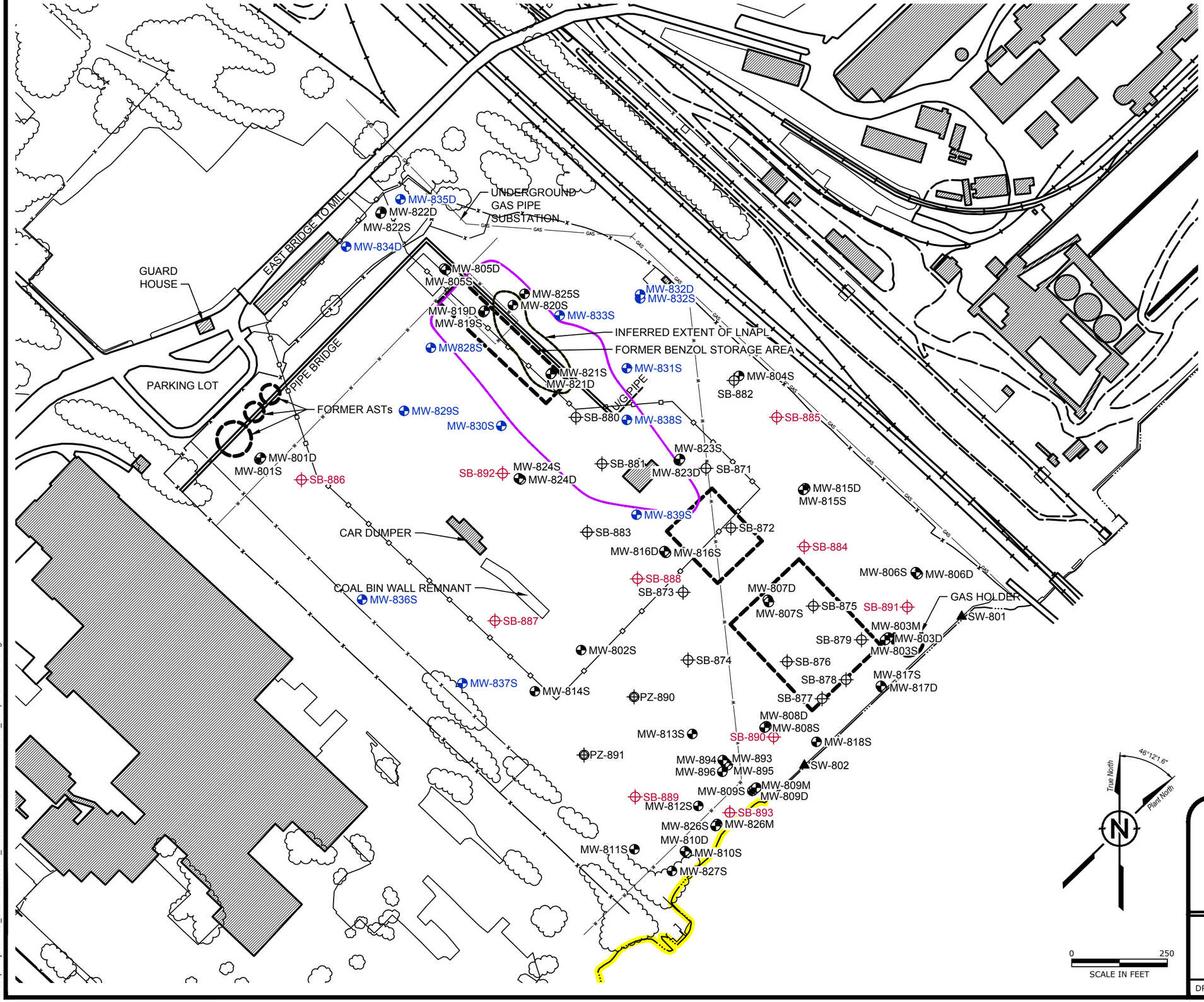
DRAFTED BY: HJW | DATE: 8/6/18

SITE LOCATION MAP

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

FIGURE 1

1690009091



LEGEND

- SOIL BORING
- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- PIEZOMETER
  (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- SOIL BORING ADVANCED IN 2017
- MONITORING WELL INSTALLED IN 2017
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA
- APPROXIMATE LOCATION OF LASER INDUCED FLUORESCENCE INVESTIGATION
- LOCATION OF BREACHED SHEET PILE WALL

NOTES:

1. SEWER, FIRE WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.
2. LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

SAMPLE LOCATIONS

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

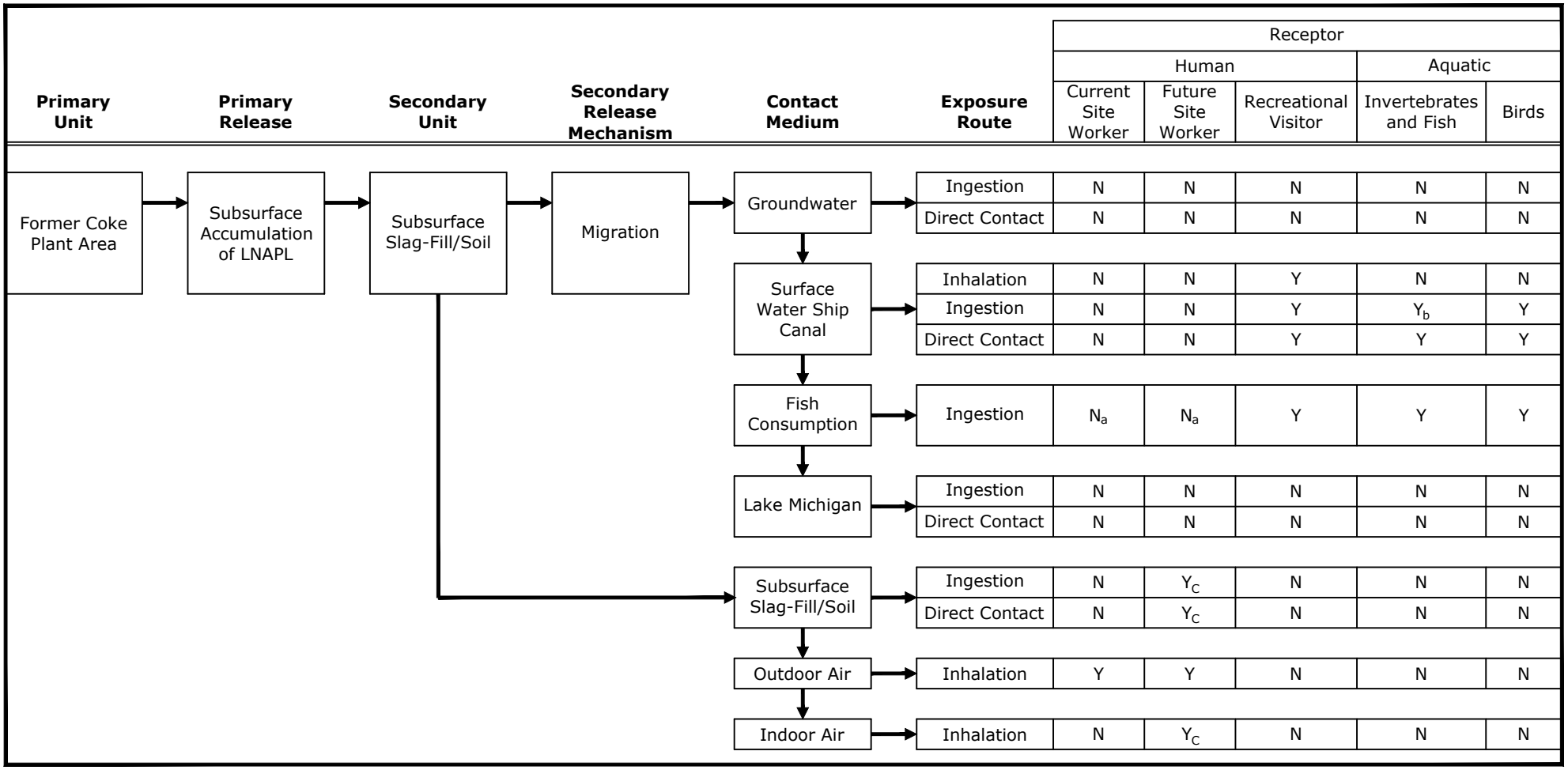
RAMBOLL

FIGURE 2

DRAFTED BY: HJW | DATE: 10/17/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\02_Sample Locations.dwg

M:\CAD\1690009091_ArcelorMittal - Coke Plant\Acad\03_Conceptual Site Model Diagram for Receptors.dwg



Primary Unit	Primary Release	Secondary Unit	Secondary Release Mechanism	Contact Medium	Exposure Route	Receptor: Human: Current Site Worker	Receptor: Human: Future Site Worker	Receptor: Human: Recreational Visitor	Receptor: Aquatic: Invertebrates and Fish	Receptor: Aquatic: Birds
Former Coke Plant Area	Subsurface Accumulation of LNAPL	Subsurface Slag-Fill/Soil	Migration	Groundwater	Ingestion	N	N	N	N	N
					Direct Contact	N	N	N	N	N
				Surface Water Ship Canal	Inhalation	N	N	Y	N	N
					Ingestion	N	N	Y	Y_b	Y
					Direct Contact	N	N	Y	Y	Y
				Fish Consumption	Ingestion	N_a	N_a	Y	Y	Y
				Lake Michigan	Ingestion	N	N	N	N	N
					Direct Contact	N	N	N	N	N
				Subsurface Slag-Fill/Soil	Ingestion	N	Y_C	N	N	N
					Direct Contact	N	Y_C	N	N	N
				Outdoor Air	Inhalation	Y	Y	N	N	N
				Indoor Air	Inhalation	N	Y_C	N	N	N

Key:
- Y The pathway is complete and is quantitatively evaluated in this environmental risk characterization
- I The pathway is potentially complete but insignificant relative to other pathways, and is not evaluated further
- N The pathway is not complete and is not evaluated
- a As described in text the Ship Canal is not expected to support recreational fishing.
- b Gill exchange
- c Deed restriction will notify future property users of site risks such that appropriate protection is used during construction activities.

Notes:
- A Site model diagram taken from "Data Quality Objectives Process for Hazardous Waste Site Investigations," EPA QA/G-4HW, January 2000.

Y = Yes, N = No, UNK = Unknown
LNAPL = Light Non-Aqueous Phase Liquid

RAMBOLL

DRAFTED BY: CKL | DATE: 8/6/18

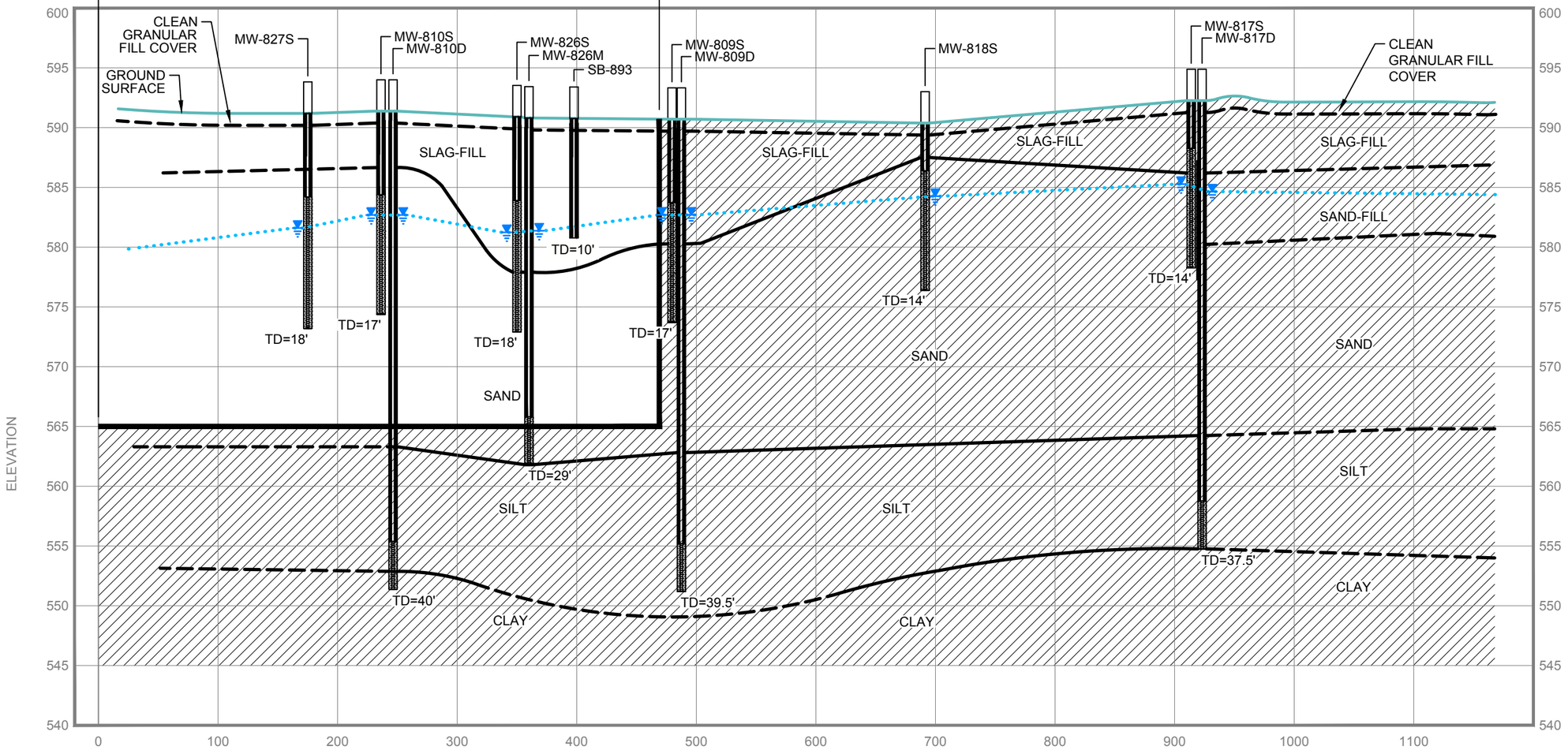
CONCEPTUAL SITE MODEL DIAGRAM FOR HUMAN AND ECOLOGICAL RECEPTORS

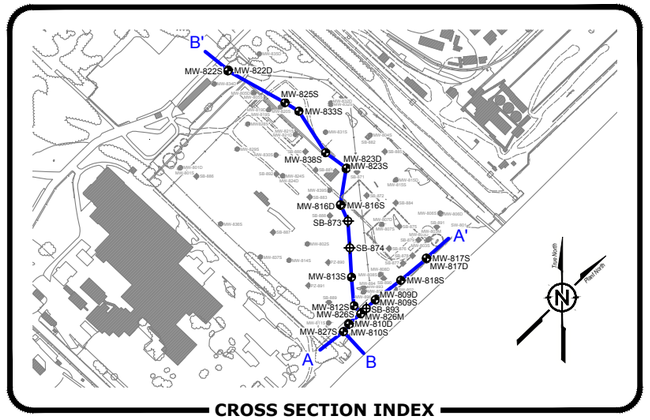
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

FIGURE
3

1690009091

A — SHEET PILE BREACH — FACING WEST — A'





CROSS SECTION INDEX

LEGEND

	GROUNDWATER ELEVATION (SEPTEMBER 2017)
	LITHOLOGICAL CONTACT (DASHED WHERE INFERRED)
SLAG-FILL	GRANULAR, SAND-SIZED, BLACK, VERY DENSE TO EXTREMELY DENSE
SAND	FINE TO COARSE, LAYERED (FINING UPWARD), GREY, MEDIUM DENSE TO DENSE
CLAY	GREY, FIRM TO STIFF, PLASTIC
SILT	COARSE, OCCASIONAL 2-9" LAYERS OF SAND (FINE OR COARSE), GREY, DENSE
DEEP WELLS	3' SCREEN
MID-DEPTH WELLS	5' SCREEN
SHALLOW WELLS	10' SCREEN
	SHEET PILE BARRIER

APPROX. VERTICAL SCALE (ft.) 0 10

APPROX. HORIZONTAL SCALE (ft.) 0 100

GEOLOGIC CROSS SECTION A - A'

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 4

DRAFTED BY: HJW | DATE: 8/20/18 | 1690009091

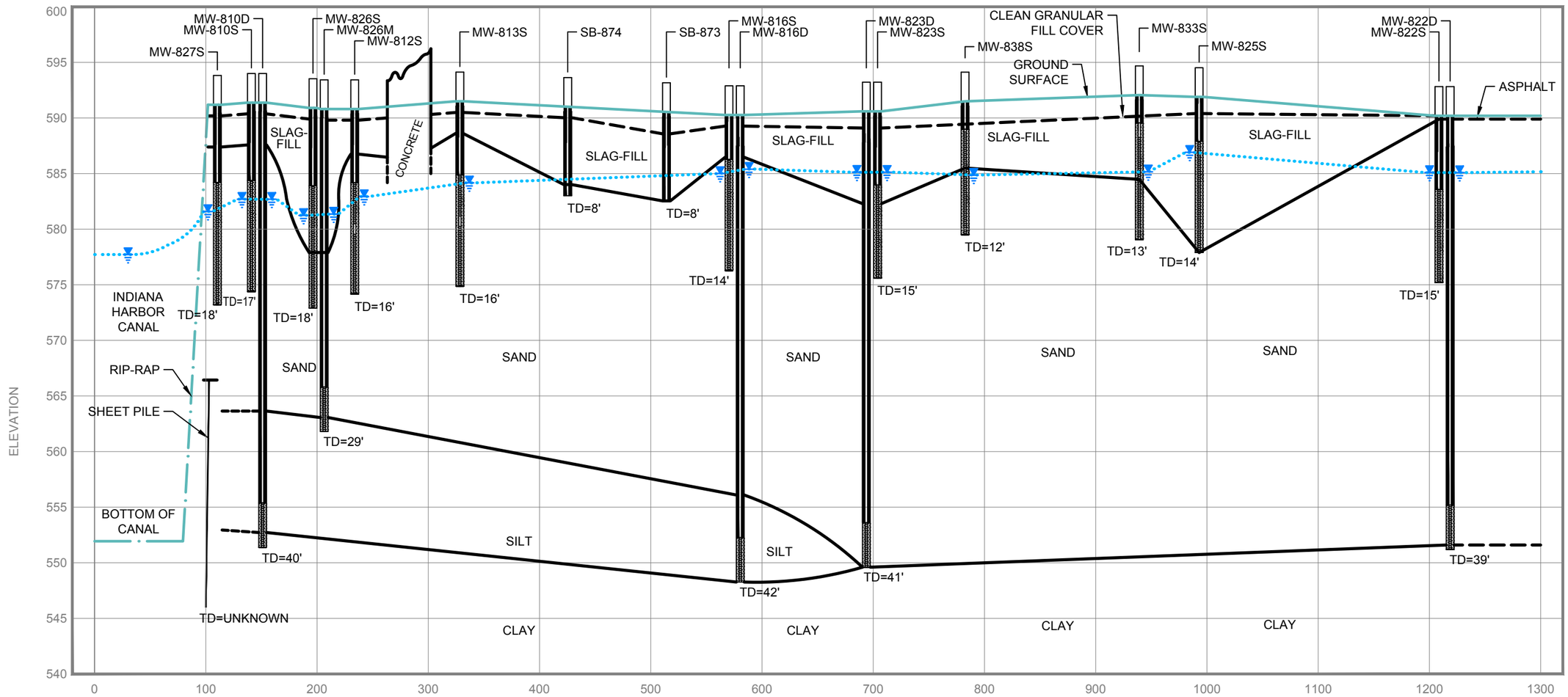
M:\CAD\1690009091_ArcelorMittal - Coke Plant\Acad\04_Geologic Cross Section A-A'.dwg

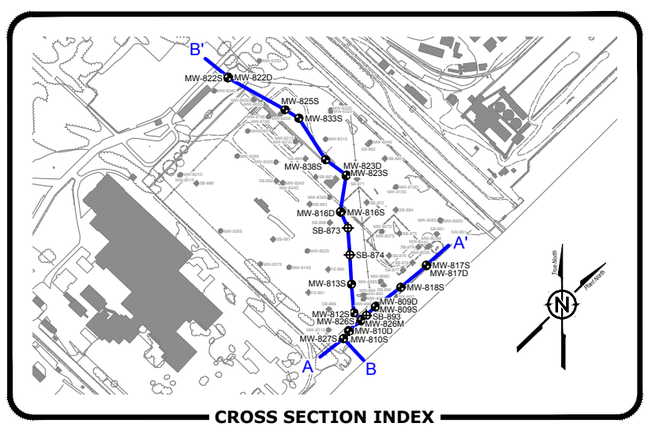
B

B'

FACING SOUTHWEST

SHEET PILE BREACH





LEGEND

	GROUNDWATER ELEVATION (SEPTEMBER 2017)
	LITHOLOGICAL CONTACT (DASHED WHERE INFERRED)
SLAG-FILL	GRANULAR, SAND-SIZED, BLACK, VERY DENSE TO EXTREMELY DENSE
SAND	FINE TO COARSE, LAYERED (FINING UPWARD), GREY, MEDIUM DENSE TO DENSE
CLAY	GREY, FIRM TO STIFF, PLASTIC
SILT	COARSE, OCCASIONAL 2-9" LAYERS OF SAND (FINE OR COARSE), GREY, DENSE
DEEP WELLS	3' SCREEN
MID-DEPTH WELLS	5' SCREEN
SHALLOW WELLS	10' SCREEN

APPROX. VERTICAL SCALE (ft.) 0 10

APPROX. HORIZONTAL SCALE (ft.) 0 200

GEOLOGIC CROSS SECTION B - B'

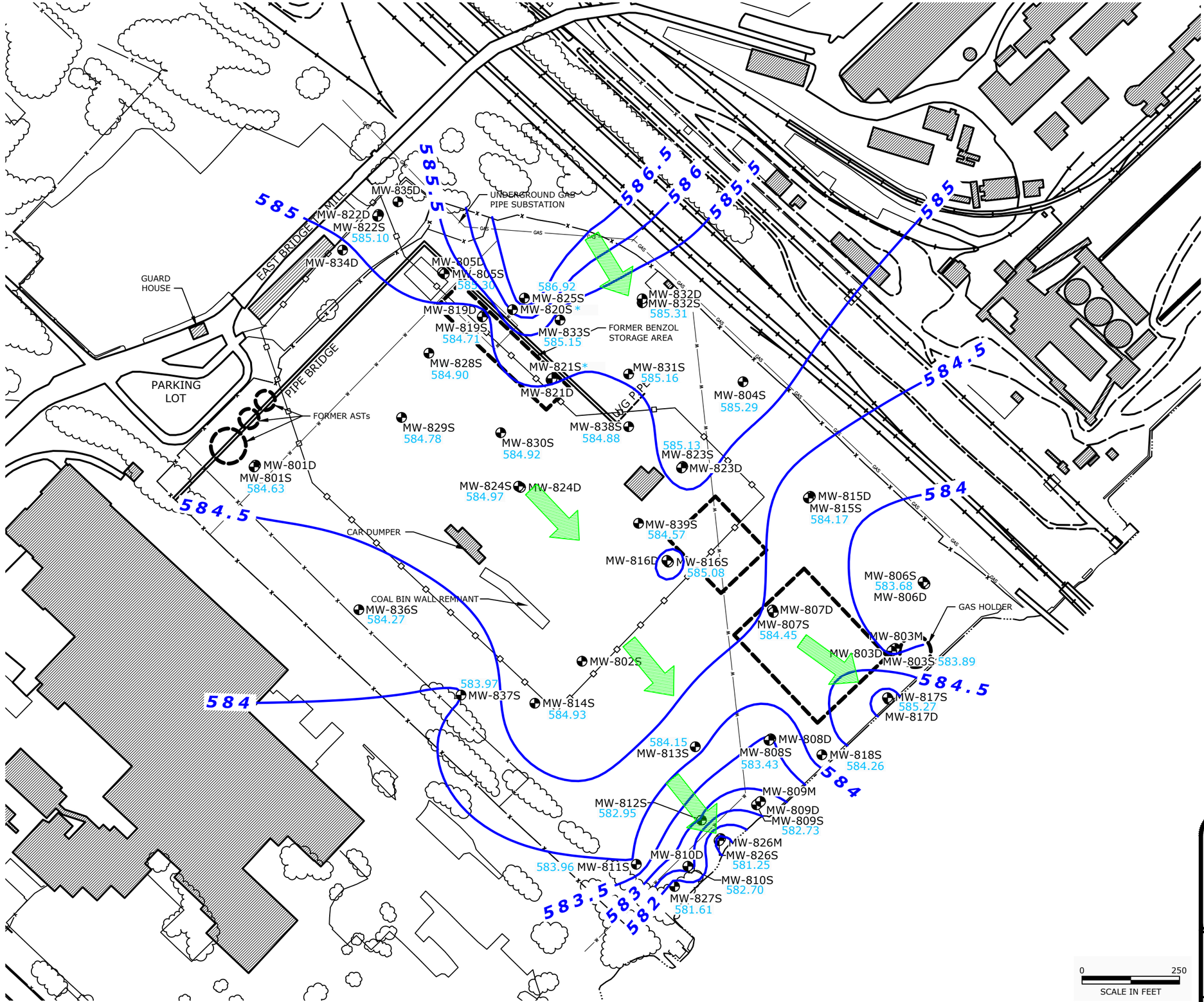
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 5

DRAFTED BY: HJW | DATE: 8/20/18 | 1690009091

M:\CAD\1690009091_ArcelorMittal - Coke Plant\Acad\05_Geologic Cross Section B-B'.dwg



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- 581.38 GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O2, NO2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

* WELLS CONTAINING FREE PRODUCT EXCLUDED FROM MONITORING

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE (SEPTEMBER 2017)

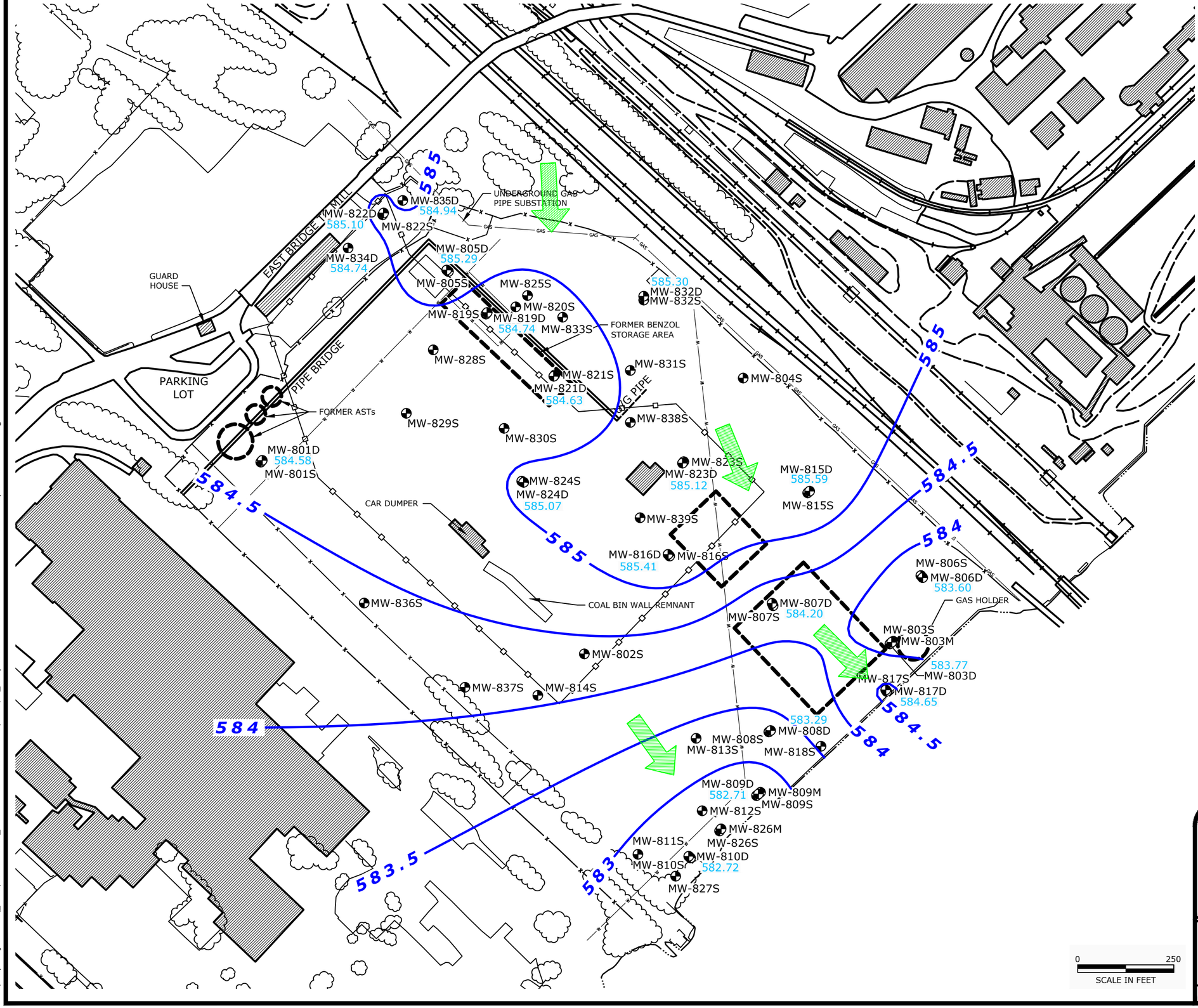
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

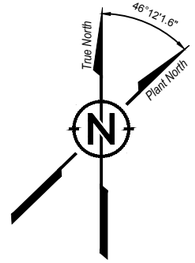
RAMBOLL

FIGURE 6

DRAFTED BY: HJW | DATE: 10/17/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\06_Shallow Groundwater Potentiometric Surface – September 2017.dwg





LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- 581.38 GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O2, NO2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

SEWER, FIRE WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

DEEP GROUNDWATER POTENTIOMETRIC SURFACE (SEPTEMBER 2017)

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

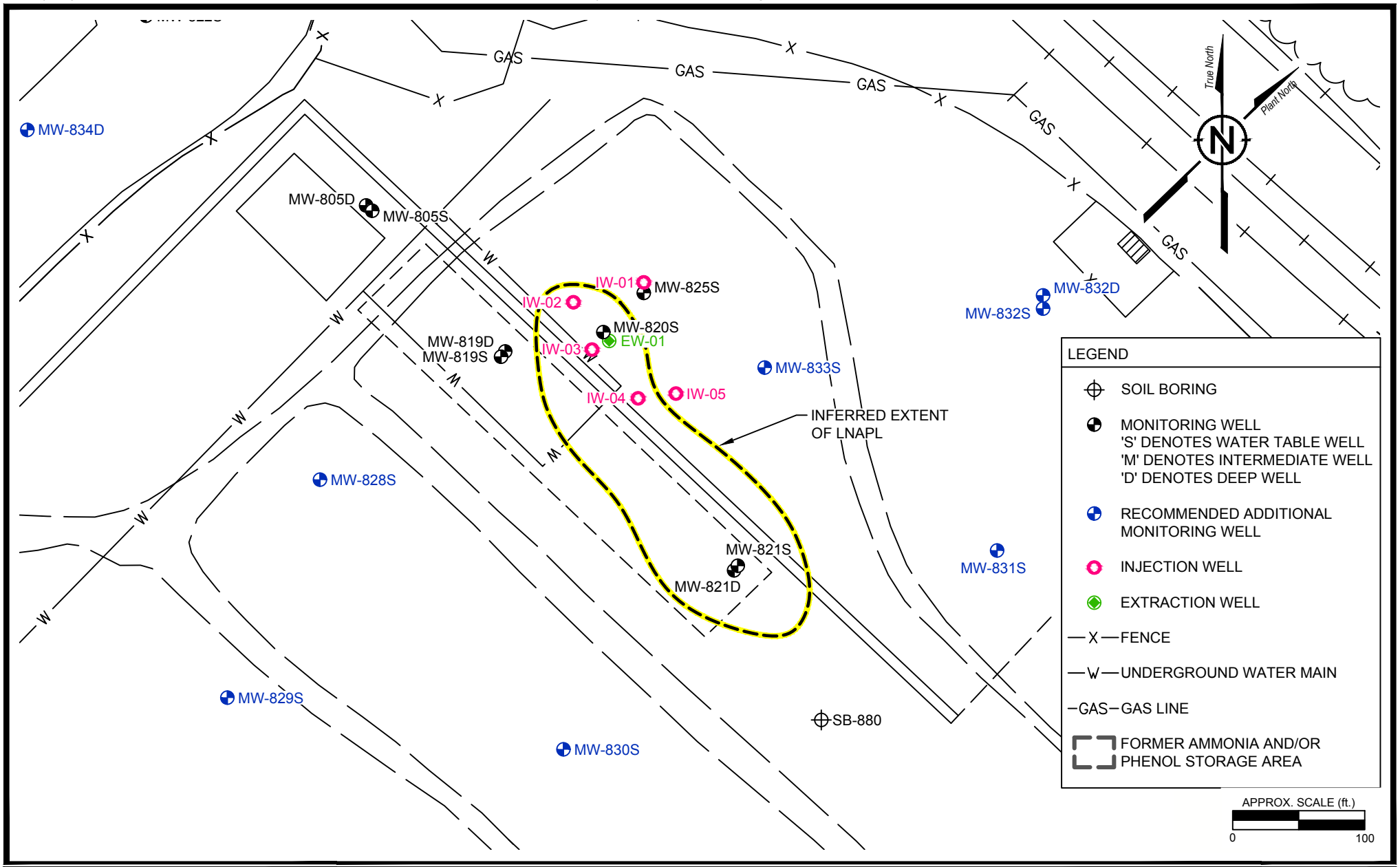
RAMBOLL

FIGURE 7

DRAFTED BY: HJW	DATE: 10/17/18	1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\07_Deep Groundwater Potentiometric Surface - September 2017.dwg

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\08_Surfactant Enhanced Recovery Pilot Test Well Locations.dwg



RAMBOLL

DRAFTED BY: ELS/APR/HJW | DATE: 10/17/18

SURFACTANT ENHANCED RECOVERY PILOT TEST WELL LOCATIONS

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

FIGURE
8

1690009091

MW-833S (mg/kg)	(0-2)	(4-6)	(14-16)
Arsenic	NE	NE	9.2 B,C
Benzo(a)pyrene	3.3 A,C	3 A,C	NE

MW-831S (mg/kg)	(0-2)	(4-6)	(14-16)
Arsenic	7.6 B,C	NE	NE
Benzene	NE	NE	8.1 B,C
Benzo(a)anthracene	55 A,C	NE	NE
Benzo(a)pyrene	46 A,B,C	1.9 A,C	NE
Benzo(b)fluoranthene	71 A,C	NE	NE
Dibenzo(a,h)anthracene	12 A,C	NE	NE
Indeno(1,2,3-c,d)pyrene	22 A,C	NE	NE
Lead	290 B,C	NE	NE

Analyte (mg/kg)	Data Quality Objectives - Industrial		
	IDEM Direct Contact (A)	IDEM Migration to GW (B)	IDEM Default Closure (C)
Arsenic	20	5.8	5.8
Lead	1,300	230	230
Benzene	14	0.35	0.35
Toluene	16,000	96	96
Benzo(a)anthracene	15	190	15
Benzo(a)pyrene	1.5	16	1.5
Benzo(b)fluoranthene	15	190	15
Dibenzo(a,h)anthracene	1.5	60	1.5
Indeno (1,2,3-c,d) pyrene	15	540	15
Total Cyanides	31,000	9.6	9.6

NOTES: NE = No Exceedance
NP = Not Performed

MW-822D (mg/kg)	(1-2)	(4-5)
Benzo(a)anthracene	72 A,C	21 A,C
Benzo(a)pyrene	71 A,B,C,D	19 A,B,C
Benzo(b)fluoranthene	100 A,C	26 A,C
Dibenzo(a,h)anthracene	13 A,C,	3.5 A,C
Indeno (1,2,3-c,d) pyrene	44 A,C	NE

MW-832D (mg/kg)	(0-2)	(38-40)
Arsenic	5.9 B,C	NE
Benzene	NE	220 A,B,C
Benzo(a)pyrene	5.7 A,C	NE

MW-834D (mg/kg)	(0-2)
Benzo(a)pyrene	4.8 A,C

MW-825S (mg/kg)	(1-2)
Benzo(a)pyrene	2.6 A,C

MW-828S (mg/kg)	(8-12)
Benzene	180 A,B,C
Toluene	380 B,C
Benzo(a)pyrene	2.4 A,C

MW-838S (mg/kg)	(0-2)	(2-4)	(14-16)
Benzene	NE	5.9 B,C	31 B,C
Benzo(a)anthracene	19 A,C	NE	NE
Benzo(a)pyrene	15 A,C	NE	9.5 A,C
Benzo(b)fluoranthene	21 A,C	NE	NE
Dibenzo(a,h)anthracene	3 A,C	NE	1.8 A,C

SB-882 (mg/kg)	(1-2)
Arsenic	6.5 B,C

MW-823D (mg/kg)	(1-2)	(40-41)
Benzo(a)pyrene	4.3 A,C	NE
Benzene	NE	15 A,B,C

MW-839S (mg/kg)	(2-4)	(10-12)
Arsenic	6.1 B,C	NE
Benzo(a)pyrene	5 A,C	4 A,C

SB-872 (mg/kg)	(1-2)
Arsenic	9.5 B,C

SB-875 (mg/kg)	(6.5-7.5)
Arsenic	6.1 B,C
Benzene	5.3 B,C

SB-879 (mg/kg)	(1-2)
Arsenic	7.9 B,C

MW-803M (mg/kg)	(1-2)
Benzo(a)pyrene	2 A,C

MW-830S (mg/kg)	(0-2)	(2-4)	(10-12)
Arsenic	NE	6.2 B,C	NE
Benzene	NE	NE	5.6 B,C
Benzo(a)pyrene	3.6 A,C	3.1 A,C	NE

SB-880 (mg/kg)	(1-2)	(5-6)	(7-8)
Benzene	16 A,B,C	26 A,B,C	16 A,B,C
Benzo(a)pyrene	11 A,C	6 A,C	NE
Dibenzo(a,h)anthracene	2.4 A,C	NE	NE

MW-824D (mg/kg)	(1-2)	Dup	(38.5-39.5)
Arsenic	6.8 B,C	9 B,C	NE
Benzene	NE	NE	30 A,B,C

SB-881 (mg/kg)	(1-2)	(7-8)
Benzene	NE	5.5 B,C
Benzo(a)pyrene	6.1 A,C	NP
Total Cyanides	11 B,C	NP

SB-883 (mg/kg)	(4.5-5.5)
Arsenic	6.8 B,C

SB-890 (mg/kg)	(0-2)
Benzo(a)pyrene	4.7 A,C

MW-876 (mg/kg)	(6-7)	Dup	(9-10)
Benzene	3.3 B,C	1.3 B,C	57 A,B,C
Toluene	NE	NE	2,300 B,C

SB-878 (mg/kg)	(8-9)
Arsenic	9.8 B,C

SB-877 (mg/kg)	(1-2)
Arsenic	9.3 B,C

MW-809M (mg/kg)	(8-9)
Benzene	59 A,B,C

MW-826M (mg/kg)	(1-2)
Benzo(a)pyrene	13 A,C
Benzo(b)fluoranthene	16 A,C
Dibenzo(a,h)anthracene	1.8 A,C

MW-827S (mg/kg)	(10-11)
Arsenic	7.3 B,C

UNDERGROUND GAS PIPE SUBSTATION
FORMER BENZOL STORAGE AREA
FORMER ASTs
CAR DUMPER
COAL BIN WALL REMNANT
GAS HOLDER
U/G PIPE
PIPE BRIDGE
T BRIDGE TO MILL

MW-835D, MW-822D, MW-822S, MW-834D, MW-805D, MW-805S, MW-825S, MW-819D, MW-820S, MW-819S, MW-833S, MW-832D, MW-832S, MW-831S, MW828S, MW-821S, MW-821D, MW-829S, MW-830S, MW-838S, MW-804S, SB-882, SB-885, SB-880, SB-886, MW-823S, SB-881, SB-892, MW-824S, MW-824D, MW-823D, SB-871, MW-815D, MW-815S, MW-839S, SB-883, SB-872, MW-816D, MW-816S, SB-884, MW-836S, SB-888, SB-873, MW-807D, MW-806S, MW-806D, SB-887, MW-807S, SB-875, SB-891, SB-879, MW-803M, MW-803D, MW-802S, SB-876, MW-803S, SB-874, MW-817S, MW-817, SB-878, MW-837S, MW-814S, PZ-890, SB-877, MW-808D, MW-813S, MW-808S, SB-890, MW-818S, PZ-891, MW-894, MW-893, MW-895, MW-896, MW-809M, SW-802, MW-809S, MW-809D, SB-889, MW-812S, SB-893, MW-826S, MW-826M, MW-810D, MW-810S, MW-811S, MW-827S, SW-801

NOTE:

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

LEGEND

- SOIL BORING
- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- SOIL BORING SAMPLED IN 2017
- PIEZOMETER
  (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

46°12'1.6"
True North
Plant North
N

0 250
SCALE IN FEET

DATA QUALITY OBJECTIVE EXCEEDANCES IN SOIL

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 9

DRAFTED BY: HJW | DATE: 11/26/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\2018-11rev\09_Data Quality Objective Exceedances in Soil.dwg

Analyte (mg/L)	IDEM - Data Quality Objectives - Industrial			
	IDEM MCL (A)	IDEM Industrial (B)	IDEM Default Closure (C)	IDEM Groundwater Solubility (D)
2,4-Dimethylphenol	-	2.0	2.0	7,900
Arsenic	0.01	0.0019	0.01	-
Benzene	0.005	0.052	0.052	1,800
Benzo(a)anthracene	-	0.0039	0.0039	0.0094
Benzo(a)pyrene	0.0002	0.00039	0.00039	0.0016
Chromium, Hexavalent	0.1	0.31	0.31	-
Chrysene	-	0.39	0.39	0.0016
Ethylbenzene	0.7	10	10	170
Indeno (1,2,3-c,d) pyrene	-	0.0039	0.0039	0.000022
Iron	-	-	-	-
Lead	0.015	0.042	0.042	-
Manganese	-	-	-	-
Naphthalene	-	2.0	2.0	31
Pentachlorophenol	0.001	0.024	0.024	2,000
Phenol	-	31	31	83,000
Thallium	0.002	0.0072	0.0072	-
Toluene	1.0	8.2	8.2	530
Total Cyanides	-	-	-	-
Vanadium	-	-	-	-

NOTE: NE = No Exceedance

MW-805S (mg/L)	9/12/17
Benzene	13 A,B,C

MW-819S (mg/L)	9/12/17
Benzene	57 A,B,C
Ethylbenzene	1.3 A
Toluene	17 A,B,C

MW-825S (mg/L)	9/12/17
Benzene	0.032 A
Indeno (1,2,3-c,d) pyrene	0.00025 D
Pentachlorophenol	0.022 J A

MW-820S (mg/L)	9/12/17
Benzene	3.5 A,B,C

MW-832S (mg/L)	9/11/17
Benzene	0.66 A,B,C

MW-833S (mg/L)	9/11/17
Benzene	0.16 A,B,C
Ethylbenzene	0.7 A
Toluene	1.3 A

MW-821S (mg/L)	9/12/17
Benzene	5.7 A,B,C
Benzo(a)pyrene	0.0027 A,B,C,D
Chrysene	0.0018 J D

MW-828S (mg/L)	9/12/17
Benzene	40 A,B,C
Benzo(a)pyrene	0.0022 A,B,C,D
Ethylbenzene	0.99 A
Indeno (1,2,3-c,d) pyrene	0.002 D
Naphthalene	2 B,C
Toluene	33 A,B,C

MW-838S (mg/L)	9/13/17
Benzene	54 A,B,C

MW-830S (mg/L)	9/12/17	Dup
Benzene	0.011 A	0.12 A,B,C
Benzo(a)pyrene	0.0004 A,B,C	0.00045 A,B,C
Indeno (1,2,3-c,d) pyrene	0.00027 D	0.00029 D

MW-823S (mg/L)	9/12/17
Benzene	1.8 A,B,C
Benzo(a)pyrene	0.00021 A
Indeno (1,2,3-c,d) pyrene	0.00019 D

MW-801S (mg/L)	9/13/17
Benzene	0.014 A

MW-839S (mg/L)	9/12/17
Benzene	0.12 J A,B,C

MW-816S (mg/L)	9/12/17
Benzene	0.069 A,B,C

MW-807S (mg/L)	9/13/17
Benzene	0.04 J A
Ethylbenzene	0.84 A

MW-836S (mg/L)	9/13/17
Pentachlorophenol	0.0073 J A

MW-803S (mg/L)	9/13/17
Benzene	5.7 A,B,C

MW-817S (mg/L)	9/14/17
Benzo(a)pyrene	0.00032 A
Indeno (1,2,3-c,d) pyrene	0.00028 D

MW-818S (mg/L)	9/14/17	Dup
Benzo(a)pyrene	0.00031 A	0.0003 A
Indeno (1,2,3-c,d) pyrene	0.00023 D	0.00024 D

MW-809S (mg/L)	9/14/17
Benzene	2.2 A,B,C

MW-808S (mg/L)	9/14/17
Benzene	36 A,B,C
Toluene	1.2 A

EAST BRIDGE TO MILL
PIPE BRIDGE
PARKING LOT
FORMER ASTs
CAR DUMPER
COAL BIN WALL REMNANT
UNDERGROUND GAS PIPE SUBSTATION
INFERRED EXTENT OF LNAPL
FORMER BENZOL STORAGE AREA
U/G PIPE
GAS HOLDER
MW-835D
MW-822D
MW-822S
MW-834D
MW-805D
MW-805S
MW-825S
MW-819D
MW-819S
MW-820S
MW-833S
MW-832D
MW-832S
MW828S
MW-831S
MW-821S
MW-821D
MW-804S
MW-829S
MW-830S
MW-838S
MW-801D
MW-801S
MW-824S
MW-824D
MW-823S
MW-823D
MW-815S
MW-815D
MW-839S
MW-816D
MW-816S
MW-836S
MW-807D
MW-807S
MW-806S
MW-806D
MW-803M
MW-803S
MW-803D
SW-801
MW-802S
MW-837S
MW-814S
PZ-890
PZ-891
MW-817S
MW-817D
MW-808D
MW-808S
MW-813S
MW-818S
MW-894
MW-895
MW-896
MW-893
MW-809M
SW-802
MW-809S
MW-809D
MW-812S
MW-826M
MW-826S
MW-811S
MW-810D
MW-810S
MW-827S

0 250
SCALE IN FEET

True North
Plant North
46°12'1.6"

LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- PIEZOMETER (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

J = ESTIMATED CONCENTRATION BETWEEN METHOD DETECTION LIMIT AND REPORTING LIMIT

DATA QUALITY OBJECTIVE EXCEEDANCES IN SHALLOW GROUNDWATER - ORGANICS (SEPTEMBER 2017)

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE **10A**

DRAFTED BY: HJW | DATE: 11/19/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\2018-11rev10A_DQO Exceedances in Shallow GW - Organics.dwg

Analyte (mg/L)	IDEM - Data Quality Objectives - Industrial			
	IDEM MCL (A)	IDEM Industrial (B)	IDEM Default Closure (C)	IDEM Groundwater Solubility (D)
2,4-Dimethylphenol	-	2.0	2.0	7,900
Arsenic	0.01	0.0019	0.01	-
Benzene	0.005	0.052	0.052	1,800
Benzo(a)anthracene	-	0.0039	0.0039	0.0094
Benzo(a)pyrene	0.0002	0.00039	0.00039	0.0016
Chromium, Hexavalent	0.1	0.31	0.31	-
Chrysene	-	0.39	0.39	0.0016
Ethylbenzene	0.7	10	10	170
Indeno (1,2,3-c,d) pyrene	-	0.0039	0.0039	0.000022
Iron	-	-	-	-
Lead	0.015	0.042	0.042	-
Manganese	-	-	-	-
Naphthalene	-	2.0	2.0	31
Pentachlorophenol	0.001	0.024	0.024	2,000
Phenol	-	31	31	83,000
Thallium	0.002	0.0072	0.0072	-
Toluene	1.0	8.2	8.2	530
Total Cyanides	-	-	-	-
Vanadium	-	-	-	-

NOTE: NE = No Exceedance

MW-828S (mg/L)	9/12/17
Arsenic (Dissolved)	0.009 B

MW-829S (mg/L)	9/12/17
Arsenic	0.0046 J B

MW-830S (mg/L)	9/12/17	Dup
Arsenic	NE	0.0033 J B

MW-801S (mg/L)	9/13/17
Arsenic	0.011 J A,B,C
Arsenic (Dissolved)	0.014 A,B,C

MW-824S (mg/L)	9/12/17
Thallium	0.002 A

MW-816S (mg/L)	9/12/17
Arsenic	0.037 A,B,C
Arsenic (Dissolved)	0.0053 B

MW-836S (mg/L)	9/13/17
Arsenic	0.0082 J B
Arsenic (Dissolved)	0.024 A,B,C

MW-837S (mg/L)	9/13/17	Dup
Arsenic	0.014 A,B,C	0.011 A,B,C
Arsenic (Dissolved)	0.014 A,B,C	0.014 A,B,C

MW-826S (mg/L)	9/14/17
Arsenic	0.029 A,B,C
Arsenic (Dissolved)	0.023 A,B,C
Chromium, Hexavalent	0.14 A

MW-811S (mg/L)	9/13/17
Arsenic (Dissolved)	0.0033 J B
Chromium, Hexavalent	0.13 A
Lead	0.024 A
Lead (Dissolved)	0.022 A

MW-810S (mg/L)	9/14/17	Dup
Arsenic	0.0035 J B	0.0029 J B
Arsenic (Dissolved)	0.004 J B	0.0037 J B

MW-827S (mg/L)	9/14/17
Arsenic	0.022 A,B,C
Arsenic (Dissolved)	0.02 J A,B,C

MW-814S (mg/L)	9/13/17
Arsenic	0.008 J B
Arsenic (Dissolved)	0.0084 B

MW-812S (mg/L)	9/13/17
Arsenic	0.019 J A,B,C
Arsenic (Dissolved)	0.016 A,B,C

MW-805S (mg/L)	9/12/17
Arsenic	0.0039 J B
Arsenic (Dissolved)	0.0047 J B

MW-825S (mg/L)	9/12/17
Arsenic (Dissolved)	0.0029 J B

MW-820S (mg/L)	9/12/17
Arsenic	0.013 J A,B,C
Arsenic (Dissolved)	0.011 J- A,B,C

MW-833S (mg/L)	9/11/17
Arsenic	0.018 J A,B,C
Arsenic (Dissolved)	0.017 A,B,C

MW-804S (mg/L)	9/13/17
Arsenic	0.0032 J B

MW-838S (mg/L)	9/13/17
Arsenic	0.0057 B
Arsenic (Dissolved)	0.0022 J B

MW-823S (mg/L)	9/12/17
Arsenic (Dissolved)	0.0024 J B

MW-815S (mg/L)	9/11/17
Arsenic	0.0019 J B

MW-839S (mg/L)	9/12/17
Arsenic	0.015 A,B,C
Arsenic (Dissolved)	0.012 A,B,C

MW-806S (mg/L)	9/14/17
Arsenic	0.016 A,B,C
Arsenic (Dissolved)	0.0076 J B
Chromium, Hexavalent	0.14 J- A
Thallium	0.002 A

MW-803S (mg/L)	9/13/17
Chromium, Hexavalent	0.13 J- A

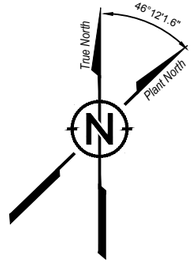
MW-817S (mg/L)	9/14/17
Arsenic (Dissolved)	0.0041 J B

MW-818S (mg/L)	9/14/17	Dup
Arsenic	0.015 A,B,C	0.012 A,B,C
Arsenic (Dissolved)	0.015 J A,B,C	0.014 J A,B,C

MW-808S (mg/L)	9/14/17
Arsenic	0.017 A,B,C
Arsenic (Dissolved)	0.014 J A,B,C

EAST BRIDGE TO MILL
PIPE BRIDGE
PARKING
FORMER ASTs
CAR DUMPER
COAL BIN WALL REMNANT
UNDERGROUND GAS PIPE
SUBSTATION
INFERRED EXTENT OF LNAPL
FORMER BENZOL STORAGE AREA
U/G PIPE
GAS HOLDER

MW-835D, MW-822D, MW-822S, MW-834D, MW-805D, MW-805S, MW-825S, MW-832D, MW-832S, MW-819D, MW-819S, MW-820S, MW-833S, MW828S, MW-831S, MW-821S, MW-821D, MW-804S, MW-829S, MW-830S, MW-838S, MW-801D, MW-801S, MW-823S, MW-824S, MW-824D, MW-823D, MW-815D, MW-815S, MW-839S, MW-816D, MW-816S, MW-807D, MW-807S, MW-806S, MW-806D, MW-836S, MW-802S, MW-803M, MW-803S, MW-803D, MW-837S, MW-814S, PZ-890, MW-817S, MW-817D, MW-808D, MW-808S, MW-813S, MW-818S, PZ-891, MW-894, MW-893, MW-895, MW-896, MW-809M, SW-802, MW-809S, MW-809D, MW-812S, MW-826M, MW-826S, MW-811S, MW-810D, MW-810S, MW-827S



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- PIEZOMETER
  (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

J = ESTIMATED CONCENTRATION BETWEEN METHOD DETECTION LIMIT AND REPORTING LIMIT

J- = ESTIMATED CONCENTRATION BETWEEN METHOD DETECTION LIMIT AND REPORTING LIMIT BIASED LOW

0 250
SCALE IN FEET

DATA QUALITY OBJECTIVE EXCEEDANCES IN SHALLOW GROUNDWATER - INORGANICS (SEPTEMBER 2017)

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

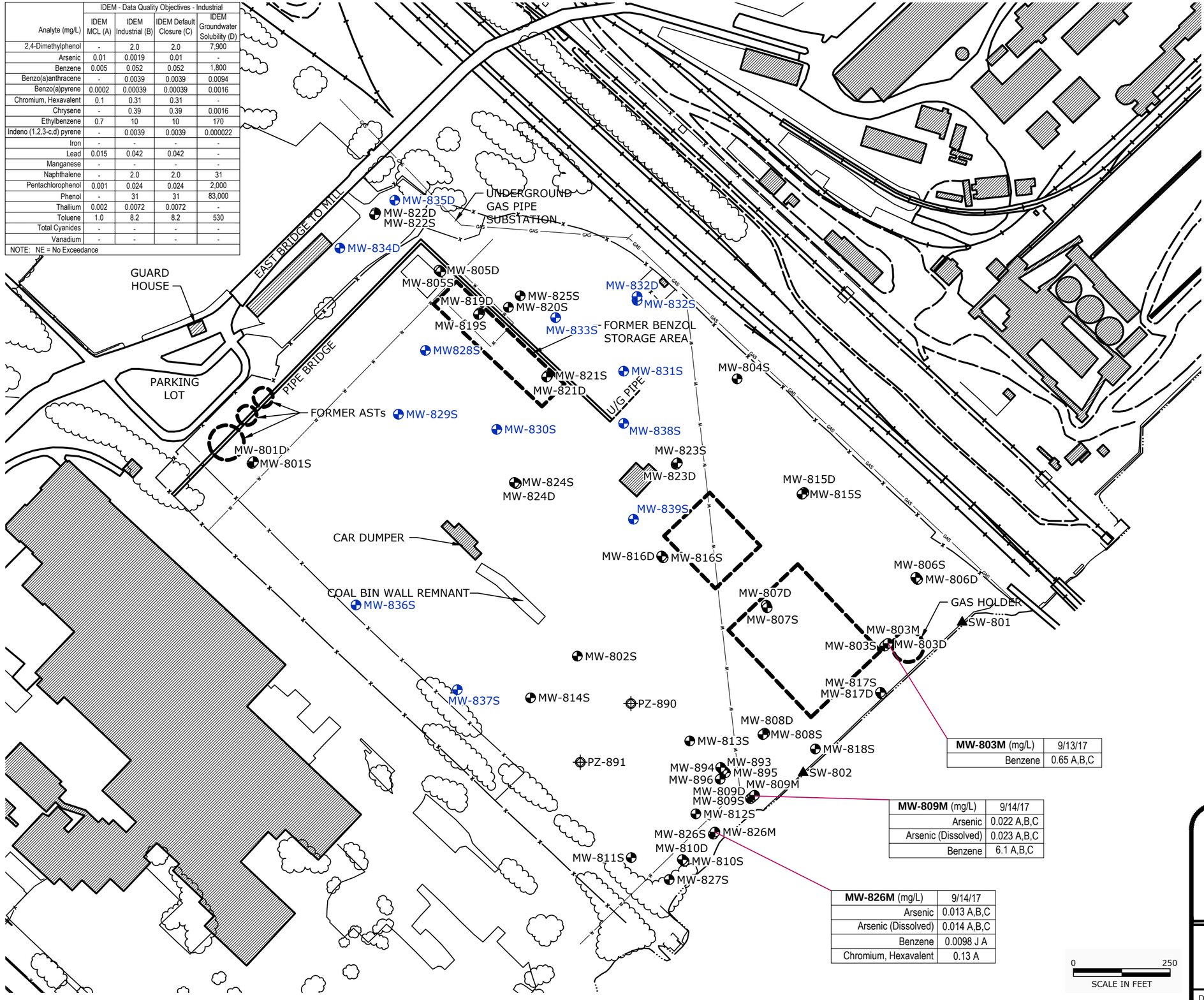
FIGURE **10B**

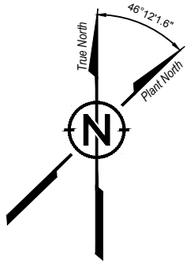
DRAFTED BY: HJW | DATE: 11/19/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\2018-11rev\10B_DQO Exceedances in Shallow GW - Inorganics.dwg

Analyte (mg/L)	IDEM - Data Quality Objectives - Industrial			
	IDEM MCL (A)	IDEM Industrial (B)	IDEM Default Closure (C)	IDEM Groundwater Solubility (D)
2,4-Dimethylphenol	-	2.0	2.0	7,900
Arsenic	0.01	0.0019	0.01	-
Benzene	0.005	0.052	0.052	1,800
Benzo(a)anthracene	-	0.0039	0.0039	0.0094
Benzo(a)pyrene	0.0002	0.00039	0.00039	0.0016
Chromium, Hexavalent	0.1	0.31	0.31	-
Chrysene	-	0.39	0.39	0.0016
Ethylbenzene	0.7	10	10	170
Indeno (1,2,3-c,d) pyrene	-	0.0039	0.0039	0.000022
Iron	-	-	-	-
Lead	0.015	0.042	0.042	-
Manganese	-	-	-	-
Naphthalene	-	2.0	2.0	31
Pentachlorophenol	0.001	0.024	0.024	2,000
Phenol	-	31	31	83,000
Thallium	0.002	0.0072	0.0072	-
Toluene	1.0	8.2	8.2	530
Total Cyanides	-	-	-	-
Vanadium	-	-	-	-

NOTE: NE = No Exceedance





LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- PIEZOMETER
  (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

J = ESTIMATED CONCENTRATION BETWEEN METHOD DETECTION LIMIT AND REPORTING LIMIT

MW-803M (mg/L)	9/13/17
Benzene	0.65 A,B,C

MW-809M (mg/L)	9/14/17
Arsenic	0.022 A,B,C
Arsenic (Dissolved)	0.023 A,B,C
Benzene	6.1 A,B,C

MW-826M (mg/L)	9/14/17
Arsenic	0.013 A,B,C
Arsenic (Dissolved)	0.014 A,B,C
Benzene	0.0098 J A
Chromium, Hexavalent	0.13 A

0 250
SCALE IN FEET

DATA QUALITY OBJECTIVE EXCEEDANCES IN INTERMEDIATE GROUNDWATER (SEPTEMBER 2017)
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 11

DRAFTED BY: HJW | DATE: 11/19/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\2018-11rev\11_DQO Exceedances in Int GW.dwg

Analyte (mg/L)	IDEM - Data Quality Objectives - Industrial			
	IDEM MCL (A)	IDEM Industrial (B)	IDEM Default Closure (C)	IDEM Groundwater Solubility (D)
2,4-Dimethylphenol	-	2.0	2.0	7,900
Arsenic	0.01	0.0019	0.01	-
Benzene	0.005	0.052	0.052	1,800
Benzo(a)anthracene	-	0.0039	0.0039	0.0094
Benzo(a)pyrene	0.0002	0.00039	0.00039	0.0016
Chromium, Hexavalent	0.1	0.31	0.31	-
Chrysene	-	0.39	0.39	0.0016
Ethylbenzene	0.7	10	10	170
Indeno (1,2,3-c,d) pyrene	-	0.0039	0.0039	0.000022
Iron	-	-	-	-
Lead	0.015	0.042	0.042	-
Manganese	-	-	-	-
Naphthalene	-	2.0	2.0	31
Pentachlorophenol	0.001	0.024	0.024	2,000
Phenol	-	31	31	83,000
Thallium	0.002	0.0072	0.0072	-
Toluene	1.0	8.2	8.2	530
Total Cyanides	-	-	-	-
Vanadium	-	-	-	-

NOTE: NE = No Exceedance

MW-822D (mg/L)	9/13/17
Arsenic	0.0038 J B

MW-835D (mg/L)	9/13/17
Chromium, Hexavalent	0.14 A

MW-819D (mg/L)	9/12/17
Benzene	5.7 J A,B,C
Indeno (1,2,3-c,d) pyrene	0.0004 D

MW-832D (mg/L)	9/11/17	Dup
Arsenic	0.0061 J B	0.0044 J B
Arsenic (Dissolved)	0.0024 J B	0.0022 J B
Benzene	110 A,B,C	100 A,B,C

MW-821D (mg/L)	9/12/17
Arsenic	0.023 A,B,C
Arsenic (Dissolved)	0.015 A,B,C
Benzene	300 J A,B,C

MW-834D (mg/L)	9/13/17
Benzo(a)pyrene	0.00043 A,B,C
Indeno (1,2,3-c,d) pyrene	0.00033 D

MW-823D (mg/L)	9/12/17
Arsenic	0.011 J A,B,C
Arsenic (Dissolved)	0.031 A,B,C
Benzene	48 J A,B,C

MW-806D (mg/L)	9/14/17
Arsenic (Dissolved)	0.0034 J B
Benzene	0.058 A,B,C

MW-824D (mg/L)	9/12/17
Arsenic (Dissolved)	0.002 J B
Benzene	71 J A,B,C

MW-803D (mg/L)	9/13/17
Arsenic	0.039 A,B,C
Arsenic (Dissolved)	0.046 A,B,C
Benzene	3.3 J A,B,C

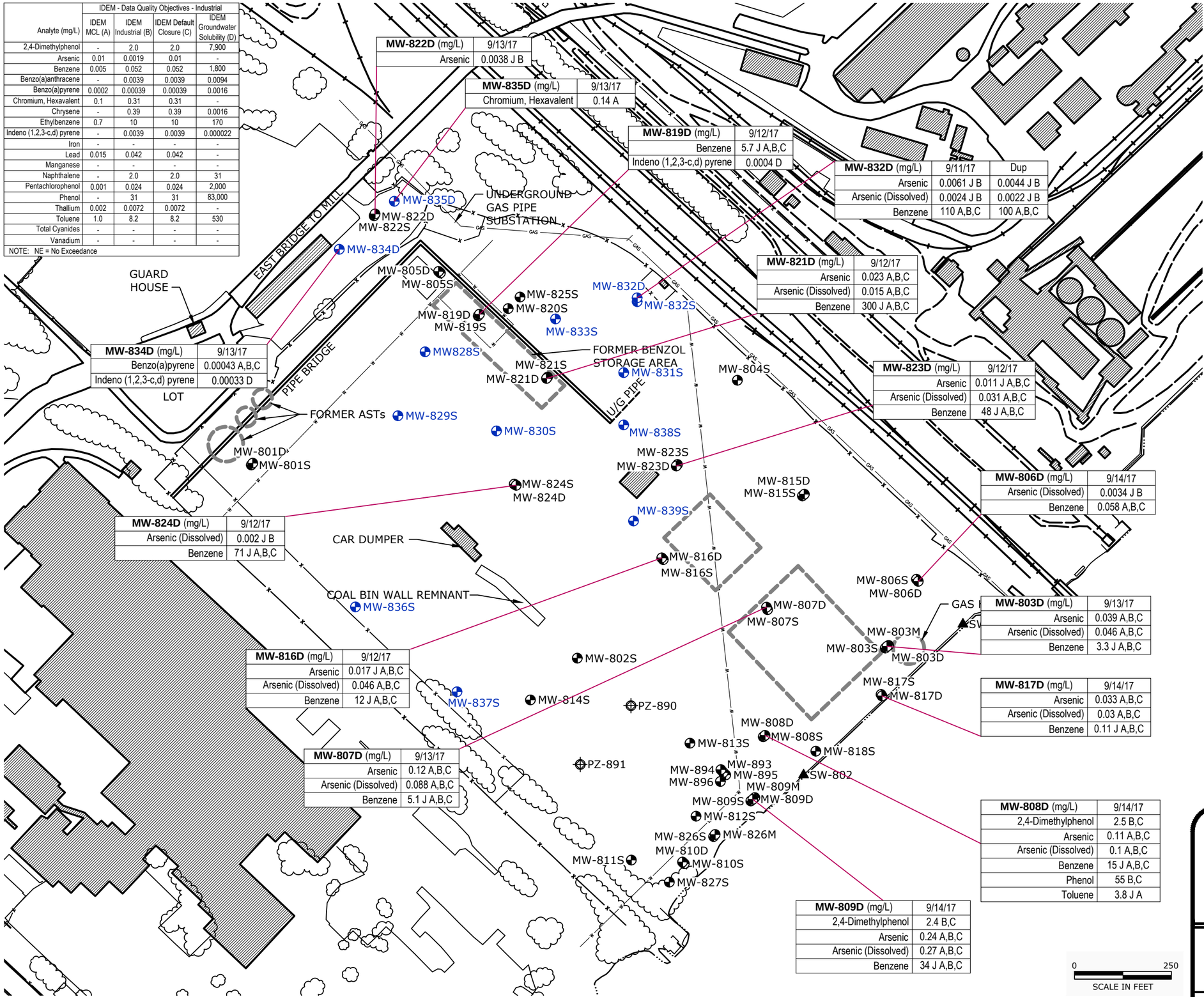
MW-816D (mg/L)	9/12/17
Arsenic	0.017 J A,B,C
Arsenic (Dissolved)	0.046 A,B,C
Benzene	12 J A,B,C

MW-817D (mg/L)	9/14/17
Arsenic	0.033 A,B,C
Arsenic (Dissolved)	0.03 A,B,C
Benzene	0.11 J A,B,C

MW-807D (mg/L)	9/13/17
Arsenic	0.12 A,B,C
Arsenic (Dissolved)	0.088 A,B,C
Benzene	5.1 J A,B,C

MW-808D (mg/L)	9/14/17
2,4-Dimethylphenol	2.5 B,C
Arsenic	0.11 A,B,C
Arsenic (Dissolved)	0.1 A,B,C
Benzene	15 J A,B,C
Phenol	55 B,C
Toluene	3.8 J A

MW-809D (mg/L)	9/14/17
2,4-Dimethylphenol	2.4 B,C
Arsenic	0.24 A,B,C
Arsenic (Dissolved)	0.27 A,B,C
Benzene	34 J A,B,C



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- PIEZOMETER (1" NON SAMPLING WELL)
- SURFACE WATER MEASURING POINTS
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA

NOTE:

SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.

LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.

J = ESTIMATED CONCENTRATION BETWEEN METHOD DETECTION LIMIT AND REPORTING LIMIT

B = ANALYTE DETECTED IN LABORATORY METHOD BLANK

DATA QUALITY OBJECTIVE EXCEEDANCES IN DEEP GROUNDWATER (SEPTEMBER 2017)

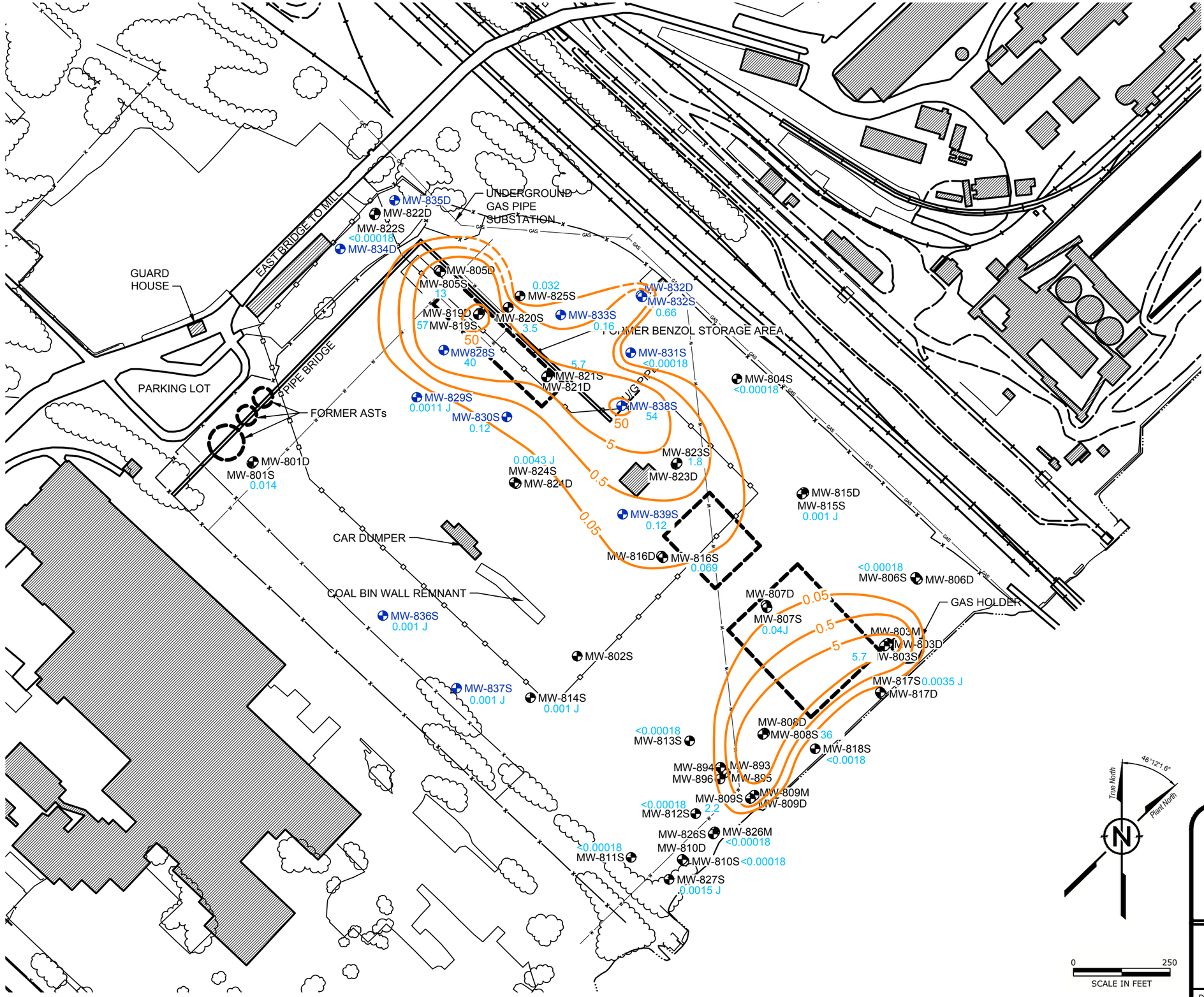
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 12

DRAFTED BY: HJW | DATE: 11/19/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\2018-11rev\12_DQO Exceedances in Deep GW.dwg



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA
- BENZENE ISOCONCENTRATION (DASHED WHERE INFERRED)
- 5.1 BENZENE CONCENTRATION (mg/L)

NOTES:

1. SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.
2. LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.
3. IDEM DEFAULT CLOSURE LEVEL FOR BENZENE = 0.052 mg/L.

BENZENE ISOCONCENTRATIONS IN SHALLOW GROUNDWATER (SEPTEMBER 2017)

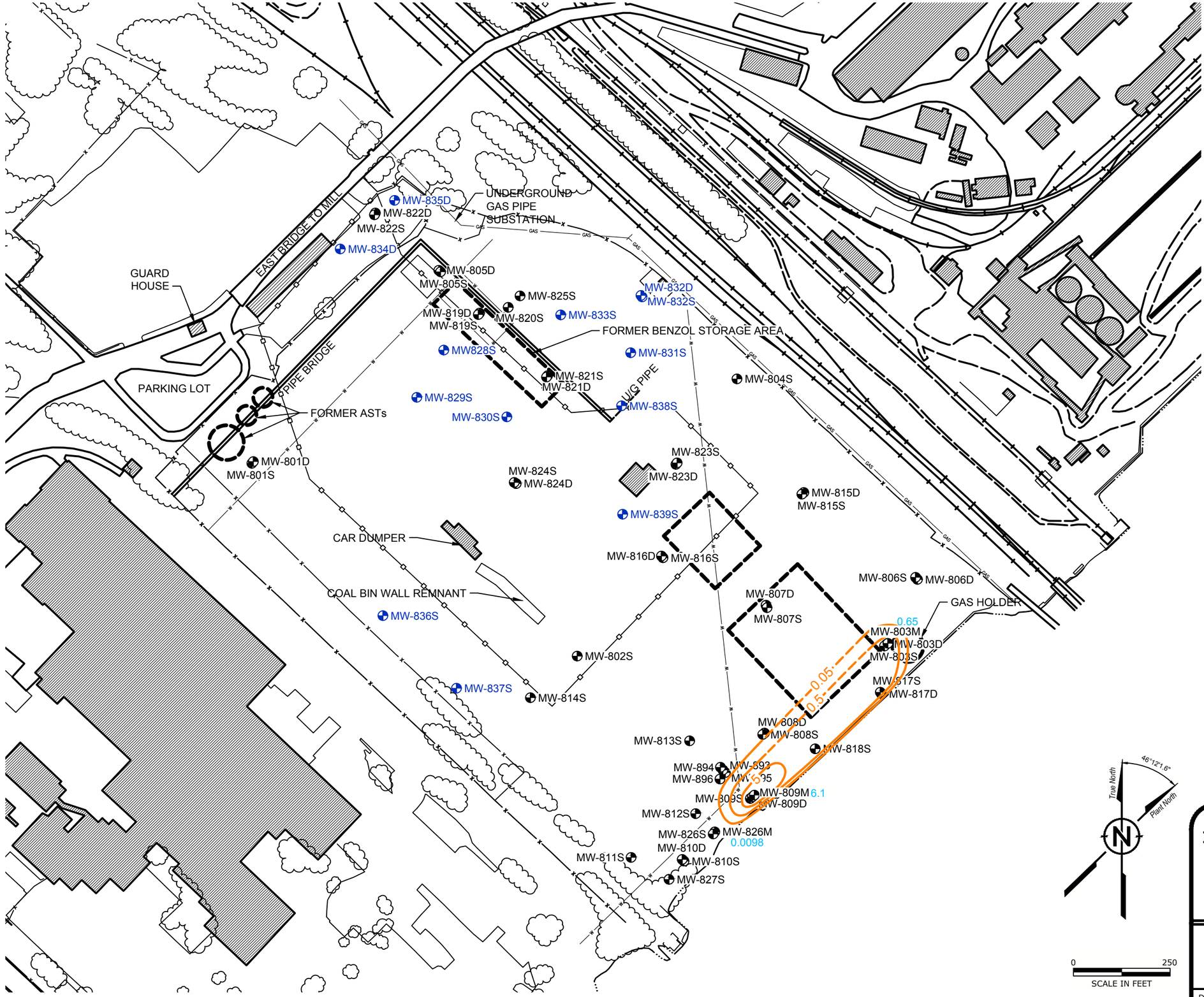
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 13

DRAFTED BY: HJW | DATE: 11/27/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\13_Shallow Benzene Isoconcentration Map – September 2017.dwg



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA
- BENZENE ISOCONCENTRATION (DASHED WHERE INFERRED)
- 5.1 BENZENE CONCENTRATION (mg/L)

NOTES:

1. SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.
2. LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.
3. IDEM DEFAULT CLOSURE LEVEL FOR BENZENE = 0.052 mg/L.

BENZENE ISOCONCENTRATIONS IN INTERMEDIATE GROUNDWATER (SEPTEMBER 2017)

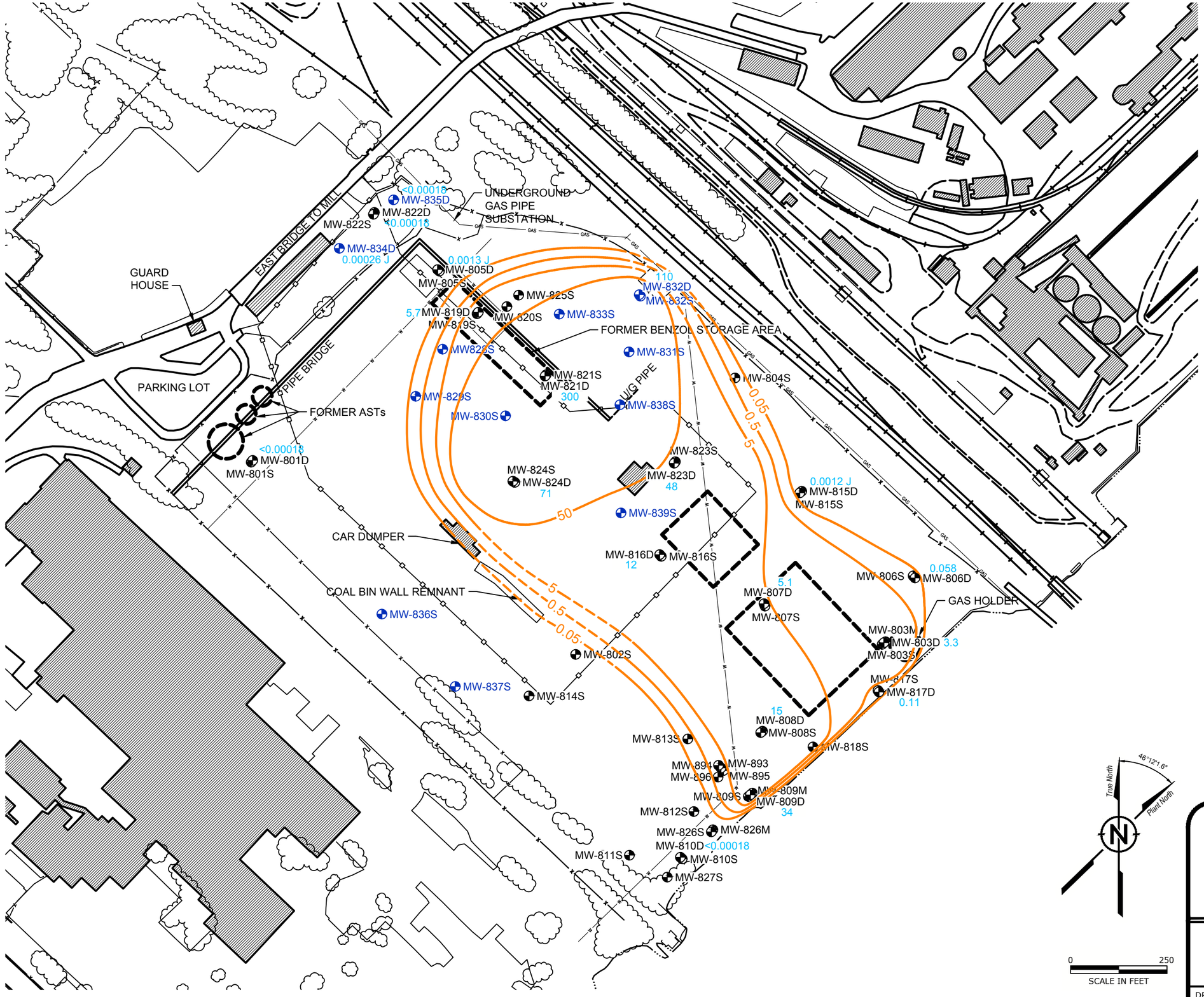
FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 14

DRAFTED BY: HJW | DATE: 11/27/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\14_Intermediate Benzene Isoconcentration Map – September 2017.dwg



LEGEND

- MONITORING WELL
  'S' DENOTES WATER TABLE WELL
  'M' DENOTES INTERMEDIATE WELL
  'D' DENOTES DEEP WELL
- MONITORING WELL INSTALLED IN 2017
- FENCE
- FENCE - APPROXIMATED PROPERTY BOUNDARY
- FENCED-IN PARKING AREA
- UNDERGROUND WATER MAIN
- UNDERGROUND GAS LINES (O_2, NO_2, ETC.)
- OVERHEAD PIPE BRIDGE
- BUILDING
- CONCRETE PAD
- FORMER AMMONIA AND/OR PHENOL STORAGE AREA
- BENZENE ISOCONCENTRATION (DASHED WHERE INFERRED)
- 5.1 BENZENE CONCENTRATION (mg/L)

NOTES:

1. SEWER, FIRE, WATER AND OTHER SUBSURFACE UTILITIES ARE PRESENT. LOCATIONS ARE CLEARED ON A CASE BY CASE BASIS.
2. LOCATION OF HISTORIC FACILITIES IS APPROXIMATE.
3. IDEM DEFAULT CLOSURE LEVEL FOR BENZENE = 0.052 mg/L.

BENZENE ISOCONCENTRATIONS IN DEEP GROUNDWATER (SEPTEMBER 2017)

FORMER COKE PLANT
TECUMSEH REDEVELOPMENT, INC.
EAST CHICAGO, INDIANA

RAMBOLL

FIGURE 15

DRAFTED BY: HJW | DATE: 11/27/18 | 1690009091

L:\Loop Project Files_CAD\1690009091_ArcelorMittal - Coke Plant\Acad\15_Deep Benzene Isoconcentration Map – September 2017.dwg

APPENDIX A

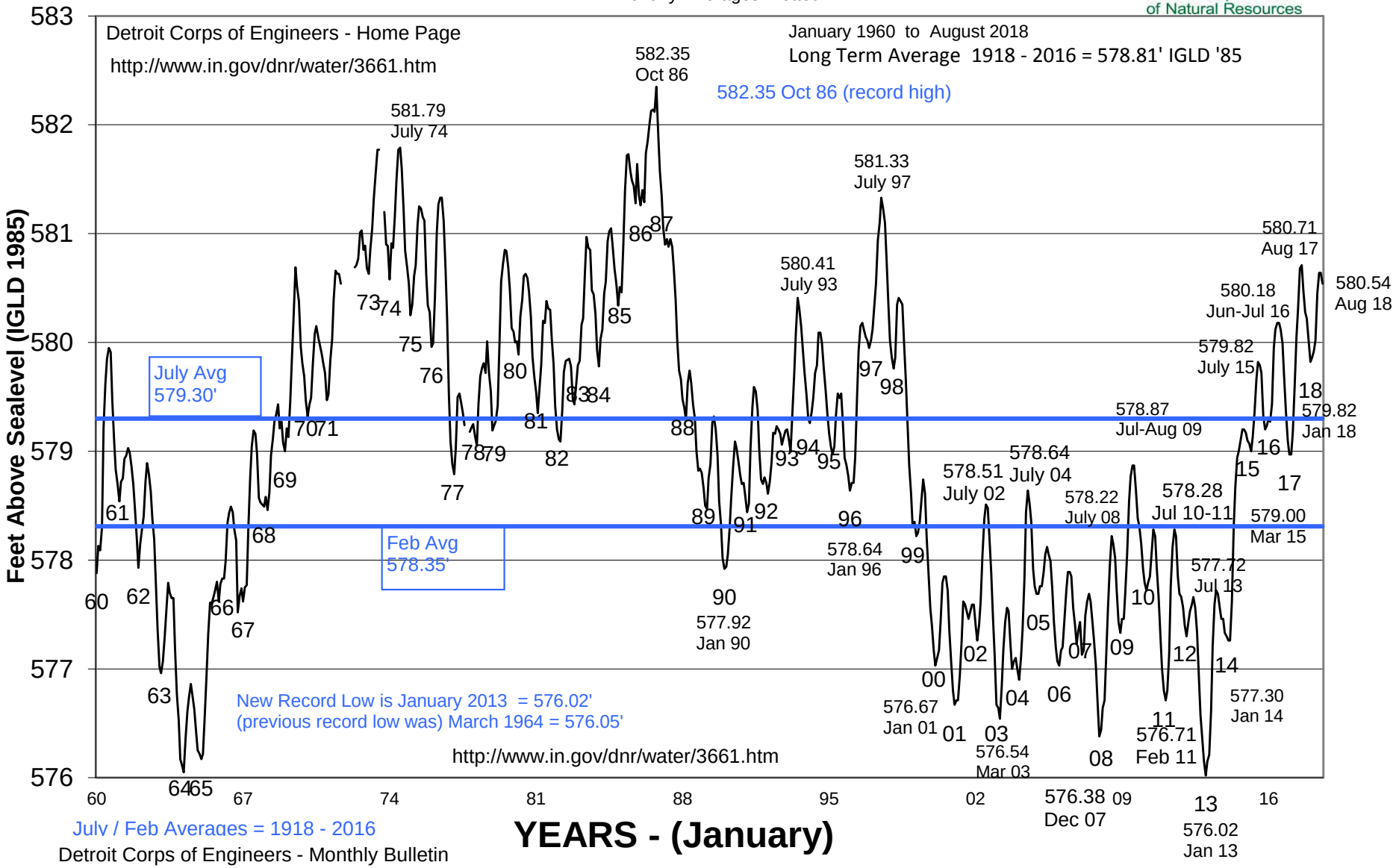
LAKE MICHIGAN WATER LEVEL GRAPHS

Note: All of these numbers are the average of 6 gages in Lake Michigan / Huron Corps of Engineers Monthly Report for "Michigan - Huron"

LAKE MICHIGAN LAKE LEVELS 1960 - 2018

Monthly Averages Plotted

Indiana Department of Natural Resources



July / Feb Averages = 1918 - 2016

Detroit Corps of Engineers - Monthly Bulletin

APPENDIX B

SOIL BORING LOGS AND WELL COMPLETION FORMS

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF A1+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/18/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 12 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0					Gray cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					
3		0.0					Black Fine to Medium Sand, some fine to coarse anugular gravel, some to trace, red and yellow brick fragments, trace to some cinders and slag (possible foundry sand), moist, loose (fill)
4							
5	4.0	0.0				▼	
6		67.0					
7							
8							Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense. Strong chemical odor, light sheen on soil, light oil staining on sample liners
9	4.0	4520					
10							
11		1400					
12							
13							
14							
15							
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **LIF MW820S 5' Southwest**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/18/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 12 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0					Black Fine to Medium Sand, some fine to coarse anugular gravel, some to trace, red and yellow brick fragments, trace to some cinders and slag (possible foundry sand), moist, loose (fill)
2							
3		0.0					
4							
5	4.0	787.0				▼	Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense. Strong/sharp chemical odor, light sheen on soil, light oil staining on sample liners
6							
7							
8							
9	4.0	457					
10							
11		612					
12							
13							
14							
15							
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF B1+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant, East Chicago, Indiana	**LOGGED BY:** D. Markelz
	DATE: 7/18/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 12 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1–4	4.0	175.0 / 390.0					Black Fine to Medium Sand, some fine to coarse anugular gravel, some to trace, red and yellow brick fragments, trace to some cinders and slag (possible foundry sand), moist, loose (fill)
5–8	4.0	381.0 / 444.0				▼	Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense. Strong chemical, paint-like odor at 3-4 feet below ground surface becoming heavier with depth, light sheen on soil, light oil staining on sample liners
9–12	4.0	300 / 330					
13–16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF B3+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/11/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 12 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1–4	4.0	0.0 21.0				▼	Black Fine to Medium Sand, some fine to coarse anugular gravel, trace to some cinders and slag (possible foundry sand), moist, loose (fill)
5–8	4.0	115.0					
9–12	4.0	700					Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense. Heavy odor.
13–16	4.0	410					
17–20	4.0	120 273					

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF B7+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/11/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 12 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1							
2	4.0	0.0					
3							
4							
5							
6	4.0	27.0				▼	
7							Black Fine to Medium Sand, some fine to coarse anugular gravel, trace to some cinders and slag (possible foundry sand), moist, loose (fill) light sheen on soil, light oil staining on sample liners
8							
9							
10	4.0	17					
11							
12							
13							
14	4.0	29					
15							
16							
17							
18	4.0	47					Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense. Heavy odor.
19							
20							

End of Boring

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF C7+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant, East Chicago, Indiana	**LOGGED BY:** D. Markelz
	DATE: 7/11/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 12 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1–4	4.0	0.0 / 0.0					Gray cinders and slag (processed steel slag), moist, medium dense (fill)
5–8	4.0	1.5				▼	Brown to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense.
9–12	4.0	0.40					
13–16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** LIF C6+00
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/11/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 12 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0					Gray cinders and slag (processed steel slag), moist, medium dense (fill)
2							
3		91.0					
4							
5	4.0	110.0				▼	Brown to Black Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, trace wood, moist to wet, loose to medium dense, light sheen on soil, heavy oily odor, light oil staining on sample liner. Oil noted on drill rod.
6							
7		120.0					
8							
9	4.0	34.00					
10							
11		9.00					Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
12							
13							
14							
15							
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW835D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW835D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/22/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0	MW835D (0-2)				Asphalt
2							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3		0	MW835D (2-4)				
4							
5	4.0	0				▼	
6							
7		0					
8							
9	4.0	0					
10							
11		0					
12							
13	4.0	0					
14							
15		0					
16							
17	4.0	0					
18							
19		0					
20							
21	4.0	0					Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense
22							
23		0					
24							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW835D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW835D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/22/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
24							
25	4.0	0					
26		0					
27							
28	4.0	0					
29		0					
30							
31							
32	4.0	0					
33		0					
34							
35							
36	4.0	0	MW835D (36-38)				
37		0					
38							
39		0					Gray Silty Clay (CL), trace fine subrounded gravel, moist, very stiff, medium plastic
40							*End of Boring at -40 ft*

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW834D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW834D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/22/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0	MW834D (0-2)				Asphalt
2							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3		0	MW834D (2-4)				
4							
5	4.0	0				▼	
6							
7		0					
8							
9	4.0	0					
10							
11		0					
12							
13	4.0	0					
14							
15		0					
16							
17	4.0	0					
18							
19		0					
20							
21	4.0	0					Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense
22							
23		0					
24							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW834D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW834D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/22/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
24							
25	4.0	0					
26		0					
27							
28	4.0	0					
29		0					
30							
31							
32	4.0	0					
33		0					
34							
35							
36	4.0	0	MW834D (37-39)				
37		0					
38							
39		0					Gray Silty Clay (CL), trace fine subrounded gravel, moist, very stiff, medium plastic
40							*End of Boring at -40 ft*

SOIL BORING LOG

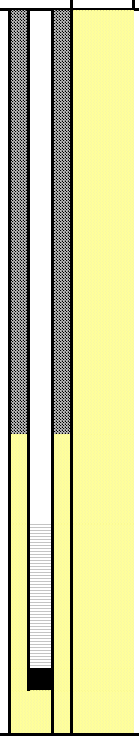
PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW832D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW832D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/25/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0	MW832D (0-2)				Asphalt
2							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3		0					
4							
5	4.0	0	MW832D (4-6)				
6						▼	
7		0					
8							
9	4.0	0					
10							
11		0					
12							
13	4.0	0					
14							
15		0					
16							
17	4.0	0					
18							
19		0					
20							
21	4.0	0					Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense
22							
23		0					
24							

SOIL BORING LOG

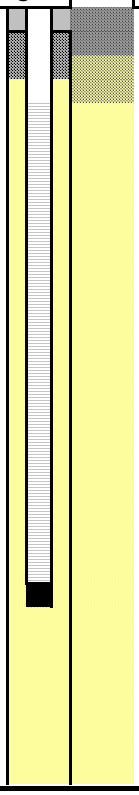
PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW832D**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW832D
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/25/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 40 Feet BGS **BOREHOLE DIAMETER:** 8 Inches **WELL DEPTH:** 38' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 6'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
24							
25	4.0	0					
26							
27		0					
28							
29	4.0	0.9					
30							
31		8.8					
32							
33	4.0	30.0					
34							
35		90.0					
36							
37	4.0	136.0					
38							
39		410.0	MW832D (38-40)				
40							*End of Boring at -40 ft*



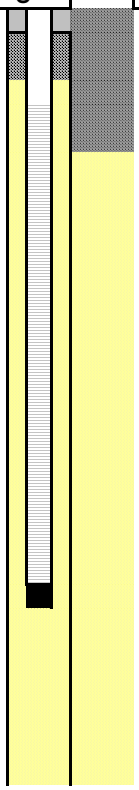
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW828S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW828S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/12/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 12' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 3.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	MW829S (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Tan Fine to Coarse Sand and Gravel (SW), moist, loose (fill)
3		0.0	MW829S (2-4)			▼	Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 4 feet bgs, loose to medium dense
4							
5	4.0	0.0					
6							
7		300					
8							
9	4.0	500	MW829S (8-12)				Black Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 4 feet bgs, loose to medium dense, heavy odor, oil staining noted on sample liner
10							
11							
12							
13	4.0	530					
14							
15		65					Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW829S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW829S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/12/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 12' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 3.5

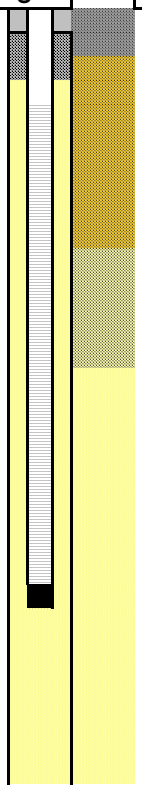
DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	MW829S (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3			MW829S (3-4)			▼	
4							
5	4.0	0.0					
6							
7							
8							
9	4.0	0.0					Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 4 feet bgs, loose to medium dense
10							
11							
12							
13	4.0	0.0					
14							
15			MW829S (14-16)				
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW830S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW830S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/12/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 12' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 3.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	SAMPLE DESCRIPTION
1	4.0	0.0	MW829S (0-2)	Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0		
3		0.0	MW829S (2-4)	Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
4				
5	2.5	0.0		Tan Fine to Coarse Sand and Gravel (SW), moist to wet at 4 feet, loose (fill)
6		0.0		
7		0.0		
8				
9	4.0	53		Black Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense, oil sheen noted on sample, oil staining on sample liner
10				
11		58	MW830S (10-12)	
12				
13	4.0	54		Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
14				
15		60		
16				

MONITORING WELL CONSTRUCTION



GRAPHIC LOG

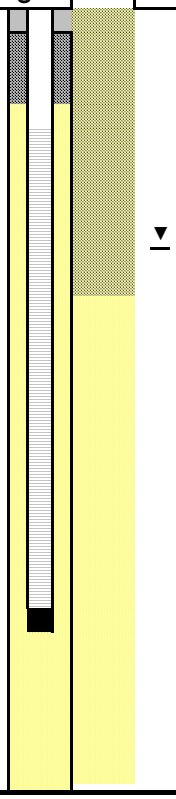
WATER LEVEL

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW831S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW831S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/17/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 13' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	SAMPLE DESCRIPTION
1	3.5	0.0	MW831S (0-2)	Brown Fine to Coarse Sand (SM) some fine to coarse sub-angular gravel, trace cinders and slag, moist, medium dense (fill)
2				
3		0.0		Crushed Stone and gravel,moist to wet, loose to medium dense (fill)
4				
5	4.0	0.0	MW831S (4-6)	Black Fine to Coarse Sand, some gravel, trace cinders and slag, moist to wet, loose to medium dense (fill)
6				
7		0.0		Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 6 feet, loose to medium dense
8				
9	4.0	20.0		
10				
11		380.0		
12				
13	4.0	30.0		
14				
15		40.0	MW831S (14-16)	
16				

MONITORING WELL CONSTRUCTION



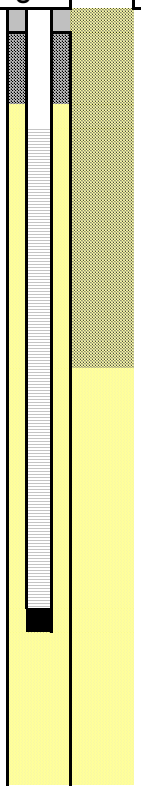
GRAPHIC LOG

WATER LEVEL

SOIL BORING LOG

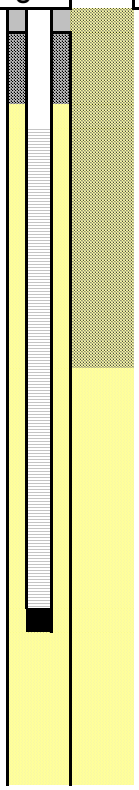
PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW832S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW832S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/17/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 13' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1							Blind Drill - Refer to MW832D boring log for details
2	4.0						
3							
4							
5						▼	
6	4.0						
7							
8							
9							
10	4.0						
11							
12							
13							
14	4.0						
15							
16							



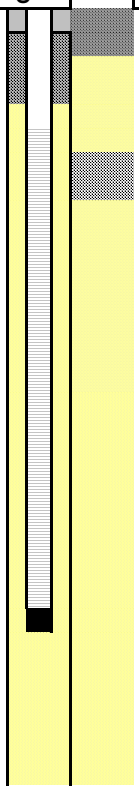
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW833S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW833S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/17/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 13' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1–4	4.0	0.0	MW833S (0-2)				Brown Fine to Coarse Sand (SM) some fine to coarse sub-angular gravel, trace yellow bricks, trace crushed stone, moist to wet at 6 feet, medium dense (fill)
5–8	4.0	0.0	MW833S (4-6)			▼	
9–12	4.0	0.3					Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
13–16	4.0	100.0 373.0	MW833S (14-16)				

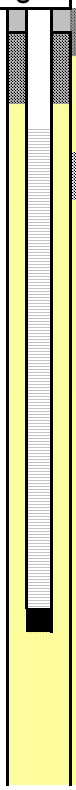
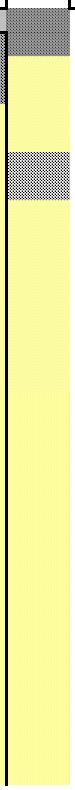
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW836S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW836S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 13' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	MW836S (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Black Fine to Medium Sand, trace fine sub-rounded gravel, moist, loose (fill)
3		0.0					Fiine to Coarse Crushed Stone, traces of yellow brick, moist, loose (fill)
4							
5	4.0	0.3				▼	Black Fine to Coarse Sand, trace medium sub-rounded to rounded gravel, moist to wet at 4 feet bgs, loose to medium dense (fill)
6							
7							
8							
9	4.0	0.2					Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
10							
11							
12							
13	4.0	0.1					
14							
15							
16							

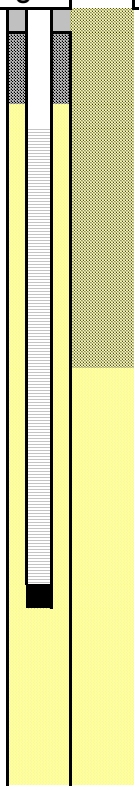
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW837S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW837S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/23/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Split Spoon	**TOTAL BORING DEPTH:** 16 Feet BGS **BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used **WELL DEPTH:** 13' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	MW837S (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Black Fine to Medium Sand, trace fine sub-rounded gravel, moist, loose (fill)
3		0.0					Fiine to Coarse Crushed Stone, traces of yellow brick, moist, loose (fill)
4							
5	4.0	0.0					Black Fine to Coarse Sand, trace medium sub-rounded to rounded gravel, moist to wet at 4 feet bgs, loose to medium dense (fill)
6							
7							
8							
9	4.0	0.0					Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
10							
11							
12							
13	4.0	0.0					
14							
15							
16							

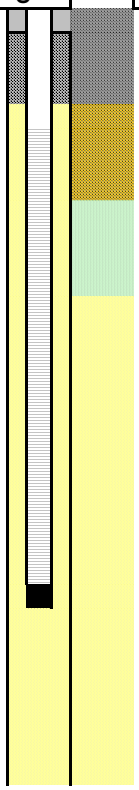
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW838S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW838S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/17/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 16 Feet BGS **BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used **WELL DEPTH:** 12' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5.5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	MW838S (0-2)			▼	Brown Fine to Coarse Sand (SM) some fine to coarse sub-angular gravel, trace cinders and slag, moist to wet at 5 feet, medium dense (fill)
2							
3		0.0	MW838S (2-4)				
4							
5	4.0	0.0					
6							
7		0.0					Black Fine to Coarse Sand (SW), moist to wet, loose to medium dense
8							
9	4.0	34.0					
10							
11							
12							Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
13	4.0	52.0					
14							
15		82.0	MW833S (14-16)				
16							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **MW839S**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** MW839S
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 16 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 8 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** 12.5' **WELL DIAMETER:** 2" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1–4	4.0	0.0	MW839S (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
		0.0	MW839S (2-4)				Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
5–8	4.0	0.0				▼	Brown to Gray, Sandy Silt (SM), moist to wet, soft (possible fill)
		5.3					
9–12	4.0	59	MW839S (10-12)				Black to Gray Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet, loose to medium dense
13–16	4.0	26					
		20					

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-884
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/14/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 10 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	3.0	0.0	SB884 (0-2)				Gray Sand (SW), little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3		0.0					Reddish Gray Fine to Coarse Sand, some coarse gravel, moist, loose (fill)
4							
5	3.5	0.0					Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 8 feet, loose to medium dense
6			SB884 (6-8)				
7		0.0					
8							
9	2.0	0.0					
10							End of Boring

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-885
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 2 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB885 (0-2)				Gray Sand (SW), little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-886
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 2 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB86 (0-2)				Gray Sand (SW), little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-887
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 2 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB887 (0-2)				Gray Sand (SW), little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-888
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/10/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 2 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB88(0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense -fill
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-889
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/13/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 2 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB89 (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense -fill
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-890
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/14/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 2 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB890 (0-2)				Black to Brown Fine to Medium Sand, trace medium sub-rounded gravel, moist, loose (fill)
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-891
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/14/2017
DRILLING CONTRACTOR: Amereco **DRILLER:** Greg **RIG TYPE:** Geoprobe 6610DT **SAMPLING METHOD:** Dual Tube	**TOTAL BORING DEPTH:** 2 Feet BGS **BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used **WELL DEPTH:** -- **WELL DIAMETER:** -- **DEPTH TO WATER (DTW):** --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	2.0	0.0	SB891 (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2							
3							End of Boring
4							
5							
6							
7							
8							
9							
10							

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-892
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/10/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 10 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	3.5	0.0	SB892 (0-2)				Gray Silty Sand, little to some cinders and slag (processed steel slag), moist, medium dense (fill)
2		0.0					Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
3		0.0					
4	2.2	0.0					Black to Brown Fine to Medium Sand (SP), trace medium sub-rounded to rounded gravel, moist to wet at 5 feet bgs, loose to medium dense
5							
6							
7		0.0					
8							
9	1.0	0.0	SB892 (8-10)				
10							End of Boring

SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** SB-893
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** --
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 7/14/2017
DRILLING CONTRACTOR: Amereco	**TOTAL BORING DEPTH:** 10 Feet BGS
DRILLER: Greg	**BOREHOLE DIAMETER:** 2 Inches - Geoprobe® used
RIG TYPE: Geoprobe 6610DT	
SAMPLING METHOD: Dual Tube	**WELL DEPTH:** --
	WELL DIAMETER: --
	DEPTH TO WATER (DTW): --

DEPTH IN FEET	RECOVERY (FT)	PID (ppm)	LABORATORY I.D.	MONITORING WELL CONSTRUCTION	GRAPHIC LOG	WATER LEVEL	SAMPLE DESCRIPTION
1	4.0	0.0	SB893 (0-2)				Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill)
2		0.0					
3		0.0					
4							
5	3.0	0.0					Fine to Coarse Sand and Gravel (SW), trace to some cinders and clinkers, moist, wet at 8 feet below ground surface, loose to medium dense (fill)
6							
7		0.0	SB893 (6-8)				
8							
9	0.5	0.0					
10							End of Boring

SOIL BORING LOG

PROJECT NAME: ArcelorMittal
PROJECT NUMBER: 21-32151N
PROJECT LOCATION: Former Coke Plant, East Chicago, Indiana

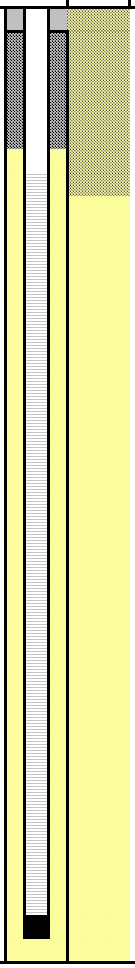
SOIL BORING NUMBER: EW-1
WELL DESIGNATION: EW-1
LOGGED BY: D. Markelz
DATE: 8/25/2017

DRILLING CONTRACTOR: Strata Earth Services
DRILLER: Jake
RIG TYPE: Diedrich 50 ATV
SAMPLING METHOD: Blind Drill

TOTAL BORING DEPTH: 20 Feet BGS
BOREHOLE DIAMETER: 12 Inches

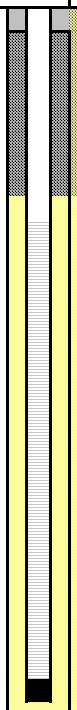
WELL DEPTH: 19.5
WELL DIAMETER: 4"
DEPTH TO WATER (DTW): 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–20						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill



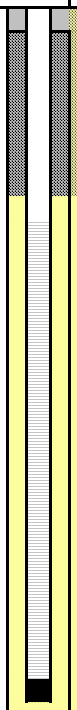
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **IW-1**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** IW-1
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/25/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Blind Drill	**TOTAL BORING DEPTH:** 15 Feet BGS **BOREHOLE DIAMETER:** 12 Inches **WELL DEPTH:** 14.5 **WELL DIAMETER:** 4" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–15						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill

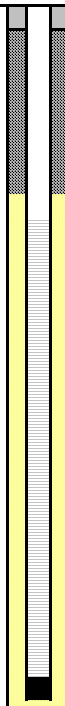
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **IW-2**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** IW-2
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/28/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Blind Drill	**TOTAL BORING DEPTH:** 15 Feet BGS **BOREHOLE DIAMETER:** 12 Inches **WELL DEPTH:** 14.5 **WELL DIAMETER:** 4" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–15						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill

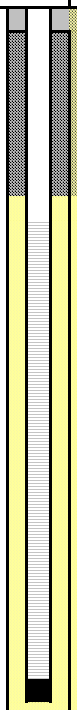
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **IW-3**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** IW-3
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/29/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Blind Drill	**TOTAL BORING DEPTH:** 15 Feet BGS **BOREHOLE DIAMETER:** 12 Inches **WELL DEPTH:** 14.6 **WELL DIAMETER:** 4" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–15						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill

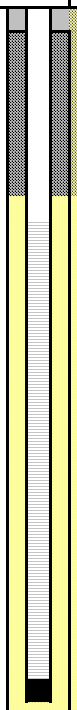
SOIL BORING LOG

PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **IW-4**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** IW-4
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/29/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Blind Drill	**TOTAL BORING DEPTH:** 15 Feet BGS **BOREHOLE DIAMETER:** 12 Inches **WELL DEPTH:** 14.5 **WELL DIAMETER:** 4" **DEPTH TO WATER (DTW):** 5'

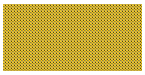
DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–15						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill

SOIL BORING LOG

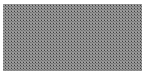
PROJECT NAME: ArcelorMittal	**SOIL BORING NUMBER:** **IW-5**
PROJECT NUMBER: 21-32151N	**WELL DESIGNATION:** IW-5
PROJECT LOCATION: Former Coke Plant East Chicago, Indiana	**LOGGED BY:** D. Markelz **DATE:** 8/30/2017
DRILLING CONTRACTOR: Strata Earth Services **DRILLER:** Jake **RIG TYPE:** Diedrich 50 ATV **SAMPLING METHOD:** Blind Drill	**TOTAL BORING DEPTH:** 15 Feet BGS **BOREHOLE DIAMETER:** 12 Inches **WELL DEPTH:** 14.5 **WELL DIAMETER:** 4" **DEPTH TO WATER (DTW):** 5'

DEPTH IN FEET	RECOVERY (FT)	PID (ppmV)	SOIL SAMPLE LABORATORY I.D.	TEMPORARY WELL CONSTRUCTION	GRAPHIC LOG	WELL WATER LEVEL	SAMPLE DESCRIPTION
1–4							Black Fine to Medium Sand, trace cinders and slag (possible foundry sand), moist, loose (fill) Drillers Observation - Blind Drill
5–15						▼	Gray Fine to Medium Sand (SP), moist to wet, loose to medium dense Drillers Observation - Blind Drill

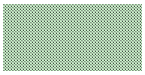
SOIL BORING LOG KEY



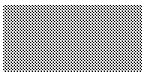
CINDERY FILL



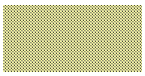
GRAVEL AND SLAG FILL



SILTY CLAY FILL



GRAVEL



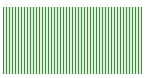
SAND AND GRAVEL

SAND

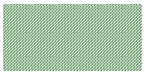
CLAYEY SAND

SILTY SAND

SANDY SILT

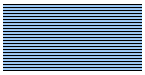


SILT



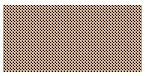
CLAYEY SILT

SILTY CLAY



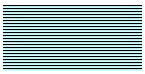
CLAY

LOAM / PEAT



TOPSOIL

ASPHALT



SANDY CLAY

CONCRETE

BENTONITE CHIPS

APPENDIX C
MONITORING WELL DEVELOPMENT FORMS

RAMBOLL

Well Development Record

Site Name: Arcelormittal Coke Plant Well ID Number: MW 827 S

Date of Completion: 9/1/17 Project Number: 21-32151N

Start Time: 1245 End Time: 1300

Water color at start of development: Grey Water Color at end of development: Clear

Amount of water removed during development: 55 Gallons

Contained water? ☑ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☑ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☑ Whale pumps

Notes:

DTB = 15.50' TPVC

DTW = 12.30' TPVC (Before)

DTW = 11.58' TPVC (After)

RAMBOLL

Well Development Record

Site Name: Arcelormittal - Cora Plant Well ID Number: MW 828 S

Date of Completion: 9/27/17 Project Number: 21-32151 N

Start Time: 1245 End Time: 1315

Water color at start of development: gray Water Color at end of development: Clear

Amount of water removed during development: 55 Gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.50' TPVC

DTW = (Before Development) 5.85 TPVC

DTW: (After Development) 5.75 PVC

RAMBOLL

Well Development Record

Site Name: Arcelormittal - coke plant Well ID Number: MW 829 S

Date of Completion: 9/27/17 Project Number: 21-32151N

Start Time: 1215 End Time: 1245

Water color at start of development: Dk Gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☒ Other: Surge w/ pump + pumped

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.40 (TPVC)

DTW Before Development 5.40 BTPVC (Below TPVC)

DTW After Development 5.89 BTPVC

RAMBOLL

Well Development Record

Site Name: Arcelormittal Cokeplant Well ID Number: MW830S

Date of Completion: 9/27/17 Project Number: 21-32151N

Start Time: 1315 End Time: 1345

Water color at start of development: Dk gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.30 TPVC

DTW (Before Development) 6.00 TPVC

DTW After Development) 5.90 TPVC

RAMBOLL

Well Development Record

Site Name: Arcelormittal Coke Plant Well ID Number: MW 831S

Date of Completion: 7/31/17 Project Number: 21-32151N

Start Time: 1320 End Time: 1345

Water color at start of development: Black/gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.40' +pvc

DTW = 7.40' +pvc Before

DTW = 7.72' +pvc After

RAMBOLL

Well Development Record

Site Name: Arcelormittel Coke plant Well ID Number: MW 832 S

Date of Completion: 7/28/17 Project Number: 21-32151N

Start Time: 1115 End Time: 1145

Water color at start of development: gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.40 (TPVC)

DTW = Before Development 6.70 (TPVC)

DTW = After Development 7.10 (TPVC)

RAMBOLL

Well Development Record

Site Name: Arcelormittal Cure Plant Well ID Number: MW-32D

Date of Completion: 9/1/17 Project Number: 21-32151N

Start Time: 1200 End Time: 1215

Water color at start of development: Gray Water Color at end of development: Clear

Amount of water removed during development: 55 Gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

~~DTB~~ DTB = 41.0 tpvc

~~DTW~~ DTW 11.20 (Before)

DTW 7.46 (After)

RAMBOLL

Well Development Record

Site Name: Arcelor mittal - Cove plaT Well ID Number: mw 8335

Date of Completion: 7/28/17 Project Number: 21-32151N

Start Time: 1115 End Time: 1145

Water color at start of development: Grey/Black Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

D+D 15.40'

DTW 7.75' TPVC Before

DTW 7.96' +pvc After

RAMBOLL

Well Development Record

Site Name: ArcelorMittal Cokeplant Well ID Number: MW 834D

Date of Completion: 9/1/17 Project Number: 21-32151N

Start Time: 1230 End Time: 1245

Water color at start of development: Black/Gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 41' TPVC

DTW = 8.75'

DTW = 7.06'

RAMBOLL

Well Development Record

Site Name: Arcelormittal Coke plant Well ID Number: MW 835D

Date of Completion: 9/1/27 Project Number: 21-32151N

Start Time: 1215 End Time: 1230

Water color at start of development: Black/Gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 40' TPVC

DTW = 9.40 TPVC (Before)

DTW = 8.30 TPVC (After)

RAMBOLL

Well Development Record

Site Name: Arcelormittal Coke Plant Well ID Number: MW 8365

Date of Completion: 9/1/17 Project Number: 21-32151N

Start Time: 1500 End Time: 1530

Water color at start of development: Gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB: 15.40' TPVC

DTW: 7.70' (Before) TPVC

DTW: 8.94 (AFL) TPVC

RAMBOLL

Well Development Record

Site Name: Arcelormittal Coke plant Well ID Number: MW 838S

Date of Completion: 7/31/17 Project Number: 21-32151N

Start Time: 1350 End Time: 1410

Water color at start of development: Black Water Color at end of development: Clear

Amount of water removed during development: 55

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.35' TPVC

DTW = 7.17' TPVC

DTW = 8.29' TPVC

RAMBOLL

Well Development Record

Site Name: ArcelorMittal Coke plant Well ID Number: MW 839S

Date of Completion: 7/27/17 Project Number: 21-32151N

Start Time: 1345 End Time: 1415

Water color at start of development: Black/Gray Water Color at end of development: Clear

Amount of water removed during development: 55 gallons

Contained water? ☒ Yes ☐ No

If not contained, where water disposed? _____

Well Development Methods:

- ☐ Surged with bailer and bailed
- ☐ Surged with block and bailed
- ☐ Surged with block, bailed, and pumped
- ☐ Bailed only
- ☐ Pumped slowly
- ☒ Surged with bailer and pumped
- ☐ Surged with block and pumped
- ☐ Compressed air
- ☐ Pumped only
- ☐ Other: _____

Equipment Used

- ☐ PVC bailer
- ☐ Well wizard
- ☐ Bean or Moino pump (on drill rig)
- ☐ Surge block
- ☒ Whale pumps

Notes:

DTB = 15.40 TPVC

DTW= (Before Development) 6.10 TPVC

DTW= (After Development) 6.46 TPVC

APPENDIX D
GROUNDWATER SAMPLING FORMS

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-8325
Sample ID MW-8325-GW (09/11/17)
Sample Time 13:15
Sample Date 9/11/17

Personnel Present T. Burgett
M. Levenhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.16 ft TOC
DTB: ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: 3 ft. below measuring point
Pump intake set at: 10 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1246	8.19			6.57	0.835	80.0	25.62	1.17	120
1249	8.19			6.91	0.786	58.8	23.93	0.30	85
1252	8.19			6.95	0.774	49.6	22.74	0.20	54
1255	8.19			6.95	0.773	61.7	22.29	0.00	74
1256	—			6.95	0.771	60.0	21.90	0.00	63
1301	—			6.96	0.770	56.2	21.68	0.00	40
1304	—			6.96	0.769	38.4	21.41	0.00	24
1307	—			6.96	0.770	21.7	21.09	0.00	9
1310	—			6.96	0.769	29.1	21.11	0.00	2

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear
Odor Observed? Describe: none
PID readings (breathing zone): 0.1 ppm
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 2

Well ID MW-8155
Sample ID ~~MW-8155 (09/11/2017)~~ MW-8155-GW (09/11/2017)
Sample Time
Sample Date 9/11/2017

Personnel Present CJ WH

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: ~~9.31~~ (9) ft TOC 10.13
DTB: 16.81 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 11.81 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1345	10.16	0	200	7.36	0.946	17.7	18.85	7.80	199
1350	10.16	1L	200	7.66	0.999	31.1	18.58	6.55	161
1355	10.16	2.0	200	7.71	0.999	18.1	18.32	5.97	152
1400	10.16	3.0	200	7.75	1.01	8.4	17.98	5.06	139
1405	10.16	4.0	200	7.78	1.02	~~40~~ (9) 5.5	17.91	4.07	121
1410	10.16	5.0	200	7.80	1.03	2.6	17.90	~~4.23~~ (9) 3.50	107
1415	10.16	6.0	200	7.81	1.03	2.5	17.82	2.72	94
1420	10.16	7.0	200	7.82	1.02	0.3	17.73	2.25	85
1425	10.16	8.0	200	7.84	1.01	0.5	17.61	1.17	69
1430	10.16	9.0	200	7.85	1.00	0.0	17.57	0.89	59
1435	10.16	10.0	200	7.86	0.999	0.0	17.56	0.82	43

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	U734054
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U96024
electronic depth-to-water meter	Heron Dipper	U60251
other:		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: 90s, windy & sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 2 2

Well ID MW-815S
Sample ID MW-815S-GW (09/11/2019)
Sample Time 1500
Sample Date 09/11/2019

Personnel Present CJ WM

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Initial DTW: _____ ft TOC

DTB: _____ ft TOC

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

→ refer to page 1

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1440	10.16	11.0	200	7.87	0.998	0.0	17.46	0.21	32
1445	10.16	12.0	200	7.88	0.989	8.0	17.41	0.04	21
1450	10.16	13.0	200	7.88	0.987	0.1	17.36	0.00	11
1455	10.16	14.0	200	7.89	0.985	0.0	17.39	0.00	3

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

refer to page 1

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-815D
Sample ID MW-815D-GW-(09/11/17) MGP
Sample Time 14:25
Sample Date 9/11/2017

Personnel Present _____

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.44 ft TOC

DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
13:45	8.95			7.50	4.43 mS	110	17.00	0.93	-47
13:48	8.98			7.83	4.46 mS	17.7	15.53	0.28	-110
13:52	8.89			7.84	4.43	11.8	15.53	0.11	-120
13:55	8.89			7.85	4.38	9.0	15.56	0.03	-124
13:58	8.89			7.87	4.31	7.0	15.60	0.00	-128
14:03	8.89			7.88	4.26	4.2	15.46	0.00	-131
14:06	8.89			7.88	4.33	2.6	16.05	0.00	-131
14:12	8.89			7.90	4.11	3.8	15.71	0.29	-125
14:15	8.89			7.90	4.13	3.5	15.57	0.00	-133
14:19	8.89			7.90	4.10	3.1	15.51	0.00	-135
14:23	8.89			7.91	4.06	2.3	15.44	0.00	-137

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech / Geopump	~~UB0515X~~ MGP B15004772
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)	MiniRAE 3000	592-912285
electronic depth-to-water meter	Geotech / Keck	2678
other:		

Sample Appearance:
Odor Observed? Describe: None
PID readings (breathing zone): 0 ppm
Weather Conditions: somewhat cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW-B33S
Sample ID MW-B33S-GW-(091117)
Sample Time 1449
Sample Date 9/11/17

Personnel Present D Marlett

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate / MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: _____ ft TOC
DTB: _____ ft TOC

1400 - 1410

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1407	9.12		250	6.59	0.502	6.4	22.87	6.68	130
1410	9.12		250	6.96	0.471	4.4	22.44	6.08	124
1415	9.12		250	7.31	0.451	2.2	22.22	5.71	116
1420			250	7.53	0.443	1.8	22.19	5.94	110
1425			250	7.91	0.432	5.2	22.38	5.34	90
1430			250	7.90	0.433	5.0	22.40	5.30	94
1435			250	7.90	0.432	5.1	22.39	5.33	97
1440			250	7.90	0.433	5.0	22.40	5.33	96

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: none
PID readings (breathing zone): -
Weather Conditions: 70 / Clear
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Personnel Present T. Burgett, M. Lewenhagen

Well ID MW-832D
Sample ID MW-832D-GW (09/11/17)
Sample Time 1405
Sample Date 9/11/17

QA/QC Sample ID (if applicable)
If applicable, circle one: (Field Duplicate) MS/MSD

Initial DTW: 8.25 ft TOC
DTB: ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 3 ft.
Top of well screen: 42 ft. below measuring point
Pump intake set at: 43.5 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1334	8.39			6.97	1.64	454	25.67	7.28	-71
1337	8.35			7.12	1.75	339	23.62	5.71	-130
1341	8.32			7.15	1.83	155	22.64	4.28	-153
1344	8.32			7.15	1.86	118	21.42	0.00	-160
1347	8.33			7.13	1.84	82.2	21.66	0.00	-163
1350	8.33			7.10	1.82	71.6	21.93	0.00	-163
1353	8.33			7.04	1.85	48.2	21.09	0.00	-164
1356	8.35			7.10	1.83	43.4	21.19	0.00	-165
1359	8.34			7.10	1.82	41.7	21.00	0.00	-167

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear
Odor Observed? Describe: none
PID readings (breathing zone): 0.1 ppm
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

MICROBAC®

Samples Submitted to: [X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664 [ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **140512**

Instructions on back

Client Name: Ramboll Environ	Project: Arcelor Mittal	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr #160	Location: Coke Plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield, WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Mejac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markelz Sampler Signature: [signature] Sampler Phone #: 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address): mmejac@ramboll.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC Dr	VOC	SVOC	Wet Chemistries	Dissolved metals	Metals	Phenols	Cyanide	TOC	For Lab Use Only
MW-832S-GW (09/11/17)	GW	X	—	NO	9/11/17	1315	14	(2, 3, 1, 4)		X	X	X	X	X	X	X	✓	
MW-832D-GW (09/11/17)	↓	↓	↓	↓	↓	1405	14	↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-832D-D-GW (09/11/17)	↓	↓	↓	↓	↓	1405	14	↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-815D-GW (09/11/17)	↓	↓	↓	↓	↓	1425	14	↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-815S-GW (09/11/17)	↓	↓	↓	↓	↓	1500	14	↓		↓	↓	↓	↓	↓	↓	↓	↓	
MW-833S-GW-(09/11/17)	↓	↓	↓	↓	↓	1440	42	↓		↓	↓	↓	↓	↓	↓	↓	↓	(MS/MSD)

DM

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac				
Temperature Upon Receipt (°C)	Relinquished By (signature): DM 9/11/17 1700	Date/Time	Received By (signature)	Date/Time
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature): [signature]	Date/Time: 9-11-17

rev.6/18/15

Page ____ of ____ 1700

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW-8245
Sample ID MW-8245-GW (COLLECTED)
Sample Time 950
Sample Date 9/12/17

Personnel Present T. Burgett, M. Leverknagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.50 ft TOC
DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
927	8.50			6.76	0.917	0.1	21.15	0.87	~~-87~~ mV
930	8.50			7.28	0.892	0.0	20.87	0.04	-211
933	8.50			7.83	0.880	0.0	20.34	0.00	-289
936	8.49			8.10	0.885	0.0	20.35	0.00	-324
940	8.50			8.19	0.871	0.0	20.29	0.00	-338
943	8.50			8.24	0.850	0.0	20.19	0.00	-346
946	8.50			8.30	0.848	0.0	19.93	0.00	-353
949	8.50			8.32	0.848	0.0	19.77	0.00	-357

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: some small black particulate suspended; flakes
Odor Observed? Describe: none
PID readings (breathing zone): 0.0
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1

Well ID MW-8340
Sample ID MW-8340-GW (09/12/17)
Sample Time 0950
Sample Date 9/12/17

Personnel Present T. Burgett
M. Leventhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.20 ft TOC

DTB: ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
0930	8.25			7.55	1.64	3.3	21.27	0.00	-81
0933	8.31			7.51	1.87	4.6	19.81	0.00	-140
0936	8.28			7.52	1.88	7.5	18.50	0.00	-152
0939	8.28			7.53	1.91	18.9	18.36	0.00	-162
0942	8.29			7.52	1.93	24.1	18.07	0.00	-165
0945	8.29			7.52	1.91	24.6	17.94	0.00	-169
0948	8.24			7.51	1.93	23.3	17.77	0.00	-171

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: turbid, particulate matter
Odor Observed? Describe: slight odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 70's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW-816D
Sample ID MW-816D-GW (09/12/17)
Sample Time 1140
Sample Date 9/12/17

Personnel Present T. Burgett, M. Leevenhagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.90 ft TOC

DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1116	9.16			8.38	4.39	52.0	22.17	3.77	-156
1119	9.18			8.10	5.13	7.7	20.28	0.53	-183
1122	9.20			8.18	5.18	6.5	18.96	0.00	-198
1125	9.21			8.24	5.23	0.0	18.44	0.00	-205
1128	9.14			8.25	5.20	0.0	18.93	0.00	-215
1132	9.14			8.24	5.21	1.6	19.13	0.00	-223
1135	9.14			8.25	5.19	0.0	19.16	0.00	-228
1138	9.14			8.26	5.13	0.9	19.16	0.00	-232

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: some small black particulate suspended
Odor Observed? Describe: none
PID readings (breathing zone): 0.0
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-SW65
Sample ID MW-SW65-GW (09/12/17)
Sample Time 1145
Sample Date 9/12/17

Personnel Present T. Burgett
M. Levenhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 9.85 ft TOC
DTB: ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1112	10.15			12.78	5.05	14.0	21.80	0.88	-163
1115	10.15			12.73	4.97	10.9	22.63	0.00	-212
1118	9.99			12.78	5.18	9.4	22.62	0.00	-219
1121	10.16			12.74	5.20	9.7	21.59	0.00	-217
1124	10.16			12.73	5.12	8.3	21.43	0.00	-226
1127	10.29			12.69	4.69	6.8	20.65	0.00	-225
1130	10.15			12.61	3.93	2.3	20.32	0.00	-225
1133	10.15			12.54	3.42	375	20.41	0.00	-236
1136	10.15			12.50	3.09	378	20.33	0.00	-250
1139	10.15			12.45	2.70	379	20.33	0.00	-272
1142	10.15			12.40	2.56	361	20.25	0.00	-287

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear
Odor Observed? Describe: none
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, windy, 70's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW 025 S-GW-091217
Sample ID MW 0,25 7
Sample Time 1425
Sample Date 9/12/17

Personnel Present _____

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: _____ ft TOC
DTB: _____ ft TOC

1400-1425

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1403	7.33		250	10.98	1.20	7.5	21.02	3.69	-104
1407	7.33		250	11.32	1.20	2.3	20.85	1.35	-178
1410	7.33		250	11.39	1.24	0.9	20.77	1.07	-207
1415			250	11.70	1.25	0.5	20.75	0.88	-233
1418			250	11.50	1.24	0.5	20.71	0.78	-254
1420			250	11.53	1.24	0.5	20.69	0.72	-263
1425			250	11.53	1.24	0.5	20.68	0.71	-264

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: none
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-8195
Sample ID MW-8195-GW (09/13/17)
Sample Time 1400
Sample Date 9/13/17

Personnel Present T. Burgh
M. Levenhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 7.36 ft TOC
DTB: ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1327	7.47			7.35	0.796	40.7	20.77	0.20	-135
1330	7.50			6.82	0.787	25.3	19.37	0.00	-133
1333	7.51			6.73	0.783	22.0	19.86	0.00	-134
1336	7.51			6.71	0.784	20.1	19.83	0.00	-135
1339	7.51			6.71	0.821	20.4	19.98	0.00	-136
1342	7.51			6.71	0.837	20.0	19.08	0.00	-130
1345	7.51			6.72	0.851	18.7	19.36	0.00	-133
1348	7.51			6.73	0.868	18.0	19.25	0.00	-133
1351	7.51			6.74	0.884	15.5	19.15	0.00	-134
1354	7.51			6.74	0.892	13.3	19.16	0.00	-135
1357	7.51			6.75	0.901	9.5	18.91	0.00	-136

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: dark, some particulate matter
Odor Observed? Describe: ~~none~~ Yes slight odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 90's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Personnel Present T. Burgett, M. Leventhagen

Well ID MW-819D
Sample ID MW-819D-GW (09/12/17)
Sample Time 1346
Sample Date 9/12/17

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.25 ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1324	7.54			7.50	1.89	8.5	22.50	2.02	-174
1327	7.57			6.78	2.22	0.0	21.03	0.09	-176
1330	7.50			6.75	2.29	0.0	19.48	0.00	-179
1333	7.49			6.74	2.23	0.0	19.72	0.00	-175
1337	7.51			6.72	2.26	0.0	19.60	0.00	-174
1341	7.52			6.70	2.24	0.0	19.89	0.00	-173
1344	7.50			6.67	2.26	0.0	19.66	0.00	-173

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Small and larger black particulate
Odor Observed? Describe: None observed
PID readings (breathing zone): 0.0
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Personnel Present T. Burgett, M. Levenhagen

Well ID MW-805D
Sample ID MW-805D-GW (09/12/17)
Sample Time 1543
Sample Date 9/12/17

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.09 ft TOC
DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1511	8.37			7.16	1.58	199	28.07	0.78	-196
1514	8.35			7.07	1.60	309	25.92	0.00	-194
1517	8.35			7.05	1.65	117	24.05	0.00	-195
1520	8.35			7.05	1.69	280	23.18	0.00	-197
1523	8.35			7.03	1.72	287	21.98	0.00	-196
1526	8.38			7.01	1.72	290	21.65	0.00	-196
1529	8.32			6.99	1.73	265	21.38	0.00	-195
1532	8.33			6.96	1.75	215	21.06	0.00	-194
1535	8.38			6.93	1.76	190	20.87	0.00	-193
1538	8.33			6.97	1.75	177	20.76	0.00	-195
1541	8.33			6.96	1.76	137	20.48	0.00	-195

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Very small and few black particulates
Odor Observed? Describe: None observed
PID readings (breathing zone): 0.0
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-8655
Sample ID MW-8655-GW-(09/12/17)
Sample Time 1545
Sample Date 9/12/17

Personnel Present T. Burgett
M. Levenhagen

QA/QC Sample ID (If applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 7.64 ft TOC
DTB: ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1511	7.66			7.00	1.00	7.5	23.46	0.36	-77
1514	7.69			6.93	1.03	7.9	21.89	0.00	-95
1517	7.69			6.95	1.00	7.4	21.63	0.00	-90
1520	7.69			6.96	0.858	15.4	21.56	0.00	-91
1523	7.69			6.91	0.676	18.8	21.50	0.00	-92
1526	7.69			6.86	0.558	18.4	21.47	0.00	-91
1529	7.69			6.87	0.506	16.0	21.55	0.00	-95
1532	7.69			6.90	0.497	12.3	21.43	0.00	-99
1535	7.69			6.92	0.490	7.3	21.16	0.00	-103
1538	7.69			6.96	0.496	3.9	21.00	0.00	-109
1541	7.69			6.99	0.491	3.7	20.93	0.00	-113

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: generally clear w/ some light particulates
Odor Observed? Describe: slight odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 80's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

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Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-823D
Sample ID MW-823D-GW (09/12/17)
Sample Time 16:23
Sample Date 9/12/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.96 ft TOC
DTB: 43.75 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 42.25 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
15:47	8.40			8.66	2850	51.8	16.09	0.55	-195
15:51	8.40			8.77	2890	50.0	15.66	0.00	-216
15:54	8.40			8.74	2840	93.8	15.57	0.00	-218
15:57	8.40			8.68	2750	92.6	15.52	0.00	-219
16:00	8.40			8.64	2720	89.0	15.49	0.00	-220
16:03	8.40			8.63	2690	84.1	15.40	0.00	-220
16:06	8.40			8.62	2730	84.0	15.37	0.00	-222
16:09	8.39			8.61	2700	77.6	15.43	0.00	-224
16:12	8.39			8.61	2690	73.1	15.37	0.00	-225
16:16	8.39			8.59	2740	65.1	15.32	0.00	-230
16:19	8.39			8.58	2690	56.4	15.27	0.00	-234

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech/GeoPump	B1500477Z
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRae	592-912285
electronic depth-to-water meter	Geotech/Keck	26788
other:		

Sample Appearance: Clear mostly w/ some medium black sediments
Odor Observed? Describe: None
PID readings (breathing zone): 0.0
Weather Conditions: Mostly cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-823S
Sample ID MW-823S-GW (09/12/17)
Sample Time 14:38
Sample Date 9/12/17

Personnel Present Magdalena Grotczynska-Page

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.07 ft TOC
DTB: 17.88 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: 12.88 ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)	
13:55	8.16			8.00	761	10.3	18.66	0.97	114	
13:59	8.16			8.05	768	7.2	18.38	0.64	145	
14:02	8.16			7.99	790	8.3	18.36	0.60	88	
14:05	8.16			7.96	797	10.1	18.34	0.52	~~0.57~~ ORP	-0.57
14:08	8.16			7.93	806	8.7	18.33	0.32	-88	
14:11	8.16			7.92	810	7.0	18.32	0.20	-100	
14:14	8.16			7.92	811	6.4	18.32	0.10	-107	
14:17	8.16			7.92	814	6.2	18.31	0.04	-112	
14:20	8.16			7.91	817	5.4	18.30	0.00	-118	
14:23	8.16			7.88	819	5.2	18.31	0.00	-121	
14:26	8.16			7.87	820	4.8	18.29	0.00	-123	

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	B1500+772
water quality meter controller	Horiba	YBR30302
water quality meter probe	Horiba	XPXK9015F
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: None
PID readings (breathing zone): 0.0
Weather Conditions: Slightly cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 2082

Well ID MW-823S
Sample ID MW-823S-GW (09/12/17)
Sample Time 14:38
Sample Date 9/12/17

Personnel Present _____

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: _____ ft TOC

DTB: _____ ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
14:29	8.16			7.88	821	4.3	18.28	0.00	-123
14:32	8.16			7.85	822	4.8	18.29	0.00	-123

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-8295
Sample ID MW-8295-GW-7 (09/12/17) MGP
Sample Time 12:03
Sample Date 9/12/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.30 ft TOC

DTB: 15.40 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: 10.40 ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
11:32	7.39			7.58	759	0.0	20.97	0.74	-136
11:36	7.39			7.43	852	0.0	19.26	0.08	-144
11:39	7.39			7.42	866	0.0	18.72	0.00	-146
11:42	7.39			7.43	873	1.4	18.39	0.00	-146
11:45	7.40			7.43	874	2.4	18.32	0.00	-146
11:48	7.40			7.44	875	2.7	18.09	0.00	-147
11:51	7.40			7.45	876	1.0	18.00	0.00	-147
11:54	7.40			7.46	881	0.0	17.91	0.00	-147
11:57	7.40			7.46	882	0.0	17.95	0.00	-146
12:00	7.40			7.46	886	0.0	17.90	0.00	-146

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	B15004772
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: None
PID readings (breathing zone): 0.0
Weather Conditions: Sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-8205
Sample ID MW-8205-GW(09/12/17)
Sample Time 10:24
Sample Date 9/12/17

Personnel Present Magdalena Goterzynska-Page

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.18 ft TOC

DTB: 15.5 ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: 10.50 ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance ~~mS~~ µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
9:51	7.20			6.5	0.844	0.0	19.08	0.59	-67
9:54	7.20			7.04	0.748	0.1	18.82	0.22	-118
9:57	7.20			7.24	0.780	0.0	18.64	0.09	-133
10:01	7.20			7.33	0.769	0.0	18.50	0.02	-142
10:04	7.20			7.38	0.758	0.0	18.45	0.00	-147
10:07	7.20			7.41	0.749	0.0	18.42	0.00	-150
10:10	7.20			7.43	0.749	0.0	18.39	0.00	-153
10:13	7.20			7.45	0.742	0.0	18.41	0.00	-156
10:16	7.20			7.47	0.735	0.0	18.38	0.00	-157
10:19	7.20			7.48	0.735	0.0	18.35	0.00	-159

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	D1500H772
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: Strong chemical smell
PID readings (breathing zone): 0.0
Weather Conditions: Sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Personnel Present CJ WM

Well ID MW-839S
Sample ID MW-839S-GW (09/12/2017)
Sample Time 1235
Sample Date 9/12/2017

QA/QC Sample ID (If applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.75 ft TOC
DTB: 15.36 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 10.36 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1155	7.98	0	200	10.32	0.416	11.7	21.90	0.88	36
1200	7.99	1	200	10.68	0.389	9.9	19.66	0.25	11
1205	7.99	2	200	10.71	0.379	10.6	18.84	0.00	-5
1210	7.99	3	200	10.74	0.375	9.5	18.40	0.00	-23
1215	7.99	4	200	10.78	0.374	8.1	18.35	0.00	-31
1220	7.99	5	200	10.80	0.374	6.1	18.16	0.00	-42
1225	7.99	6	200	10.79	0.374	5.9	18.19	0.00	-47
1230	7.99	7	200	10.80	0.374	5.8	18.15	0.00	-54

Horiba controller restarted →

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geopump	U734054
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U760244
electronic depth-to-water meter	Heron Dipper	U60251X
other: ~~plastic~~		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 PPM
Weather Conditions: 70-80s °F Sunny, Breezy
Other Comments/Observations : Start purging @ 11:52

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-830S
Sample ID MW-830S-GW (9/12/2017)
Sample Time 10:10
Sample Date 9/12/2017

Personnel Present CJ Wu

QA/QC Sample ID (if applicable) MW-830S-D-GW (9/12/2017)
If applicable, circle one: (Field Duplicate) MS/MSD

Initial DTW: 7.36 ft TOC
DTB: 15.23 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 10.23 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
0935	7.36	0	200	7.04	0.843	8.4	20.86	0.92	159
0940	7.37	1.0	200	7.37	0.803	6.0	19.00	0.44	115
0945	7.37	2.0	200	7.50	0.797	0.8	18.51	0.04	59
0950	7.37	3.0	200	7.54	0.796	0.0	18.40	0.00	22
0955	7.37	4.0	200	7.57	0.793	0.0	18.38	0.00	-24
1000	7.37	5.0	200	7.61	0.786	0.0	18.32	0.00	-63
1005	7.37	6.0	200	7.63	0.785	0.0	18.27	0.00	-76

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	geopump	U734054
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U76024X
electronic depth-to-water meter	Heron Dipper	U60251X
other:		

Sample Appearance: clear,
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: 70s, sunny, breezy
Other Comments/Observations : start purging @ 09:31

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-821S
Sample ID MW-821S-GW(09/12/2017)
Sample Time 1730
Sample Date 9/12/2017

Personnel Present CJ Wu

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.78 ft TOC
DTB: 15.58 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 10.58 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1645	7.83	0	200	8.01	0.491	3.1	16.93	0.96	-38
1650	7.86	1	200	7.70	0.497	5.8	16.73	0.41	-53
1655	7.88	2	200	7.45	0.514	11.2	16.43	0.00	-58
1700	7.88	3	200	7.36	0.521	8.1	16.32	0.00	-61
1705	7.88	4	200	7.38	~~0.397~~ 0.523	6.7	16.30	0.00	-65
1710	7.88	5	200	7.29	0.536	0.5	16.27	0.00	-63
1715	7.88	6	200	7.27	0.531	0.0	16.19	0.00	-64
1720	7.88	7	200	7.25	0.530	0.0	16.21	0.00	-65
1725	7.88	8	200	7.23	0.532	0.0	16.15	0.00	-68

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	U73405X
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U76024X
electronic depth-to-water meter	Heron Dipper	U60251X
other:		

Sample Appearance: brownish color,
Odor Observed? Describe: Chemical Odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: Sunny, Breezy 70-80s°F
Other Comments/Observations : start purging @ 1642, free product in well., oil sheen in purge bucket

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 2

Well ID MW-821D
Sample ID MW-821D-GW(09/12/2017)
Sample Time 1505
Sample Date 9/12/2017

Personnel Present CJ Wu

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.61 ft TOC
DTB: 46.05 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ~~10~~ (3) 3 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 44.55 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1400	7.61	0	200	8.69	3.11	32.0	18.89	0.86	6
1405	7.61	1	200	8.28	3.12	8.7	15.92	0.00	-73
1410	7.61	2	200	8.18	3.11	10.1	15.60	0.00	-83
1415	7.69	3	200	8.23	3.00	10.4	15.42	0.00	-95
1420	7.69	4	200	8.19	2.96	13.5	15.41	0.00	-98
1425	7.72	5	200	8.25	2.95	13.9	15.39	0.00	-104
1430	7.75	6	200	8.42	2.91	9.3	15.25	0.00	-114
1435	7.75	7	200	8.51	2.89	10.9	15.21	0.00	-120
1440	7.75	8	200	8.57	2.86	10.9	15.17	0.00	-123
1445	7.75	9	200	8.86	2.75	11.2	15.06	0.00	-136
1450	7.75	10	200	8.90	2.73	10.7	15.03	0.00	-139

Horiba restarted →

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	U734054X
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U16024X
electronic depth-to-water meter	Heron Dipper	U6025IX
other:		

Sample Appearance: brownish color
Odor Observed? Describe: chemically odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: 70-80s °F, Sunny & Breezy
Other Comments/Observations : Start purging @ 1358

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 2

Well ID MW-8210
Sample ID MW-8210-GW(09/12/2017)
Sample Time 1505
Sample Date 09/12/2017

Personnel Present CJ WH

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: ft TOC
DTB: ft TOC

→ see page 1

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1455	7.75	11	200	8.90	2.71	10.2	15.01	0.00	-139
1500	7.75	12	200	8.95	2.72	10.1	14.96	0.00	-142

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller	see page 1	
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone): see page 1
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW 820 S
Sample ID MW 820 S-GW-9/12/17
Sample Time 1140
Sample Date 9/12/17

Personnel Present D. Marken

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate (MS/MSD)

Initial DTW: _____ ft TOC
DTB: _____ ft TOC

MS/MSD

1106 - 1140

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1110	9.05		250	9.72	0.250	22.9	19.30	1.72	-14
1113			250	10.27	0.267	16.7	18.87	1.04	-55
1115			250	10.44	0.273	19.3	18.65	0.98	-70
1120			250	10.62	0.274	18.79	18.81	0.77	-90
1124			250	10.75	0.288	15.4	18.92	0.70	-103
1130			250	10.80	0.280	15.0	19.00	0.64	-120
1135			250	10.77	0.279	16.0	19.09	0.64	-126
1140			250	10.77	0.284	16.1	19.08	0.64	-124

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: Petro odor (LNAPL in well)
PID readings (breathing zone): —
Weather Conditions: Windy 80° F
Other Comments/Observations :

LNAPL @ 7.85' TPVC
Water @ 9.05' TPVC

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

MICROBAC®

Samples Submitted to:

[ ] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664

[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number 142384 1/2

Instructions on back

Client Name: Ramboll Environ	Project: Arcelormittal Coke plant	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr # 160	Location:	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield WI 53045	PO #:	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Medek	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markell Sampler Signature: [signature] Sampler Phone #: 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address): Mmedek@ramboll.com

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** **Preservative Types:** (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet Chemistry	Dissolved metals	Metals	Phenols	Cyanide	For Lab Use Only
MW 820S-GW-091217	GW	X	-	NO	9/12/17	1140	42	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8245-GW (09/12/17)	GW	X	-	NO	9/12/17	0950	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8240-GW (09/12/17)	GW	X	-	NO	9/12/17	0950	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8165-GW (09/12/17)	GW	X	-	NO	9/12/17	1145	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8160-GW (09/12/17)	GW	X	-	NO	9/12/17	1146	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-825S-GW-(09/12/17)	GW	X	-	NO	9/12/17	1425	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8195-GW (09/12/17)	GW	X	-	NO	9/12/17	1400	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8190-GW (09/12/17)	GW	X	-	NO	9/12/17	1346	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-8055-GW (09/12/17	GW	X	-	NO	9/12/17	1545	14	2,3,1,4	X	X	X	X	X	X	X	X	
TRIP BLANK									—	X	—	—	—	—	—	—	

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive

Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Temperature Upon Receipt (°C)	David Markell	9/13/17 / 0800		
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature) [signature]	Date/Time 9-13-17

rev.6/18/15

Page ____ of ____ 0800

MICROBAC®

Samples Submitted to: [ ] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664

[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **142451** 2/2

Instructions on back

Client Name: Ramboll Environ	Project: Arcelor Mittal	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr. #160	Location: Coke Plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield, WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Mejac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markelz Sampler Signature: [signature] Sampler Phone #: 262 477 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address) mmejac@ramboll.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → / Preservative Types ** ↓	TOC	VOC	SVOC	Wet Chemistries	Dissolved Metals	Metals	Phenols	Cyanide	For Lab Use Only
MW-805D-GW (09/12/17)	GW	X	—	NO	9/12/17	1543	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-829S-GW (09/12/17)	GW	X	—	NO	9/12/17	1203	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-828S-GW (09/12/17)	GW	X	—	NO	9/12/17	1024	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-823S-GW (09/12/17)	GW	X	—	NO	9/12/17	1438	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-823D-GW (09/12/17)	GW	X	—	NO	9/12/17	1623	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-821S-GW (09/12/17)	GW	X	—	NO	9/12/17	1703	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-830S-GW (09/12/17)	↓	↓	↓	↓	↓	10:10	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-839S-GW (09/12/17)	↓	↓	↓	↓	↓	1235	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-821D-GW (09/12/17)	↓	↓	↓	↓	↓	1505	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac

Temperature Upon Receipt (°C)	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	[signature]	9/13/17 / 0800		
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature) [signature]	Date/Time 9-13-17

rev.6/18/15

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RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No.

Personnel Present M. Leuenhagen

Well ID MW-835D ~~S~~ MW
Sample ID MW-835D-GW (09/13/17)
Sample Time 1150
Sample Date 09/13/2017

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.94 ft TOC
DTB: ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1133	9.33			7.34	1.39	101	20.67	2.42	-149
1136	9.27			7.21	1.79	159	17.87	0.15	-187
1140	9.20			7.18	1.82	210	18.10	0.00	-193
1143	9.21			7.17	1.87	213	18.04	0.00	-194
1146	9.23			7.18	1.89	216	17.87	0.00	-196
1149	9.21			7.17	1.89	211	17.92	0.00	-197

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Very fine whitish flecks suspended
Odor Observed? Describe: None observed
PID readings (breathing zone): 0.1
Weather Conditions: Overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-8035
Sample ID MW-8035-GW (09/13/17)
Sample Time 1555
Sample Date 9/13/17

Personnel Present T. Burgett, M. Leventhagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Initial DTW: 9.60 ft TOC

DTB: _____ ft TOC

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1530	9.60			6.59	1.067	1.8	20.58	2.73	-195
1533	9.60			7.33	1.065	0.3	20.03	0.00	-362
1536	9.60			6.97	1.064	0.3	19.80	0.00	-366
1539	9.60			6.89	1.064	0.0	19.55	0.00	-368
1542	9.60			6.86	1.062	0.0	19.36	0.00	-371
1545	9.60			6.83	1.060	0.0	19.18	0.00	-375
1548	9.60			6.82	1.058	0.0	19.07	0.00	-377

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: mostly clear, some black particulates
Odor Observed? Describe: slight odor
PID readings (breathing zone): 0.2 ppm
Weather Conditions: overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-803M
Sample ID MW-803M-GW (09/13/17)
Sample Time 1700
Sample Date 9/13/17

Personnel Present T. Burgett
M. Leventhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 9.85 ft TOC

DTB: ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1636	9.91			8.04	0.956	16.8	19.19	1.36	-338
1639	9.91			8.14	0.926	18.0	19.76	0.00	-271
1642	9.91			8.17	0.930	16.3	19.80	0.00	-284
1645	9.91			8.17	0.933	15.7	19.05	0.00	-289
1648	9.91			8.15	0.933	15.4	17.80	0.00	-297
1651	9.91			8.15	0.933	15.3	17.75	0.00	-298
1653	9.91			8.14	0.935	16.4	17.58	0.00	-302

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe: strong odor
PID readings (breathing zone): 0.2 ppm
Weather Conditions: overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-803D
Sample ID MW-803D-GW (09/13/17)
Sample Time 1610
Sample Date 09/13/17

Personnel Present T. Burgett, M. Levenhagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 9.56 ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1535	10.32			8.56	7.13	22.2	18.45	0.00	-191
1538	10.77			8.56	7.24	21.1	17.69	0.00	-211
1542	11.05			8.56	7.28	17.0	17.50	0.00	-234
1545	10.79			8.55	7.26	14.0	18.05	0.00	-284
1548	10.98			8.54	7.35	12.7	17.81	0.00	-301
1551	11.11			8.54	7.40	12.1	17.63	0.00	-318
1554	11.32			8.55	7.44	11.4	17.42	0.00	-347
1557	11.44			8.54	7.46	10.0	17.32	0.00	-372
1600	11.53			8.55	7.50	9.4	17.31	0.00	-390
1603	11.60			8.54	7.59	8.3	17.30	0.00	-398
1606	11.69			8.54	7.73	7.8	17.27	0.00	-405

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Brownish tinge; whitish flecks and flakes
Odor Observed? Describe: Strong odor
PID readings (breathing zone): 0.2
Weather Conditions: Overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-SG15
Sample ID MW-SG15-GW (09/13/17)
Sample Time 1355
Sample Date 9/13/17

Personnel Present T. Burgh
M. Leventhal

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Initial DTW: 7.61 ft TOC
DTB: ft TOC

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1330	9.67			11.97	2.49	5.5	20.65	2.00	-82
1333	8.99			12.21	2.53	4.9	20.03	0.44	-152
1336	9.27			12.25	2.63	1.4	19.45	0.02	-172
1339	9.23			12.26	2.68	2.0	19.01	0.00	-186
1342	9.36			12.27	2.73	1.0	18.74	0.00	-200
1345	9.38			12.27	2.76	2.7	18.67	0.00	-207
1348	9.38			12.26	2.75	3.3	18.41	0.00	-230

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear
Odor Observed? Describe: none
PID readings (breathing zone): 0.2 ppm
Weather Conditions: overcast, ~70's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Personnel Present T. Burgett, M. Leivenhagen

Well ID MW-801D
Sample ID MW-801D-GW (09/13/17)
Sample Time 1405
Sample Date 09/13/17

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.02 ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1333	8.73			7.19	1.29	38.9	17.70	1.53	-153
1336	9.35								
1339	9.61			7.08	1.31	15.4	17.13	0.00	-167
1343	9.68			7.03	1.31	13.7	17.42	0.00	-173
1346	9.90			6.98	1.39	12.7	17.21	0.00	-178
1349	10.06			6.98	1.46	8.8	17.12	0.00	-181
1352	10.14			6.96	1.46	9.8	17.21	0.00	-181
1355	10.25			6.93	1.47	8.8	17.15	0.00	-182
1358	10.35			6.92	1.47	9.3	17.09	0.00	-182
1401	10.36			6.91	1.47	8.9	17.09	0.00	-182
1404	10.43			6.88	1.48	7.3	16.98	0.00	-182

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Some small whitish flecks suspended
Odor Observed? Describe: None Observed
PID readings (breathing zone): 0.2
Weather Conditions: Overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-8340
Sample ID MW-8340-GW-(09/13/17)
Sample Time 1205
Sample Date 9/13/17

Personnel Present T. Burgett

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 6.70 ft TOC

DTB: _____ ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1140	7.40			7.47	3.18	198	20.83	3.53	-103
1143	7.50			7.43	4.62	190	21.45	1.89	-143
1146	7.60			7.39	4.33	200	20.45	1.59	-156
1149	7.64			7.40	4.40	341	19.96	0.46	-164
1152	7.70			7.43	4.56	257	19.61	0.37	-169
1155	7.70			7.42	4.69	258	19.41	0.38	-172
1158	7.70			7.42	4.82	255	19.24	0.33	-174
1201	7.70			7.41	4.84	251	19.09	0.21	-175
1204	7.70			7.41	4.89	245	18.97	0.23	-176

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe: none
PID readings (breathing zone): 0.1 ppm
Weather Conditions: overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Personnel Present T. Burgett, M. Levenhagen

Well ID MW-822D
Sample ID MW-822D-GW (09/13/17)
Sample Time 1020
Sample Date 09/13/17

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.61 ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1000	7.74			5.99	1.69	34.0	19.20	0.24	-93
1003	7.71			6.34	1.66	33.1	18.32	0.00	-170
1006	7.72			6.58	1.63	47.7	18.02	0.00	-198
1009	7.71			6.68	1.62	39.8	18.23	0.00	-206
1012	7.71			6.75	1.61	42.5	18.31	0.00	-210
1016	7.72			6.84	1.60	41.9	18.26	0.00	-213

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Small, dark, fine particulate; some medium size pieces
Odor Observed? Describe: None observed
PID readings (breathing zone): 0.1
Weather Conditions: Overcast, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-8225
Sample ID MW-8225-GW (09/13/17)
Sample Time 1030
Sample Date 9/13/17

Personnel Present T. Burgett
M. Leventhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: (Field Duplicate) MS/MSD

Initial DTW: 7.57 ft TOC
DTB: ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
0958	7.58			5.77	0.885	49.0	21.05	3.53	135
1001	7.58			6.56	0.843	51.3	20.95	3.03	-13
1004	7.58			6.78	0.835	37.9	20.91	1.85	-67
1007	7.58			7.02	0.828	31.7	21.00	1.66	-104
1010	7.58			7.10	0.819	16.8	21.16	1.49	-117
1013	7.58			7.16	0.813	9.9	21.29	1.36	-128
1016	—			7.18	0.810	11.0	21.29	1.32	-131
1019	—			7.22	0.802	10.1	21.30	1.22	-136
1022	—			7.23	0.800	9.5	21.30	1.17	-139
1025	—			7.26	0.798	9.2	21.30	1.13	-142

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: some black particulate matter
Odor Observed? Describe: none
PID readings (breathing zone): 0.1 ppm
Weather Conditions: overcast, 70's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

GROUNDWATER SAMPLING
FIELD DATA FORM

Site: ArcelorMittal
Location: Coke Plant
Job #: 21-32151N

Well #: MW804S
Sample I.D. #:
Sample Time: 1040
Sample Date: 9/13/17
MS/MSD

Personnel Present During Sampling:

Well/Purging Information:

Purging method: low flow
Sampling method:
Tubing material:
Screen Length: _____ ft.
Top of well screen; _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel
Other:

1) Well depth (from top of measuring point) (1) _____ (ft)
2) Depth to water prior to purging (2) _____ (ft)
3) Length of water column in well: #1 - #2 = (3) _____ (ft)
4) Volume of water standing in well (4) _____ (gal)
multiply #3 by 0.1632 for 2" ID and 0.0408 for 1" ID wells.
(Required for well volume purging approach only)
5) Number of purge volumes required (5) _____
6) Maximum volume to be purged: #4 x #5 = (6) _____ (gal)

Bladder Pump Controller Settings (if used):

Recharge time: _____ (sec)
Discharge time: _____ (sec)
Pressure: _____ (psi)
Cycles per minute: _____

Stabilization:

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	pH	Conductance (ms/cm)	Turbidity (NTU)	Temp (°C)	DO (mg/L)	ORP (mV)
1007	7.44		250	9.99	0.873	104	17.59	2.69	-87
1011	7.44		250	9.25	0.939	49	17.70	1.31	-135
1014	7.44		250	8.91	0.948	41.1	18.33	1.02	-130
1016	↓		250	8.69	0.943	34.4	18.28	0.95	-129
1019			250	8.45	0.945	28.7	18.47	0.91	-127
1022			250	8.27	0.944	23.9	18.62	0.81	-125
1025			250	8.13	0.945	24.1	18.66	0.85	-124
1027			250	8.05	0.941	16.0	18.47	0.73	-123
1030			250	7.98	0.939	12.5	18.43	0.64	-123
1033			250	7.83	0.942	8.5	18.61	0.60	-121
1037	↓		250	7.87	0.949	7.5	18.59	0.60	-120
1040			250	7.85	0.949	7.7	18.60	0.69	-120

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep

Purge Start Time: 1005 Purge Stop Time: 1040

QA/QC (if applicable): Field Duplicate (MS/MSD) Field Blank Equipment Blank QA/QC Sample I.D. #: _____

Sample Equipment (including serial number): _____

Comments/Observations/Weather Conditions: _____

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

GROUNDWATER SAMPLING
FIELD DATA FORM

Site: Arcelormittal
Location: Coke plant
Job #: 21-32151N

Well #: MW814S - GW-091317
Sample I.D. #: _____
Sample Time: 1320
Sample Date: 9/13/17

Personnel Present During Sampling: _____

Well/Purging Information:

Purging method: low flow
Sampling method: ↓
Tubing material: _____
Screen Length: _____ ft.
Top of well screen; _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: (PVC) / #316 SS / Galv. Steel
Other: _____

1) Well depth (from top of measuring point) (1) _____ (ft)
2) Depth to water prior to purging (2) _____ (ft)
3) Length of water column in well: #1 - #2 = (3) _____ (ft)
4) Volume of water standing in well (4) _____ (gal)
multiply #3 by 0.1632 for 2" ID and 0.0408 for 1" ID wells.
(Required for well volume purging approach only)
5) Number of purge volumes required (5) _____
6) Maximum volume to be purged: #4 x #5 = (6) _____ (gal)

Bladder Pump Controller Settings (if used):

Recharge time: _____ (sec) Pressure: _____ (psi)
Discharge time: _____ (sec) Cycles per minute: _____

Stabilization:

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	pH	Conductance (mS/cm)	Turbidity (NTU)	Temp (°C)	DO (mg/L)	ORP (mV)
1251	9.69		250	8.02	0.866	6.7	19.60	6.12	+16
1253	9.69		250	8.19	0.881	1.1	19.15	6.00	+17
1258	9.69		250	9.03	0.903	0.0	18.37	5.60	-1.0
1300			250	9.38	0.931	1.7	17.39	4.48	-11
1304			250	9.58	0.939	0.0	17.09	2.16	-18
1307			250	9.55	0.963	0.0	17.08	1.24	-17
1310			250	9.35	0.999	0.0	17.06	1.29	-13
1313			250	9.30	1.007	0.0	17.10	1.33	-12
1315			250	9.33	1.000	0.0	17.12	1.39	-13
1320			250	9.30	1.000	0.0	17.13	1.38	-12

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep

Purge Start Time: 1243 Purge Stop Time: 1320

QA/QC (if applicable): Field Duplicate MS/MSD Field Blank Equipment Blank QA/QC Sample I.D. #: _____

Sample Equipment (including serial number): _____

Comments/Observations/Weather Conditions: _____

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. _____

Well ID MW807S-GW-091317
Sample ID _____
Sample Time 1630
Sample Date 9/13/17

Personnel Present D. Mauk

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 8.99 ft TOC

DTB: _____ ft TOC

15:53 – 1630

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1556	8.99		250	9.76	3.58	17.4	16.65	1.64	-141
1558	8.99		250	9.61	1.65	4.4	16.48	0.63	-162
~~1600~~ 1602			250	8.83	1.26	1.30	16.51	0.59	-153
~~1604~~ 1602			250	8.63	1.26	0.6	16.52	0.51	-158
~~1608~~ 1609			250	8.48	1.27	0.8	16.55	0.51	-163
~~1610~~ 1612			250	8.25	1.30	0.1	16.51	0.43	-178
1615			250	8.01	1.36	0.0	16.55	0.43	-200
1617			250	7.83	1.45	0.0	16.52	0.55	-232
1622			250	7.82	1.45	0.0	16.56	0.56	-237
1625			250	7.64	1.42	0.0	16.52	0.55	-239
1630			250	7.66	1.45	0.0	16.55	0.55	-239

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: none
PID readings (breathing zone): –
Weather Conditions: 80 | clear
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

GROUNDWATER SAMPLING
FIELD DATA FORM

Site: Arcelor mittal
Location: Coke plat
Job #: 21-32151N

Well #: MW807D
Sample I.D. #:
Sample Time: 1530
Sample Date: 9/13/17

Personnel Present During Sampling:

Well/Purging Information:

Purging method: low flow
Sampling method: ↓
Tubing material:
Screen Length: _____ ft.
Top of well screen; _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel
Other: _____

1) Well depth (from top of measuring point) (1) _____ (ft)
2) Depth to water prior to purging (2) _____ (ft)
3) Length of water column in well: #1 - #2 = (3) _____ (ft)
4) Volume of water standing in well (4) _____ (gal)
multiply #3 by 0.1632 for 2" ID and 0.0408 for 1" ID wells.
(Required for well volume purging approach only)
5) Number of purge volumes required (5) _____
6) Maximum volume to be purged: #4 x #5 = (6) _____ (gal)

Bladder Pump Controller Settings (if used):

Recharge time: _____ (sec)
Discharge time: _____ (sec)
Pressure: _____ (psi)
Cycles per minute: _____

Stabilization:

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	pH	Conductance (mS/cm)	Turbidity (NTU)	Temp (°C)	DO (mg/L)	ORP (mV)
1509	9.10		250	9.10	8.26	51	16.35	2.35	-11
1512	9.10		250	9.40	8.43	41	15.94	1.20	-47
1515	9.10		250	9.47	8.49	39.7	15.71	0.96	-71
1518	↓		250	9.54	8.50	43.7	15.57	0.76	-100
1520	↓		250	9.60	8.42	45.4	15.69	0.74	-115
1522	↓		250	9.61	8.38	46.9	15.82	0.73	-122
1524	↓		250	9.62	8.36	47.5	15.88	0.76	-127
1530	↓		250	9.63	8.34	47.7	15.91	0.73	-128

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep

Purge Start Time: 1507 Purge Stop Time: 1530

QA/QC (if applicable): Field Duplicate MS/MSD Field Blank Equipment Blank QA/QC Sample I.D. #: _____

Sample Equipment (including serial number): _____

Comments/Observations/Weather Conditions: _____

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-8125
Sample ID MW-8125-GW (09/13/17)
Sample Time 16:04
Sample Date 9/13/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.50 ft TOC
DTB: 19.19 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~14.19 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
15:42	11.86			7.92	937	0.7	15.31	1.83	-134
15:45	11.87			7.89	947	0.0	14.48	0.11	-146
15:48	11.87			7.90	948	0.0	14.39	0.00	-152
15:51	11.87			7.91	948	0.0	14.34	0.00	-155
15:54	11.87			7.92	947	0.0	14.33	0.00	-157
15:57	11.87			7.93	946	0.0	14.31	0.00	-159
16:00	11.87			7.94	944	0.0	14.29	0.00	-161

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech/Keck	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: Slight organic odor
PID readings (breathing zone):
Weather Conditions: Cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 2

Well ID MW-B135-
Sample ID MW-B135-GW (09/13/17)
Sample Time 14:38
Sample Date 09/13/17

Personnel Present Magdalena Borczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 10.67 ft TOC
DTB: 17.50 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~12.50 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
MGP									
10:13:52	10.72			8.94	720	0.0	16.87	0.87	-78
13:55	10.73			8.48	699	0.0	16.45	0.13	-100
13:58	10.73			8.26	703	0.0	16.38	0.00	-105
14:01	10.73			8.15	713	0.0	16.36	0.00	-109
14:04	10.73			8.05	715	0.0	16.30	0.00	-116
14:07	10.73			7.90	738	0.0	16.31	0.00	-107
14:10	10.73			7.86	750	0.0	16.32	0.00	-107
14:13	10.73			7.84	734	0.0	16.27	0.00	-112
14:16	10.73			7.80	752	0.0	16.30	0.00	-111
14:19	10.73			7.73	744	0.0	16.26	0.00	-118
14:22	10.73			7.74	749	0.0	16.25	0.00	-116

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech / Keck	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: Slight organic odor
PID readings (breathing zone): 0.00
Weather Conditions: Cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 2 of 2

Well ID MW-813S
Sample ID MW-813S-GW (09/13/17)
Sample Time 14:36
Sample Date 9/13/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: _____ ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
14:25	10.73			7.73	754	0.0	16.23	0.00	-115
14:28	10.73			7.70	747	0.0	16.21	0.00	-118
14:31	10.73			7.67	764	0.0	16.22	0.00	-114

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-B36S
Sample ID MW-B36S-GW (09/13/17)
Sample Time 12:23
Sample Date 9/13/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 9.84 ft TOC
DTB: 15.53 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~10.53 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
11:49	10.05			10.50	1530	6.8	17.88	0.34	-215
11:52	10.06			10.98	1690	4.0	16.70	0.00	-275
11:56	10.07			11.03	1670	1.2	16.44	0.00	-299
11:59	10.07			11.03	1650	0.0	16.35	0.00	-307
12:02	10.07			11.03	1640	0.0	16.40	0.00	-310
12:05	10.07			11.01	1630	0.0	16.34	0.00	-312
12:08	10.07			10.99	1620	0.0	16.33	0.00	-317
12:12	10.07			10.97	1630	0.0	16.35	0.00	-321
12:15	10.07			10.98	1620	0.0	16.21	0.00	-324
12:18	10.07			10.96	1610	0.0	16.31	0.00	-326
12:21	10.07			10.95	1610	0.0	16.26	0.00	-328

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	YB3D302
water quality meter probe	Horiba	XVK9DLP
photolonization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech	2678
other:		

Sample Appearance: Slightly cloudy - yellow
Odor Observed? Describe: Slight sulfur odor
PID readings (breathing zone): 0.00
Weather Conditions: Cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-831S
Sample ID MW-831S-GW (09/13/17)
Sample Time 10:38
Sample Date 9/13/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 8.71 ft TOC

DTB: 15.35 ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~10.35 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
10:05	8.87			5.93	2010	2.5	19.30	0.91	-74
10:08	8.88			6.83	1930	0.0	18.50	0.00	-72
10:11	8.89			7.11	1910	0.0	18.16	0.00	-137
10:14	8.89			7.27	1920	0.0	18.12	0.00	-140
10:17	8.89			7.35	1890	0.0	18.02	0.00	-142
10:20	8.89			7.40	1910	0.0	18.00	0.00	-143
10:23	8.90			7.45	1880	0.0	17.97	0.00	-144
10:26	8.90			7.47	1860	0.0	17.92	0.00	-145
10:29	8.90			7.50	1890	0.0	17.93	0.00	-145
10:32	8.90			7.52	1880	0.0	17.97	0.00	-146
10:35	8.90			7.53	1840	0.0	17.93	0.00	-147

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	YBR3D302
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912285
electronic depth-to-water meter	Geotech / Keck	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: None
PID readings (breathing zone): 0.00
Weather Conditions: Cloudy
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-838S
Sample ID MW-838S-GW (09/13/2017)
Sample Time 1035
Sample Date 9/13/2017

Personnel Present CJ Win

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 10.34 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Initial DTW: 8.79 ft TOC
DTB: 15.34 ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
09:55	8.95	0	200	5.93	1.13	3.7	19.86	0.49	132
1000	8.97	1	200	6.11	1.11	4.2	19.25	0.00	93
1005	8.97	2	200	6.15	1.12	4.2	19.06	0.00	48
1010	8.97	3	200	6.19	1.13	4.3	19.07	0.00	18
1015	8.97	4	200	6.21	1.14	4.1	19.11	0.00	1
1020	8.97	5	200	6.23	1.13	3.8	19.22	0.00	-13
1025	8.97	6	200	6.25	1.13	3.6	19.21	0.00	-20
1030	8.97	7	200	6.26	1.13	3.5	19.26	0.00	-28

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	U73405X
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U76024X
electronic depth-to-water meter	Heron Dipper	U60251X
other:		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: Cloudy, 90s°F
Other Comments/Observations : start purging @ 09:49

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-839S
Sample ID MW-839S-GW(09/13/2017)
Sample Time 1250
Sample Date 9/13/2017

Personnel Present CJ Wu

QA/QC Sample ID (if applicable) MW-839S-D-GW(09/13/2017)
If applicable, circle one: (Field Duplicate) MS/MSD

Initial DTW: 11.64 ft TOC

DTB: 17.79 ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 12.79 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1205	11.94	0	200	8.73	1.19	25.9	21.34	1.40	52
1210	11.93	1	200	10.13	1.15	21.8	20.22	0.00	18
1215	11.93	2	200	10.37	1.13	19.3	19.41	0.00	6
1220	11.93	3	200	10.53	1.11	10.2	18.76	0.00	-2
1225	11.93	4	200	10.57	1.11	8.4	18.61	0.00	-4
Horiba restarted → 1230	11.93	5	200	10.58	1.10	6.1	18.43	0.00	-7
1235	11.93	6	200	10.65	1.09	2.2	18.33	0.00	-8
1240	11.93	7	200	10.70	1.09	2.1	18.24	0.00	-9
1245	11.93	8	200	10.74	1.09	2.3	18.20	0.00	-11

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geopump	U73405X
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U76024X
electronic depth-to-water meter	Heron Dipper	U60251X
other:		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: cloudy, 70s
Other Comments/Observations : start purging @ 12:00

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-811S
Sample ID MW-811S-GW (09/13/2017)
Sample Time 1615
Sample Date 9/13/2017

Personnel Present CJ WH

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 9.18 ft TOC
DTB: 16.68 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 11.68 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1540	9.21	0	200	12.33	9.04	10.8	19.98	2.50	15
1545	9.23	1	200	12.66	9.14	1.9	16.54	0.76	-6
1550	9.25	2	200	12.72	9.15	1.1	16.25	0.20	-14
1555	9.25	3	200	12.77	9.18	1.2	16.15	0.02	-22
1600	9.25	4	200	12.81	9.20	1.3	16.12	0.00	-31
1605	9.25	5	200	12.74	9.24	1.4	15.99	0.00	-45
1610	9.25	6	200	12.79	9.24	1.6	15.96	0.00	-48

Horiba restarted →

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geopump	U734054
water quality meter controller	Horiba	578900
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U760244
electronic depth-to-water meter	Heron Dipper	U607514
other:		

Sample Appearance: clear
Odor Observed? Describe: No odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: cloudy, 90s
Other Comments/Observations : start purging @ 15:37

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-82 S
Sample ID MW-82 S-GW (09/13/2017)
Sample Time 1800
Sample Date 9/13/2017

Personnel Present CJ Wh

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 15.65 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Initial DTW: 12.13 ft TOC
DTB: 20.65 ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1725	12.16	0	200	10.53	2.16	7.4	17.95	2.43	7
1730	12.17	1	200	9.84	2.02	5.5	17.47	0.40	6
1735	12.17	2	200	9.51	1.85	3.1	17.14	0.00	-2
1740	12.17	3	200	9.05	1.77	2.5	17.00	0.00	-20
1745	12.17	4	200	8.87	1.76	2.4	17.05	0.00	-43
1750	12.17	5	200	8.77	1.76	2.4	17.06	0.00	-72
1755	12.17	6	200	8.72	1.76	2.4	17.07	0.00	-81

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geopump	U734057
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U760244
electronic depth-to-water meter	Heron Dipper	U602511
other:		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: Cloudy, 70s
Other Comments/Observations : Start purging @ 17:18, corrected pump flow direction @ 17:22

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

MICROBAC®

Samples Submitted to: [X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664 [ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **140511** 1/4

Instructions on back

Client Name: Ramboll Environ	Project: Arcelormittal	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr. # 160	Location: Coke Plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield, WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Metal	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markiz Sampler Signature: David Markiz Sampler Phone #: 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address) mmetal@ramboll.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet chemistries	Dissolved metals	Metals	Phenols	Cyanide	For Lab Use Only
MW-831S-GW (09/13/17)	GW	X	–	No	9/13/17	1038	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-836S-GW (09/13/17)	GW	X	–	No	9/13/17	1223	14	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-813S-GW (09/13/17)	GW	X	–	NO	9/13/17	1436	14	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-812S-GW (09/13/17)	GW	X	–	NO	9/13/17	1604	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-804S-GW-(09/13/17)	GW	X	–	NO	9/13/17	1140	42	2,3,1,4	X	X	X	X	X	X	X	X	
MW-814S-GW-(09/13/17)	GW	X	–	NO	9/13/17	1320	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-807D-GW-(09/13/17)	GW	X	–	NO	9/13/17	1530	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-807S-GW-(09/13/17)	GW	X	–	NO	9/13/17	1630	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW 830S-GW-(09/13/17)	GW	X	–	NO	9/13/17	1210	1	U						X			Hexane
MW 830S-D-GW-(09/13/17	GW	X	–	NO	9/13/17	1210	1	U						X			↓

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac

Temperature Upon Receipt (°C)	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	David Markiz	9/14/17 0800		
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature) [signature]	Date/Time 9-14-17

rev.6/18/15

 0800

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Samples Submitted to:
[X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664
[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number 142385

Instructions on back

2/4

Client Name: Ramboll Environ	Project: Arcelormittal	Turnaround Time	Report Type
Address: 175 N Corporate Dr # 160	Location: Former Coke Plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield, WI 53045	PO #:	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Mesec	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): Dave Markell Sampler Signature: Dave Markell Sampler Phone #: 262 422 9422

Send Report via: [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address): mmesec@ramboll.com

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** **Preservative Types:** (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types **	TOC	VOC	SVOC	WET Chemistry	Dissolved metals	Total metals	Phenols	Cyanide	For Lab Use Only
MW-828S-GW (09/13/17)	GW	X	-	NO	9/13/17	1220	1	~~2,3,1,4~~ DM U						X			Hexchrom
								~~2,3,1,4~~									
MW-833S-GW (09/13/17)	GW	X	-	No	9/13/17	1030	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-833S-D-GW (09/13/17)	GW	X	-	No	9/13/17	1030	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-832D-GW (09/13/17)	GW	X	-	No	9/13/17	1030	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-835D-GW (09/13/17)	GW	X	-	NO	9/13/17	1150	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-834D-GW (09/13/17)	GW	X	-	NO	9/13/17	1305	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-801D-GW (09/13/17)	GW	X	-	No	9/13/17	1405	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-801S-GW (09/13/17)	GW	X	-	No	9/13/17	1355	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-803S-GW (09/13/17)	GW	X	-	No	9/13/17	1555	14	2,3,1,4	X	X	X	X	X	X	X	X	

Possible Hazard Identification: [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive

Sample Disposition: [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac

Temperature Upon Receipt (°C):

Samples Received on Ice? (Yes) No N/A

Custody Seals Intact? Yes No (N/A)

Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Dave Markell	9/14/17 0830		
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
		[illegible]	9-14-17

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Samples Submitted to:
[X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664
[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number 141076

Instructions on back 3/4

Client Name Ramboll Environ	Project Arcelormittal	Turnaround Time	Report Type
Address 175 N. Corporate Dr, # 160	Location Former Coke plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip Brookfield, WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact Mark Mejac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone # 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT) David Martelz Sampler Signature [signature] Sampler Phone # 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address) mmejace ramboll.com

* **Matrix Types:** Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** **Preservative Types:** (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet Chemistry	Dissolved Metals	Metals	Phenols	Cyanide	For Lab Use Only
MW-827S-GW (09/13/2017)	GW	X	—	No	9/13/2017	1800	14	2,3,1,4									
MW-811S-GW (09/13/2017)	"	"	—	"	"	1615	"	"									
MW-838S-GW (09/13/2017)	"	"	—	"	"	1035	"	"									
MW-837S-GW (09/13/2017)	"	"	—	"	"	1250	"	"									
MW-837S-D-GW (09/13/2017)	"	"	—	"	"	1250	"	"									

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac

Temperature Upon Receipt (°C)	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
	[signature]	9/14/17 0800		
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature) [signature]	Date/Time 9-14-17

MICROBAC®

Samples Submitted to: [X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664 [ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **142452** 4/4

Instructions on back

Client Name: Rambell Environ	Project: Arcelor Mittal	Turnaround Time	Report Type
Address: 175 N. Corporate Dr. #160	Location: Former Coke Plant	[ ] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Megac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markelz Sampler Signature: David Markelz Sampler Phone #: 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address) mmegac@rambell.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet Chemistries	Dissolved Metals	Metals	Phenols	Cyanide	For Lab Use Only
MW-803M-GW (09/13/17)	GW	X	–	NO	9/13/17	1700	14	2,3,1,4	X	X	X	X	X	X	X	X	
MW-803D-GW (09/13/17)	GW	X	–	NO	9/13/17	1610	14	2,3,1,4	X	X	X	X	X	X	X	X	
TRIP BLANK																	

D. Mm

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac				
Temperature Upon Receipt (°C)	Relinquished By (signature): David Markelz	Date/Time: 9/14/17 0800	Received By (signature)	Date/Time
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature): Nicole Rainart	Date/Time: 9-14-17

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RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 OF 2

Personnel Present Magdalena Gorczynska-Page & Mitch Levenhagen

Well ID MW-81BS
Sample ID MW-81BS-GW (09/14/17)
Sample Time 15:16
Sample Date 9/14/17
Dup. Sample ID: MW-81BS-D-GW (09/14/17)
QA/QC Sample ID (if applicable)
If applicable, circle one: (Field Duplicate) MS/MSD

Initial DTW: 10.10 ft TOC
DTB: 17.25 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~12.25 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
14:26	10.21			7.84	730	5.6	22.42	9.53	-199
14:29	10.24			7.81	728	5.2	21.35	5.33	-203
14:32	10.24			7.76	723	5.1	20.88	4.10	-209
14:35	10.25			7.73	711	21.5	20.43	3.66	-217
14:39	10.25			7.67	701	23.2	20.35	3.15	-219
14:42	10.25			7.63	697	23.4	20.31	2.73	-222
14:45	10.25			7.60	695	22.5	20.24	2.45	-224
14:48	10.25			7.57	696	21.3	20.09	2.10	-230
14:52	10.26			7.56	695	18.1	20.00	1.85	-232
14:57	10.26			7.54	693	14.1	20.22	1.54	-238
15:00	10.26			7.54	726	7.8	18.30	1.30	-239

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	Mini RAE	592-912114
electronic depth-to-water meter	Geotech/Keck	2678
other:		

Sample Appearance: Clear
Odor Observed? Describe: Slight organic odor
PID readings (breathing zone):
Weather Conditions: Sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 2 of 2

Personnel Present Magdalena Borczynska-Page & Mideh

Well ID MW-8185
Sample ID MW-8185-GW (09/14/17)
Sample Time 15:16
Sample Date 9/14/17
Dup. Sample ID: MW-8185-D-GW (09/14/17)
QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 10.10 ft TOC
DTB: 17.25 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~12.25 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
15:03	10.25			7.53	730	2.1	18.19	1.11	-244
15:06	10.27			7.53	730	0.0	18.02	0.93	-245
15:09	10.28			7.53	729	0.0	17.94	0.84	-248

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling
Field Data Form

Site: Arcelor-Mittal
Location: East Chicago, Indiana
Job No.: 21-32151N
Page No.: 1 of 2

Personnel Present: Magdalena Gorczynska-Page

Well ID: MW-808S
Sample ID: MW-808S-GW (09/14/17)
Sample Time: 12:55
Sample Date: 9/14/17

QA/QC Sample ID (if applicable): _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 12.38 ft TOC
DTB: 19.34 ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 14.34 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
12:10	11.52			7.07	1680	4.1	20.92	8.75	-102
12:13	12.24			6.73	1670	3.6	19.78	6.49	-161
12:16	12.61			6.74	1740	13.7	19.36	5.18	-212
12:20	12.86			6.61	1820	18.9	18.84	4.27	-235
12:23	13.05			6.47	1880	~~18.6~~ 18.3	18.68	3.44	-269
MGP									MGP
12:26	13.16			6.42	2000	18.6	18.55	2.99	-294
12:29	13.29			6.41	2240	18.3	18.47	2.38	-346
12:32	13.35			6.42	2420	18.5	18.42	1.95	-389
12:36	13.43			6.43	2520	18.1	18.22	1.52	-418
12:39	13.49			6.45	2660	17.8	18.25	1.18	-427

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	
water quality meter probe	Horiba	XVXK9DLF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912114
electronic depth-to-water meter	Geotech/Keck	2678
other:		

Sample Appearance: light gray
Odor Observed? Describe: moderate sulfur/organic odor
PID readings (breathing zone): 0.6
Weather Conditions: Mostly Sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 2 of 2

Well ID MW-80BS
Sample ID MW-80BS-GW (09/14/17)
Sample Time 12:55
Sample Date 9/14/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: ~~43.34~~ MSP ft. below measuring point 14.34
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: ~~11.44~~ MSP ft TOC 12.38
DTB: ~~44.84~~ MSP ft TOC 19.34

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
12:42	13.49			6.46	2760	17.5	18.21	0.99	-425
12:45	13.47			6.47	2830	16.8	18.20	0.77	-423
12:48	13.47			6.48	2870	16.7	18.27	0.62	-420
12:51	13.47			6.49	2900	15.8	18.21	0.46	-417

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance:
Odor Observed? Describe:
PID readings (breathing zone):
Weather Conditions:
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-808D
Sample ID MW-808D-GW ~~(09/14/17)~~ MGP (09/14/17)
Sample Time 10:48
Sample Date 9/14/17

Personnel Present Magdalena Gorczynska-Page

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.14 ft TOC
DTB: 44.89 ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 43.39 ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
10:09	11.52			6.51	14100	47.2	15.96	0.50	-306
10:13	12.90			6.98	15200	165	14.96	0.11	-340
10:17	13.00			7.63	14000	109	15.00	0.23	-374
10:20	13.01			7.98	13500	92.8	15.11	0.30	-385
10:23	13.04			8.06	13200	39.2	15.23	0.33	-387
10:26	13.04			8.07	13200	23.5	15.34	0.32	-387
10:29	13.02			8.08	13000	16.3	15.35	0.32	-387
10:32	13.01			8.09	12900	13.6	15.37	0.32	-387
10:35	13.00			8.09	12800	12.3	15.44	0.31	-387
10:38	13.03			8.13	12700	9.8	15.44	0.33	-388
10:41	13.07			8.14	12600	9.4	15.53	0.32	-388

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geotech	3401
water quality meter controller	Horiba	
water quality meter probe	Horiba	XVX690LF
photoionization detector (10.6 eV lamp)	MiniRAE	592-912114
electronic depth-to-water meter	Geotech/Heck	2678
other:		

Sample Appearance: Yellowish-Brown and foamy
Odor Observed? Describe: Sulfur/Organic odor - strong
PID readings (breathing zone): 0.3
Weather Conditions: Sunny
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Personnel Present CJ WH

Well ID MW-8065
Sample ID MW-8065-GW (09/14/2017)
Sample Time 1300
Sample Date 9/14/2017

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 10.71 ft TOC

DTB: 18.44 ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 13.94 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1205	10.74	0	200	7.27	1.30	70.6	20.26	0.80	68
1210	10.74	1	200	6.70	1.26	28.5	19.19	0.00	10
1215	10.74	2	200	6.46	1.20	25.8	18.95	0.00	-40
1220	10.74	3	200	6.37	1.16	20.1	18.15	0.00	-51
1225	10.74	4	200	6.30	1.16	10.2	17.73	0.00	-59
1230	10.74	5	200	6.28	1.15	7.3	17.83	0.00	-65
1235	10.74	6	200	6.27	1.15	3.9	17.61	0.00	-68
1240	10.74	7	200	6.28	1.15	3.1	17.65	0.00	-69
1245	10.74	8	200	6.27	1.15	1.3	17.45	0.00	-75
1250	10.74	9	200	6.27	1.16	1.2	17.92	0.00	-77
1255	10.74	10	200	6.27	1.16	1.1	17.86	0.00	-80

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	U734054
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	U760247
electronic depth-to-water meter	Heron Dipper	U602577
other:		

Sample Appearance: a little cloudy
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, breezy, 80s
Other Comments/Observations : start purging @ 12:02

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
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Well ID MW-806D
Sample ID MW-806D-GW (09/14/2017)
Sample Time 11:05
Sample Date 9/14/2017

Personnel Present CJ Wh

QA/QC Sample ID (if applicable)
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 3 ft.
Top of well screen: ft. below measuring point
Pump intake set at: 42.86 ft. below measuring point
Casing radius: 2 in.
Well material: (PVC) / #316 SS / Galv. Steel

Initial DTW: 10.53 ft TOC
DTB: 44.36 ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1025	11.01	0	200	6.49	7.43	4.9	18.52	0.57	179
1030	11.03	1	200	6.98	7.35	1.1	16.78	0.00	164
1035	11.03	2	200	6.97	6.99	1.2	16.70	0.00	156
1040	11.03	3	200	6.92	6.92	1.2	16.61	0.00	147
1045	11.03	4	200	6.90	6.50	1.2	16.47	0.00	142
Horiba restarted → 1050	11.03	5	200	6.86	6.49	3.5	17.13	0.00	119
1055	11.03	6	200	6.86	6.43	3.9	17.12	0.00	113
1100	11.03	7	200	6.88	6.35	3.5	16.95	0.00	96

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	geotech	0734054
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	076024x
electronic depth-to-water meter	Heron Dipper	U60257x
other:		

Sample Appearance: Clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: Sunny 80s, Breezy
Other Comments/Observations : Start purging @ 1023

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
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Well ID MW-817S
Sample ID MW-817S-GW (09/14/2017)
Sample Time 1510
Sample Date 9/14/2017

Personnel Present CJ Wu, T. Burgett

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: 10 ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: 11.98 ft. below measuring point
Casing radius: 2 in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 6.99 ft TOC
DTB: 16.98 ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1435	6.98	0	200	6.74	1.78	5.2	25.64	0.42	81
1440	6.98	1	200	6.56	1.57	0.0	22.12	0.00	-2
1445	6.98	2	200	6.53	1.57	0.0	21.77	0.00	-29
1450	6.98	3	200	6.51	1.57	0.0	21.82	0.00	-61
1455	6.98	4	200	6.51	1.61	0.0	21.85	0.00	-107
1500	6.98	5	200	6.51	1.61	0.0	21.89	0.00	-115
1505	6.98	6	200	6.51	1.61	0.0	21.90	0.00	-124

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL	Plastic	1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	GeoPump	0934051X
water quality meter controller	Horiba	57890
water quality meter probe	Horiba	88679
photoionization detector (10.6 eV lamp)	MiniRae 3000	0960241X
electronic depth-to-water meter	Heron Dipper	0602516
other:		

Sample Appearance: clear
Odor Observed? Describe: no odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny 80s
Other Comments/Observations : start purging @ 14:32

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW 809 D-GW-091417
Sample ID _____
Sample Time 1330
Sample Date 9/14/17

Personnel Present D. Marek

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: _____ ft TOC

DTB: _____ ft TOC

1246 - 1330

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1251	12.03		250	8.11	7.09	17.4	18.02	6.42	-443
1255	12.03		250	8.02	7.09	14.7	18.25	5.11	-449
1258	12.03		250	7.82	8.28	15.5	17.90	4.94	-448
1301			250	7.57	11.00	13.8	17.38	4.38	-448
1305			250	7.44	13.40	10.1	17.30	3.54	-452
1308			250	7.43	13.80	10.2	17.62	2.85	-457
1312			250	7.44	13.10	11.40	17.78	2.40	-460
1318			250	7.47	13.50	14.2	17.90	1.95	-464
1321			250	7.50	13.20	27.9	17.96	1.57	-468
1329			250	7.54	13.00	28.0	17.85	1.22	-470

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear - Amber color
Odor Observed? Describe: yes organic
PID readings (breathing zone): -
Weather Conditions: 70's | Sun
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW 8095-GW-9/14/17
Sample ID 8095
Sample Time 9/14/17
Sample Date 1045

Personnel Present D. Marker

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.67 ft TOC

DTB: _____ ft TOC

10:20 – 1045

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
10:22	11.67		250	7.30	2.31	3.6	17.92	1.99	-170
1024	11.67		250	7.11	2.30	0.0	17.09	0.84	-211
1026	11.67		250	7.12	2.24	0.0	16.83	0.20	-240
1029			250	7.08	2.23	0.0	16.93	0.00	-256
1032			250	7.09	2.24	0.0	16.77	0.0	-284
1035			250	7.04	2.25	0.0	17.01	0.0	-300
1038			250	7.04	2.25	0.0	16.98	0.0	-307
1040			250	7.06	2.25	0.0	16.99	0.0	-308

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump	Geo pump	64695
water quality meter controller	Horiba	73969
water quality meter probe	Horiba	63636
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: none
PID readings (breathing zone): –
Weather Conditions: 70's / Clear
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW 809M-GW-091417
Sample ID _____
Sample Time 1140
Sample Date 9/14/17

Personnel Present D. Mark

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.49 ft TOC

DTB: _____ ft TOC

1115 - 1140

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1119	11.49		250	8.35	1.90	0.3	17.91	0.49	-333
1121	11.49		250	8.35	1.86	0.0	17.39	0.0	-345
1124	11.49		250	8.35	1.85	0.0	17.38	0.0	-349
1128	↓		250	8.31	1.84	0.0	17.18	0.0	-353
1130			250	8.31	1.84	1.3	16.98	0.0	-354
1133			250	8.29	1.83	0.0	17.14	0.0	-356
1137			250	8.27	1.84	0.0	17.07	0.0	-356
1140			250	8.28	1.84	0.0	17.01	0.0	-356

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Clear
Odor Observed? Describe: none
PID readings (breathing zone):
Weather Conditions: 80 | Clear
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
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Well ID MW-9105
Sample ID MW-9105-GW (09/14/17)
Sample Time 1035
Sample Date 9/14/17

Personnel Present T. Burgett
M. Leventhagen

QA/QC Sample ID (if applicable)
If applicable, circle one: (Field Duplicate) MS/MSD

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: ft.
Top of well screen: ft. below measuring point
Pump intake set at: ft. below measuring point
Casing radius: in.
Well material: PVC / #316 SS / Galv. Steel

Initial DTW: 11.90 ft TOC
DTB: ft TOC

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
0958	11.92			5.62	3.09	3.3	21.11	1.03	-25
1001	11.92			5.43	3.08	0.0	20.75	0.67	-142
1004	11.92			5.15	3.12	0.0	20.31	0.75	-205
1007	11.92			5.86	3.13	0.0	20.20	0.75	-231
1010	11.92			6.09	3.10	0.0	20.14	0.70	-253
1013	11.92			6.27	2.79	0.0	20.19	0.56	-236
1016	11.92			6.29	2.62	0.0	20.18	0.49	-249
1019	11.92			6.24	2.38	0.0	20.29	0.42	-231
1022	11.92			6.18	2.06	0.0	20.39	0.45	-219
1025	11.92			6.11	1.97	0.0	20.43	0.46	-217
1028	11.92			6.03	1.89	0.0	20.54	0.49	-201

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear with some black particulate matter
Odor Observed? Describe: none
PID readings (breathing zone): 0.1 ppm
Weather Conditions: partly cloudy, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

8100 mz

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-~~8010~~ 8100
Sample ID MW-~~8010~~ 8100-GW (09/14/17)
Sample Time 1038 8100 mz
Sample Date 09/14/17

Personnel Present T. Burgett, M. Leventhager

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.99 ft TOC
DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
959	12.11			6.89	3.44	47.1	20.85	0.21	-58
1002	12.08			7.26	3.90	39.3	20.09	0.00	-138
1005	12.08			7.30	4.29	38.1	18.44	0.00	-156
1008	12.08			7.31	4.44	51.1	18.39	0.00	-165
1011	12.08			7.32	4.53	55.0	18.25	0.00	-172
1015	12.08			7.33	4.65	51.2	18.08	0.00	-181
1018	12.08			7.33	4.69	44.0	17.93	0.00	-189
1022	12.08			7.33	4.76	36.3	17.83	0.00	-198
1026	12.07			7.34	4.86	30.3	17.89	0.00	-211
1030	12.07			7.28	4.91	30.9	17.83	0.00	-221
1035	12.07			7.33	4.98	28.0	17.68	0.00	-232

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: Small/Medium black particulate with some whitish flakes
Odor Observed? Describe: Mild odor observed
PID readings (breathing zone): 0.1
Weather Conditions: Sunny, 70s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-826M
Sample ID MW-826M-GW (09/14/17)
Sample Time 1250
Sample Date 09/14/17

Personnel Present T. Burgett, M. Leventhagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 11.70 ft TOC

DTB: _____ ft TOC

Well/Purging Information:

Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1212	11.75			6.34	3.66	3.2	23.22	0.80	-158
1216	11.71			6.68	3.90	0.0	22.65	0.60	-194
1219	11.70			6.78	4.04	0.0	22.14	0.52	-222
1222	11.66			6.84	3.91	0.0	20.72	0.58	-248
1225	11.68			6.86	3.78	0.0	20.86	0.72	-269
1228	11.72			6.85	3.71	0.0	20.64	0.90	-284
1233	11.76			6.87	3.66	0.0	20.27	1.09	-303
1237	11.76			6.86	3.64	0.0	20.71	1.21	-310
1240	11.72			6.86	3.65	0.0	20.73	2.20	-318
1243	11.70			6.88	3.61	0.0	20.98	1.52	-322
1246	11.70			6.88	3.57	0.0	21.04	1.52	-326

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: mostly clear
Odor Observed? Describe: slight odor
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 80's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 1

Well ID MW-32165
Sample ID MW-32165-GW-(09/14/17)
Sample Time 1250
Sample Date 9/14/17

Personnel Present T. Burgh
M. Leventhagen

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 12.42 ft TOC

DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1218	12.42			7.46	1.03	41.5	21.07	0.21	-136
1221	12.42			7.41	0.940	39.8	19.36	0.00	-154
1224	12.42			7.41	0.912	27.4	18.96	0.00	-161
1227	12.42			7.41	0.892	49.7	18.70	0.00	-167
1230	12.42			7.40	0.882	52.6	18.56	0.00	-171
1233	12.42			7.40	0.883	47.0	18.38	0.00	-174
1236	12.42			7.40	0.889	42.8	18.32	0.00	-175
1239	12.42			7.40	0.889	36.0	18.30	0.00	-177
1242	12.42			7.40	0.870	19.0	18.25	0.00	-178
1245	12.42			7.40	0.864	12.2	18.26	0.00	-178
1248	12.42			7.40	0.864	9.7	18.28	0.00	-178

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: clear, some particulate matter
Odor Observed? Describe: none
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 80s
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

RAMBOLL ENVIRON

Ground Water Sampling Field Data Form

Site Arcelor-Mittal
Location East Chicago, Indiana
Job No. 21-32151N
Page No. 1 of 1

Well ID MW-8170
Sample ID MW-8170-GW (09/14/17)
Sample Time ~~0000~~ TB 1500
Sample Date 09/14/17

Personnel Present T. Burgett

QA/QC Sample ID (if applicable) _____
If applicable, circle one: Field Duplicate MS/MSD

Initial DTW: 7.85 ft TOC
DTB: _____ ft TOC

Well/Purging Information:
Purging method: peristaltic pump
Sampling method: low flow
Tubing material: polyethylene
Screen Length: _____ ft.
Top of well screen: _____ ft. below measuring point
Pump intake set at: _____ ft. below measuring point
Casing radius: _____ in.
Well material: PVC / #316 SS / Galv. Steel

Stabilization Criteria (3 consecutive readings)

Time	Depth to Water (ft)	Volume Pumped (L)	Pumping Rate (mL/min)	± 0.1 pH	± 3% Conductance µS/cm	± 10% Turbidity (NTU)	± 10% Temp (°C)	± 10% DO (mg/L)	N/A ORP (mV)
1437	8.34			7.94	9.32	10.6	25.32	0.25	-144
1440	8.23			7.96	9.41	4.5	24.72	0.00	-144
1443	8.23			7.96	9.45	12.5	25.42	0.00	-146
1446	8.23			7.96	9.32	19.6	25.45	0.00	-151
1449	8.23			8.00	9.24	0.0	25.07	0.00	-154
1452	8.24			8.00	9.23	0.3	24.75	0.00	-157
1455	8.26			8.01	9.14	0.0	24.64	0.00	-162
1458	8.26			8.02	9.11	0.0	24.60	0.00	-166

Sample Parameter	Bottle Volume	Bottle Type	Number of Bottles	Preservation/Prep
TOC	40 mL	Amber Glass	2	H2SO4
VOC	40 mL	Clear Glass	3	HCL
SVOC	1 L	Amber Glass	2	Unpreserved
Wet Chemistries	1 L	Plastic	2	Unpreserved
Wet Chemistries	1 L	Plastic	1	H2SO4
Dissolved Metals	500 mL	Plastic	1	Unpreserved
Metals	500 mL	Plastic	1	HNO3
Phenols	250 mL	Amber Glass	1	H2SO4
Cyanide	300 mL		1	NaOH

*sample is filtered by the laboratory.

Sample Equipment (serial number)

Equipment	Make/Model	Serial Number
peristaltic pump		
water quality meter controller		
water quality meter probe		
photoionization detector (10.6 eV lamp)		
electronic depth-to-water meter		
other:		

Sample Appearance: greenish color, very fizzy and bubbly
Odor Observed? Describe: none
PID readings (breathing zone): 0.0 ppm
Weather Conditions: sunny, 90's
Other Comments/Observations :

Low Flow Sampling: Well purge flow rate of approximately 0.5L/min or less. Collect in-line water quality measurements and depth-to-water measurements every 3 to 5 minutes. If excessive drawdown (>0.5 ft.), reduce purge rate (0.2 L/min). Stabilization with three successive readings of ± 0.1 pH, ±3% conductivity, ±10% temperature, turbidity, and DO. Disconnect in-line water quality meter prior to sampling.

MICROBAC®

Samples Submitted to: [X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664

[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **142453**

Instructions on back

Client Name: Ramboll Environ	Project: Arcelormittal	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr # 160	Location: Coke plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield WI 53045	PO #	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Mejac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markelz Sampler Signature: David Markelz Sampler Phone #: 262 422 9422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address): mmejac@ramboll.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

For Lab Use Only

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet chemistry	Dissolved metals	metals	Phenols	Cyanide
MW 809S-GW-(9/14/17)	GW	X	–	NO	9/14/17	1045	14	1,2,3,4,U	X	X	X	X	X	X	X	X
MW 809M-GW-(9/14/17)	GW	X	–	NO	9/14/17	1140	14	↓	↓	↓	↓	↓	↓	↓	↓	↓
MW 809D-GW-(9/14/17)	GW	X	–	NO	9/14/17	1330	14	↓	↓	↓	↓	↓	↓	↓	↓	↓
MW-808D-GW (09/14/17)	GW	X	–	NO	9/14/17	1048	14	1,2,3,4,U	X	X	X	X	X	X	X	X
MW-808S-GW (09/14/17)	GW	X	–	NO	9/14/17	1255	14	1,2,3,4,U	↓	↓	↓	↓	↓	↓	↓	↓
MW-818S-GW (09/14/17)	GW	X	–	NO	9/14/17	1516	14	1,2,3,4,U	↓	↓	↓	↓	↓	↓	↓	↓
MW-818S-D-GW (09/14/17)	GW	X	–	NO	9/14/17	1516	14	1,2,3,4,U	X	X	X	X	X	X	X	X
MW-806S-GW (09/14/17)	GW	X	–	NO	9/14/17	1300	14	1,2,3,4,U	X	X	X	X	X	X	X	X
MW-806D-GW (09/14/17)	GW	X	–	NO	9/14/17	1105	14	1,2,3,4,U	X	X	X	X	X	X	X	X
TRIP BLANK																

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [X] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac				
Temperature Upon Receipt (°C)	Relinquished By (signature): David Markelz 9/15/17	Date/Time: 9/15/17 / 0755	Received By (signature)	Date/Time
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature): Nicole Reinhart	Date/Time: 9-15-17

rev.6/18/15

 0755

MICROBAC®

Samples Submitted to: [X] 250 West 84th Drive, Merrillville, IN 46410, Tel: 219-769-8378, Fax: 219-769-1664

[ ] 5713 West 85th Street, Indianapolis, IN 46278, Tel: 317-872-1375, Fax: 317-872-1379

Chain of Custody Record

Number **142454**

Instructions on back

Client Name: Ramboll Environ	Project: Arcelormittal	**Turnaround Time**	**Report Type**
Address: 175 N. Corporate Dr #160	Location: Coke Plant	[X] Routine (5 to 7 business days)	[ ] Results Only [ ] Level II
City, State, Zip: Brookfield WI 53045	PO #:	[ ] RUSH* (notify lab)	[ ] Level III [ ] Level III CLP-like
Contact: Mark Mejac	Compliance Monitoring? [ ] Yes [ ] No	(needed by)	[ ] Level IV [ ] Level IV CLP-like
Telephone #: 262 901 0127	(1)Agency/Program		[ ] EDD

Sampled by (PRINT): David Markelz Sampler Signature: [signature] Sampler Phone #: 2624229422

Send Report via [ ] Mail [ ] Telephone [ ] Fax (fax #) [X] e-mail (address): mmejac@ramboll.com

* Matrix Types: Soil/Solid (S), Sludge, Oil, Wipe, Drinking Water (DW), Groundwater (GW), Surface Water (SW), Waste Water (WW), Other (specify)

** Preservative Types: (1) HNO3, (2) H2SO4, (3) HCl, (4) NaOH, (5) Zinc Acetate, (6) Methanol, (7) Sodium Bisulfate, (8) Sodium Thiosulfate, (9) Hexane, (U) Unpreserved

For Lab Use Only

Client Sample ID	Matrix*	Grab	Composite	Filtered	Date Collected	Time Collected	No. of Containers	Requested Analyses → Preservative Types ** ↓	TOC	VOC	SVOC	Wet chemistries	Dissolved metals	metals	Phenols	Cyanide	
MW-817S-GW (09/14/17)	GW	X	–	NO	9/14/17	1510	14	1,2,3,4,U	X	X	X	X	X	X	X	X	
MW-810S-GW (09/14/17)	↓	↓	↓	↓	↓	1035	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-810S-D-GW (09/14/17)	↓	↓	↓	↓	↓	1035	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-810D-GW (09/14/17)	↓	↓	↓	↓	↓	1038	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-826M-GW (09/14/17)	↓	↓	↓	↓	↓	1250	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-826S-GW (09/14/17)	↓	↓	↓	↓	↓	1250	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-817D-GW (09/14/17)	↓	↓	↓	↓	↓	1500	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
MW-827S-GW (09/14/17)	GW	X	–	NO	9/14/17	1140	2	U	X	X	X	X	X	X	X	X	
[illegible]	GW	X	–	NO	9/14/17	1105	14	1,2,3,4,U	X	X	X	X	X	X	X	X	

Possible Hazard Identification [ ] Hazardous [ ] Non-Hazardous [ ] Radioactive Sample Disposition [ ] Dispose as appropriate [ ] Return [ ] Archive

Comments

To be completed by Microbac				
Temperature Upon Receipt (°C)	Relinquished By (signature): David Mark 9/15/17	Date/Time: 9/15/17 / 0755	Received By (signature)	Date/Time
Samples Received on Ice? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature)	Date/Time
Custody Seals Intact? Yes No N/A	Relinquished By (signature)	Date/Time	Received By (signature): Nicole Rainwater 9/15/17	Date/Time

rev.6/18/15

0755

APPENDIX E

SURFACTANT ENHANCED LNAPL RECOVERY TEST METHODOLOGY

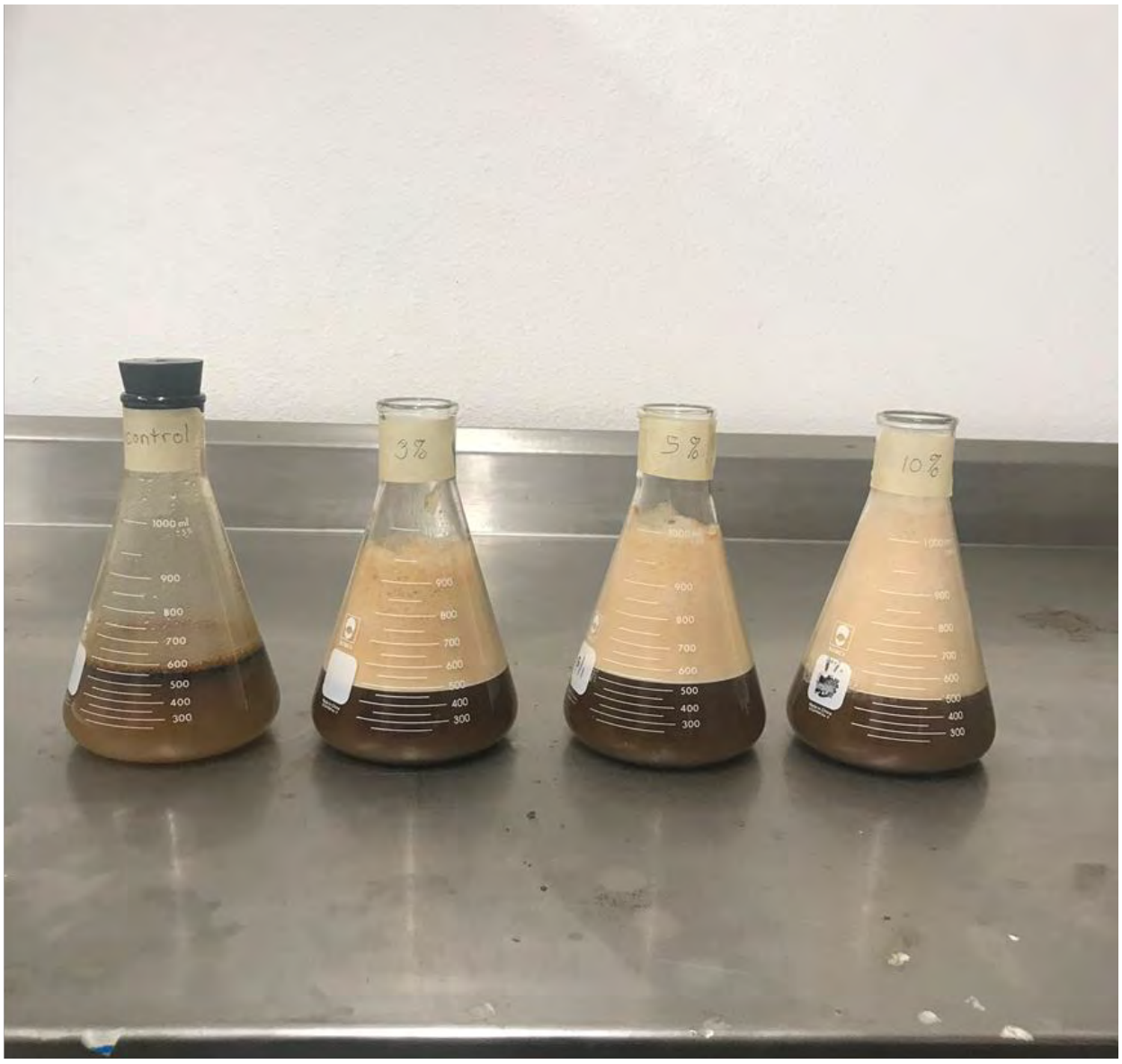
ETEC ADVANCED BIOREMEDIATION SOLUTIONS

PMB 133, 3307 Evergreen Way, Ste 707
Washougal, WA 98671
(971) 222-3616 • (971) 222-3903 Fax
www.etecllc.com

ETEC Surfactant Shake Test – ArcelorMittal, East Chicago, Indiana

Time 0

The flasks contained 500 mL of fluid. 50 mL of the supplied hydrocarbon was added to each flask. Flasks were labeled with their appropriate PetroSolv concentrations, 3%, 5% and 10%. All flasks were vigorously shaken to emulsify the product present. Time 0 results are below.



All flasks showed emulsification at Time 0. No LNAPL was present at Time 0 in any of the PetroSolv amended flasks. LNAPL was present in the Control flask indicating that the PetroSolv is more efficient than mixing alone. Please note the varying degrees of foaming with each of the amended flasks.

ETEC ADVANCED BIOREMEDIATION SOLUTIONS

PMB 133, 3307 Evergreen Way, Ste 707
Washougal, WA 98671
(971) 222-3616 • (971) 222-3903 Fax
www.etecllc.com

Time 60 Minute

At the Time 60-minute data point, a defined LNAPL layer can be seen in the Control Flask. The 3%, 5% and 10% PetroSolv flasks show dissolved/emulsified product in the aqueous layer. The LNAPL layer is less defined and is of a foamy consistency.

ETEC ADVANCED BIOREMEDIATION SOLUTIONS

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Washougal, WA 98671
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www.etecllc.com

Time 17 hours

At Time 17 hours, the control has a clearly visible LNAPL layer. The LNAPL is dark. Within the PetroSolv amended flasks, emulsified/dissolved LNAPL is present in the aqueous phase as evidenced by the cloudy water layer. The LNAPL layer is less defined and lighter in color. The LNAPL layer in the PetroSolv amended flasks remain a different consistency than the control flask and is foamier, indicating a more mobile product.

ETEC ADVANCED BIOREMEDIATION SOLUTIONS

PMB 133, 3307 Evergreen Way, Ste 707
Washougal, WA 98671
(971) 222-3616 • (971) 222-3903 Fax
www.etecllc.com

Conclusions

The test confirmed that the PetroSolv can emulsify the LNAPL present at the site. All the 3%, 5% and 10% PetroSolv solutions showed product present in the aqueous phase. The LNAPL within the PetroSolv-amended flasks changed consistency after mixing. The product is less dense and more mobile.

For the project, we recommend proceeding with the 4% PetroSolv solution application as proposed.

Respectfully,

Eric Bueltel, P.E.
Technical Director

Advanced Bioremediation Solutions

PMB 133, 3307 Evergreen Way, Ste 707
Washougal, WA 98671
(971) 222-3616 • (971) 222-3903 Fax
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ARCELORMITTAL FIELD NOTES

Contact:	**Mr. Mark Mejac, P.G.**	From:	Eric Bueltel, P.E.
Company:	RAMBOLL ENVIRON	Phone:	971-222-3616 x104
Office:		Fax:	971-222-3903
Mobile:		Date:	
Pages:	4	Proposal:	

RE: **Field Notes Summary for Surfactant Enhanced Biological Injection/Extraction at ArcelorMittal, East Chicago, Indiana**

DAY ONE (Monday, October 16):

1. Greg Landers, Bill Chaney and Eric Bueltel of ETEC arrived on site at 7:30 am. Dave Markelz of Ramboll was already at the site.
2. Water level were measured in all wells. Free product was measured in MW-820S and IW-4. See the table below for levels.

Well	DTP (feet)	DTW (feet)	FP (feet)
EW-1		6.24	
MW-820S	5.71	5.79	0.08
MW-825S		5.41	
IW-1		4.17	
IW-2		6.53	
IW-3		6.49	
IW-4	5.94	6.59	0.65
IW-5		6.48	

3. Four low voltage extraction pumps were placed in the well EW-1. Extraction commenced at 8:30 am. See table below for overnight extraction volumes.

Extraction Volumes for 10/16/17		
Date	**Time**	**EW-1 (gal.)**
10/16/17	8:30 am	0
10/16/17	5:00 pm	2,821

4. Upon extraction of enough water volume, the surfactant injection began into all five injection wells at 11:00 am.
5. ETEC personal then mounted injection compression fittings in IW-1, IW-2, IW-3, IW-4 and IW-5.
6. The injection header was connected to the above wells with garden hose.
7. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. Enough PetroSolv™ and water was added to each tank to make a 4% surfactant solution. This solution was the injected into the above wells. Injection wells were surged periodically throughout the day.

8. The above step was repeated until 85 gallons of PetroSolv™ had been injected. See the table below for injection volumes.

Injection Volume for 10/16/17							
Date	**Time**	**IW-1**	**IW-2**	**IW-3**	**IW-4**	**IW-5**	**Total**
10/16/17	11:00 am	0	0	0	0	0	0
10/16/17	5:00 pm	450	460	440	480	460	2,290

DAY TWO (Tuesday, October 17):

1. Greg Landers, Bill Chaney and Eric Bueltel of ETEC arrived on site at 7:00 am. Dave Markelz of Ramboll was already at the site.
2. Ground water extraction volumes were recorded. See table below.

Extraction Volumes for 10/17/17			
Date	**Time**	**EW-1 (gal.)**	**MW-820S**
10/16-10/17	7:30 am	1,280	0
10/17/17	5:00 pm	3,345	786

3. Upon extraction of enough water volume, the surfactant injection began into all five injection wells at 7:30 am.
4. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. Enough PetroSolv™ and water was added to each tank to make a 4% surfactant solution. This solution was the injected into the above wells. Injection wells were surged periodically throughout the day.
5. Surfactant breakthrough, as visualized by the presence of foam within the extracted water, was noticed in MW-820S at 10:30 am.
6. The above step was repeated until 225 gallons of PetroSolv™ had been injected. See the table below for injection volumes.

Injection Volume for 10/17/17							
Date	**Time**	**IW-1**	**IW-2**	**IW-3**	**IW-4**	**IW-5**	**Total**
10/17/17	7:30 am	450	460	440	480	460	2,290
10/17/17	5:00 pm	1,170	1,030	1,190	1,150	740	7,570

RUNNING TOTALS:
Total Extracted Ground Water Volume 8,232 Gallons
Total Injected Treated Ground Water Volume 7,570 Gallons
Total PetroSolv™ Used 310 Gallons

DAY THREE (Wednesday, October 18):

1. Greg Landers and Bill Chaney of ETEC arrived on site at 7:30 am. Dave Markelz of Ramboll was already at the site.
2. Ground water extraction volumes were recorded. See table below.

Extraction Volumes for 10/17/17			
Date	**Time**	**EW-1 (gal.)**	**MW-820S**
10/17-10/18	7:30 am	1,056	291
10/18/17	5:00 pm	2,864	775

3. Upon extraction of enough water volume, the surfactant injection began into all five injection wells at 8:00 am.
4. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. Enough PetroSolv™ and water was added to each tank to make a 4% surfactant solution. This solution was the injected into the above wells. Injection wells were surged periodically throughout the day.
5. The above step was repeated until 190 gallons of PetroSolv™ had been injected. See the table below for injection volumes.

Injection Volume for 10/18/17							
Date	**Time**	**IW-1**	**IW-2**	**IW-3**	**IW-4**	**IW-5**	**Total**
10/18/17	7:30 am	1,170	1,030	1,190	1,150	740	7,570
10/18/17	4:00 pm	950	970	990	890	1,310	12,680

RUNNING TOTALS:
Total Extracted Ground Water Volume 13,218 Gallons*
Total Injected Treated Ground Water Volume 12,680 Gallons*
Total PetroSolv™ Used 500 Gallons

*Please note some error in flow meters should be expected

DAY FOUR (Thursday, October 19):

1. Greg Landers and Bill Chaney of ETEC arrived on site at 7:30 am. Dave Markelz of Ramboll was already at the site.
2. Ground water extraction volumes were recorded. See table below.

Extraction Volumes for 10/19/17			
Date	**Time**	**EW-1 (gal.)**	**MW-820S**
10/18-10/19	7:30 am	1,140	315

3. Extraction pumps were placed in all five injection wells and EW-1. The extraction pumps ran all day and overnight to extract the desired volume.

DAY FIVE (Friday, October 20):

1. Bill Chaney, Ray Allen Miller and Eric Bueltel of ETEC arrived on site at 7:30 am. Dave Markelz of Ramboll was already at the site.
2. Ground water extraction volumes were recorded. See table below.

Extraction Volumes for 10/20/17								
Date	**Time**	**EW-1**	**IW-1**	**IW-2**	**IW-3**	**IW-4**	**IW-5**	**Total**
10/19-10/20	7:30 am	983	2,613	2,545	2,505	2,630	2,417	13,693

3. Upon extraction of enough water volume, the bioremediation product injection began into all five injection wells at 12:45 pm. Water for mixing was extracted out of EW-1 and MW-820S.
4. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. 3,000 lbs. CBN™ and 20 gallons of A2™ Bacterial Consortium was mixed with approximately 3,000 gallons of water. This solution was the injected into the above wells.

DAY SIX (Saturday, October 21):

1. Bill Chaney and Ray Allen Miller of ETEC arrived on site at 6:30 am. Dave Markelz of Ramboll was already at the site.
2. Ground water extraction volumes were recorded. See table below.

Extraction Volumes for 10/20-10/21			
Date	**Time**	**EW-1 (gal.)**	**MW-820S**
10/20-10/21	11:00 am	1,507	254

3. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. 3,000 lbs CBN™ and 20 gallons of A2™ Bacterial Consortium was mixed with approximately 3,000 gallons of water. This solution was the injected into the above wells.

Injection Volumes for 10/20-10/21						
Date	**IW-1**	**IW-2**	**IW-3**	**IW-4**	**IW-5**	**Total**
10/20-10/21	700	720	700	690	700	3,510

4. Extracted ground water was transferred from the 1,200-gallon holding tank, through a 90-pound high pressure carbon vessel into two 165-gallon mix tanks. 3,000 lbs. CBN™ and 20 gallons of A2™ Bacterial Consortium was mixed with approximately 3,000 gallons of water. This solution was the injected into the above wells.
5. Following the bioremediation product injection, 510 gallons of water was injected into all wells to rinse the sand pack.
6. ETEC loaded equipment and demobilized from the site at 11:00 am.

PROJECT TOTALS

TOTAL PETROSOLV™ USED	**500 Gallons**
TOTAL CBN™ USED	**3,000 Pounds**
TOTAL A2™ USED	**20 Gallons**

APPENDIX F

UVOST® INVESTIGATION REPORT

High Resolution Site Characterization Report – UVOST®-EC Investigation

Client: Ramboll Environ

Project Name: Former Coke Plant

Location: East Chicago, IN

Prepared by:

Dakota Technologies Company, LLC

2201-A 12th Street N.

Fargo, ND 58102

701.237.4908

May 25, 2017

Project Number: 0102.17

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1.0 UVOST® SYSTEM DESCRIPTION & CALIBRATION

The Ultra-Violet Screening Tool (UVOST®) is a laser induced screening tool specifically designed to detect light-non-aqueous phase liquid (LNAPL) in the subsurface. It is primarily used for mapping petroleum, oils and lubricants (POLs) at fueling areas, railroad sites, pipelines, refineries etc. UVOST® had been in commercial use since 1994. Fluorescence is the emission of photons (light) of a longer wavelength relative to the source emission. The release of these photons can be used to detect small amounts of substance (i.e., polycyclic aromatic hydrocarbons (PAHs)) in a larger matrix (soil). This method of detection has been used in laboratories for decades. With the commercial availability of lasers and optical fibers, this technology can also be applied in-situ in the field to identify the presence of light non-aqueous phase liquids (LNAPL).

The UVOST® system sends laser light (308 nanometer wavelength) through a fiber optic cable strung within probe rods on a direct push drill rig. The light, reflected by a parabolic mirror, then exits through a sapphire window in the side of the probe. As the probe is advanced, the immediately adjacent soil is exposed to the UV laser light. If PAHs (compounds in petroleum oils and lubricants that fluoresce) are present, longer wavelength light is emitted by the PAH compounds. This “signal” light is transmitted through a return fiber, back to the surface to be analyzed. Responses are indicated in real-time on a graph of signal vs. depth. The UVOST® log displays “color mixed” signal logs consisting of contributions from four wavelength channels, and waveforms (“fingerprint” of multi-wavelength) to aid in identification and relative quantity of the compound present.

Prior to every log, the UVOST® system is checked for optical quality by observing the background signal for sources of signal in the fiber, filter, mirror and sapphire window. Also, the reference emitter (a standard, proprietary LNAPL mixture called the “RE”) is placed on the window to determine the qualitative and semi-quantitative properties of the laser system. This is to assure that the RE response has the correct shape and intensity and that the UVOST® system is calibrated to log. Typically, the RE will fall between 10,000 and 11,000 picovolt-seconds (pVs), which is a measure of waveform area. The background can vary from 0.1% to 1%, which is typically an area of approximately 0 to 100 pVs. The relationship between the instrument responses from NAPL in the subsurface and the RE depends on the properties of the NAPL. The calibration of the system is not to a concentration, but to a known fluorescence signature.

2.0 ELECTRICAL CONDUCTIVITY (EC) DESCRIPTION

Electrical Conductivity (EC) data were collected simultaneously with the UVOST® data. EC is a measure of the soil's ability to conduct an electrical current between two dipoles on the UVOST/EC probe. Conductivity is the reciprocal of electrical resistivity and has the units (in our application) of millisiemens per meter (mS/m). Since soil is in the pathway of the charge flow, the grain size can be determined by comparing the EC log to lithology observed in a soil boring. Conductivity readings in the 100s indicate smaller grain (size such as clay). Larger grain size (sand and gravels) are typically in the 10s of mS/m range. Prior to every log, the EC point of the UVOST® probe is checked for proper operation by performing a voltage test with a voltage meter and a conductivity test with a test block.

3.0 DISCUSSION AND COMMENTS

Dakota Technologies Company, LLC (Dakota) completed 76 UVOST® borings and 1 emulation on the property. The area of interest currently is utilized as a parking lot south of the fence and a laydown yard utilized for storing industrial items on the north side of the fence. Slag was spread over the entire surface area. The term "below grade" will be used as necessary to denote the anthropogenic nature of the sub-surface.

A macro core was utilized as a pre-probe to a depth of 6 feet when heavy hammering was needed or 4 feet if less hammering was needed. Numerous pre-probe and boring refusals were encountered between 3-9 feet below grade. Pre-probe core sample evidence indicated the refusals possibly resulted from buried former building foundations. At no time was the pre-probe or UVOST® tooling able to advance without percussion hammer assistance.

Fluorescence was observed on a majority of the logs and was located predominantly between 3 and 17 feet with fluorescence up to 28 feet deep in proximity to monitoring well MW820. No NAPL was identified by UVOST® from the borings; LIF-A0700, LIF-D0130SW25, and LIF-E0600SW25. Log LIF-A0250 had a slight spectral shift resulting in lighter fill colors possibly due to incomplete laser warm up; the waveforms are correct but the fill should be a darker orange or red. LIF-A0200 had a waveform dissimilar to the other borings. Also; the EC reading was unique in its strength and consistency and may indicate the probe was advanced through fill material around a UST, pipe, or other structure.

EC spikes were recorded consistently in the 4 to 8-foot range on several borings within a portion of the area of interest. EC spikes can be an indicator of eventual total EC failure, however, the depth consistency and return to more expected readings beyond that depth may indicate transitioning through layers of deposited anthropogenic materials. EC readings were nominal for the remainder of the borings completed outside of that region.

All QA/QC passed specifications for all UVOST® logs.

Soil sampling was not conducted during the time UVOST® was on location.

4.0 LIMITATIONS

The analysis and opinions expressed in this report are based upon data obtained from the specific test locations and from other information discussed in this report. Exceptions, if any, are discussed in the accompanying comments section of this report. This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted practices. Reported results shall not be reproduced, except in full, without written approval of Dakota. No warranties, expressed or implied are intended or made.

Appendix A

UVOST® Field Summary Log

DAKOTA TECHNOLOGIES

UVOST® Field Summary Log

Former Coke Plant

East Chicago, IN

File Log ID	Date / Time	Pre-Probe *(ft)*	Final Depth *(ft)*	Max Signal *(%RE)*	Max Signal Depth *(ft)*	Initial RE Area *(pVs)*	Background Area *(pVs)*	Fluorescence[(1)] Top - Bottom *(ft)*
Emu-01	5/12/2017 9:57	N/A	N/A	10	N/A	10151	24	NA
LIF-A0100	5/16/2017 9:14	6	18.1	35	8	10419	44	7.0-13.2
LIF-A0200	5/16/2017 9:47	6	14.6	33	11	10115	37	2.4-13.4, 14.1-14.6
LIF-A0225SW5	5/18/2017 9:02	6	20.1	68	15	10806	42	11.2-16.7
LIF-A0250	5/18/2017 8:30	6	17.7	25	9	10268	47	7.4-14.0
LIF-A0250SW20	5/17/2017 13:59	6	7.9	15	7	10482	48	7.1-7.4
LIF-A0300	5/16/2017 10:15	4	18.0	80	7	10662	38	6.9-12.3
LIF-A0325NE15	5/17/2017 13:35	6	18.1	24	12	10048	39	7.1-13.0
LIF-A0325SW10	5/17/2017 13:11	6	22.1	145	10	10011	49	4.5-13.2, 13.3-16.9 Low
LIF-A0350NE15	5/17/2017 12:48	6	18.1	23	10	10396	43	1.5, 3.6, 8.1-14.0
LIF-A0375NE25	5/17/2017 11:21	6	19.1	33	11	10413	31	6.2-13.8
LIF-A0400	5/16/2017 13:16	6	17.9	67	9	10415	45	5.7-14.3
LIF-A0400NE15	5/17/2017 10:36	6	18.0	57	9	10510	52	7.0-13.9
LIF-A0400NE50	5/17/2017 10:59	6	17.1	63	10	10153	43	8.2-12.5
LIF-A0420SW10	5/16/2017 14:20	6	19.4	71	9	10077	42	3.7-6.0, 6.9-10.2, 10.6-15.3
LIF-A0450SW10	5/17/2017 9:13	6	20.1	72	13	10683	52	5.4-7.5, 8.5-10.0, 10.9-14.9
LIF-A0475SW63	5/17/2017 9:50	6	22.1	187	6	10484	53	5.6-7.8, 8.7-17.1
LIF-A0500	5/16/2017 13:48	6	17.7	42	12	10208	56	7.0-14.8
LIF-A0600SW10	5/17/2017 8:22	6	40.1	9	17	10448	39	4.0 Low, 16.5-17.4 Low, 30.8-31.5 Low
LIF-A0700	5/17/2017 7:37	6	40.1	7	1	10221	29	N/A
LIF-B0100	5/16/2017 8:18	6	16.1	27	8	10387	23	2.1, 5.8-10.4
LIF-B0140	5/11/2017 10:20	6	20.1	44	11	10421	19	5.9-11.9
LIF-B0182	5/11/2017 9:17	6	24.1	65	10	10531	24	3.0-5.7, 6.6-11.7, 11.8-18.9 Low
LIF-B0235	5/11/2017 8:29	6	20.1	112	11	10294	5	1.7-6.2, 7.0-12.0
LIF-B0300	5/10/2017 14:41	6	20.5	79	11	10115	11	2.4-8.5, 9.1-14.2
LIF-B0400	5/9/2017 14:51	3	40.3	212	13	10454	50	3.1-7.7, 7.9-14.4
	Total Footage (this sheet)		**527.3**					

(1) Signal response from 0 to 6 feet may not be representative of actual conditions due to pre-probing

DAKOTA TECHNOLOGIES

UVOST® Field Summary Log

Former Coke Plant

East Chicago, IN

File Log ID	Date / Time	Pre-Probe *(ft)*	Final Depth *(ft)*	Max Signal *(%RE)*	Max Signal Depth *(ft)*	Initial RE Area *(pVs)*	Background Area *(pVs)*	Fluorescence[(1)] Top - Bottom *(ft)*
LIF-B0491	5/10/2017 8:32	6	40.1	243	5	10892	37	1.0-1.3, 1.9-11.4, 12.8-14.5 Low
LIF-B0500	5/10/2017 8:00	3	9.8	46	2	10481	32	1.6-4.1
LIF-B0587	5/10/2017 10:27	3	20.4	220	8	10172	23	1.2-12.3
LIF-B0690	5/10/2017 11:02	4	7.0	75	6	10351	21	2.8-3.1, 5.6-7.0
LIF-B0700	5/10/2017 11:20	6	20.0	35	7	10607	33	6.6-9.7, 11.1-14.6
LIF-B0857	5/10/2017 12:07	6	20.1	10	9	10854	42	2.8-11.8
LIF-B0877	5/10/2017 13:14	6	20.1	27	8	10851	53	5.5-6.9, 8.1-10.9, 11.8-12.2 Low
LIF-B0910	5/10/2017 14:04	6	23.1	10	7	10497	32	7.1-18.8 spikey
LIF-C0100	5/11/2017 11:04	6	20.1	25	9	10507	18	1.8-5.3, 5.9-9.9
LIF-C0200	5/11/2017 11:33	6	20.1	31	9	10273	19	1.6-9.3
LIF-C0300	5/11/2017 12:35	6	21.7	130	7	10540	34	1.4-13.2, 13.3-17.1 Low
LIF-C0400	5/11/2017 13:09	4	20.1	139	11	10483	12	1.6-12.7
LIF-C0490	5/11/2017 13:59	6	20.1	63	8	10689	44	2.1-10.0
LIF-C0500	5/11/2017 13:39	4	4.0	26	4	10689	44	1.4-4.0
LIF-C0575SW15	5/15/2017 14:10	6	16.1	90	7	10446	38	2.9-8.5, 8.6-9.8 Low, 9.9-10.7
LIF-C0600	5/11/2017 14:35	6	20.1	201	6	10472	33	2.5-9.2, 10.3-11.6 Low spikes
LIF-C0615SW10	5/15/2017 11:23	6	16.1	186	6	10389	36	3.9-9.2, 9.5-10.8
LIF-C0650SW15	5/15/2017 12:41	6	16.2	245	5	10381	40	4.2-8.9, 9.7, 12.5
LIF-C0690SW15	5/15/2017 13:37	6	16.1	182	5	10580	51	5.0-8.3
LIF-C0700	5/12/2017 7:56	6	20.1	20	5	10527	2	4.9-7.0
LIF-C0700SW20	5/12/2017 8:21	6	6.1	15	2	10371	15	1.6-6.1
LIF-C0750	5/12/2017 8:38	6	17.1	4	11	10912	36	10.6-11.8 Low
LIF-D0130SW25	5/19/2017 8:57	4	3.5	3	3	10025	34	N/A
LIF-D0130SW40	5/19/2017 9:16	4	20.1	144	9	10313	57	3.9-10.0, 10.9-11.6, 14.2-15.0
LIF-D0150	5/18/2017 13:03	6	17.1	55	8	10250	34	2.3-10.9
LIF-D0175SW40	5/19/2017 9:48	4	20.4	93	8	10515	34	3.7-9.2, 12.3-14.7 Low
	Total Footage (this sheet)		**455.5**					

(1) Signal response from 0 to 6 feet may not be representative of actual conditions due to pre-probing

DAKOTA TECHNOLOGIES

UVOST® Field Summary Log

Former Coke Plant

East Chicago, IN

File Log ID	Date / Time	Pre-Probe *(ft)*	Final Depth *(ft)*	Max Signal *(%RE)*	Max Signal Depth *(ft)*	Initial RE Area *(pVs)*	Background Area *(pVs)*	Fluorescence[(1)] Top - Bottom *(ft)*
LIF-D0225SW40	5/19/2017 10:36	4	9.0	32	6	10791	61	3.6-9.0
LIF-D0250	5/18/2017 13:29	6	6.6	60	6	10436	45	2.4-6.6
LIF-D0275SW40D	5/19/2017 11:09	4	21.1	107	13	10691	46	2.5-16.0
LIF-D0325SW40	5/19/2017 11:35	4	26.0	86	7	10387	46	2.7-18.9, 25.0
LIF-D0350	5/18/2017 13:48	6	7.4	123	6	10352	53	4.1-7.4
LIF-D0375SW40	5/19/2017 11:59	4	26.0	130	11	10837	56	3.2-14.9, 16.6-19.3, 20.7-21.1 Low
LIF-D0450	5/18/2017 14:05	6	16.2	186	9	10182	35	3.3-5.1, 5.5-8.6, 8.9-10.1
LIF-D0550	5/18/2017 14:31	6	6.5	82	5	10261	46	3.9-6.5
LIF-D0587	5/12/2017 11:39	6	20.1	202	7	10510	14	2.2-12.1
LIF-D0640	5/12/2017 13:01	6	7.2	78	6	10562	28	1.3-7.2
LIF-D0700	5/12/2017 10:40	6	9.4	42	8	10103	30	3.0-9.4
LIF-D0715	5/12/2017 11:02	4	18.0	25	1	10230	29	0.9-1.8, 7.0-14.6
LIF-D0750	5/12/2017 9:05	6	20.1	53	13	10534	31	6.6-7.2, 8.9-14.7
LIF-E0400	5/15/2017 8:12	6	18.1	176	6	10102	17	3.2-10.4
LIF-E0490	5/15/2017 8:39	6	21.8	72	7	10086	22	4.4-10.4, 13.4-18.4 Low
LIF-E0575	5/15/2017 10:03	6	16.1	98	6	10201	30	3.5-8.0
LIF-E0600	5/12/2017 14:04	6	16.1	194	7	10245	43	5.8-9.2
LIF-E0600SW25	5/15/2017 9:38	6	16.1	6	3	10542	33	NA
LIF-E0630	5/15/2017 10:51	6	16.1	87	7	10108	22	6.4-7.4
LIF-E0700	5/15/2017 13:12	6	16.1	9	2	10266	44	1.8-3.1 Low, 5.1 Low
LIF-MW820NE20	5/18/2017 9:36	6	26.1	139	8	10361	38	6.3-9.0, 9.7-10.3 Low, 12.1-24.6
LIF-MW820SW20	5/18/2017 10:14	6	29.9	83	5	10362	41	2.8-15.7, 18.0-27.5
LIF-MW820SW5	5/16/2017 10:58	6	29.9	90	11	10272	46	5.6-16.0, 16.1-18.4, 18.5-23.8 Low
LIF-MW820W10	5/16/2017 11:38	6	25.9	136	6	10143	49	5.0-19.4, 20.7-24.0 Low
LIF-MW820W45	5/18/2017 10:47	6	29.1	103	8	10338	45	5.7-15.3, 16.8, 19.2-26.5
	Total Footage (this sheet)		**454.7**					

(1) Signal response from 0 to 6 feet may not be representative of actual conditions due to pre-probing

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Appendix B

UVOST® Logs at 225% RE

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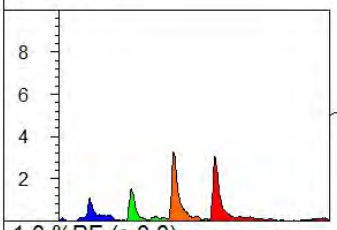
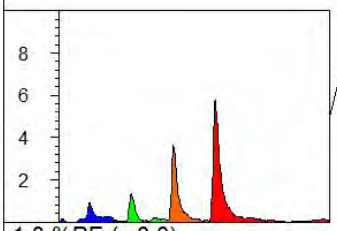
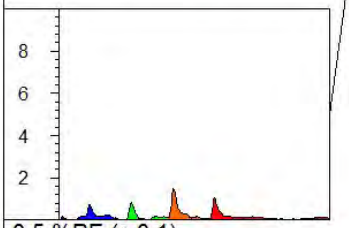
Callouts



1.0 %RE (s 0.0)
Fri, sample A, B0910

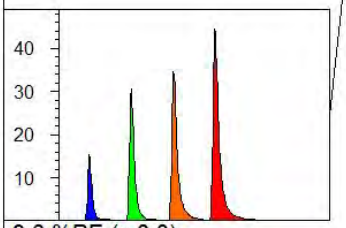


1.3 %RE (s 0.0)
Fri, sample B, B0910



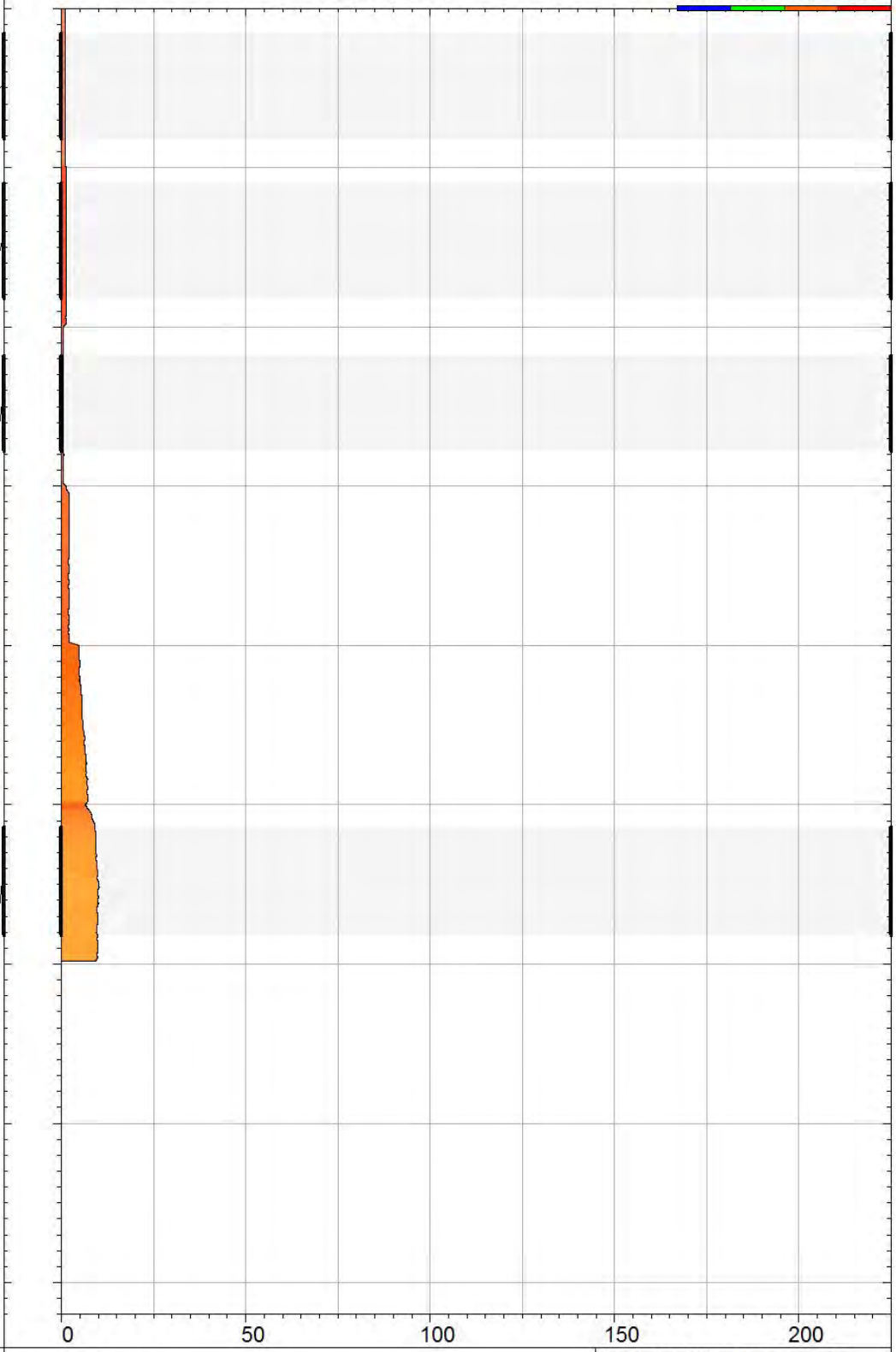
0.5 %RE (s 0.1)
background

Sample aquired Wednesday 3 readings as it was semi-lithified. Irregular surface; smoother surface, last was pressed on window.



9.6 %RE (s 0.3)
Wed sample

Signal (%RE)



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Emu-01

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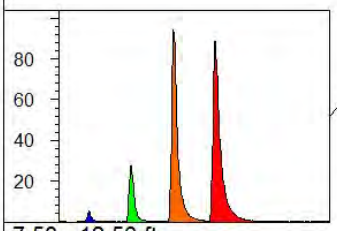
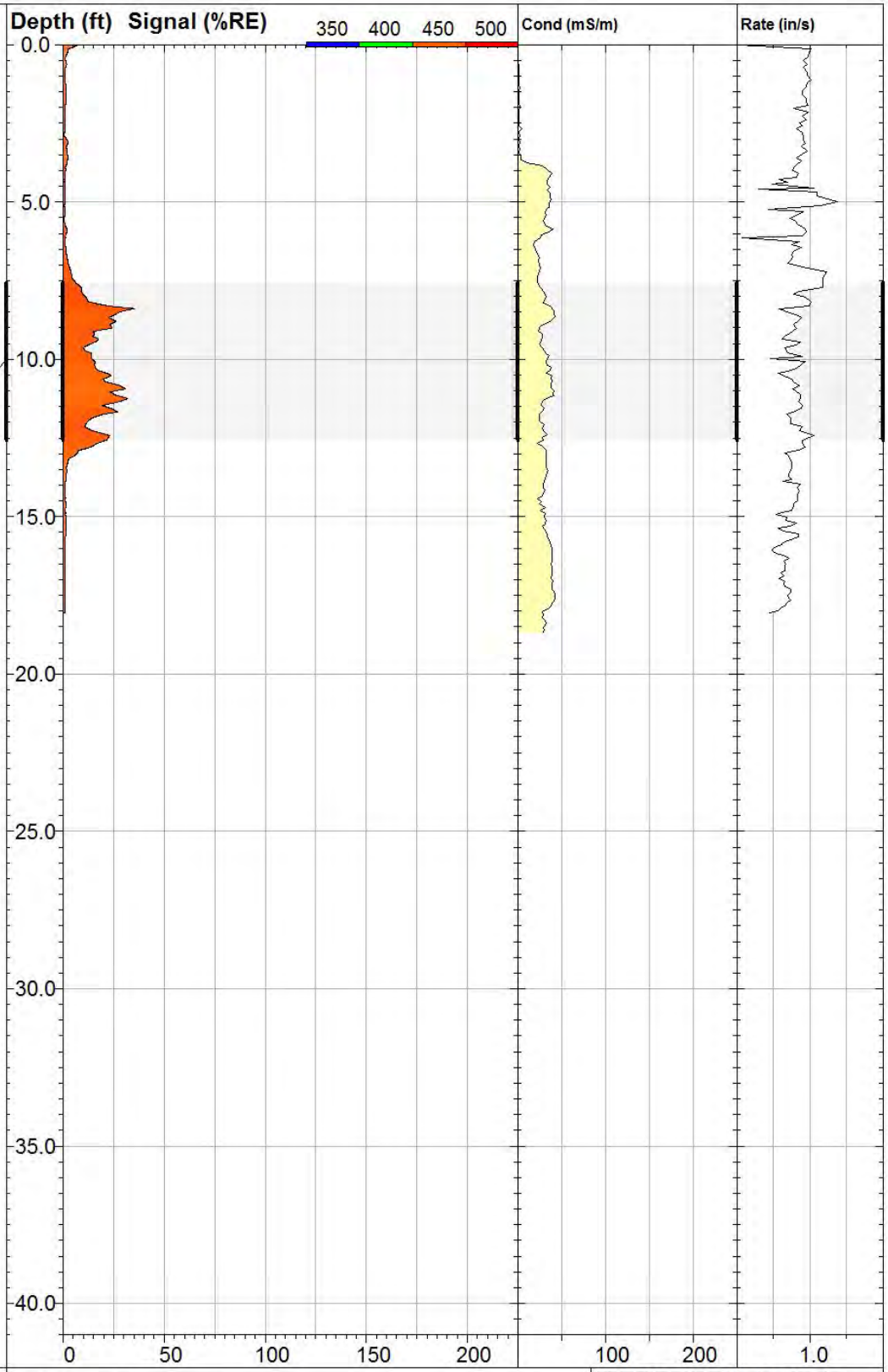
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:*
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **10.3 %RE**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 09:57 CDT**

Callouts



7.58 - 12.56 ft
18.7 %RE (s 6.9)



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LIF-A0100

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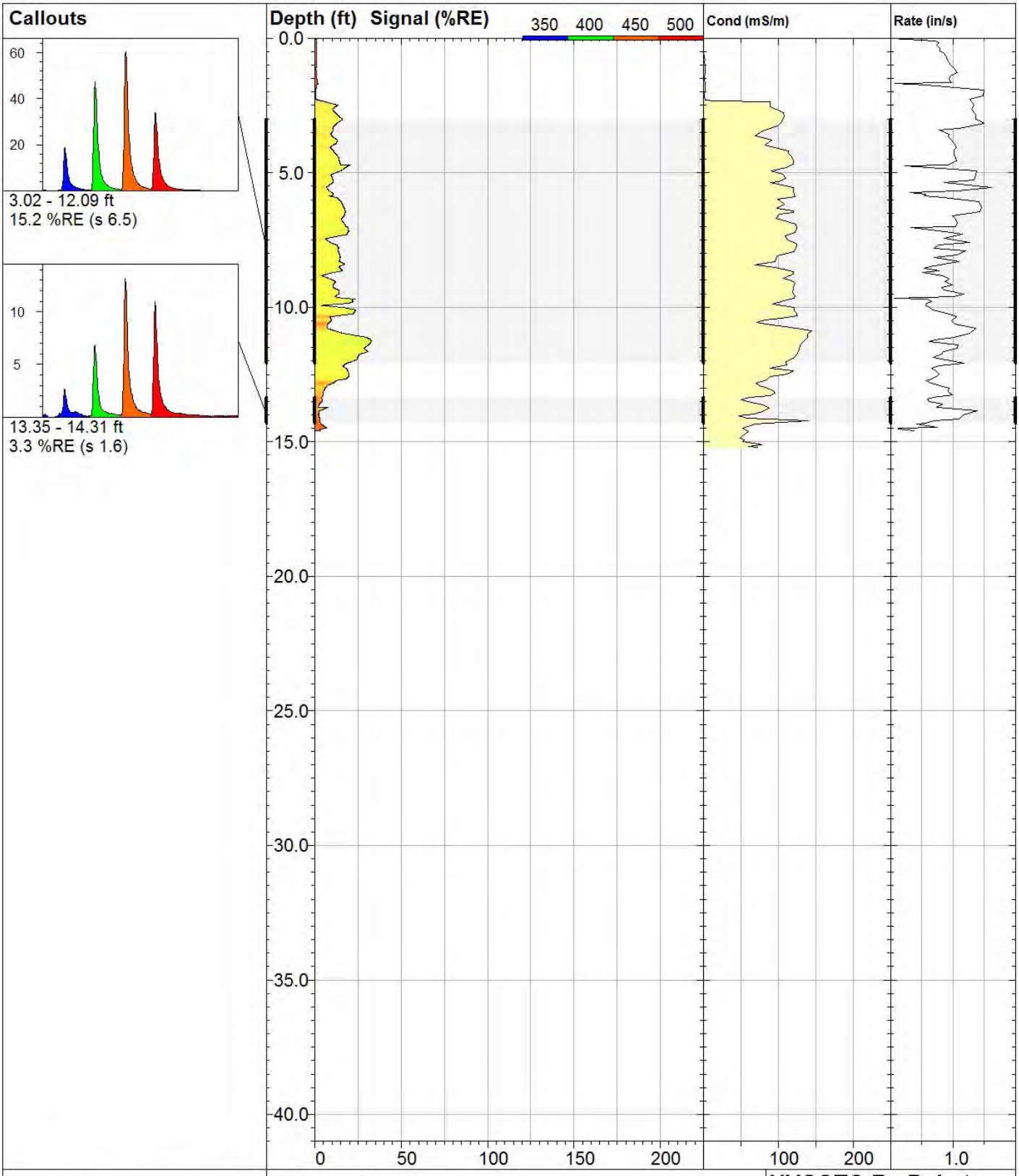
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **35.2 %RE @ 8.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 09:14 CDT**



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LIF-A0200

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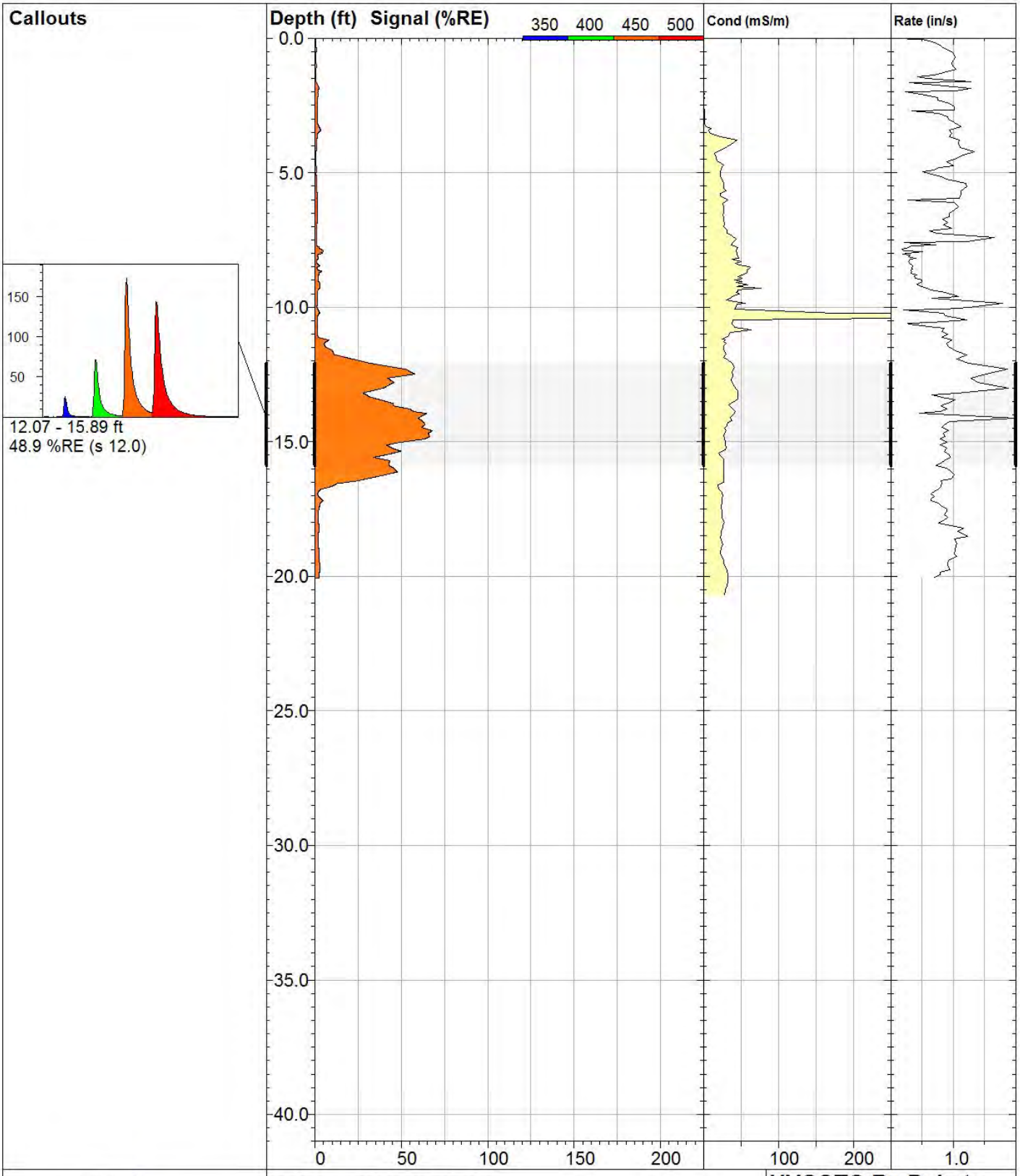
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.59 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **32.8 %RE @ 11.27 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 09:47 CDT**



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LIF-A0225SW5

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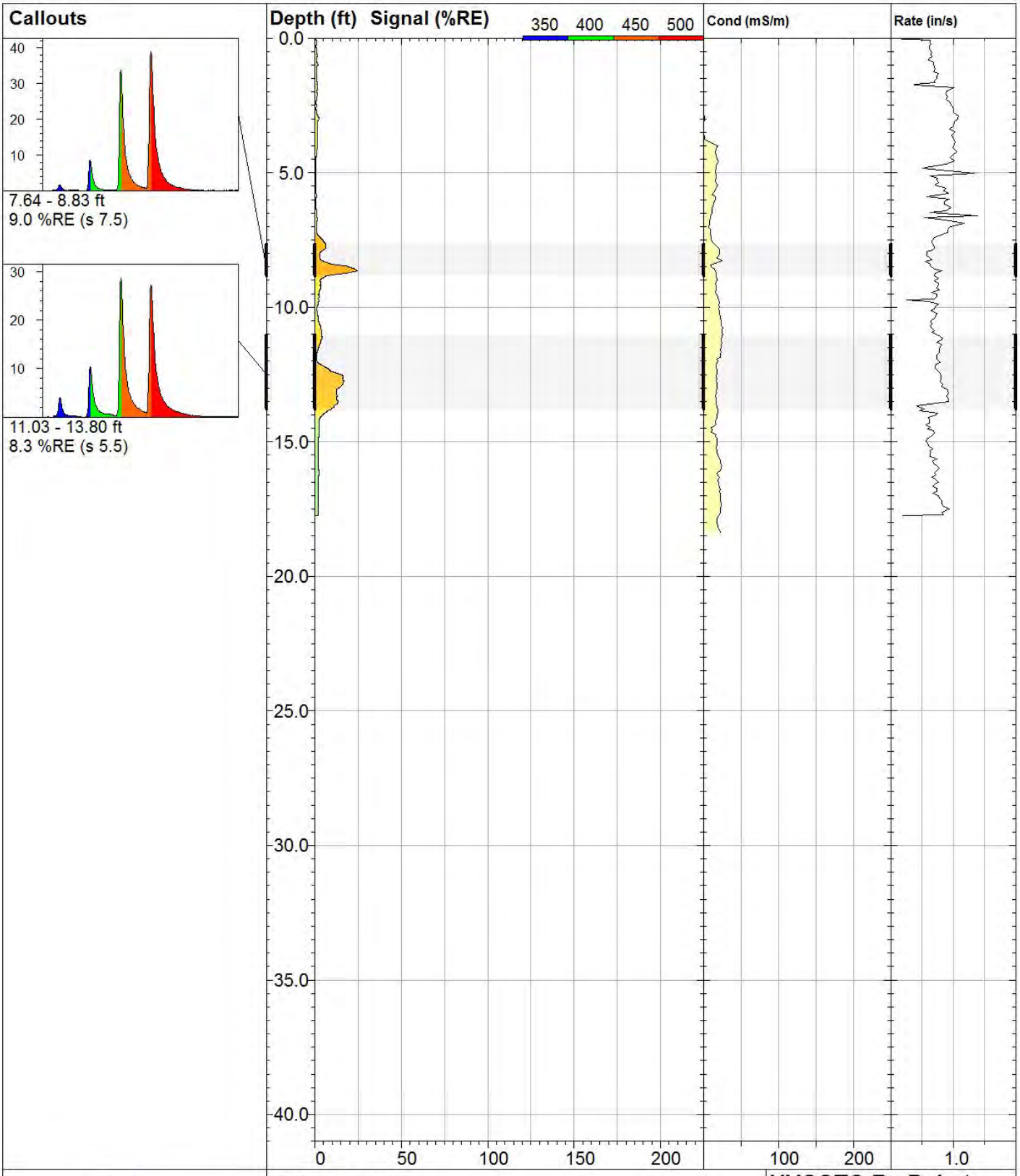
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **67.7 %RE @ 14.59 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 09:02 CDT**



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LIF-A0250

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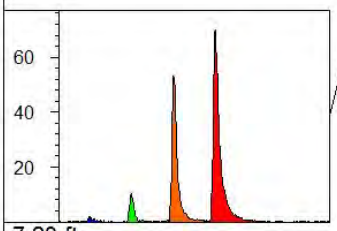
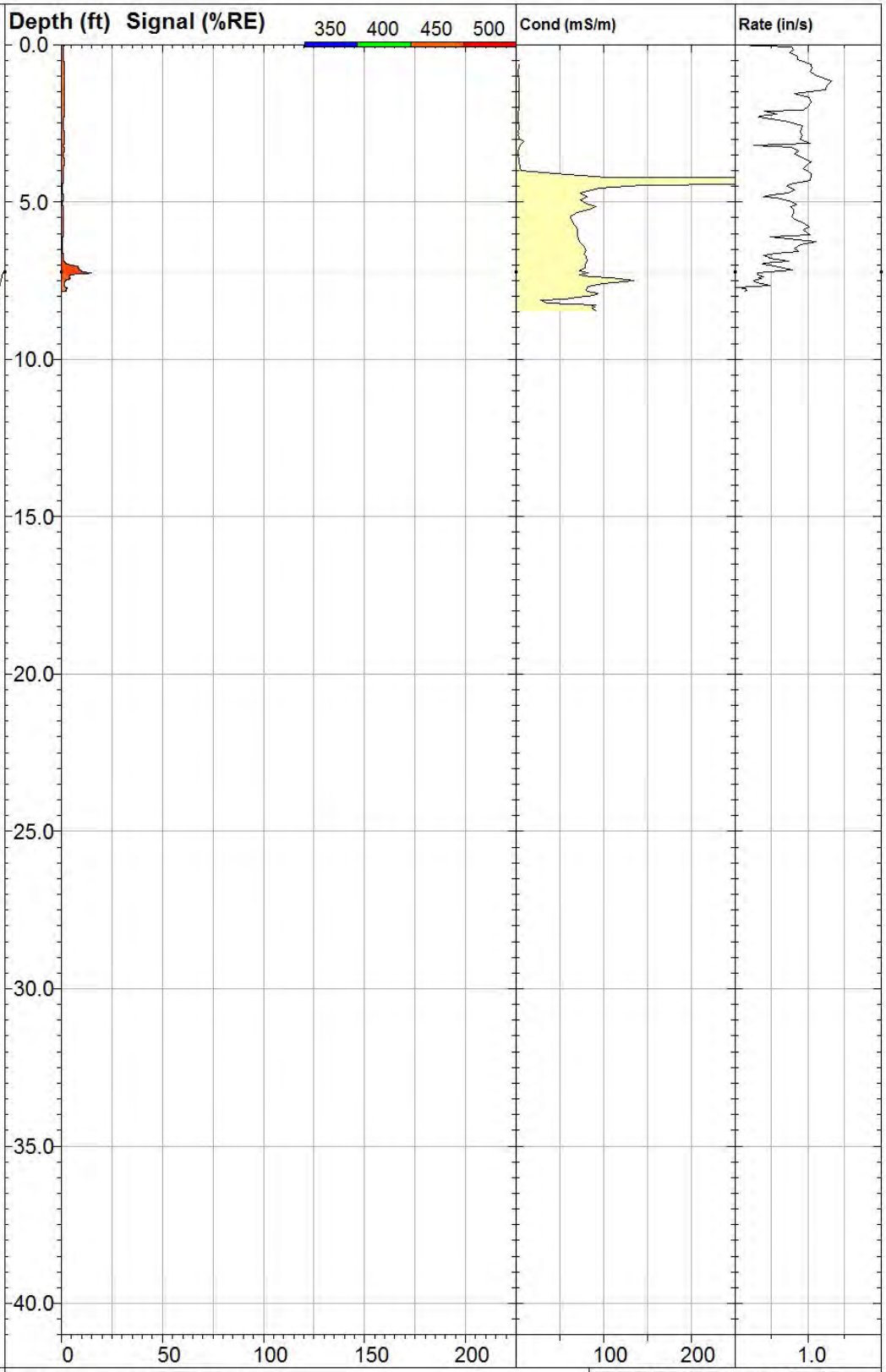
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.74 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.6 %RE @ 8.65 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 08:30 CDT**

Callouts



7.23 ft
10.8 %RE



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LIF-A0250SW20

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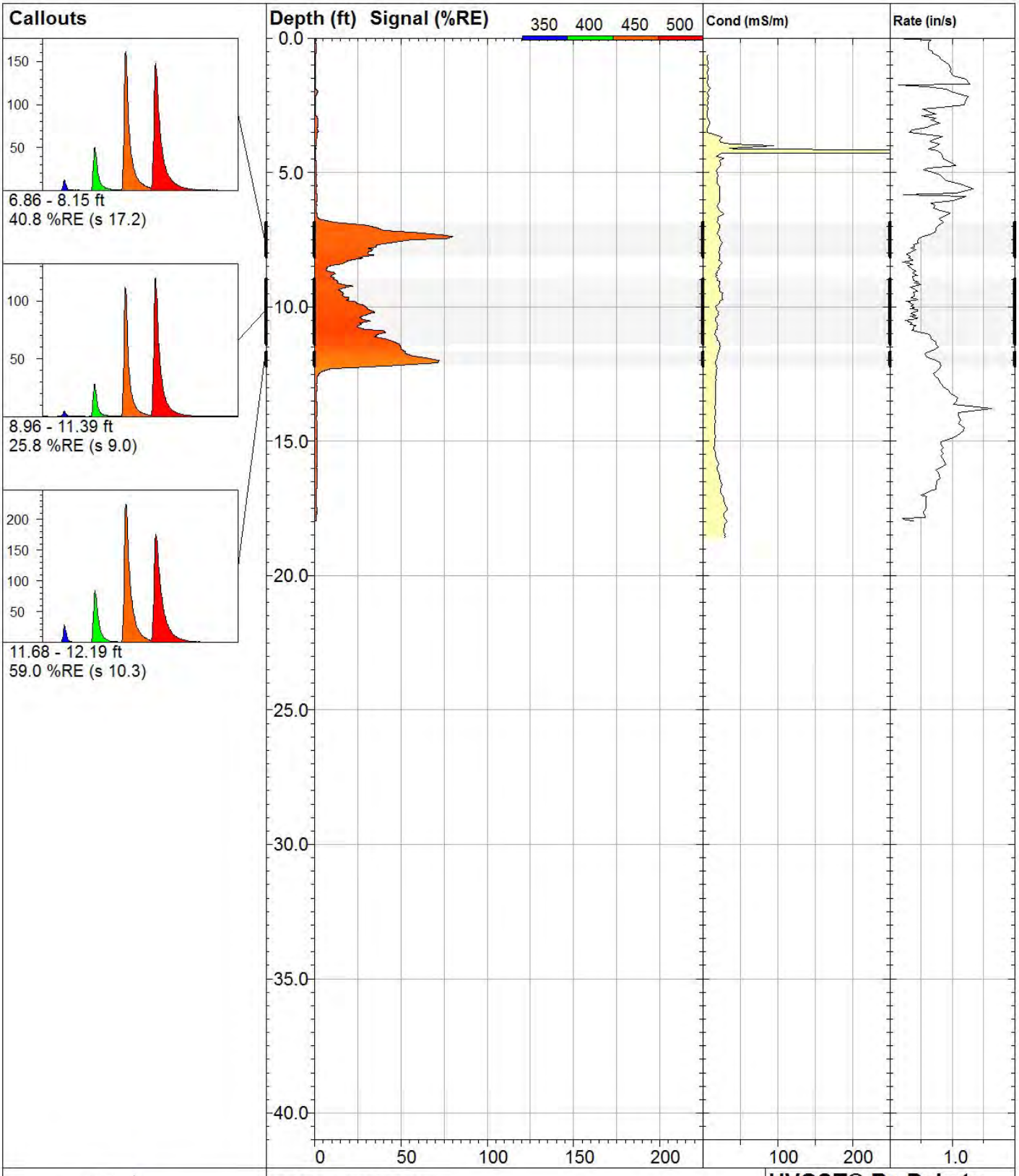
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.85 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **15.1 %RE @ 7.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:59 CDT**



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LIF-A0300

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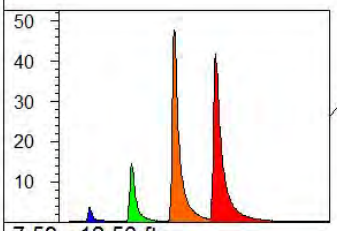
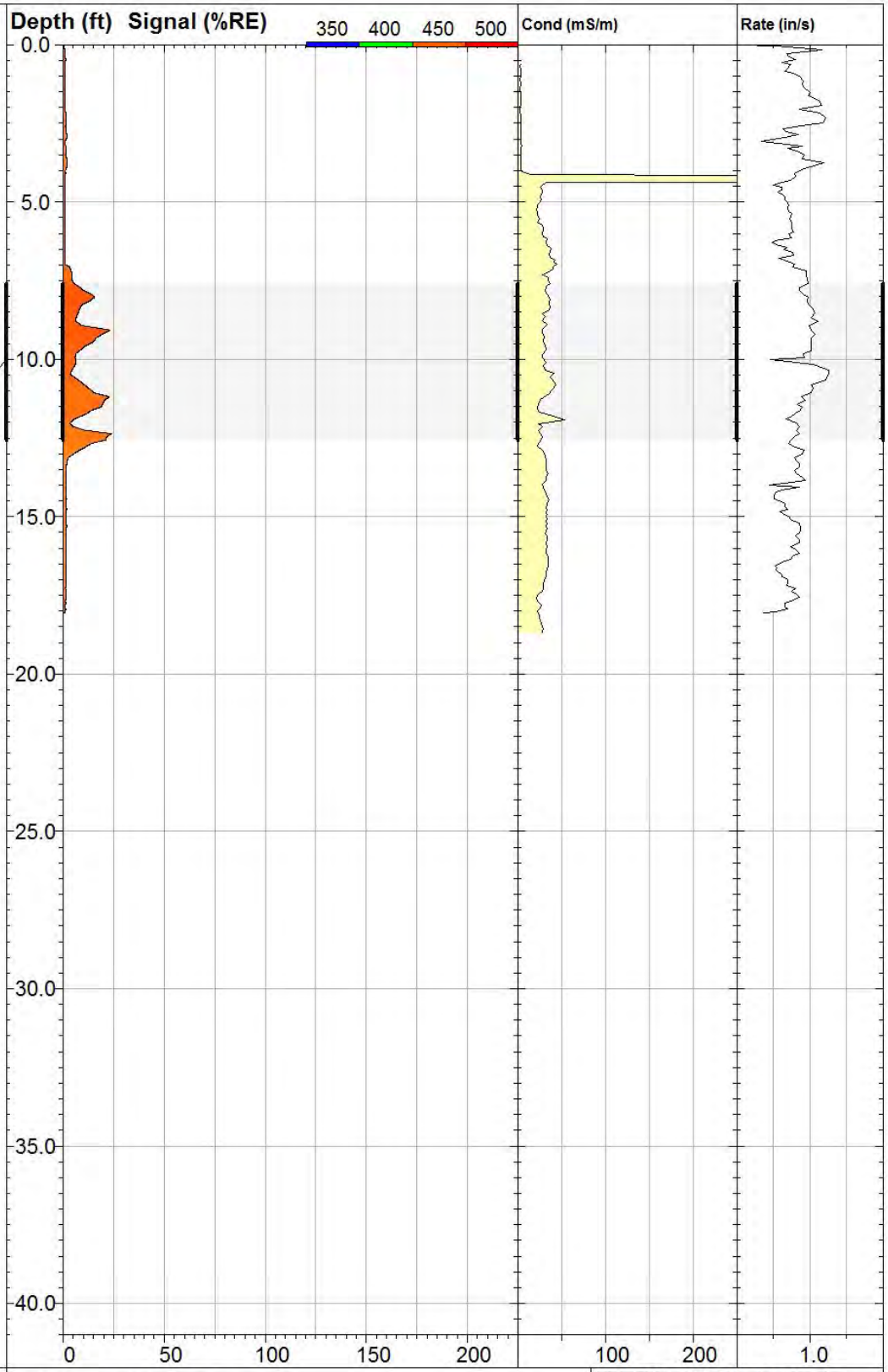
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.95 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **79.9 %RE @ 7.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 10:15 CDT**

Callouts



7.59 - 12.56 ft
11.6 %RE (s 6.1)



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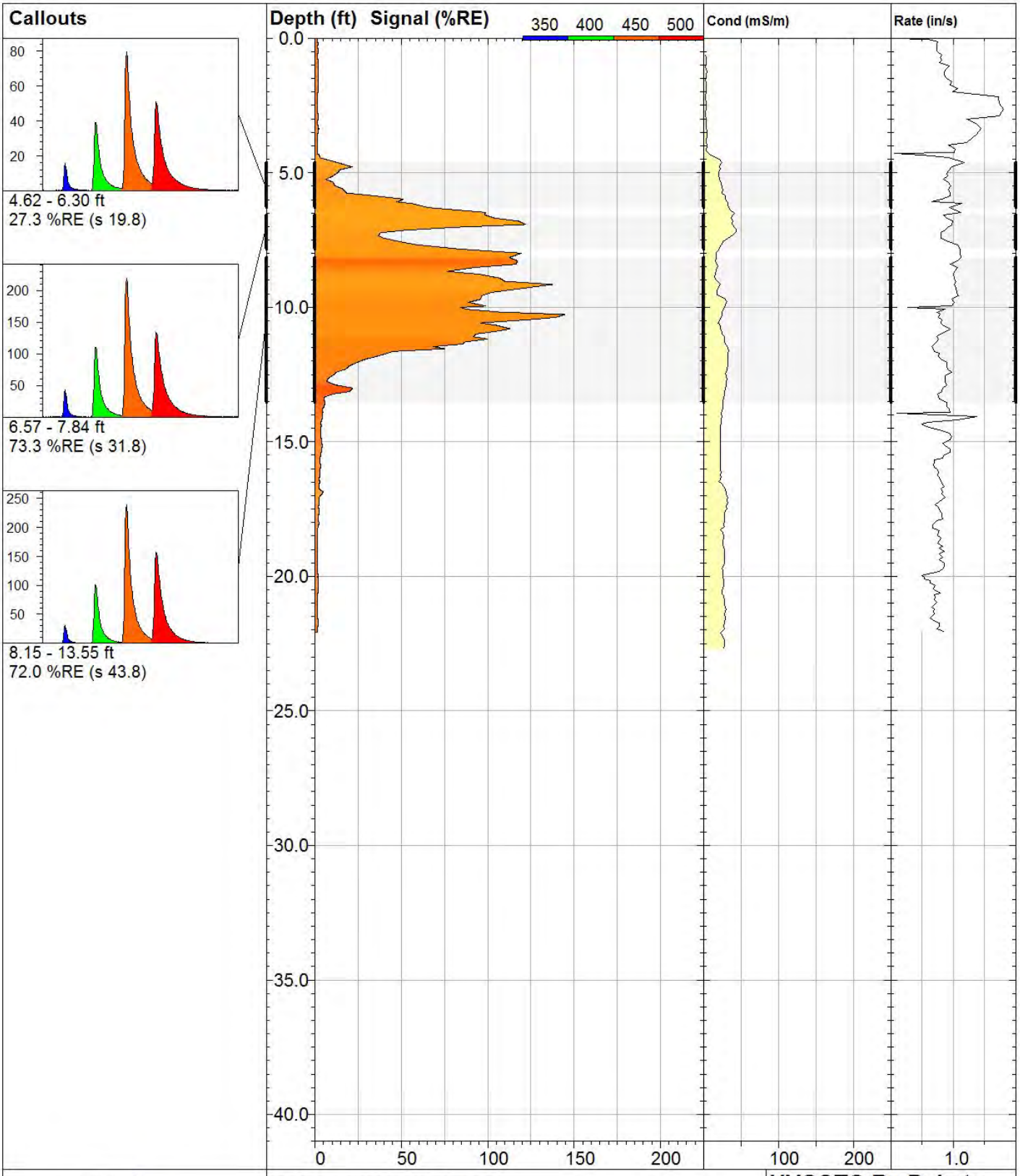
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.0 %RE @ 12.37 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:35 CDT**



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LIF-A0325SW10

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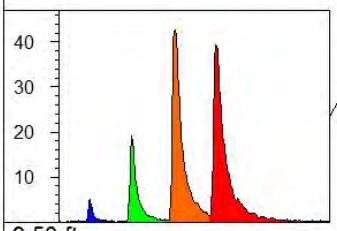
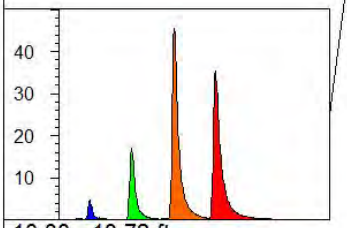
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **144.9 %RE @ 10.27 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:11 CDT**

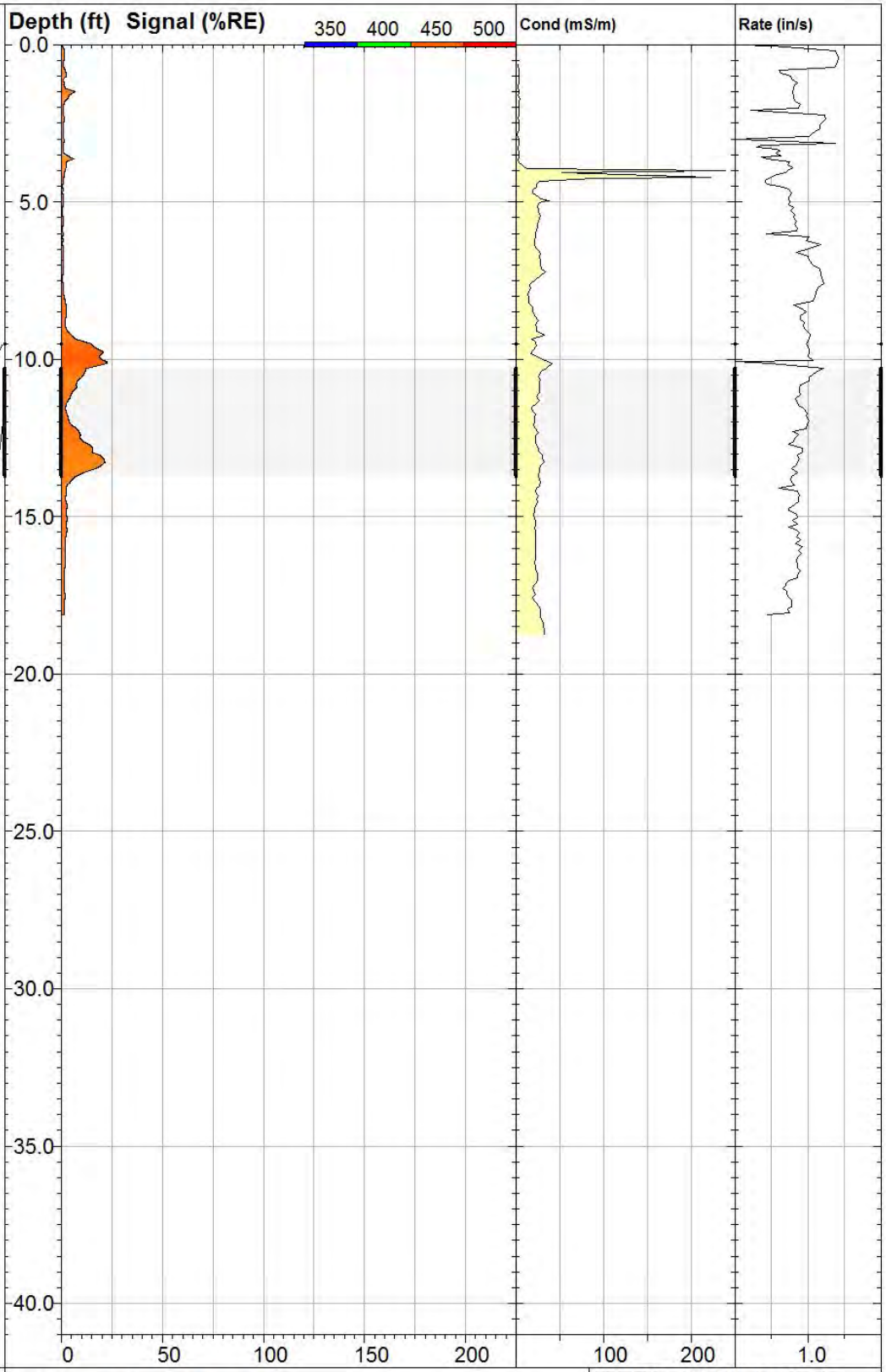
Callouts



9.50 ft
14.3 %RE



10.30 - 13.72 ft
9.6 %RE (s 5.8)



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LIF-A0350NE15

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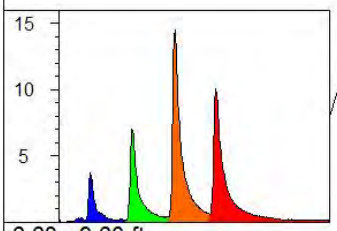
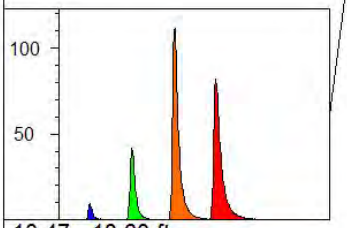
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **22.7 %RE @ 10.07 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 12:48 CDT**

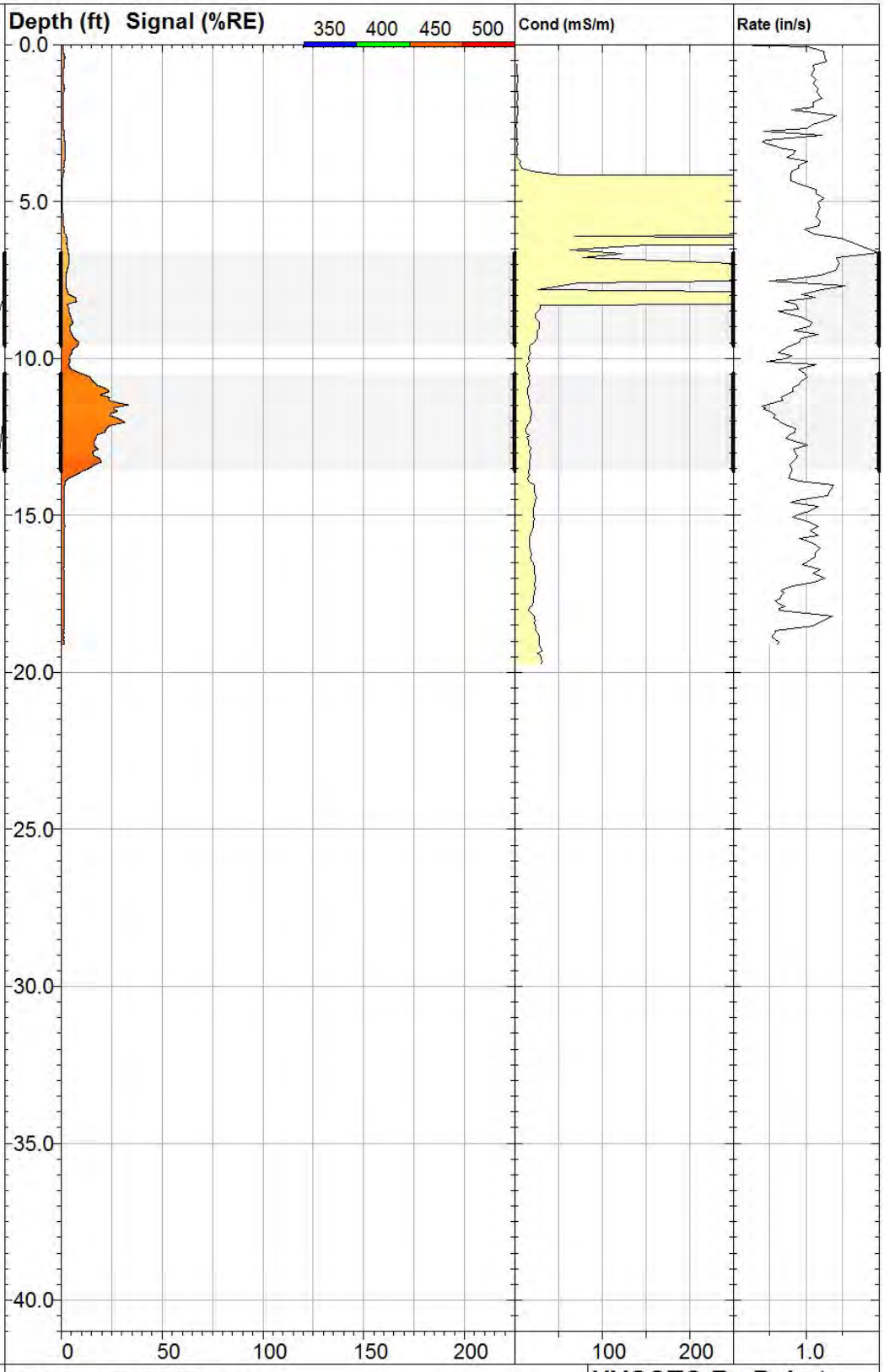
Callouts



6.63 - 9.60 ft
4.4 %RE (s 1.9)



10.47 - 13.60 ft
21.2 %RE (s 6.0)



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LIF-A0375NE25

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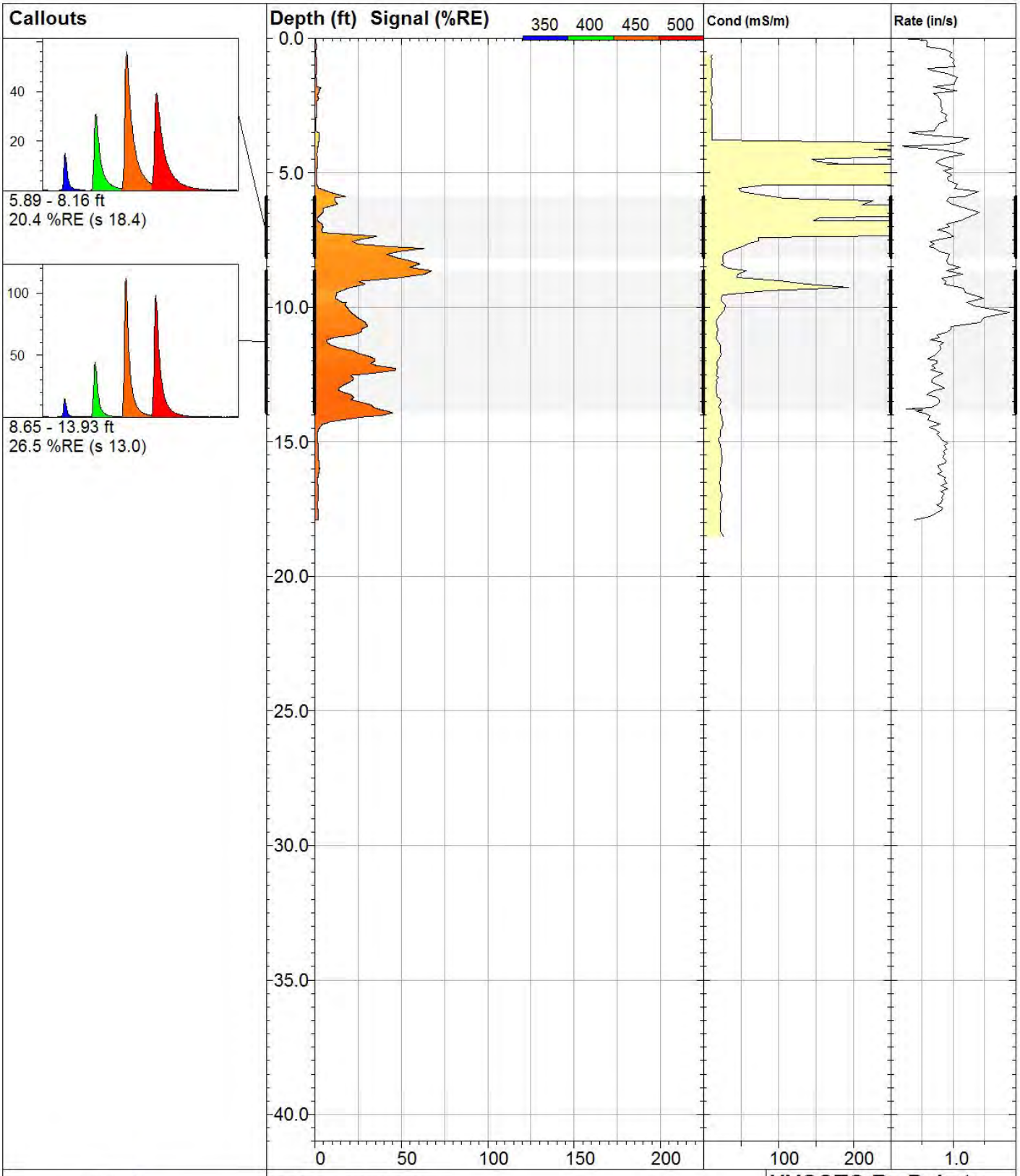
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **33.1 %RE @ 11.48 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 11:21 CDT**



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LIF-A0400

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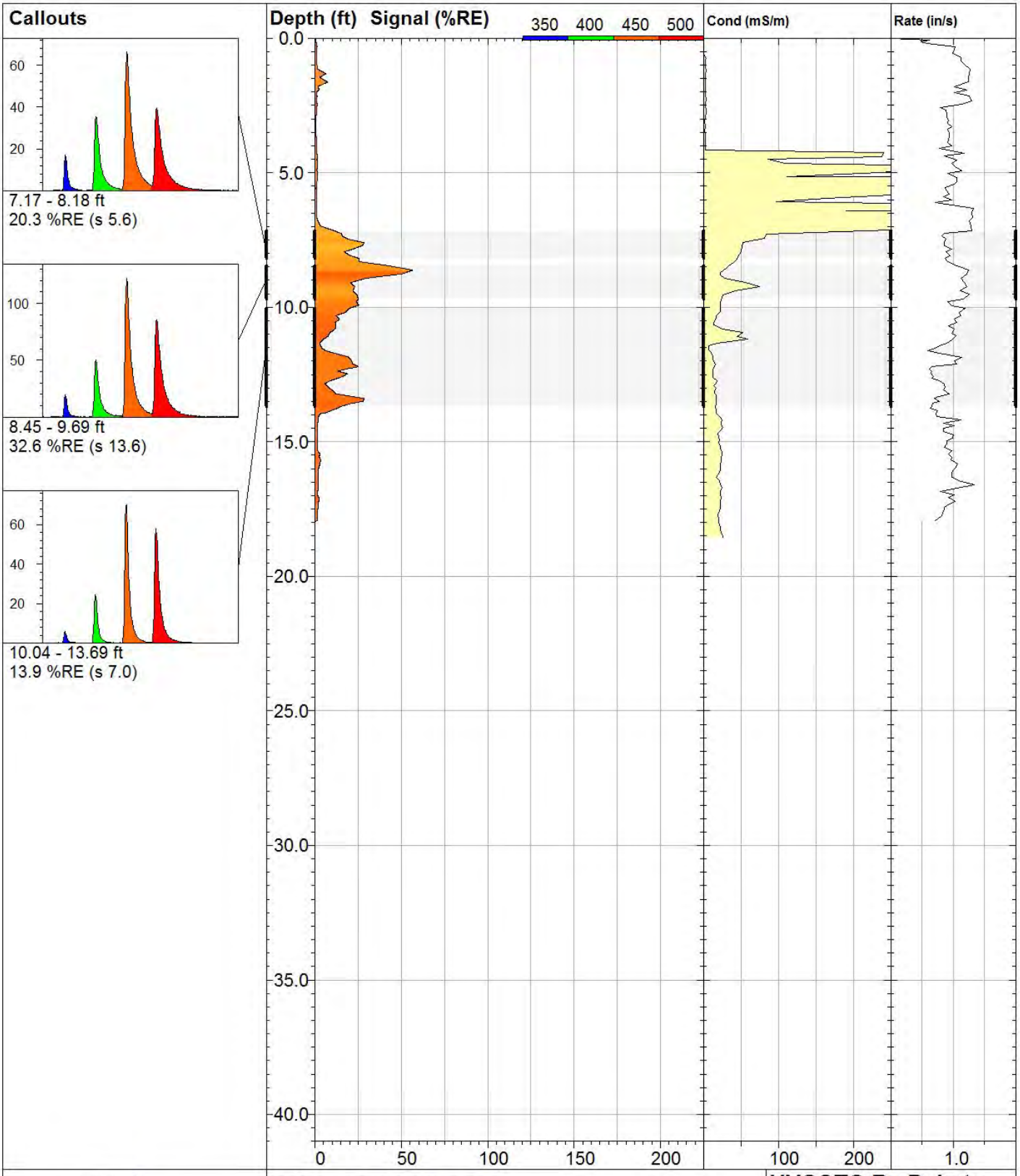
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.89 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **67.3 %RE @ 8.65 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 13:16 CDT**



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LIF-A0400NE15

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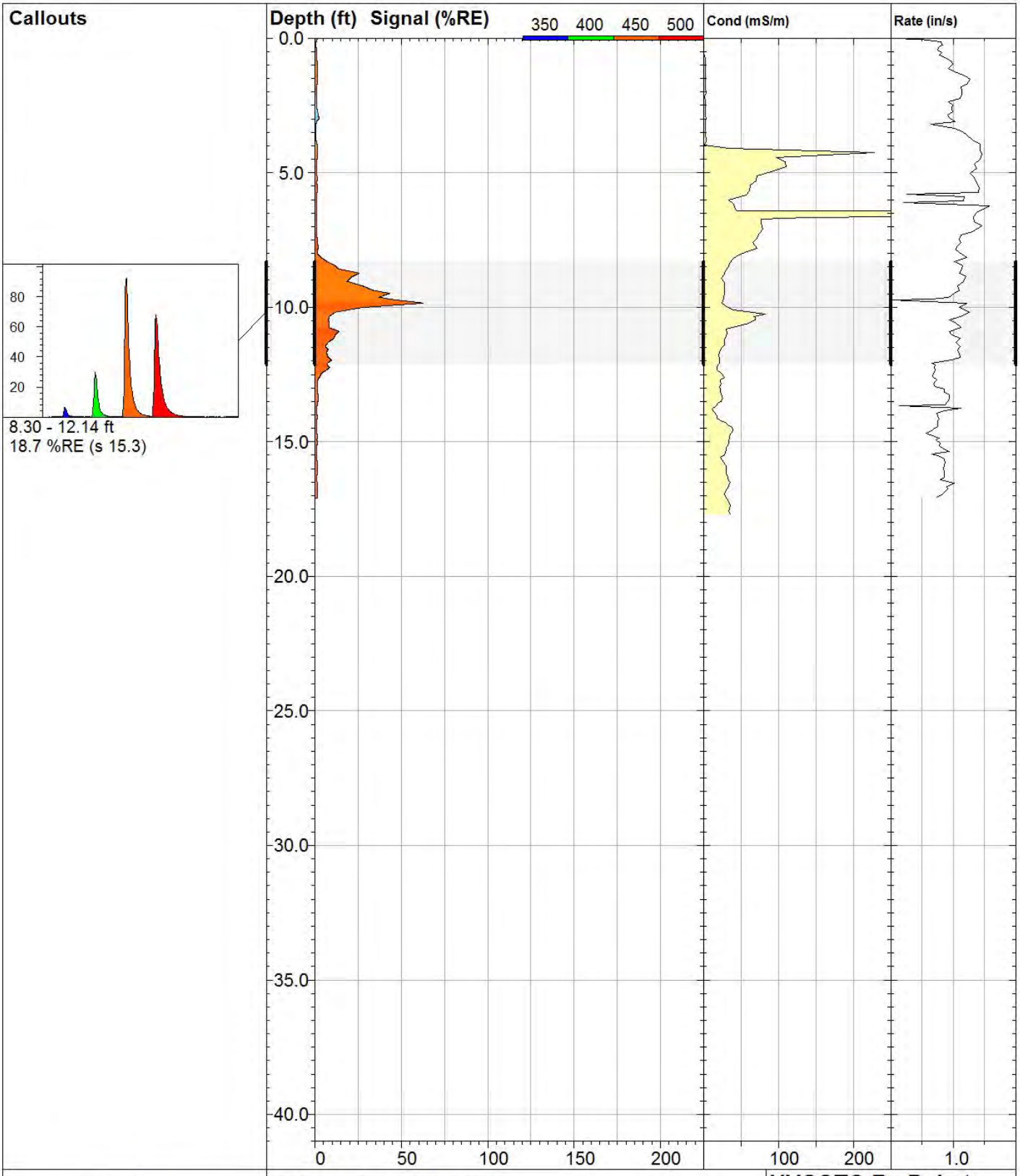
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.95 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **56.6 %RE @ 8.62 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 10:36 CDT**



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LIF-A0400NE50

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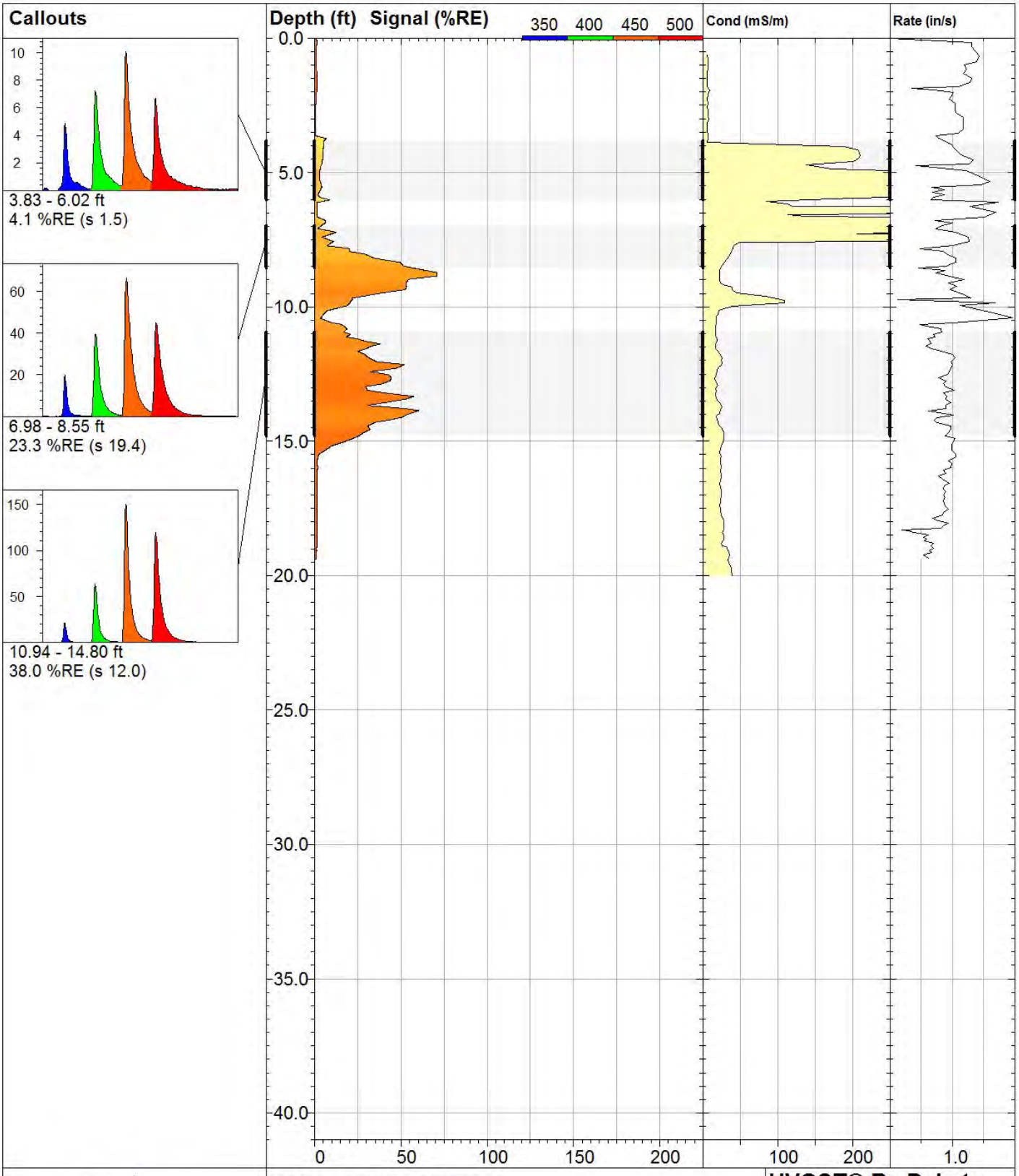
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **63.1 %RE @ 9.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 10:59 CDT**



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LIF-A0420SW10

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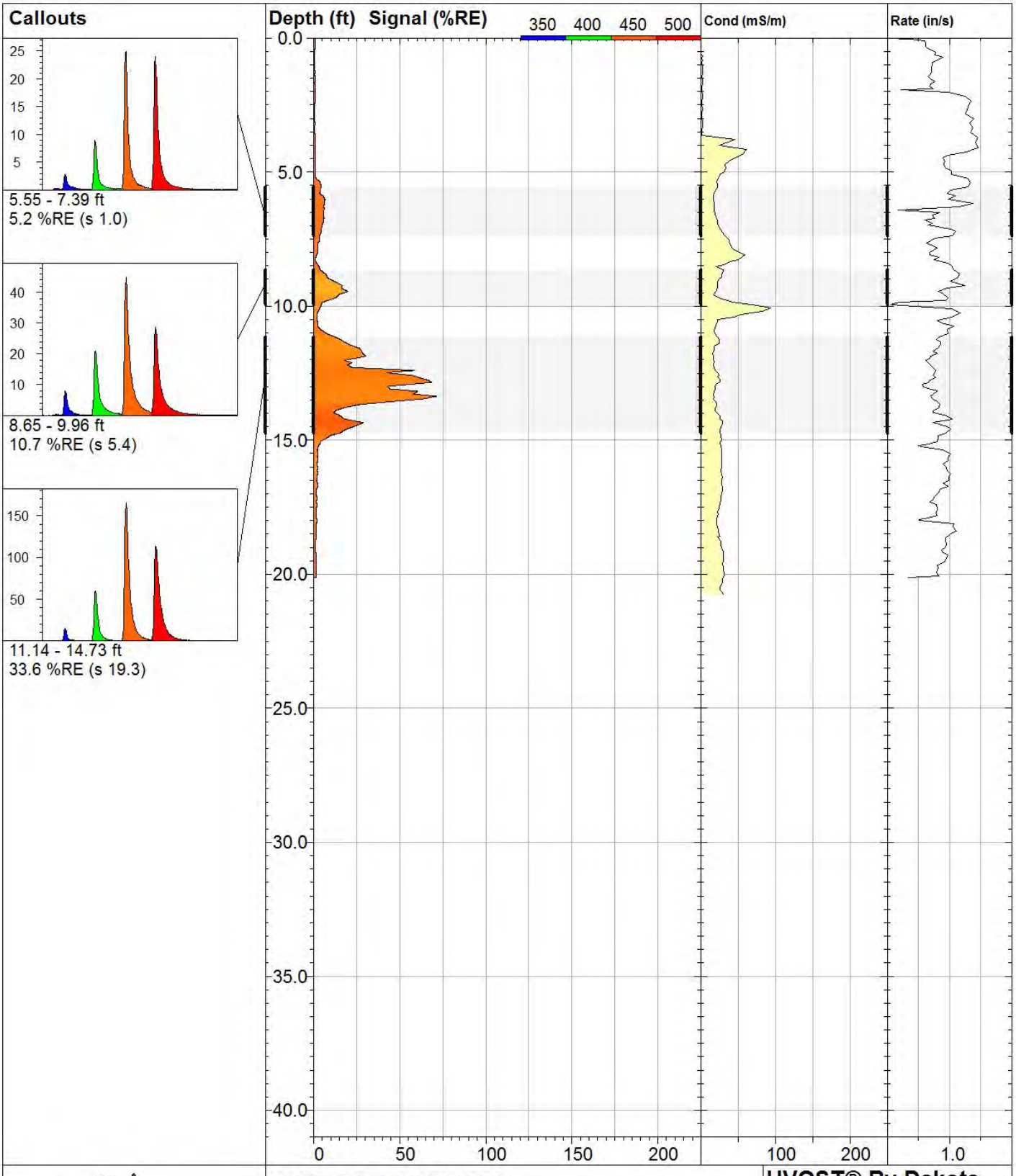
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.38 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.0 %RE @ 8.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 14:20 CDT**



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LIF-A0450SW10

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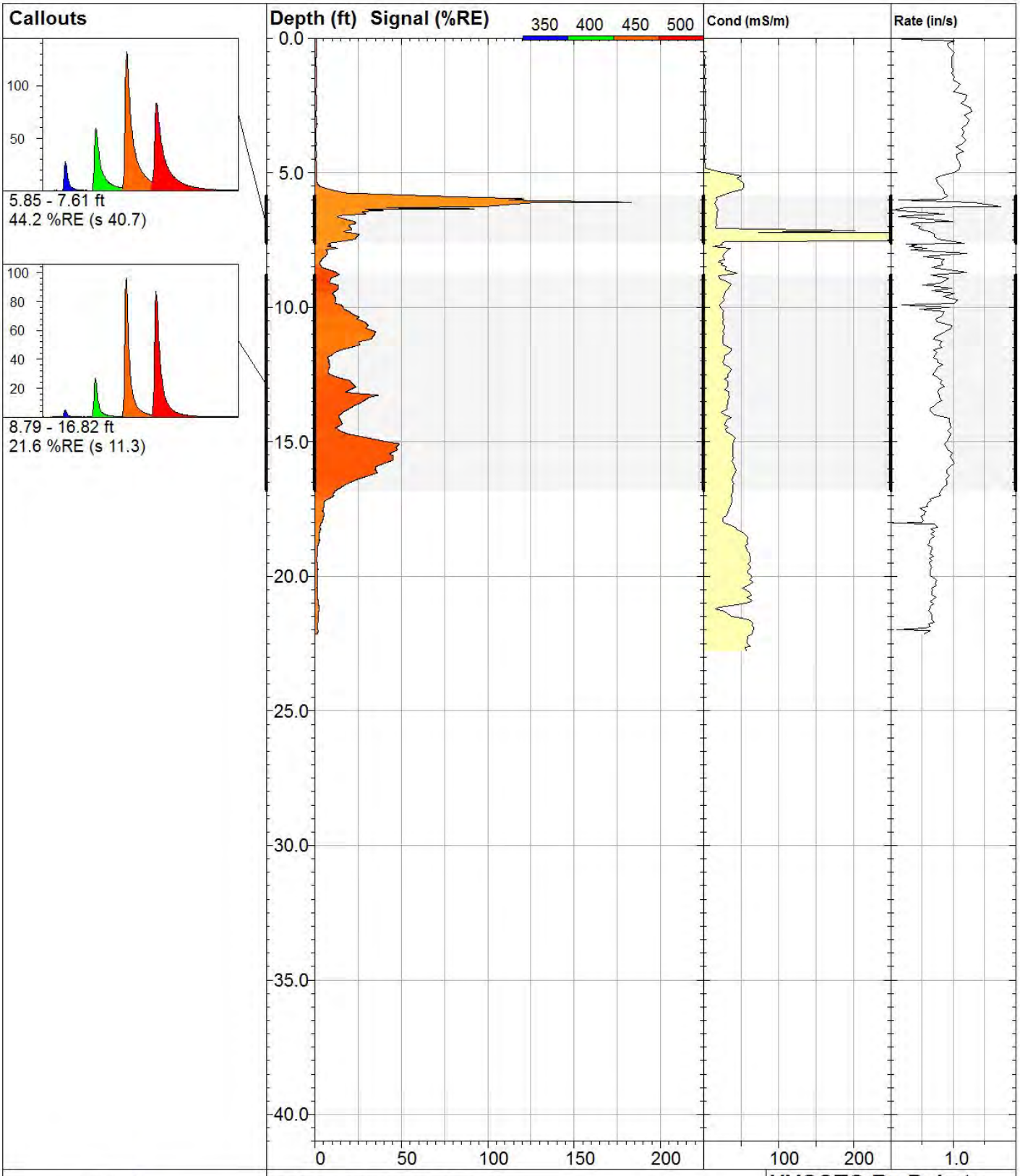
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.5 %RE @ 13.36 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 09:13 CDT**



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LIF-A0475SW63

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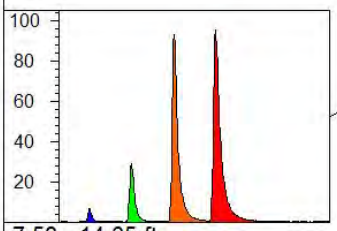
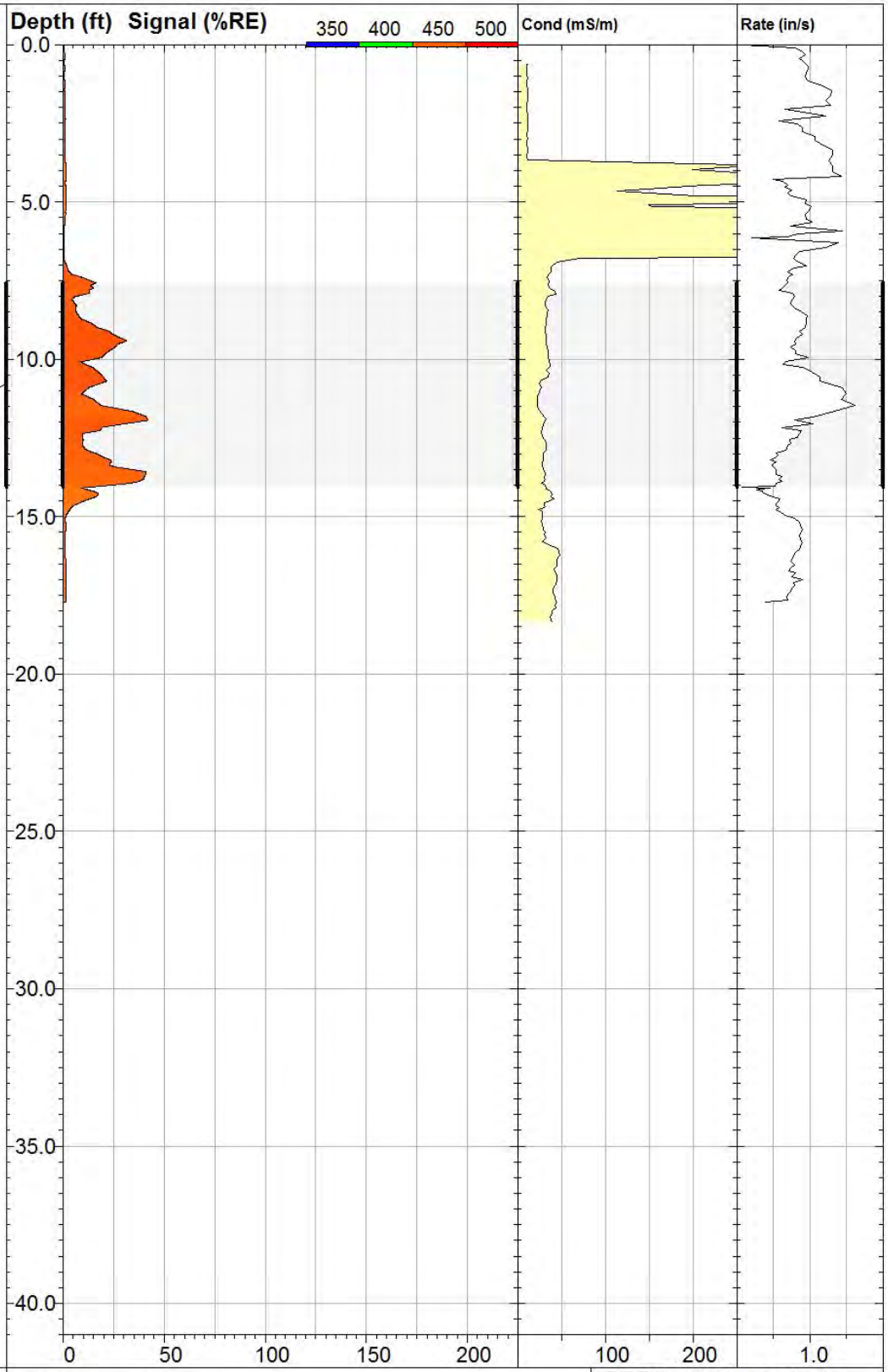
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **186.8 %RE @ 6.11 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 09:50 CDT**

Callouts



7.58 - 14.05 ft
19.5 %RE (s 10.4)



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LIF-A0500

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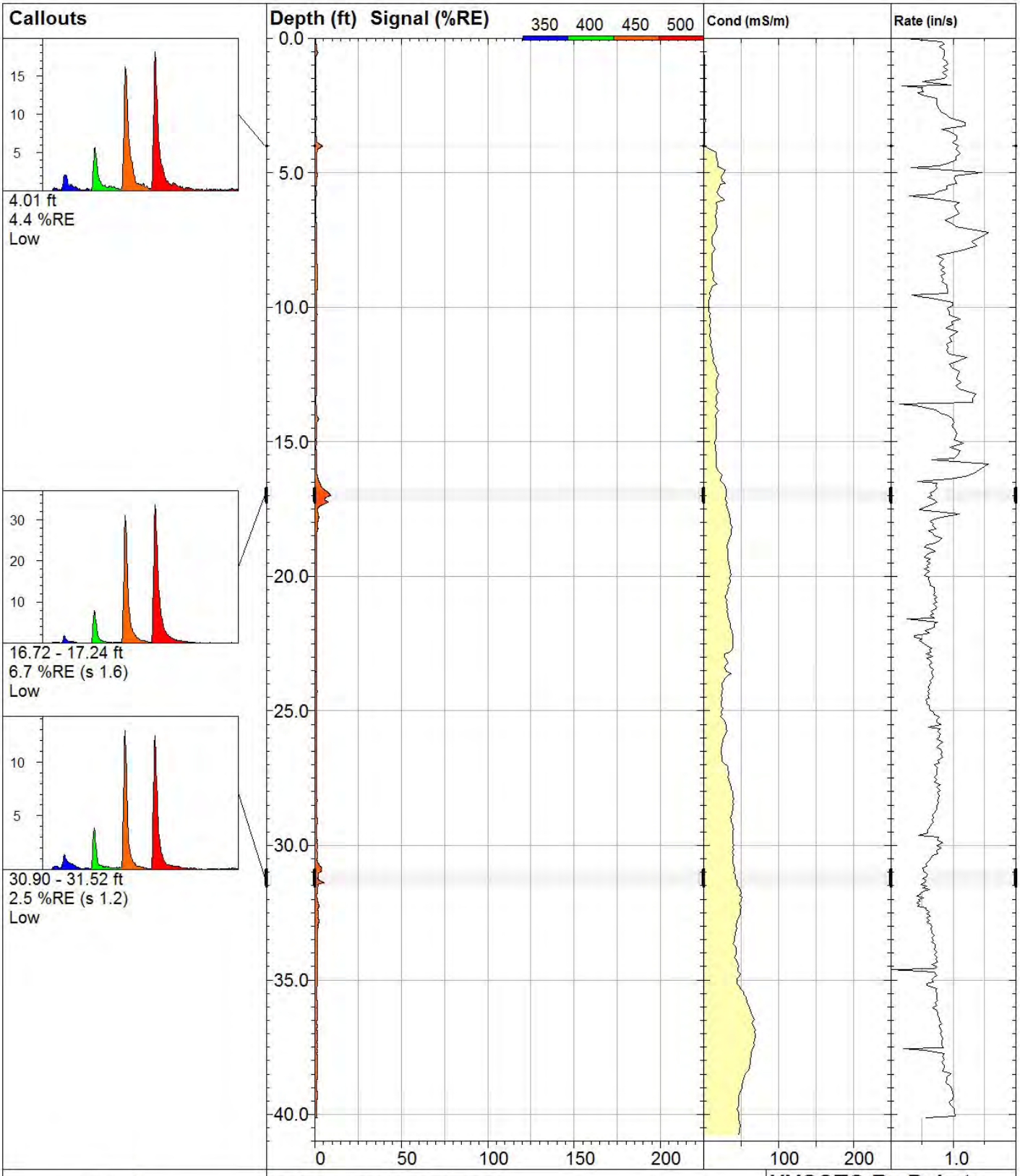
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.70 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.9 %RE @ 11.94 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 13:48 CDT**



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LIF-A0600SW10

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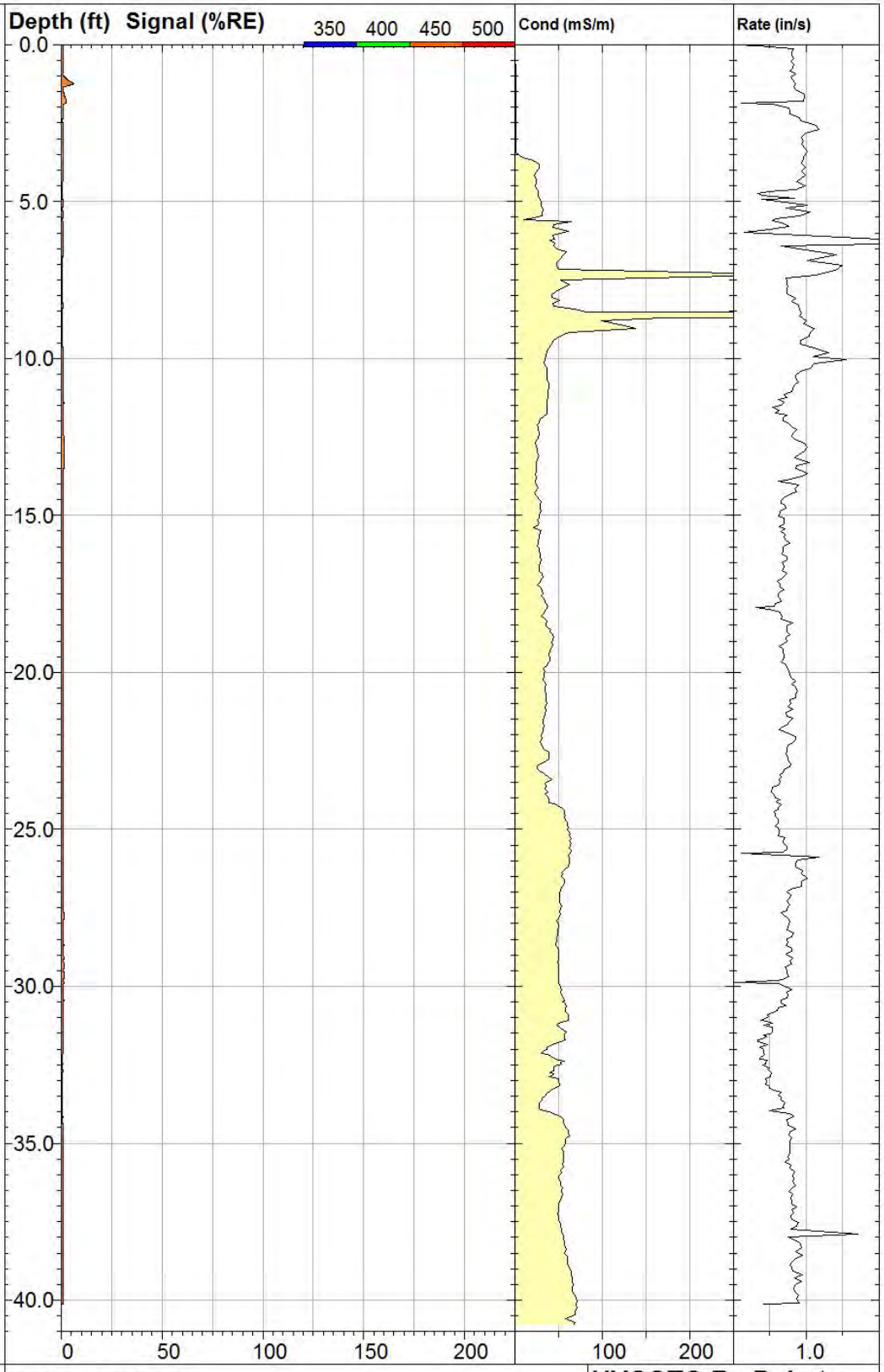
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.0 %RE @ 17.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 08:22 CDT**

Callouts



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LIF-A0700

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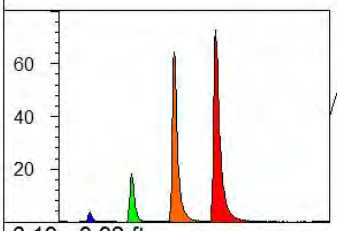
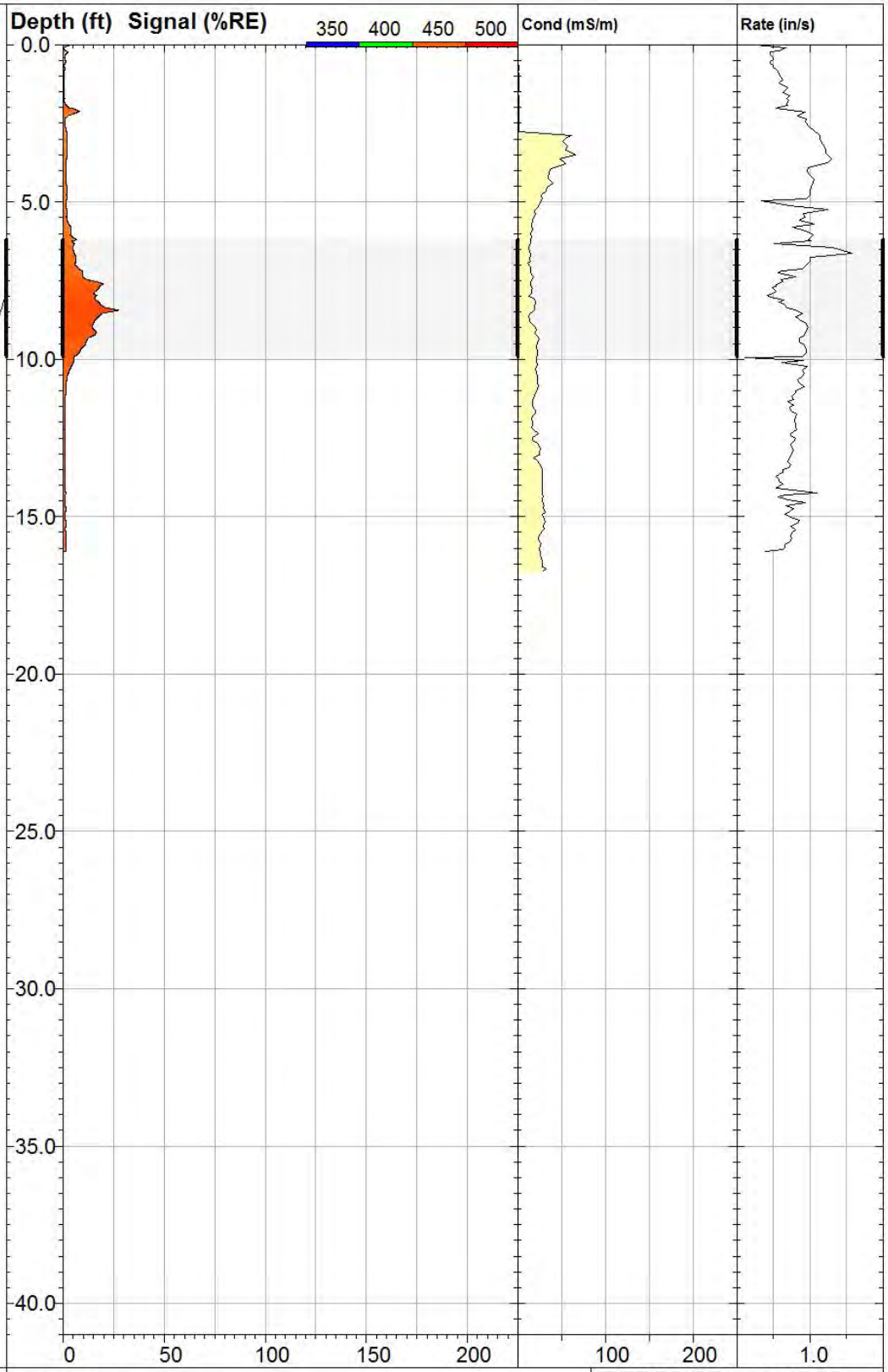
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.14 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.5 %RE @ 1.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 07:37 CDT**

Callouts



6.19 - 9.92 ft
12.4 %RE (s 5.6)



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LIF-B0100

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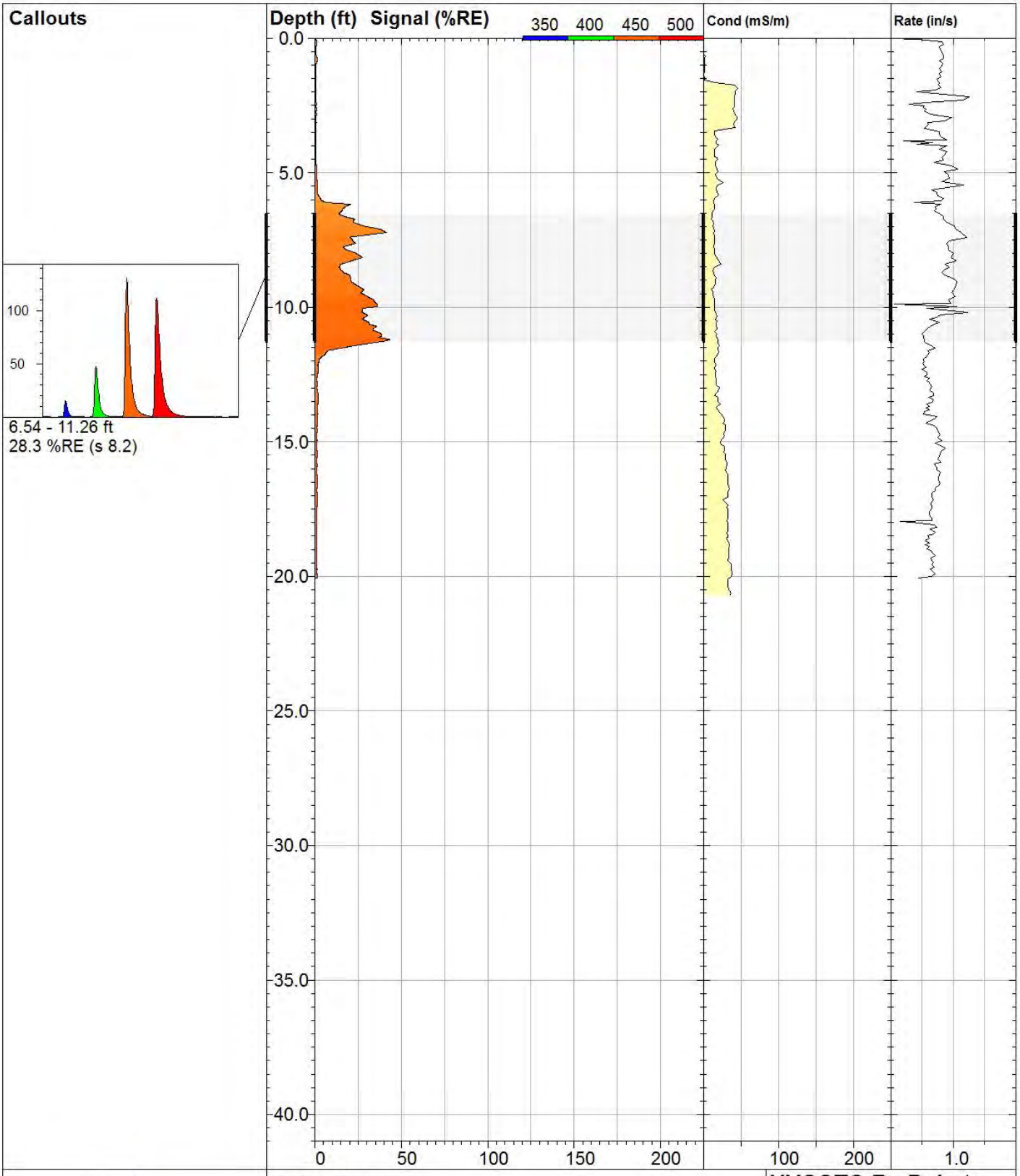
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **27.4 %RE @ 8.44 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 08:18 CDT**



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LIF-B0140

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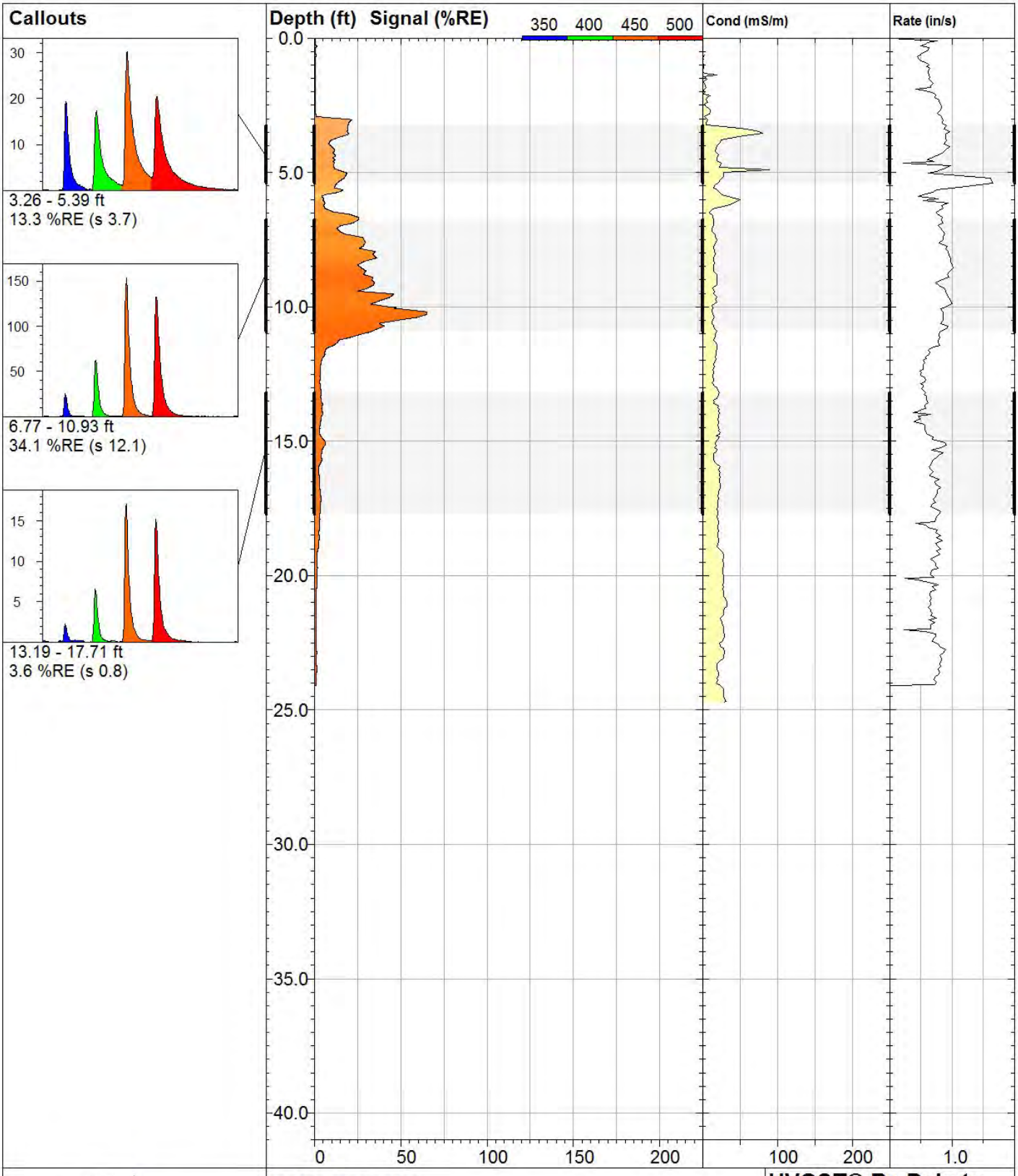
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **43.6 %RE @ 11.20 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 10:20 CDT**



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LIF-B0182

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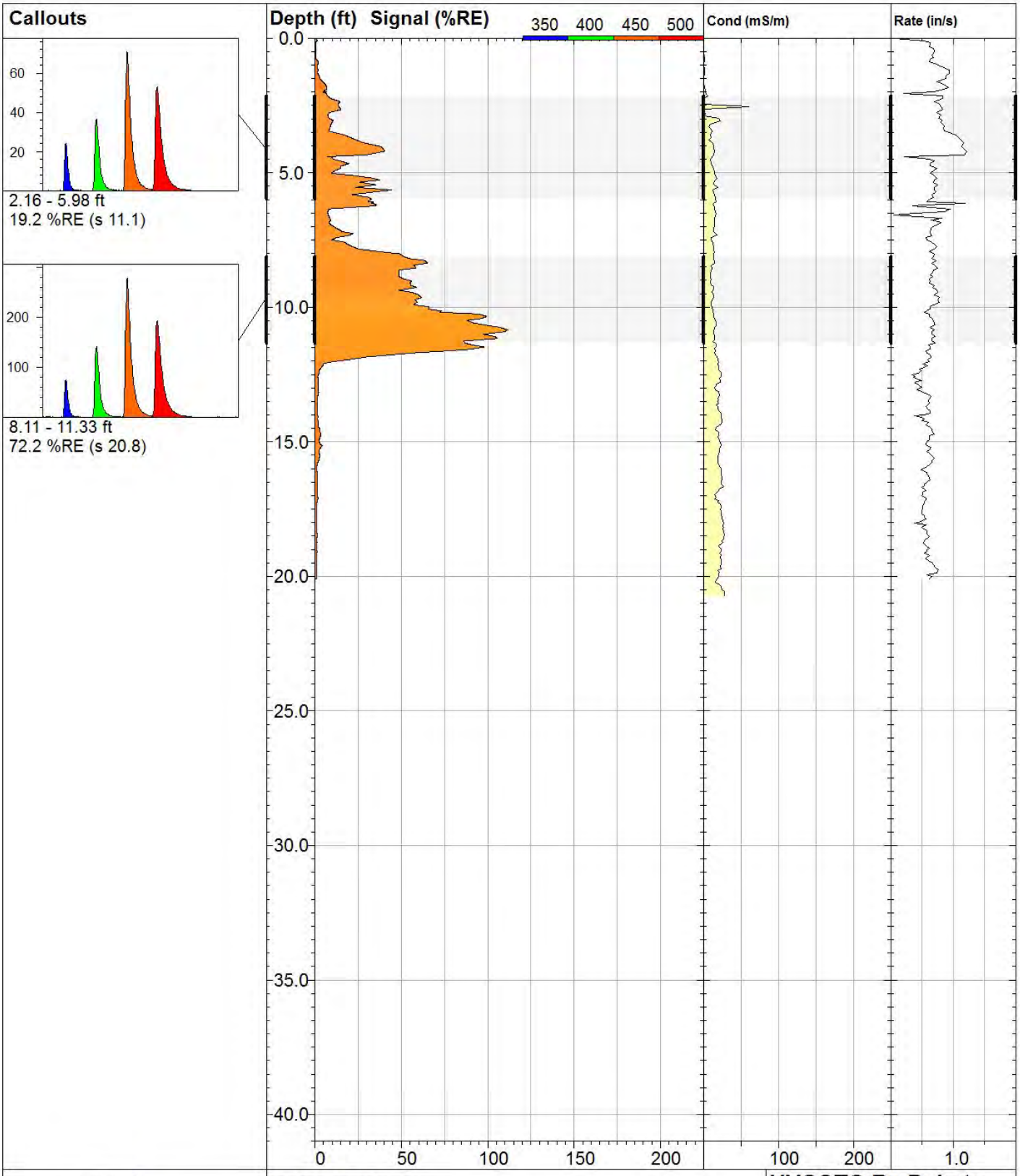
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **65.3 %RE @ 10.19 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 09:17 CDT**



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LIF-B0235

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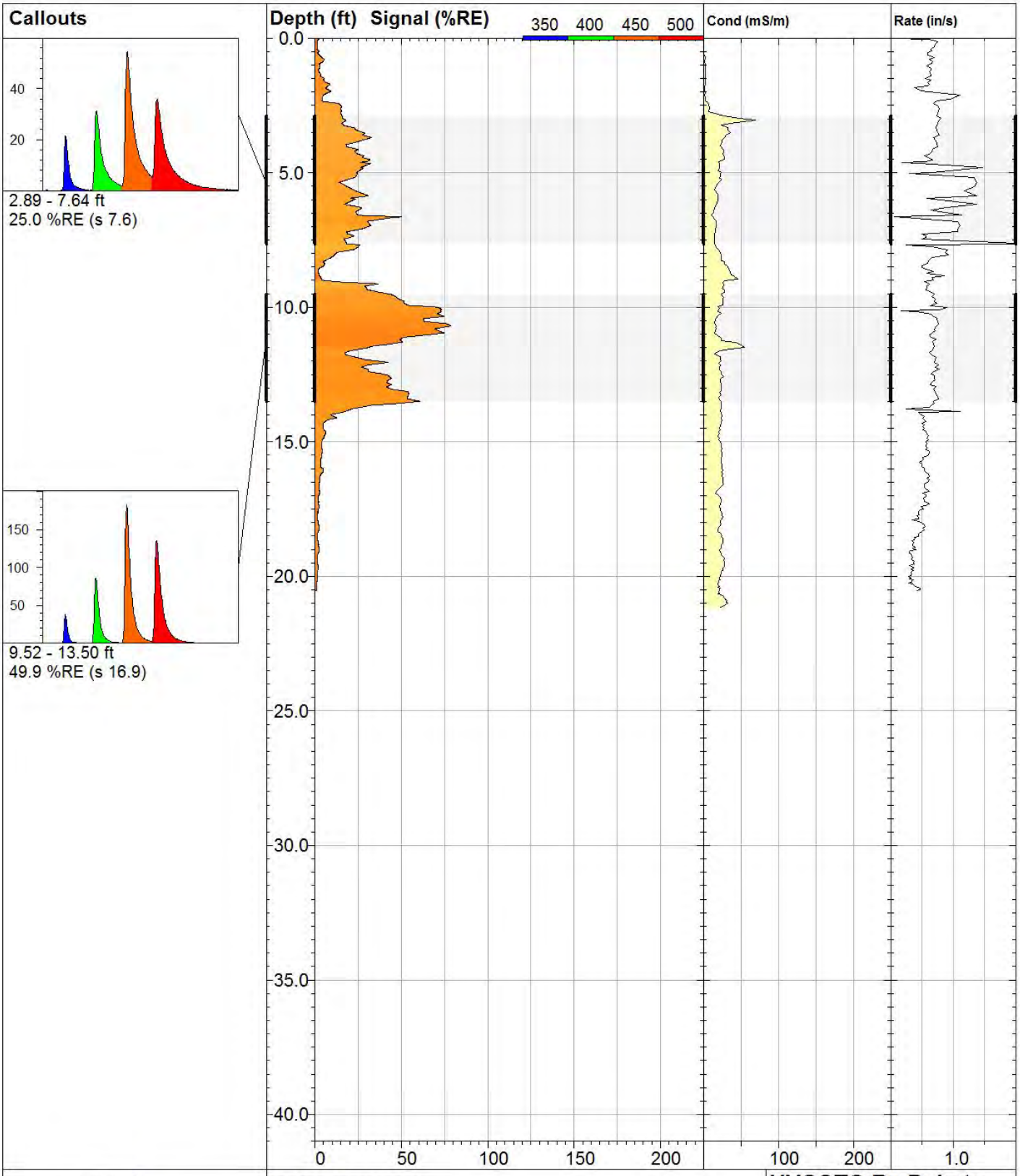
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **111.6 %RE @ 10.84 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 08:29 CDT**



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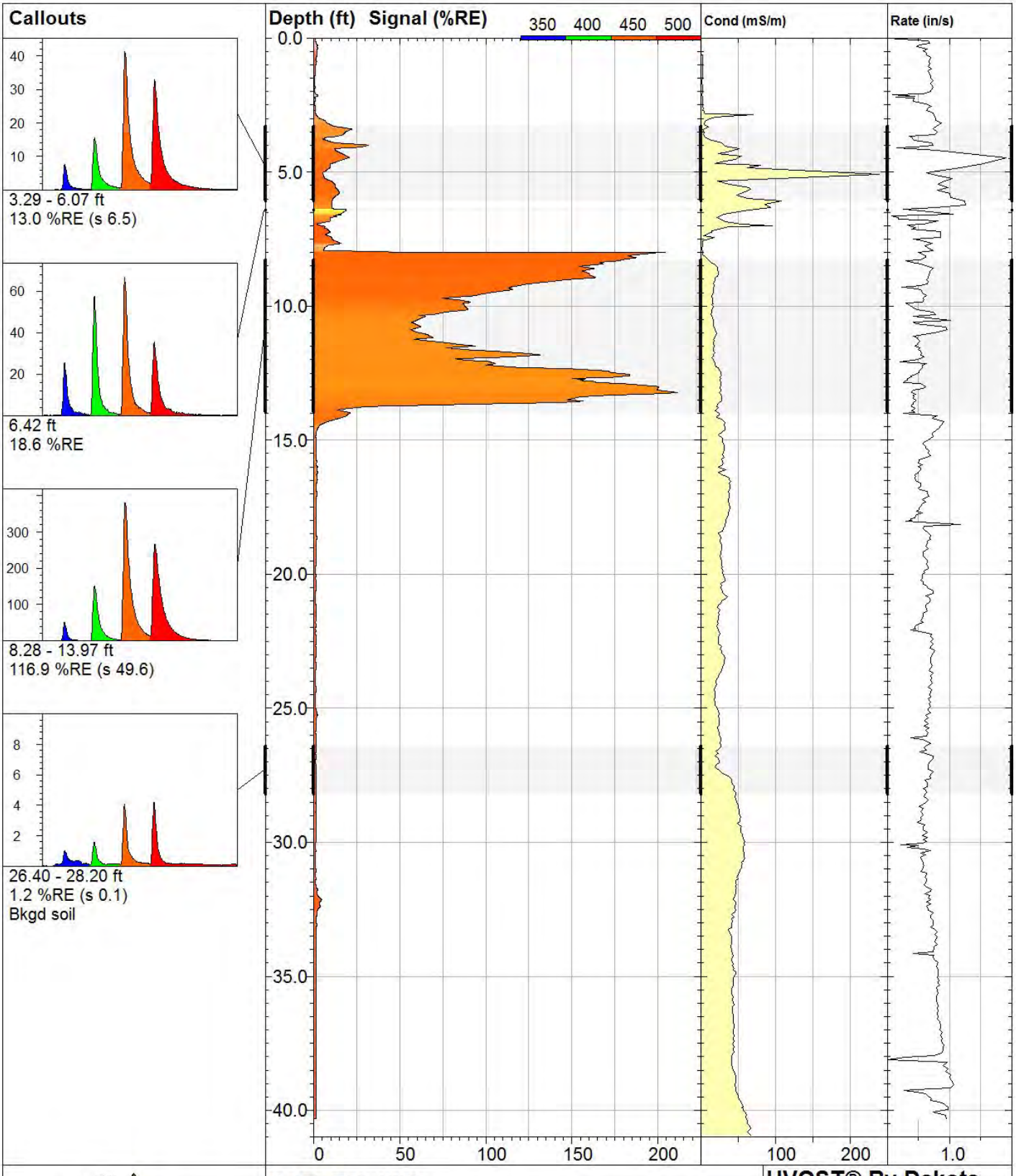
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.54 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **78.6 %RE @ 10.70 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 14:41 CDT**



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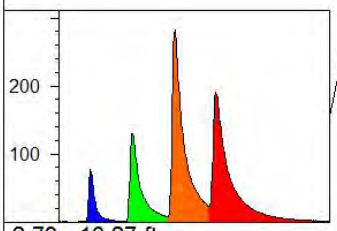
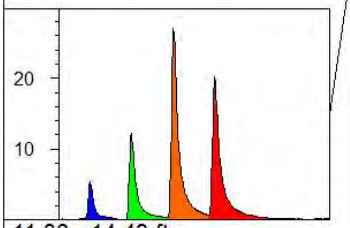
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.31 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **211.6 %RE @ 13.23 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-09 14:51 CDT**

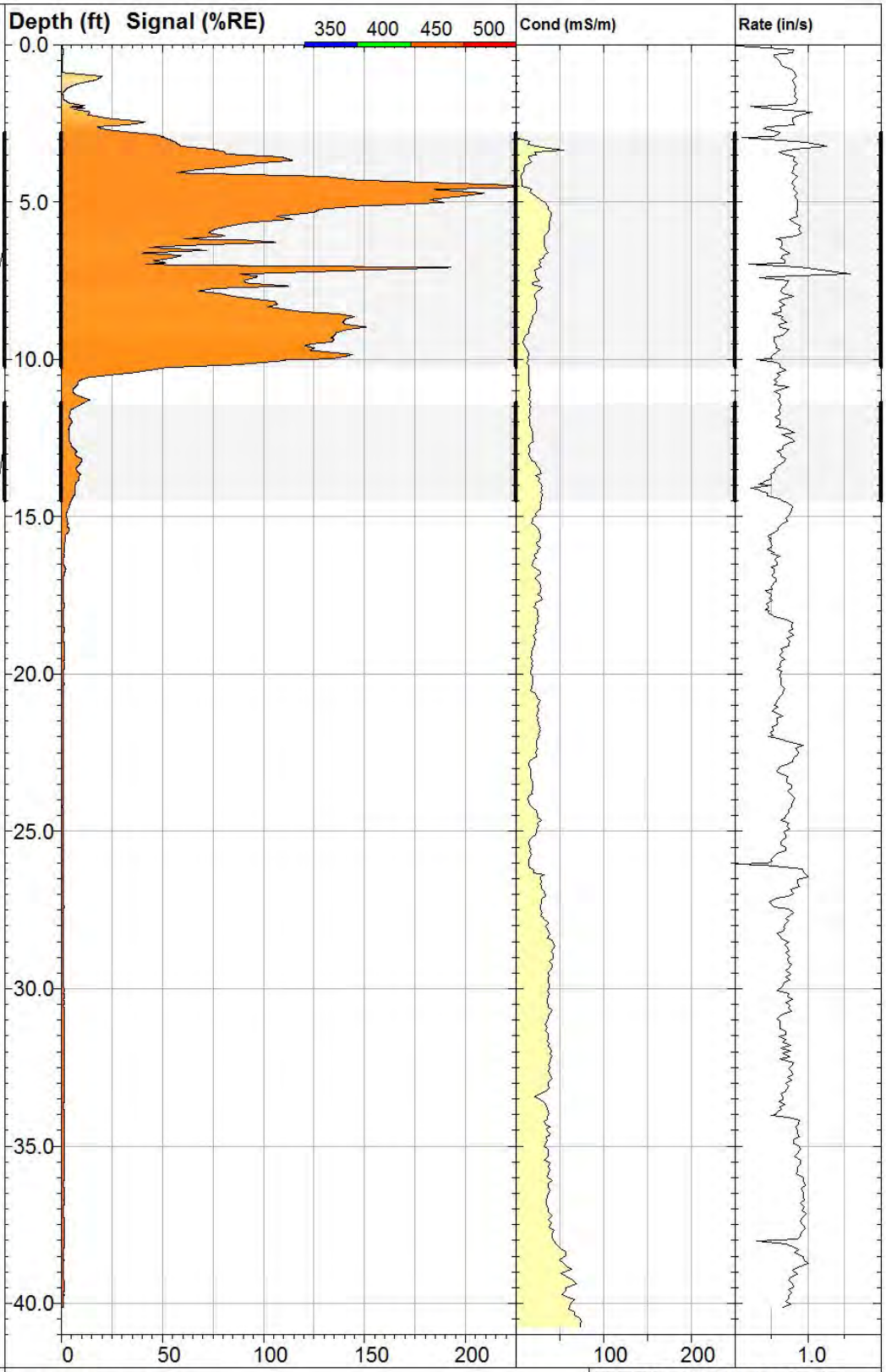
Callouts



2.79 - 10.27 ft
105.6 %RE (s 42.9)



11.36 - 14.49 ft
6.5 %RE (s 2.0)



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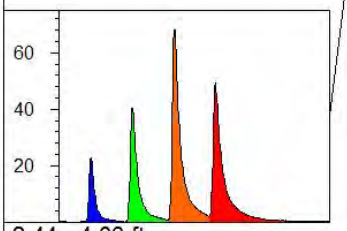
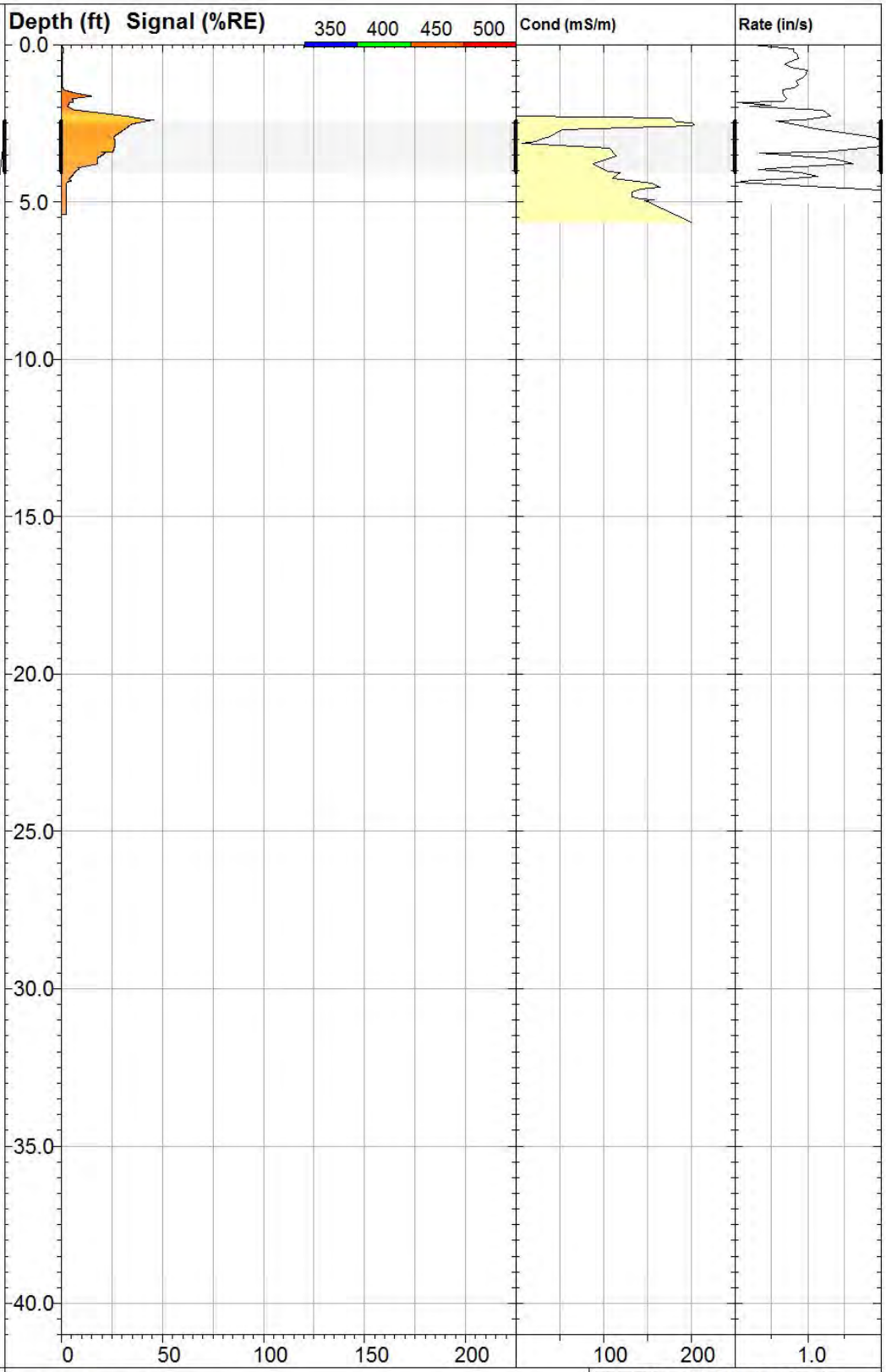
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **243.1 %RE @ 4.51 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 08:32 CDT**

Callouts



2.44 - 4.06 ft
20.2 %RE (s 11.0)



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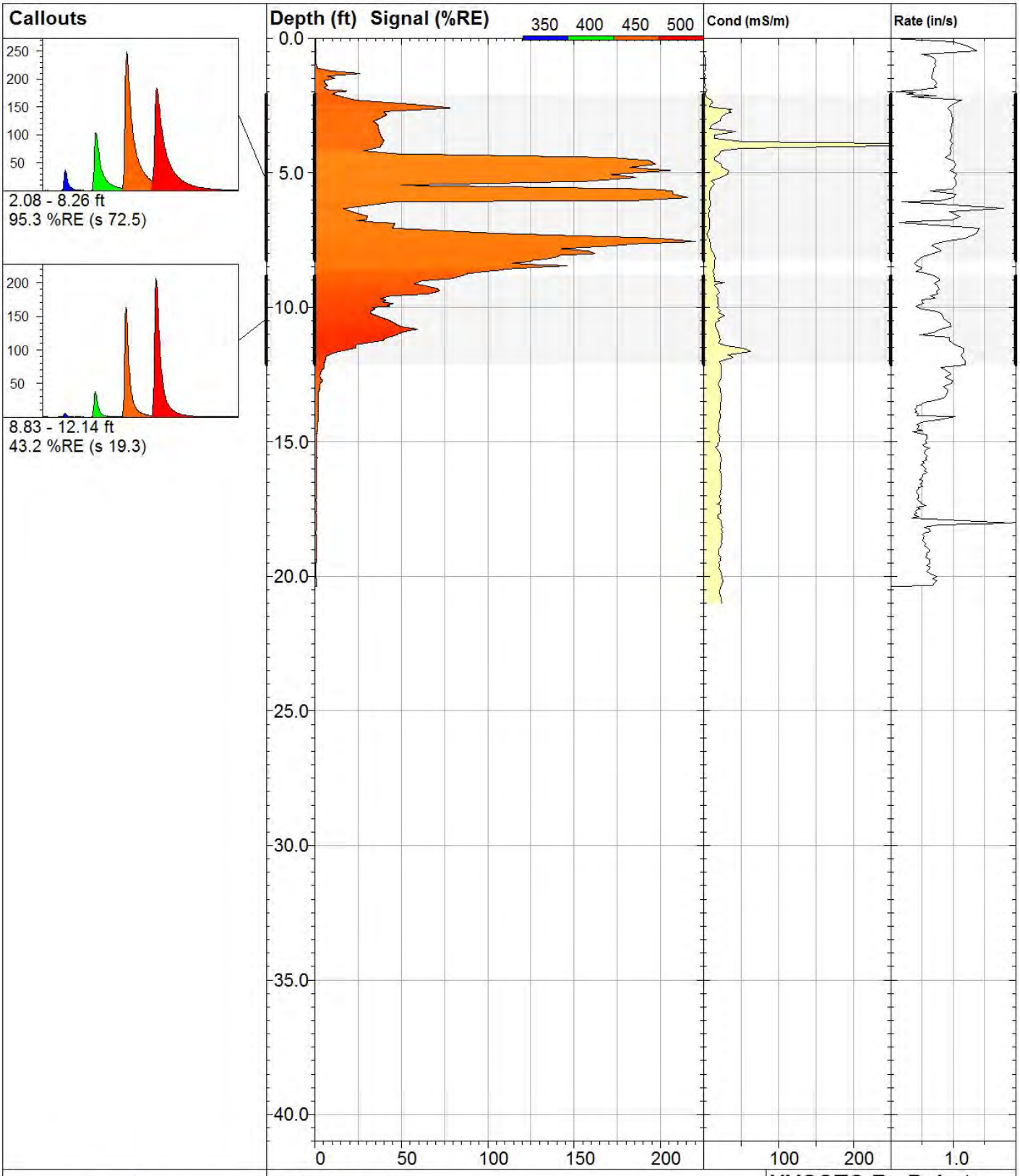
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **5.40 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **45.6 %RE @ 2.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 08:00 CDT**



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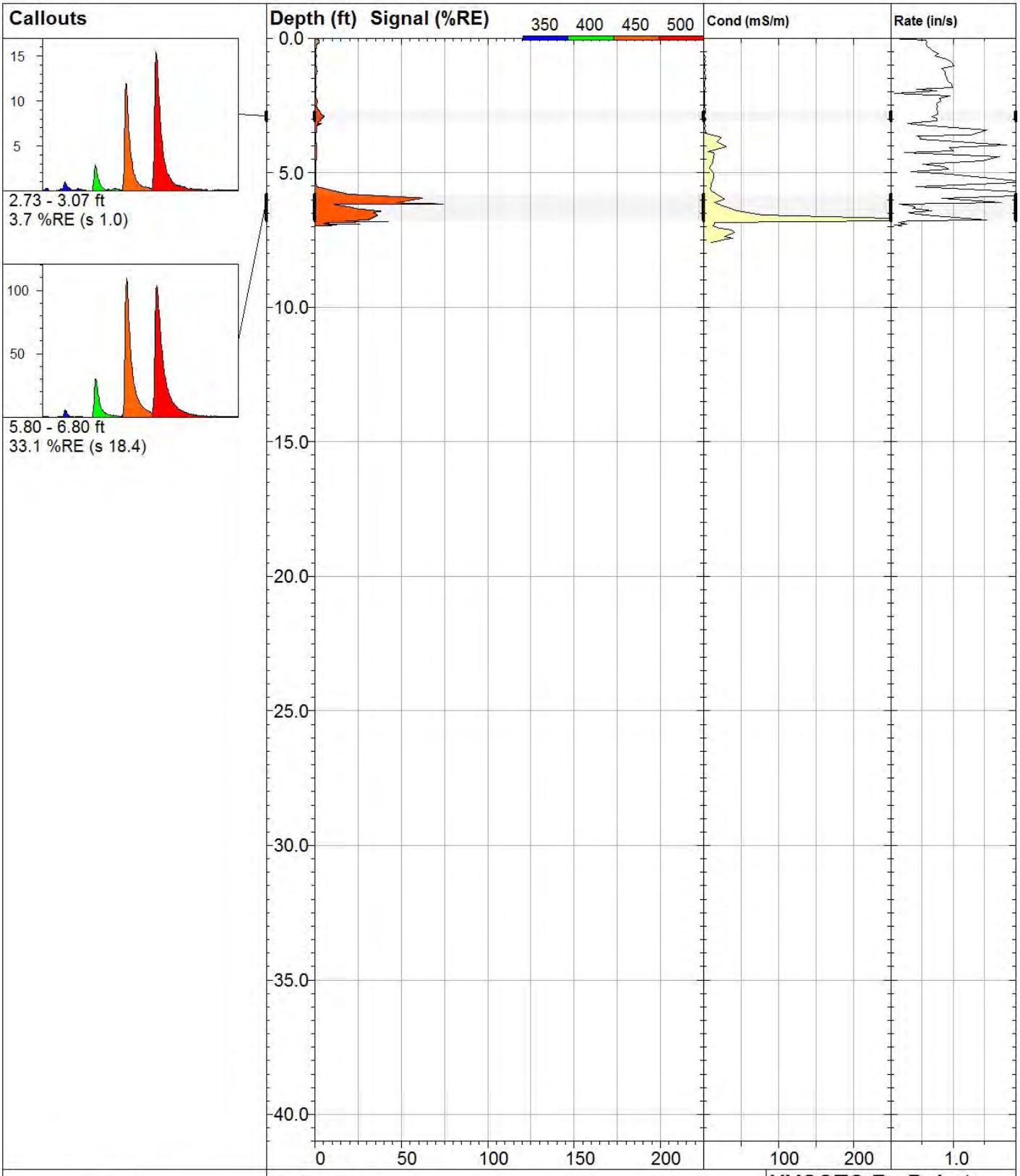
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.38 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **220.4 %RE @ 7.57 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 10:27 CDT**



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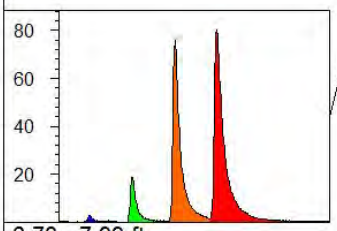
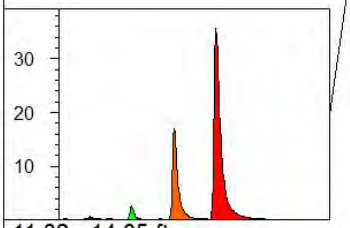
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **74.8 %RE @ 6.16 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 11:02 CDT**

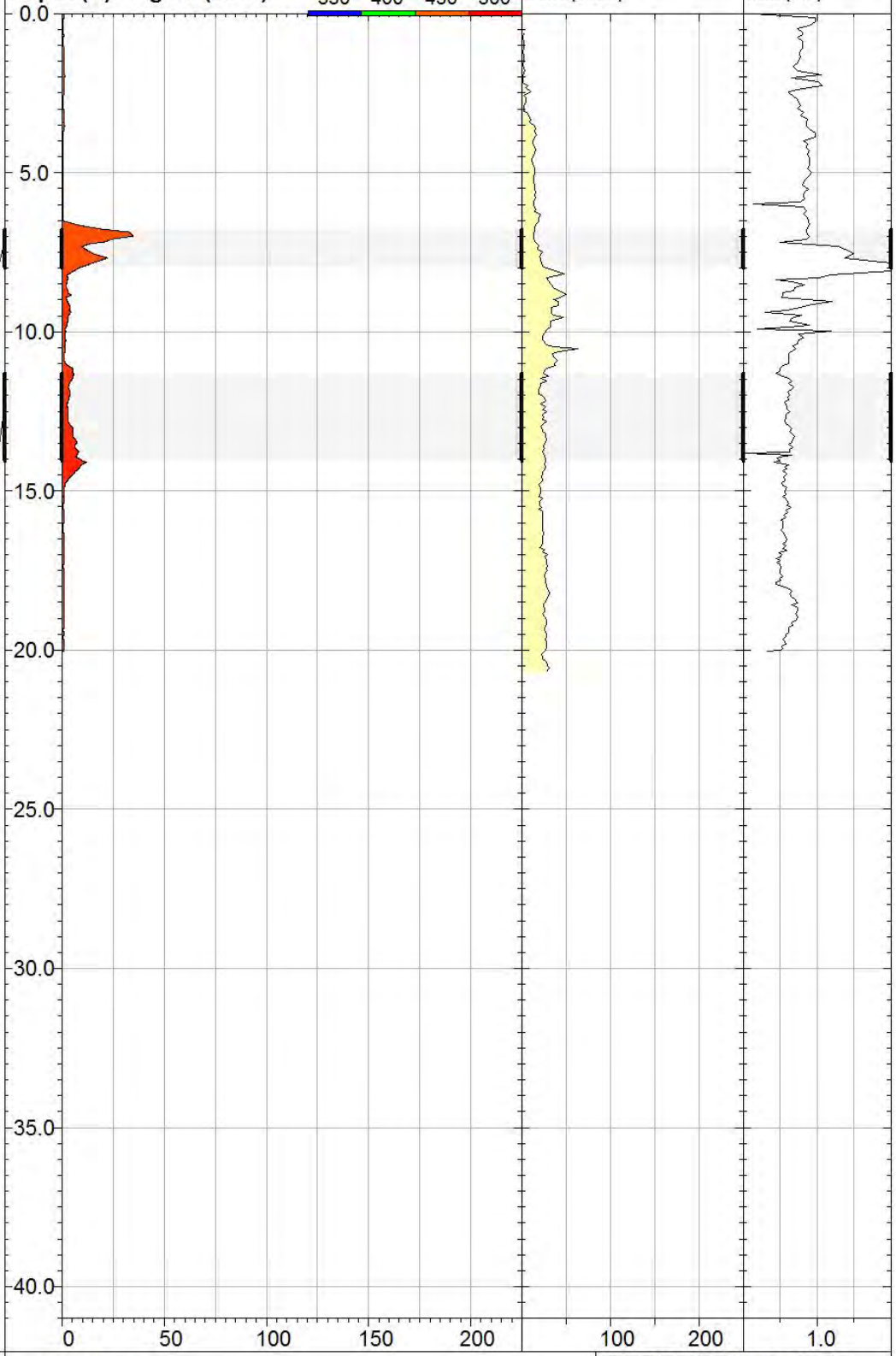
Callouts



6.78 - 7.99 ft
20.0 %RE (s 8.9)



11.32 - 14.05 ft
4.8 %RE (s 1.9)



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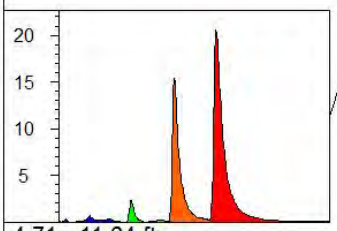
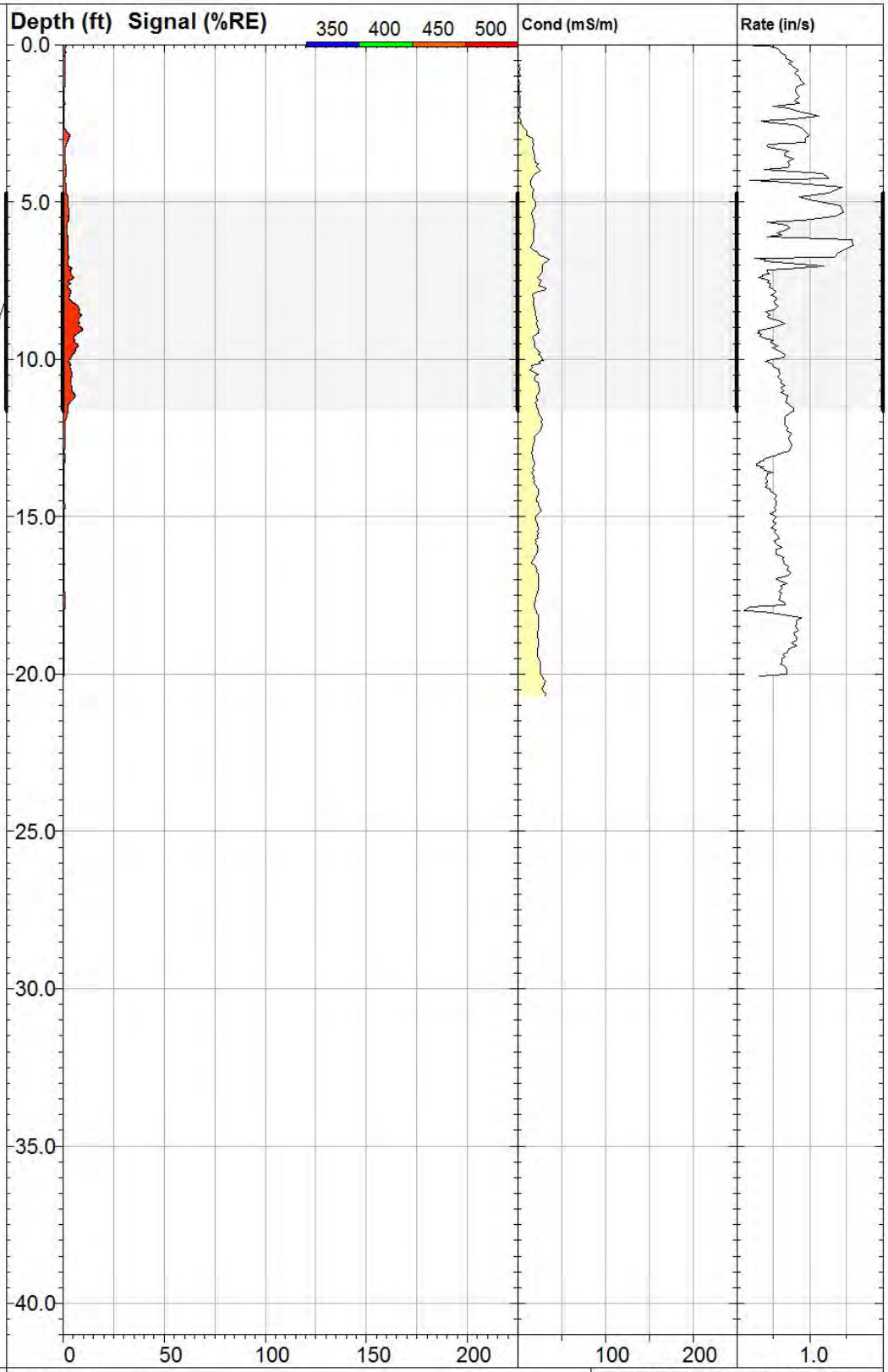
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.04 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **34.6 %RE @ 7.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 11:20 CDT**

Callouts



4.71 - 11.64 ft
4.3 %RE (s 2.1)



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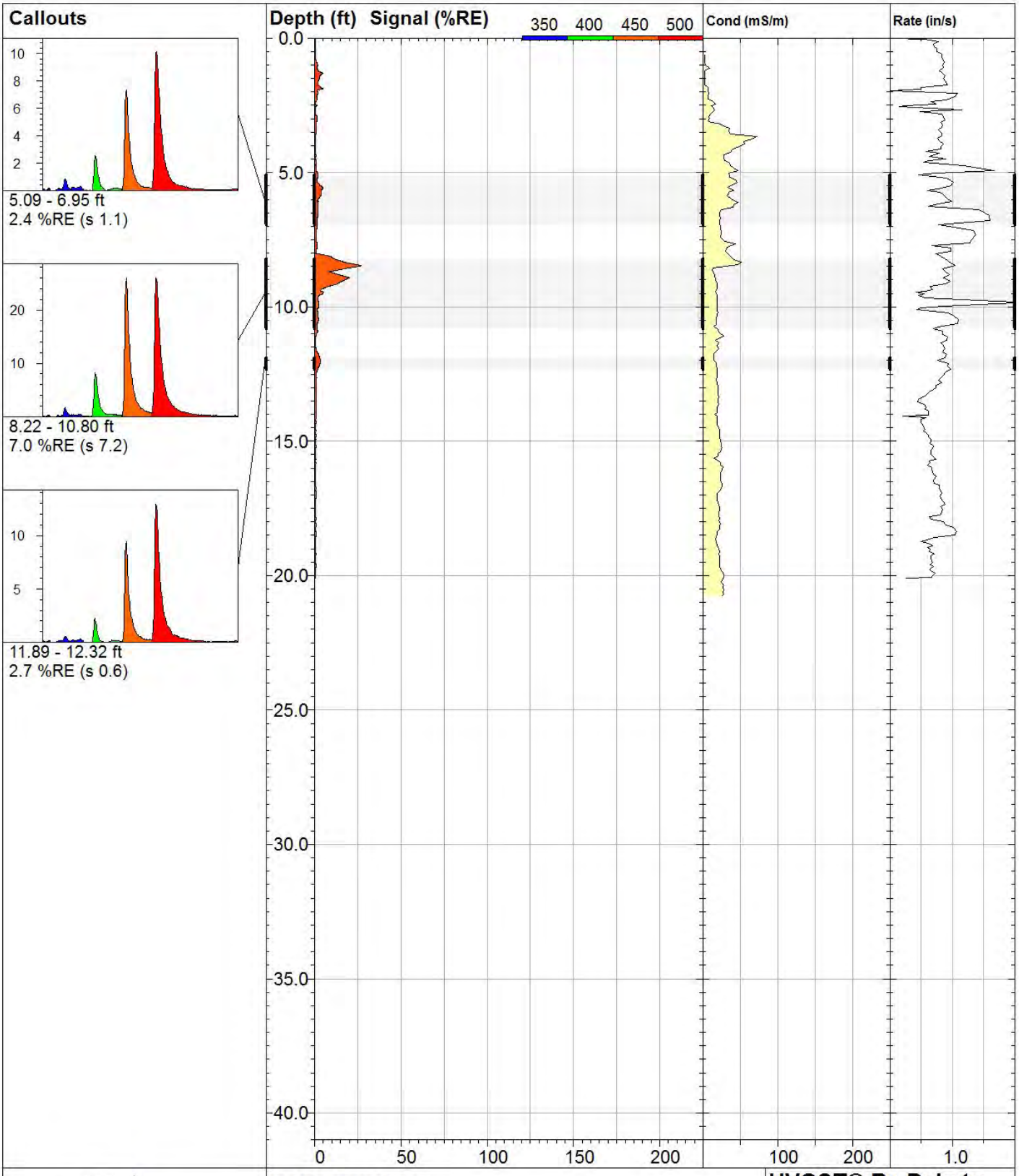
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.7 %RE @ 9.05 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 12:07 CDT**



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LIF-B0877

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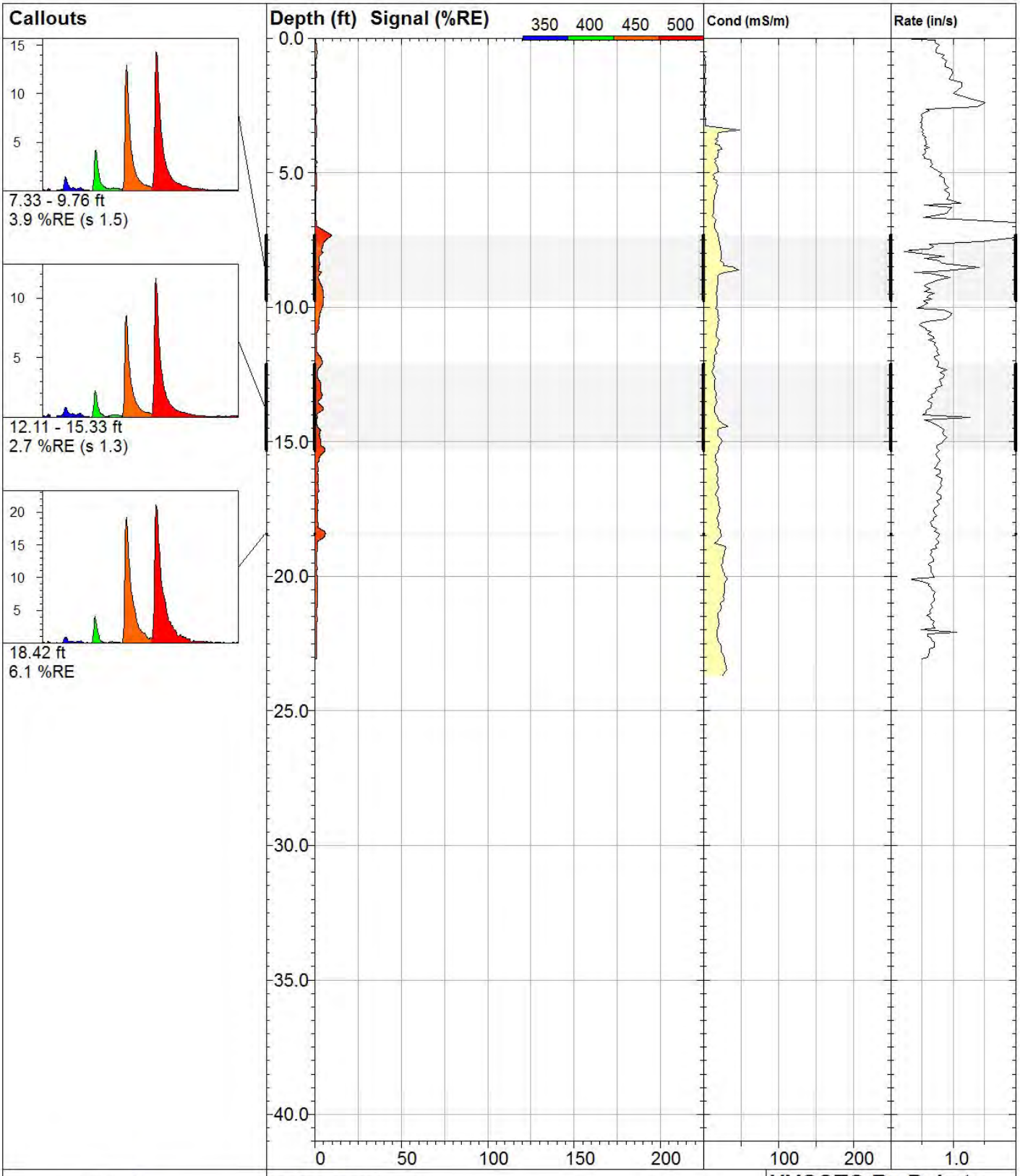
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **27.2 %RE @ 8.47 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 13:14 CDT**



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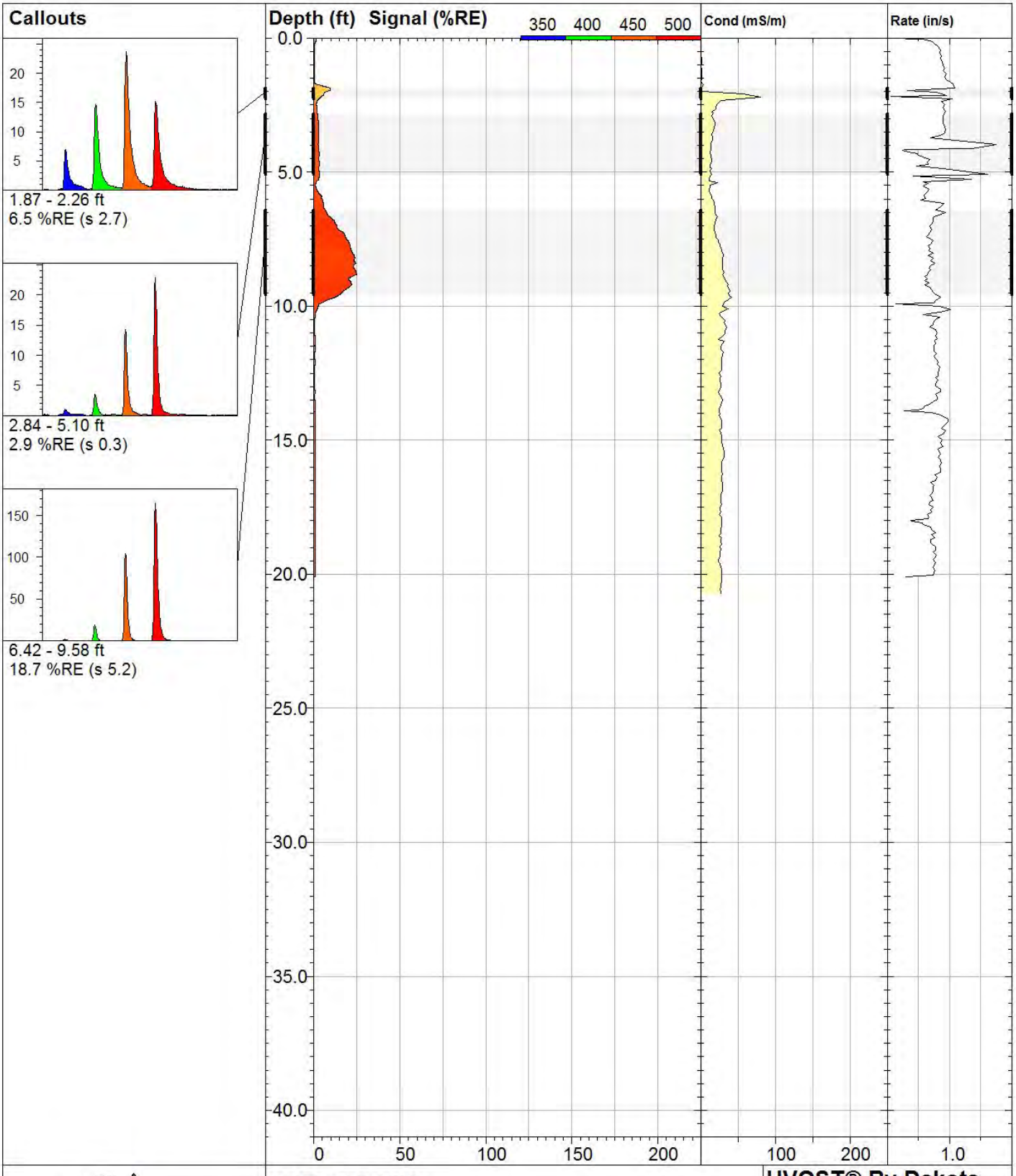
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.7 %RE @ 7.33 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 14:04 CDT**



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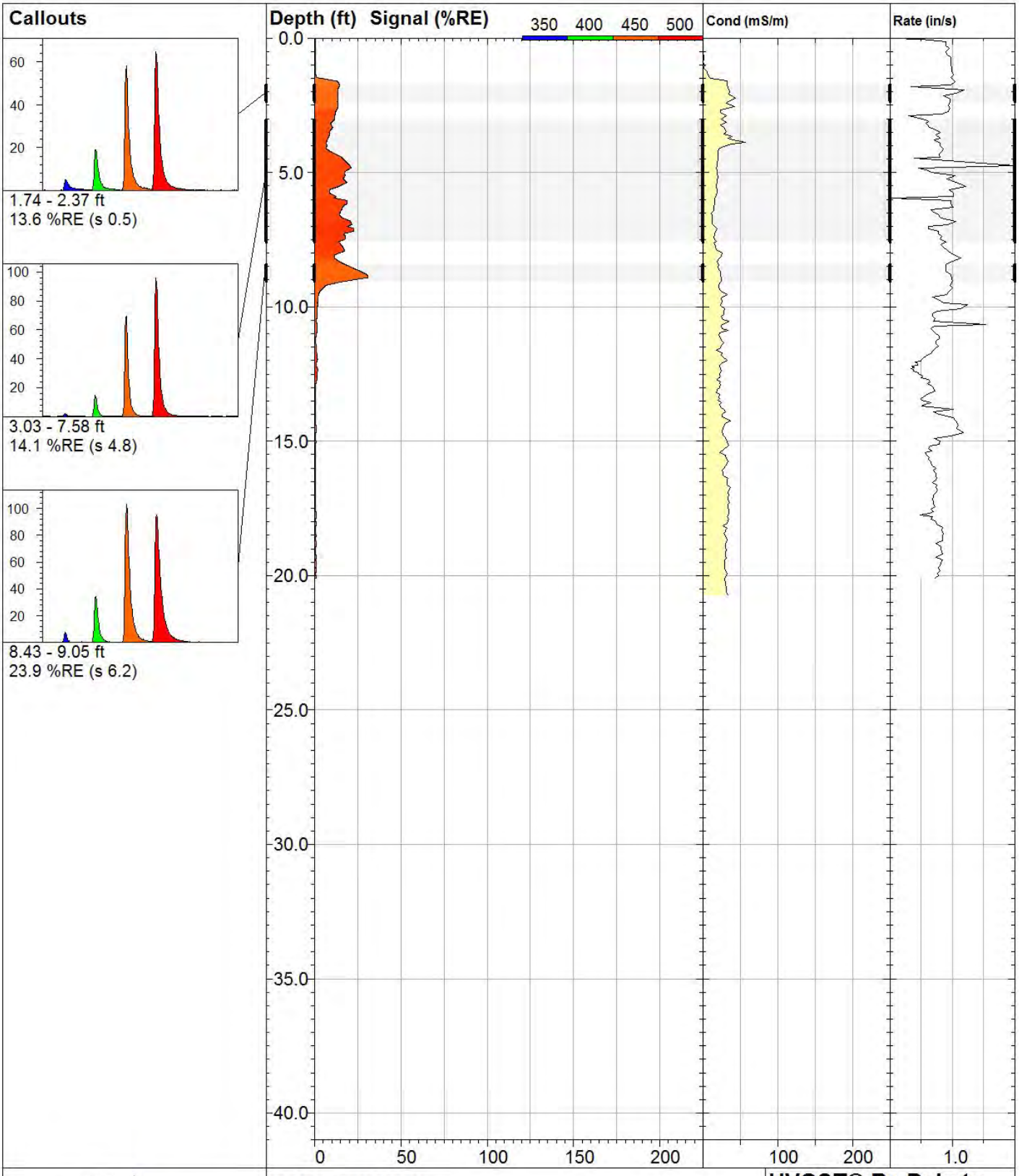
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.8 %RE @ 8.82 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 11:04 CDT**



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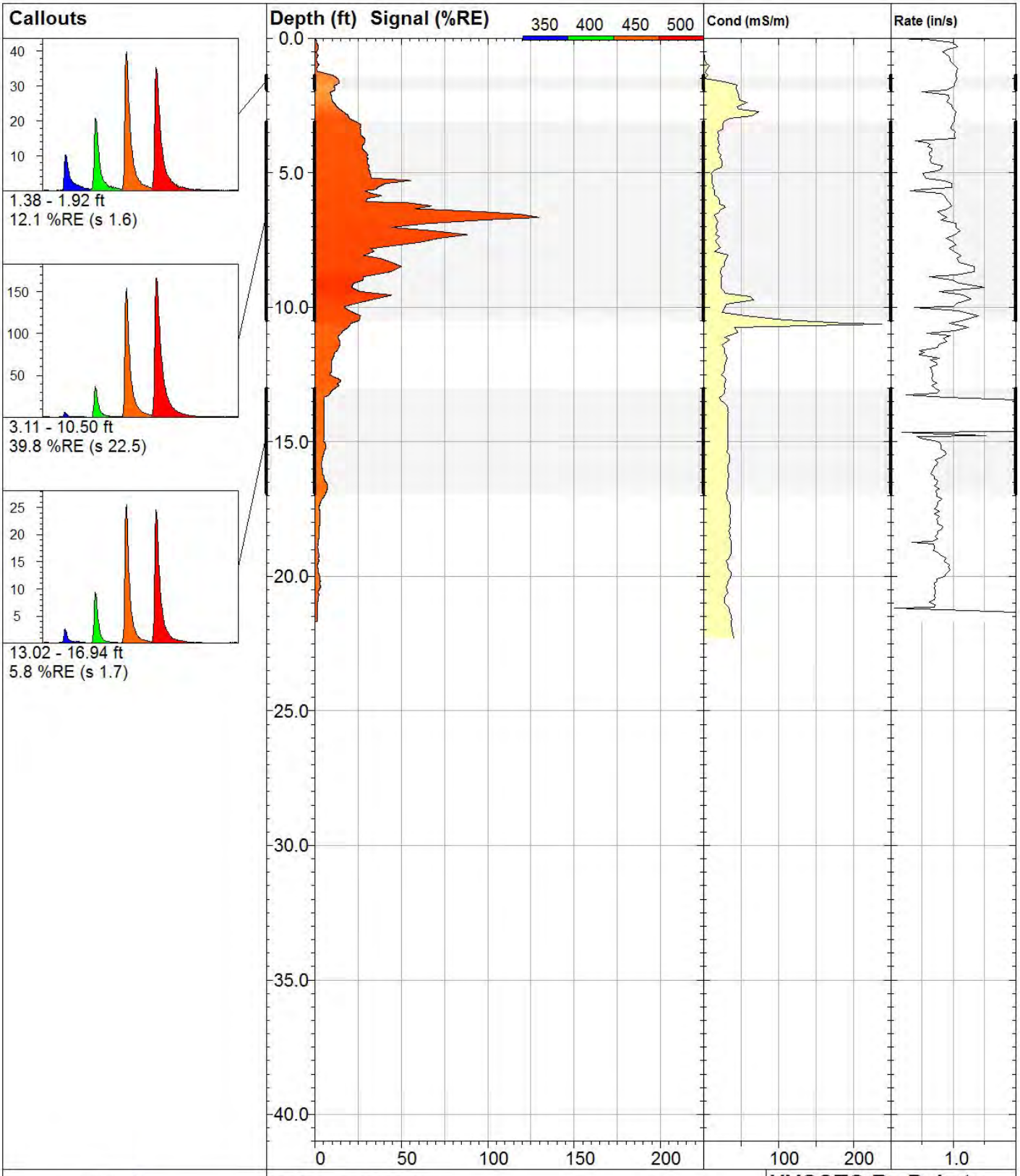
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **30.9 %RE @ 8.91 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 11:33 CDT**



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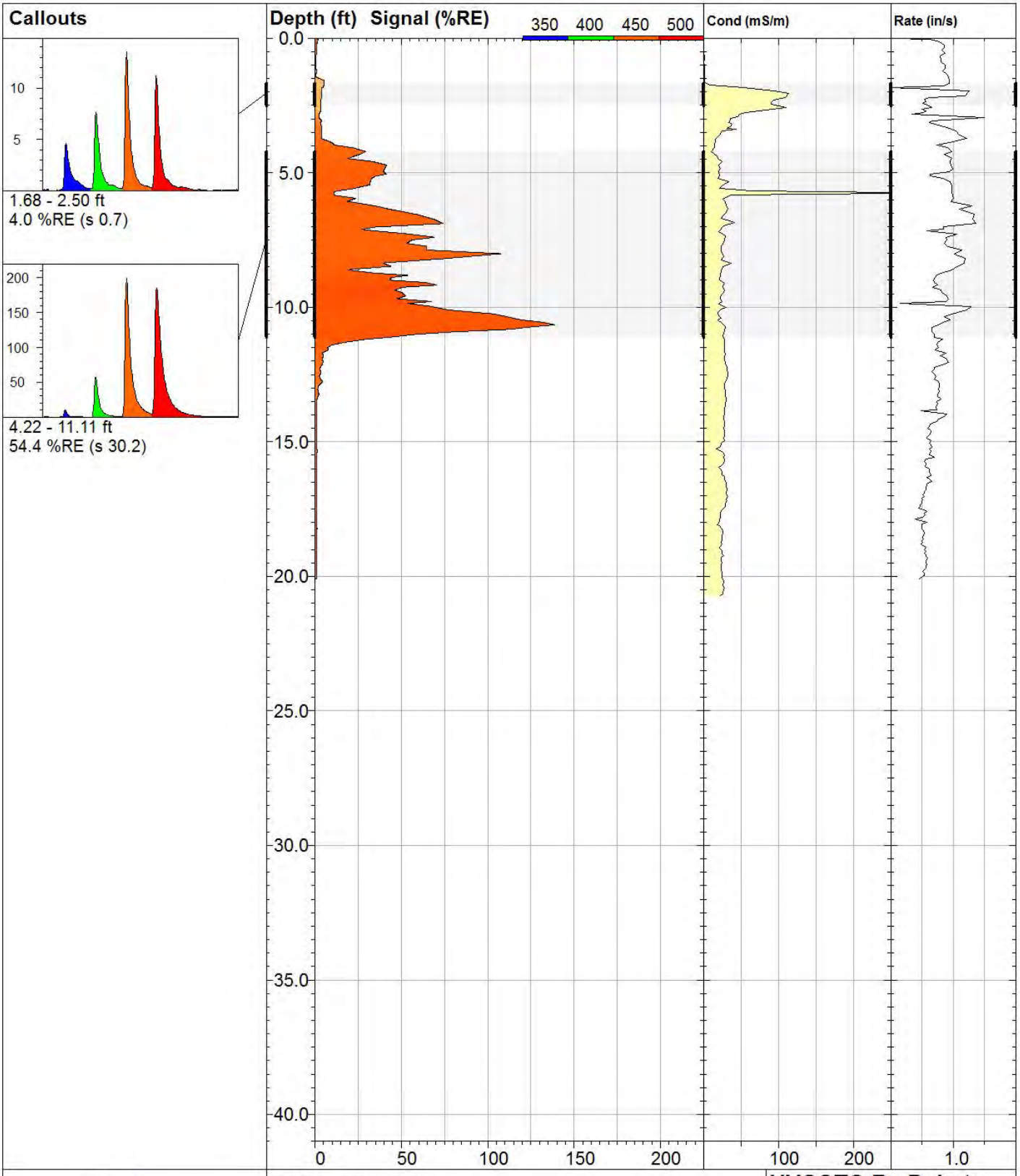
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.68 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **129.5 %RE @ 6.67 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 12:35 CDT**



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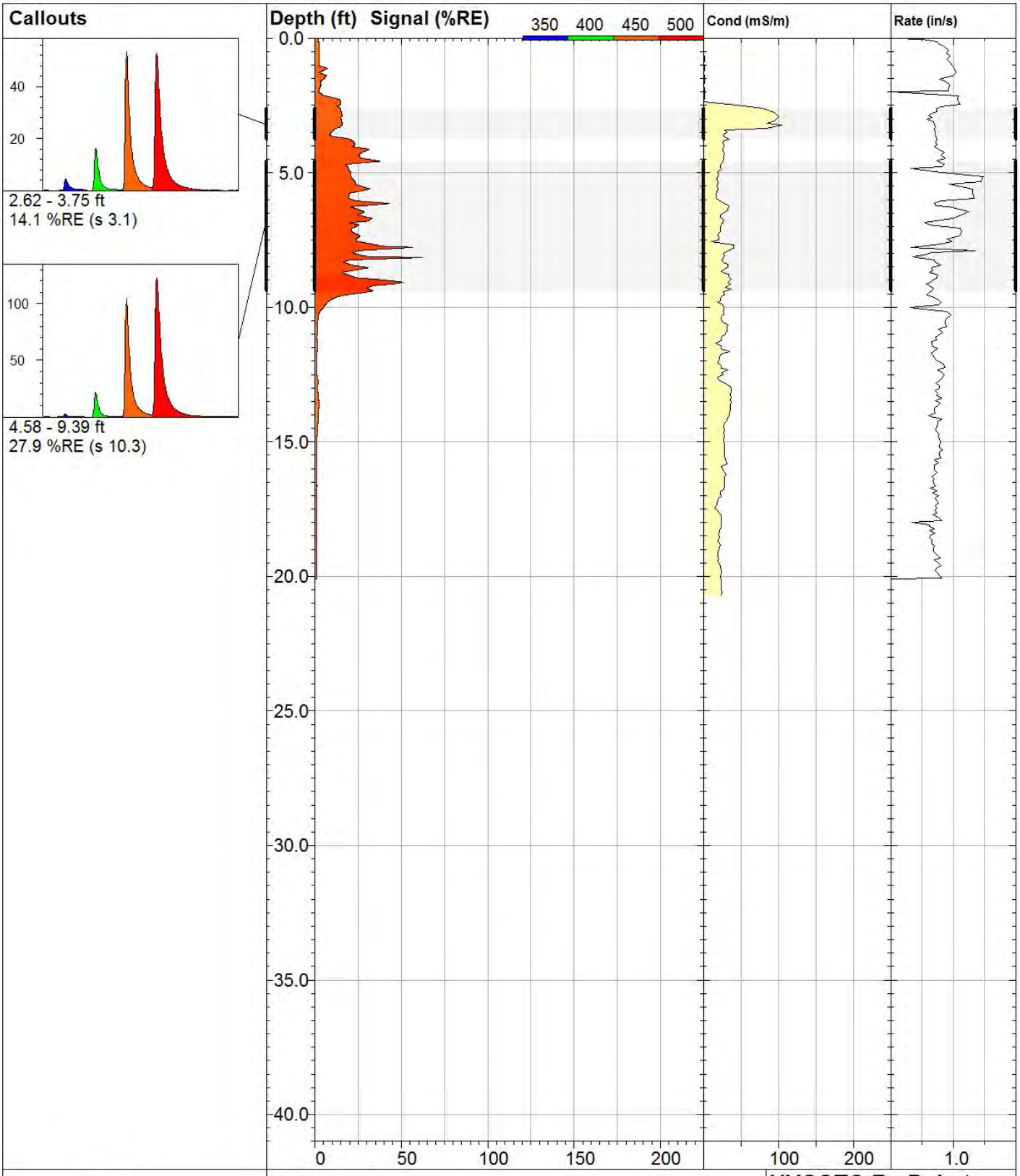
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **138.8 %RE @ 10.66 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:09 CDT**



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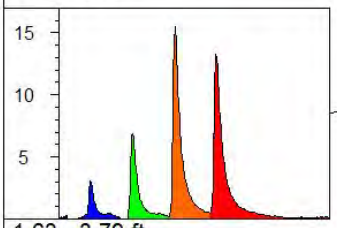
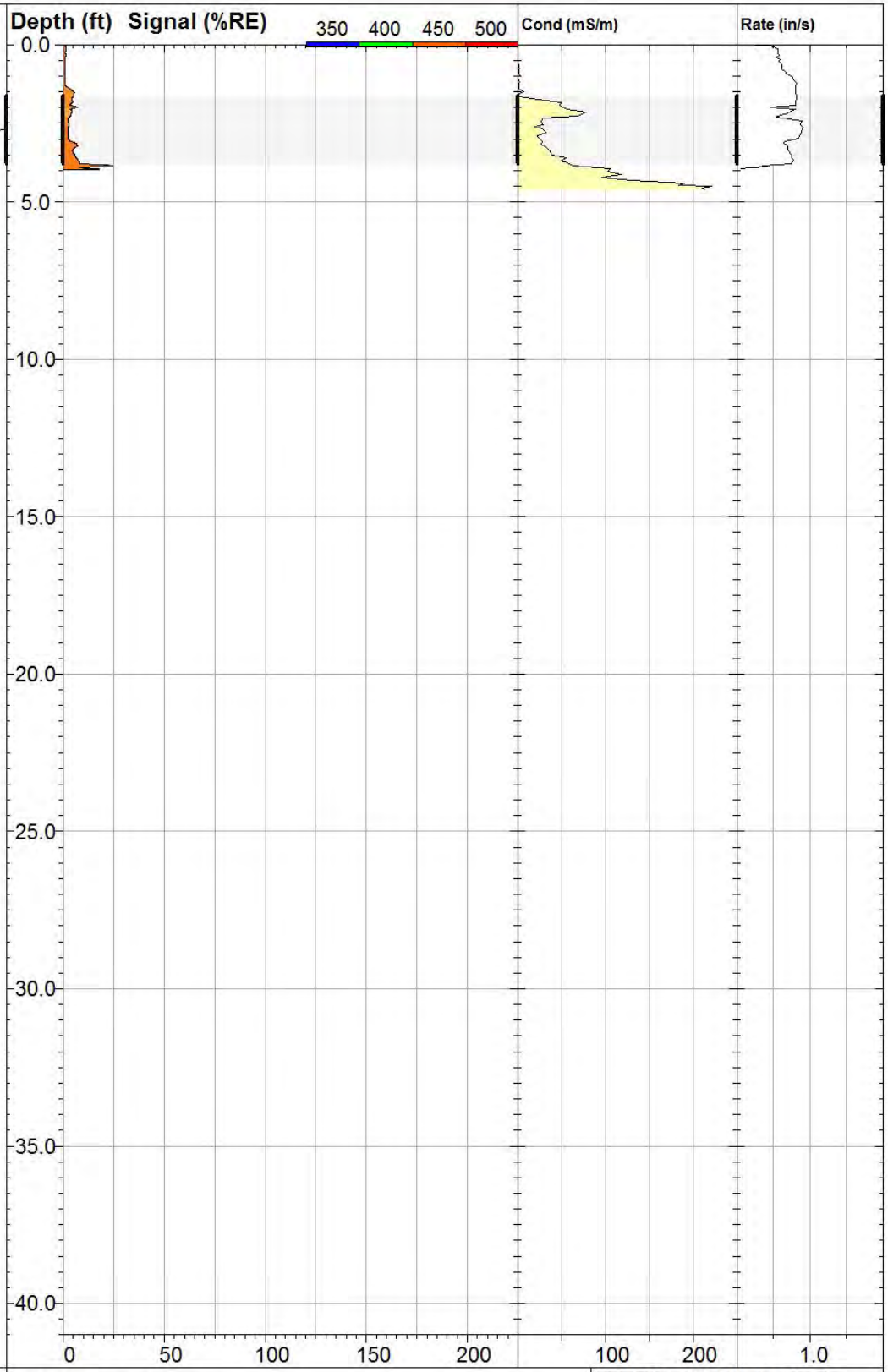
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **62.7 %RE @ 8.15 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:59 CDT**

Callouts



1.63 - 3.79 ft
4.4 %RE (s 1.8)



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LIF-C0500

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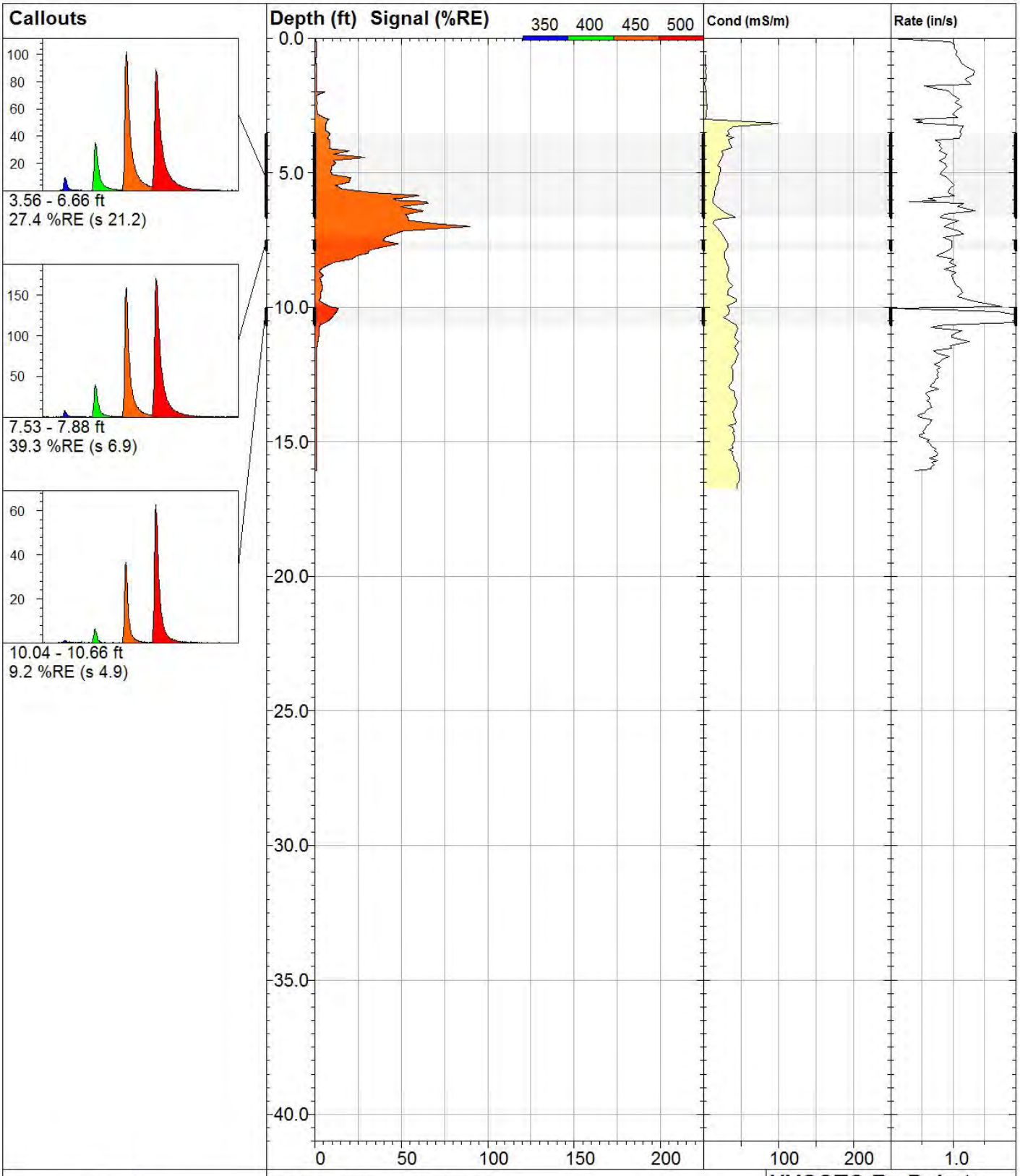
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **3.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **26.1 %RE @ 3.97 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:39 CDT**



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LIF-C0575SW15

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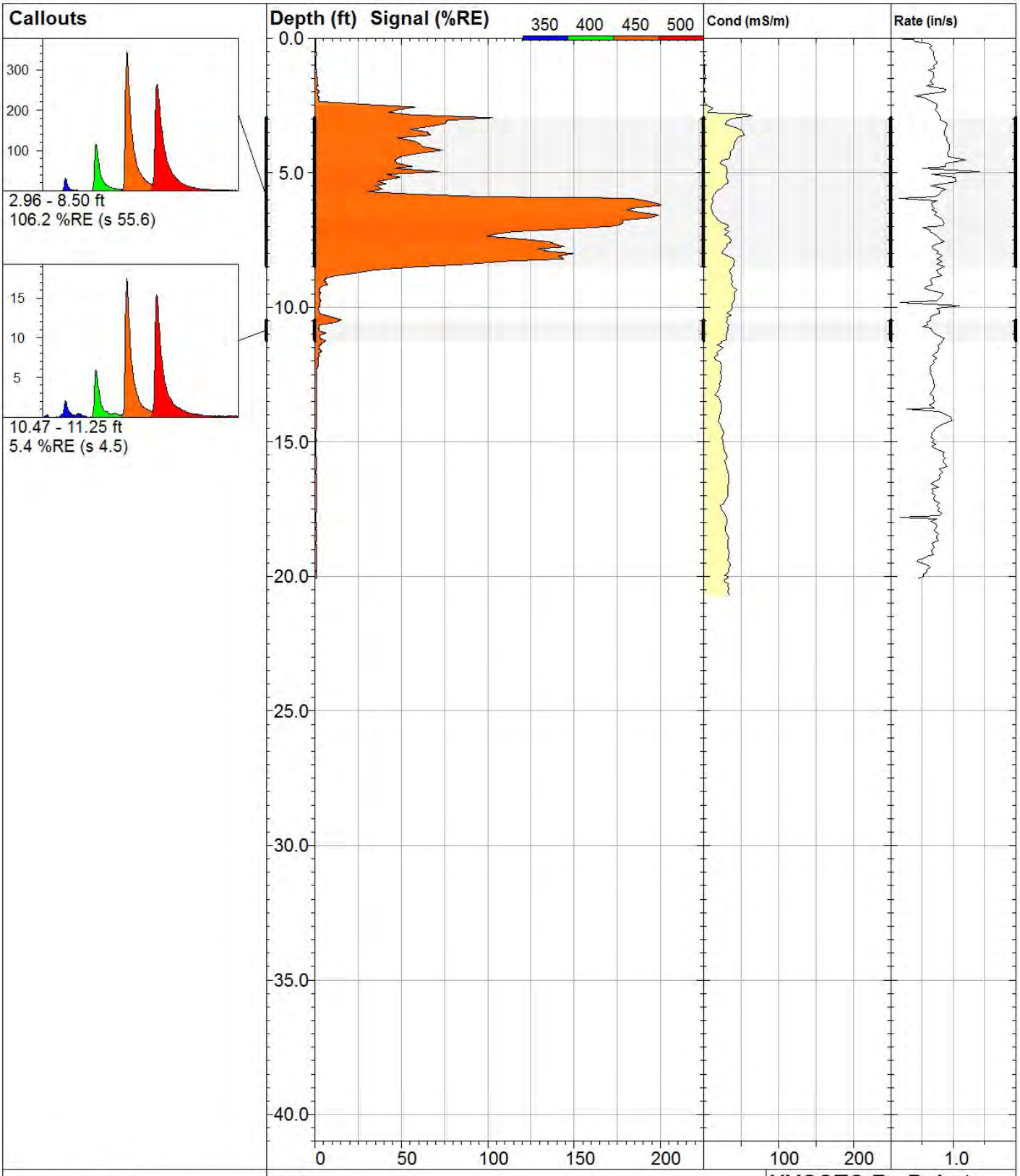
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **89.9 %RE @ 7.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 14:10 CDT**



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LIF-C0600

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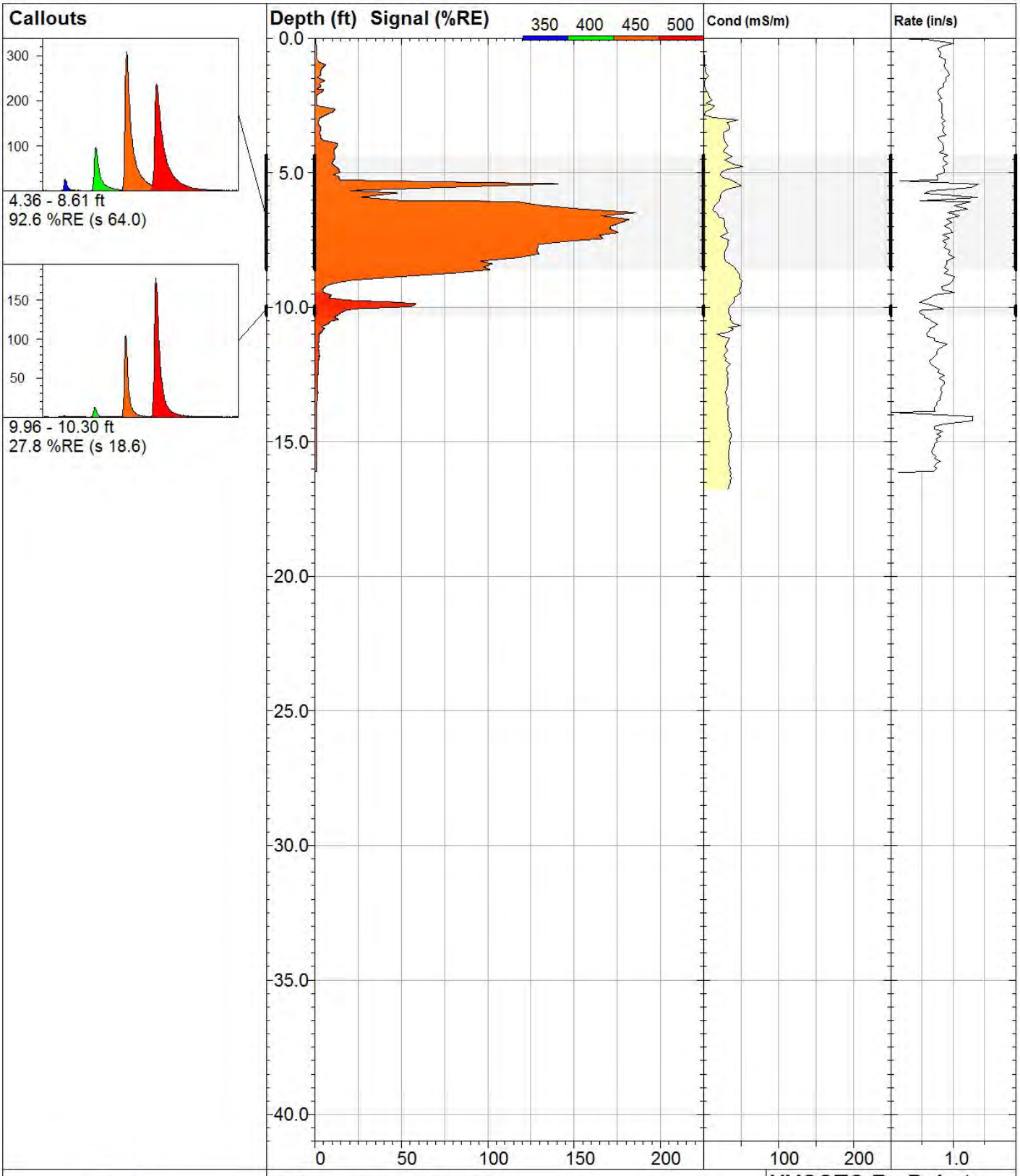
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **200.6 %RE @ 6.21 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 14:35 CDT**



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LIF-C0615SW10

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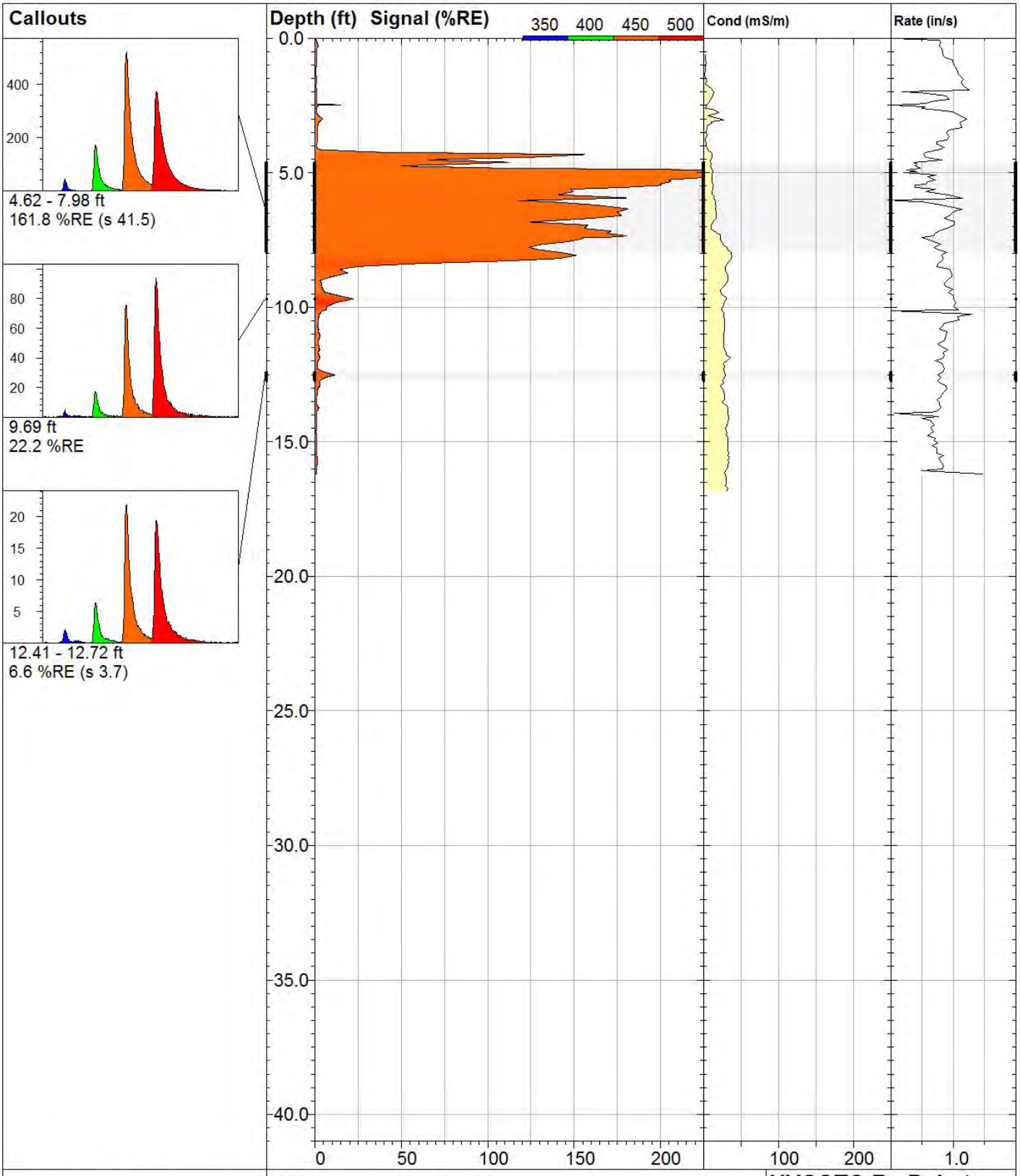
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **185.9 %RE @ 6.49 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 11:23 CDT**



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LIF-C0650SW15

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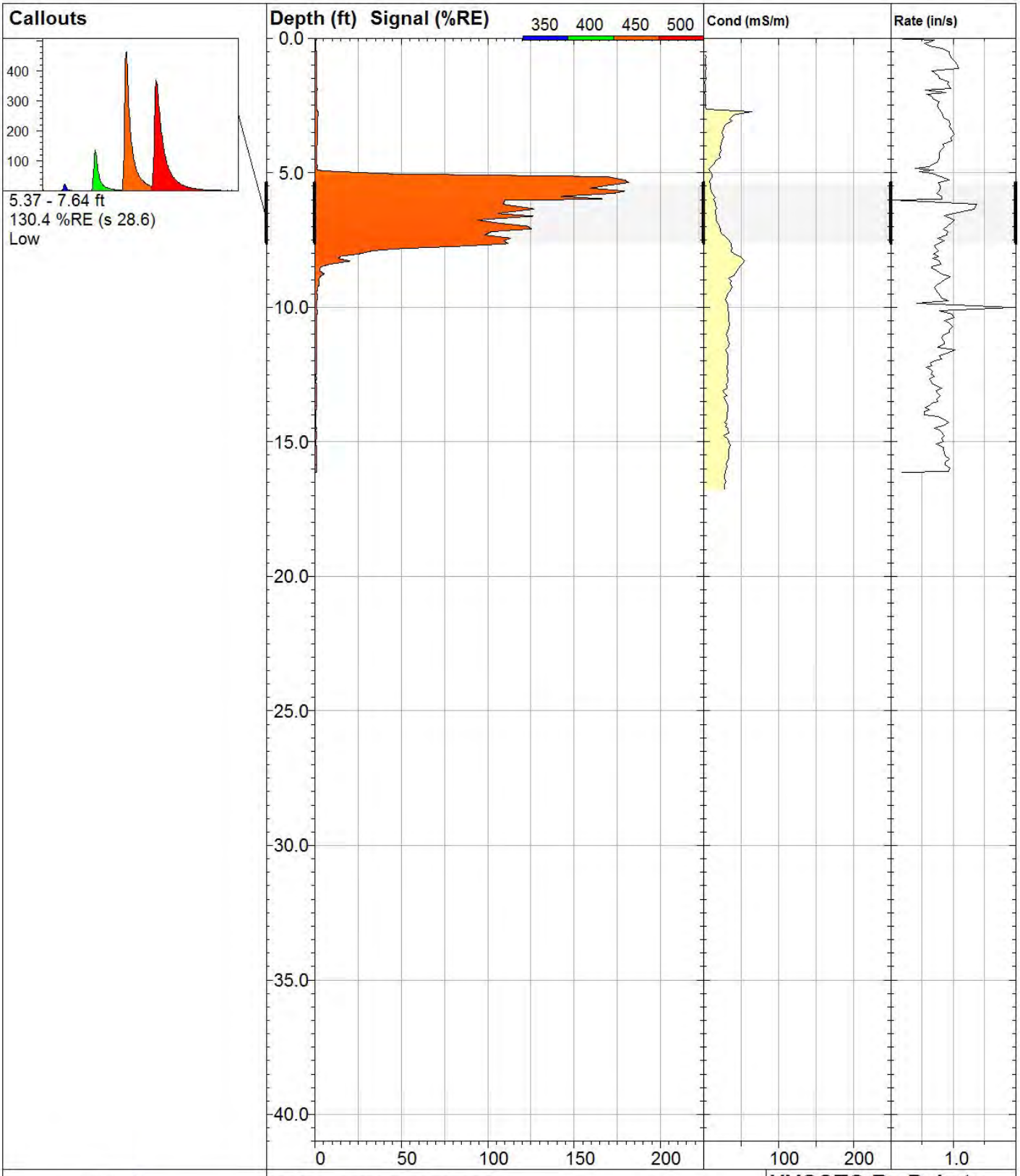
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.21 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **245.0 %RE @ 4.97 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 12:41 CDT**



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LIF-C0690SW15

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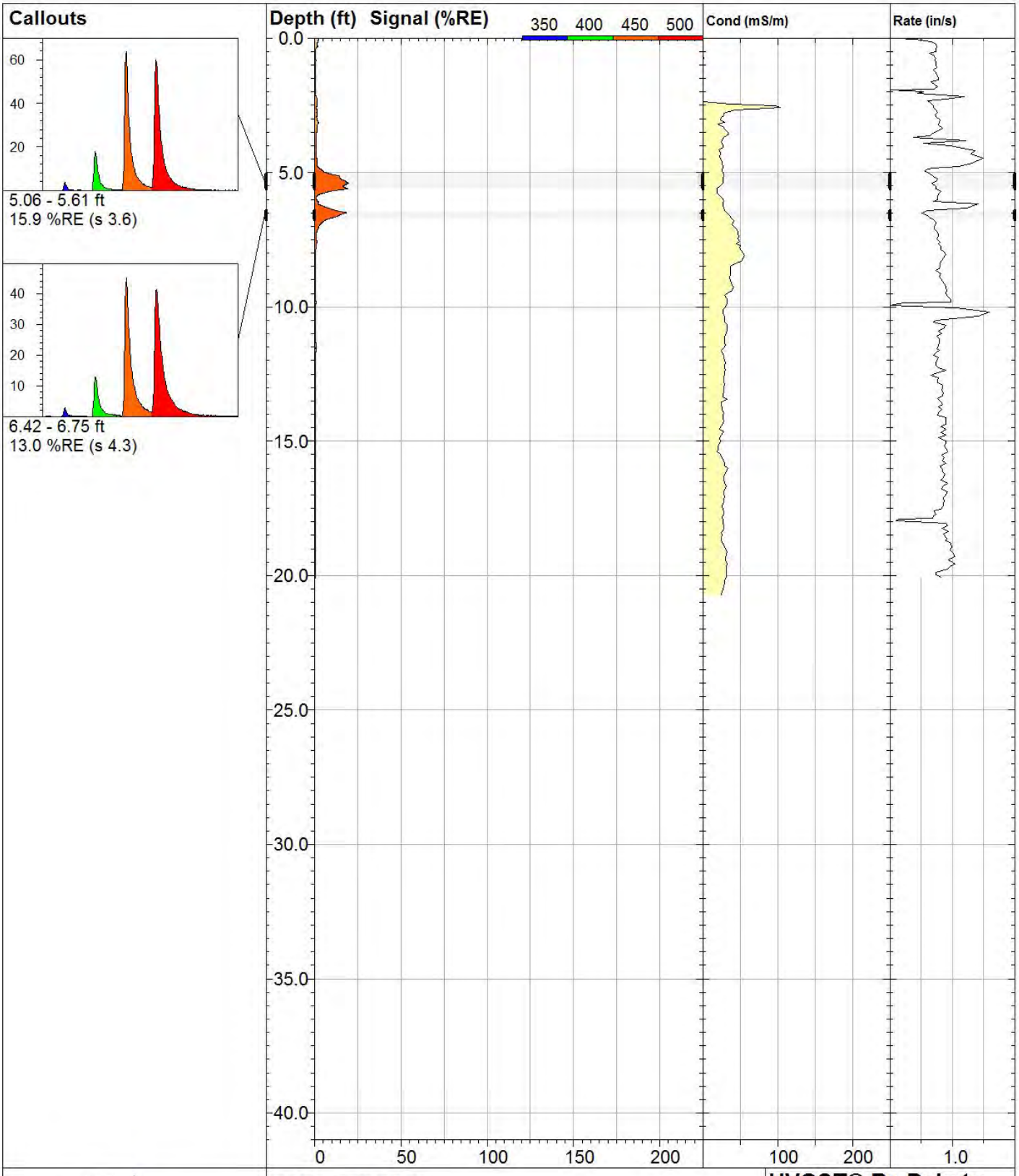
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **181.6 %RE @ 5.37 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 13:37 CDT**



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LIF-C0700

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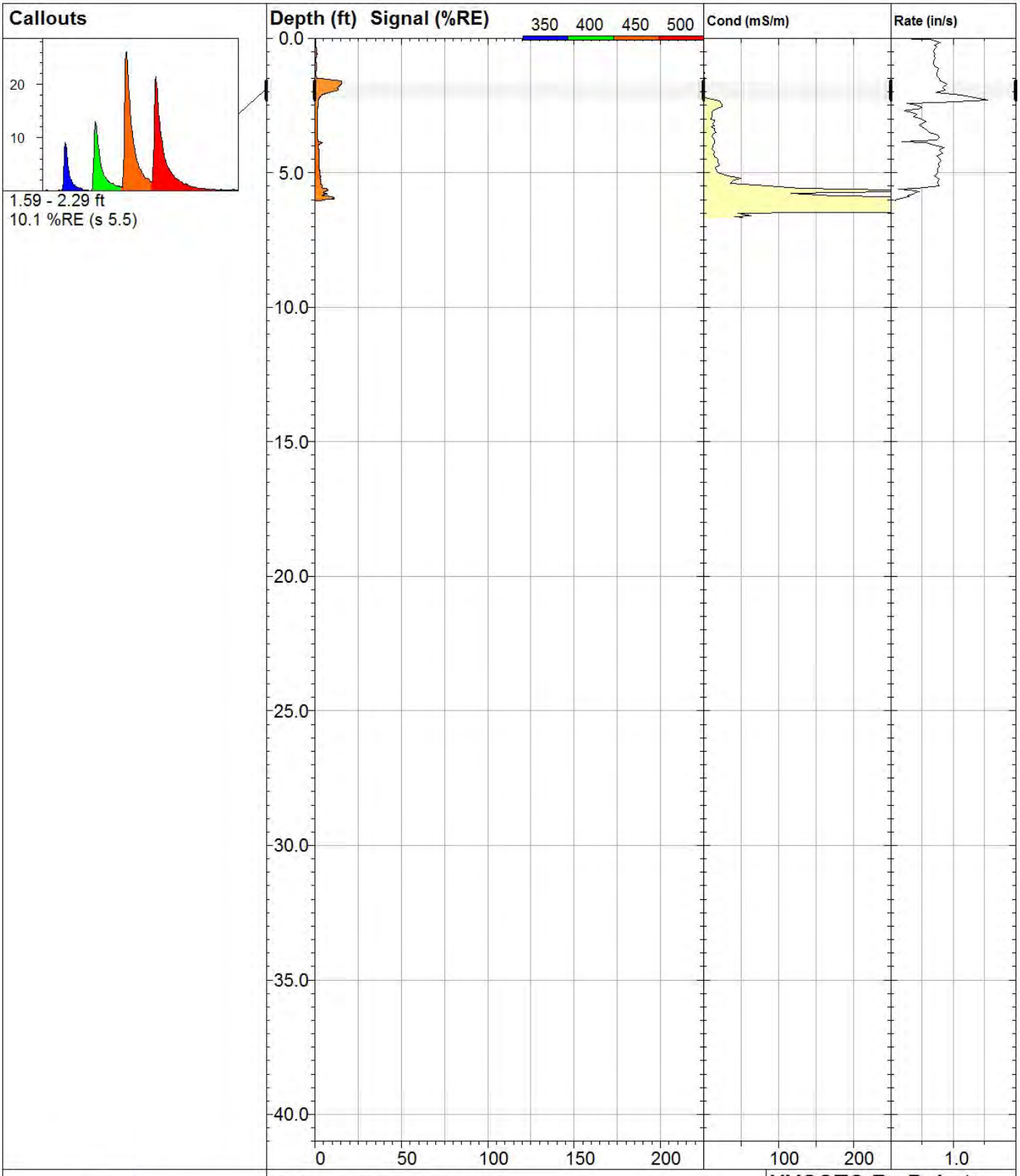
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.5 %RE @ 5.41 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 07:56 CDT**



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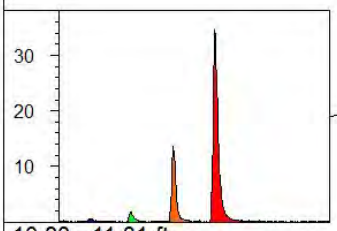
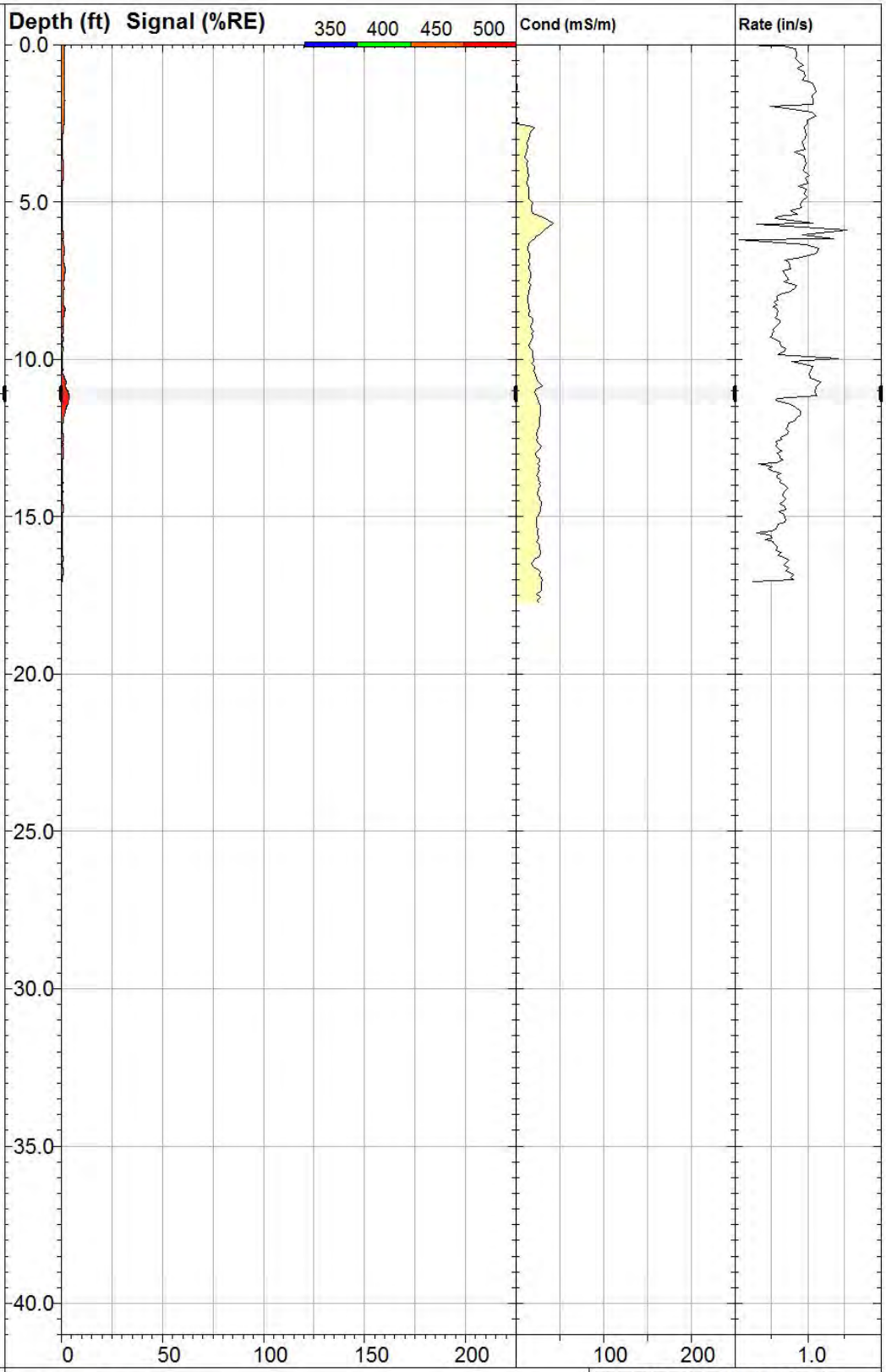
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.05 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **15.3 %RE @ 1.72 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 08:21 CDT**

Callouts



10.88 - 11.31 ft
3.3 %RE (s 0.9)
Low



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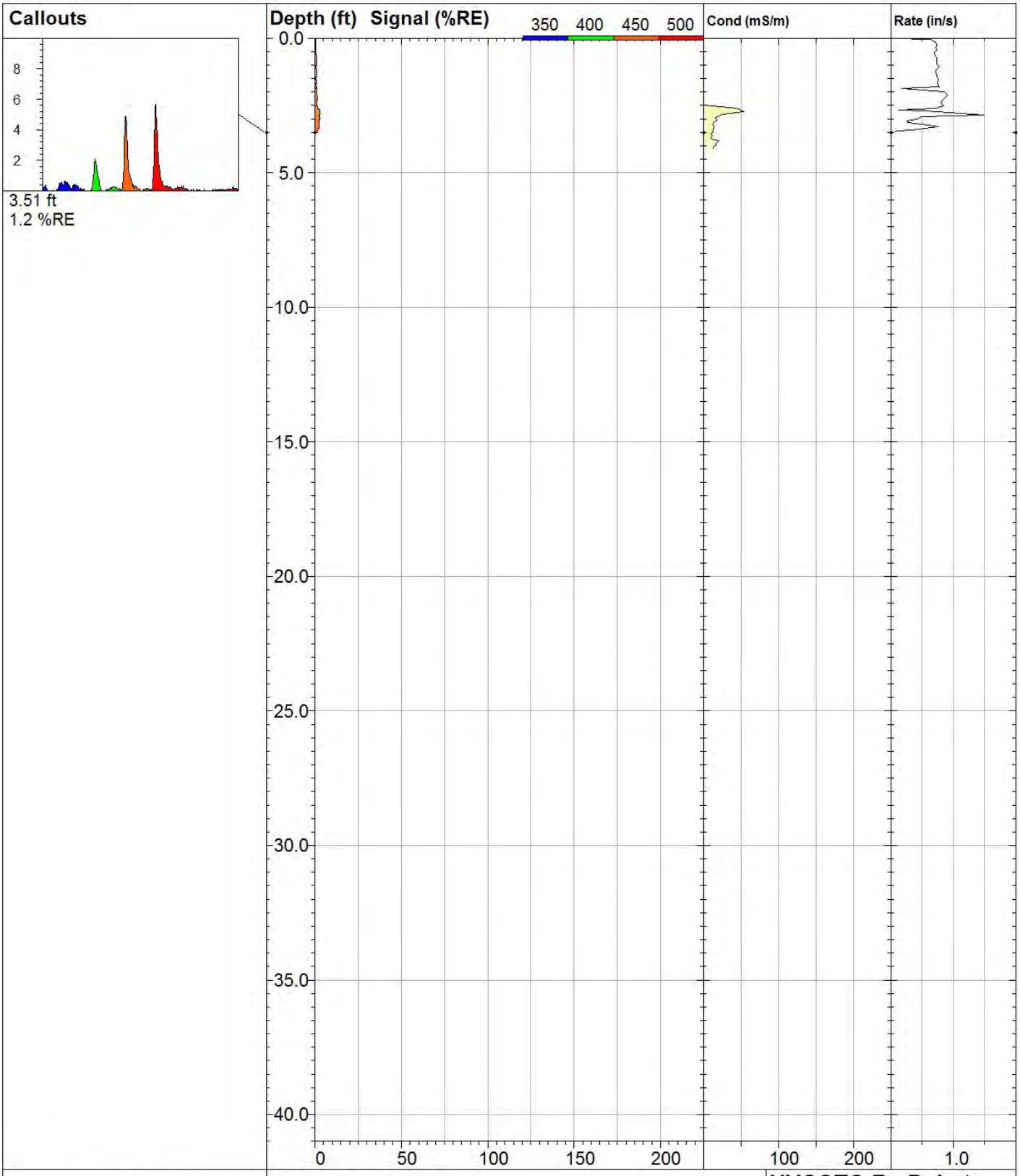
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.9 %RE @ 11.16 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 08:38 CDT**



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LIF-D0130SW25

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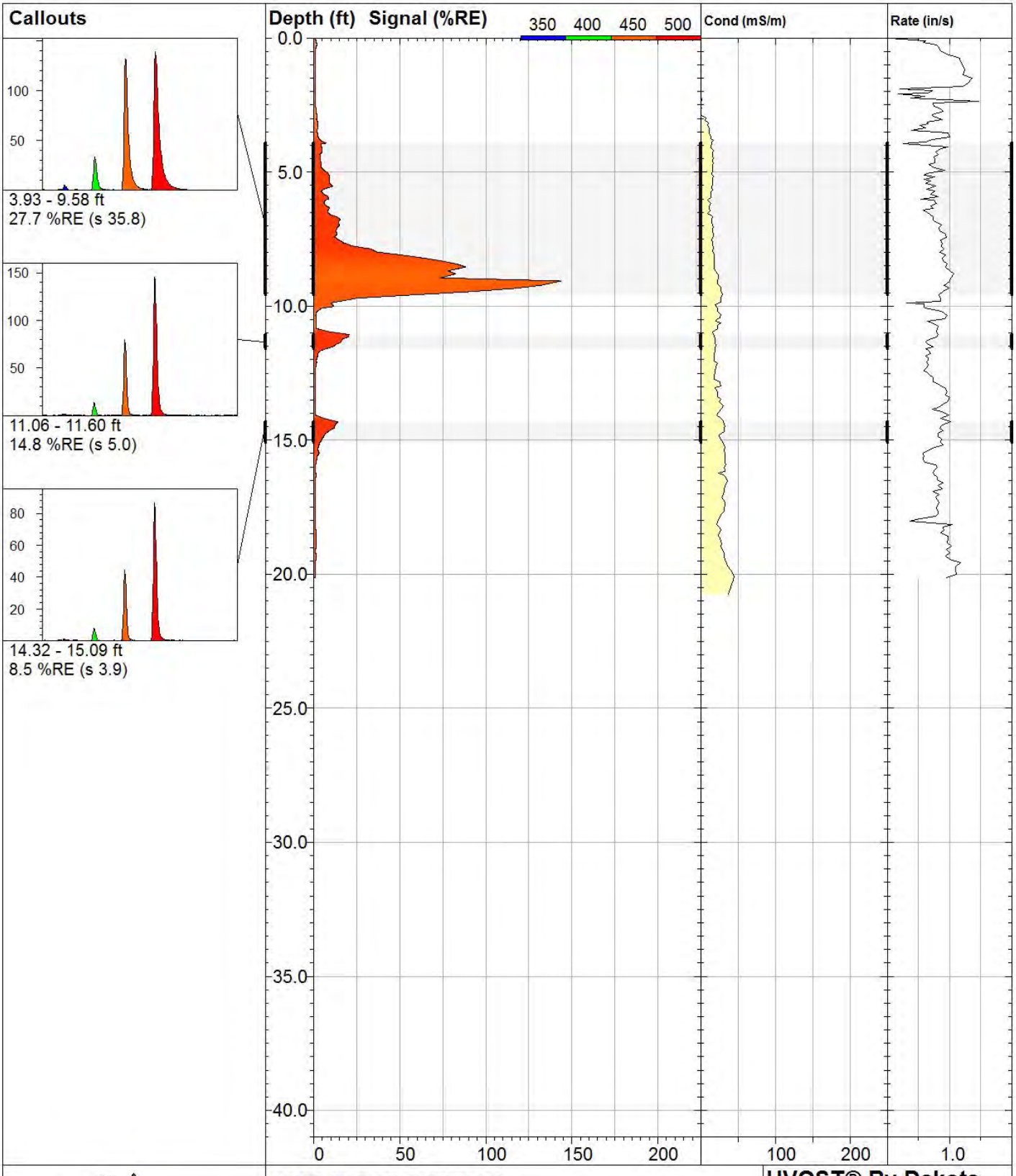
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **3.51 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **2.8 %RE @ 2.66 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 08:57 CDT**



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LIF-D0130SW40

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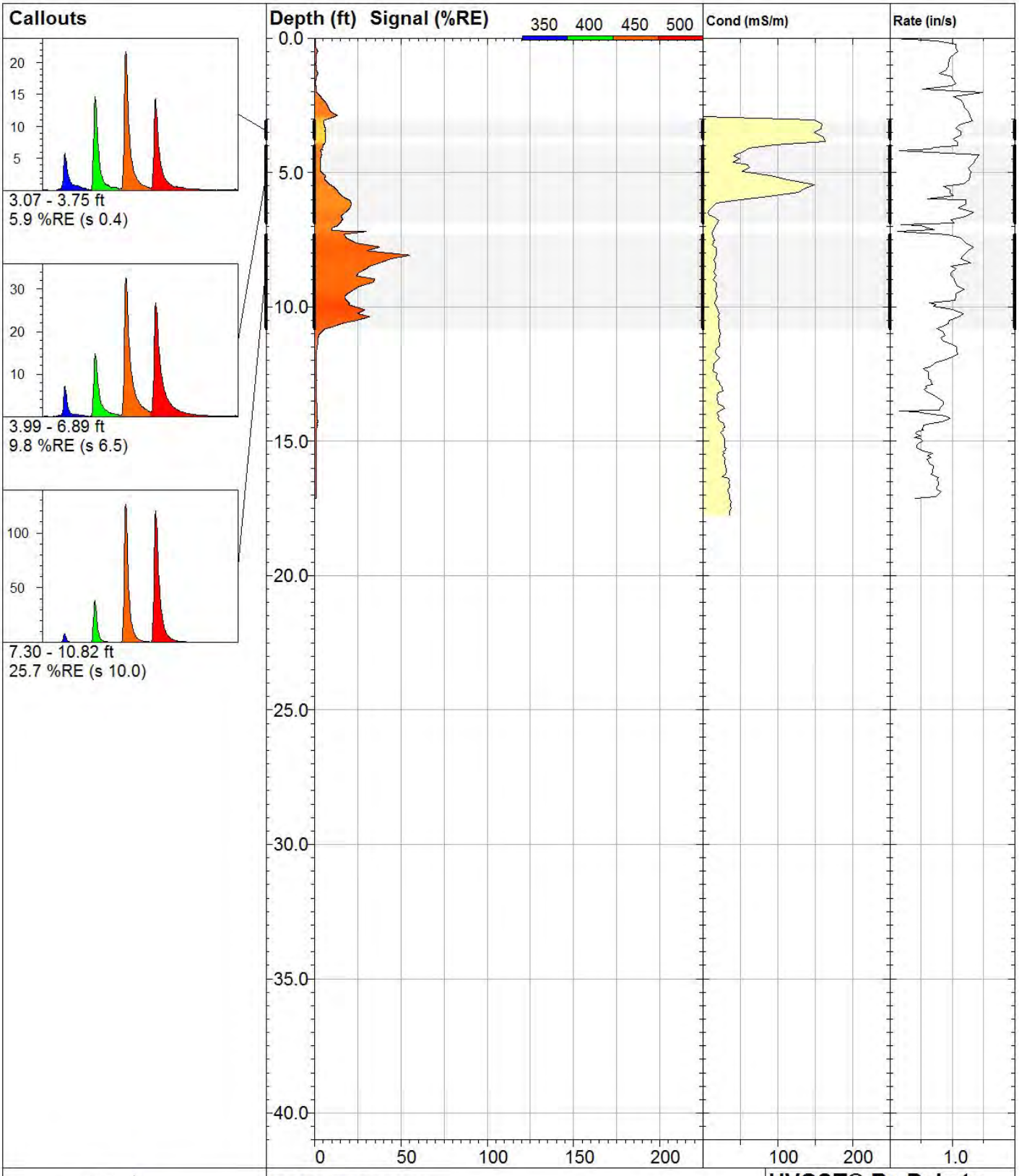
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **143.6 %RE @ 9.06 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 09:16 CDT**



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LIF-D0150

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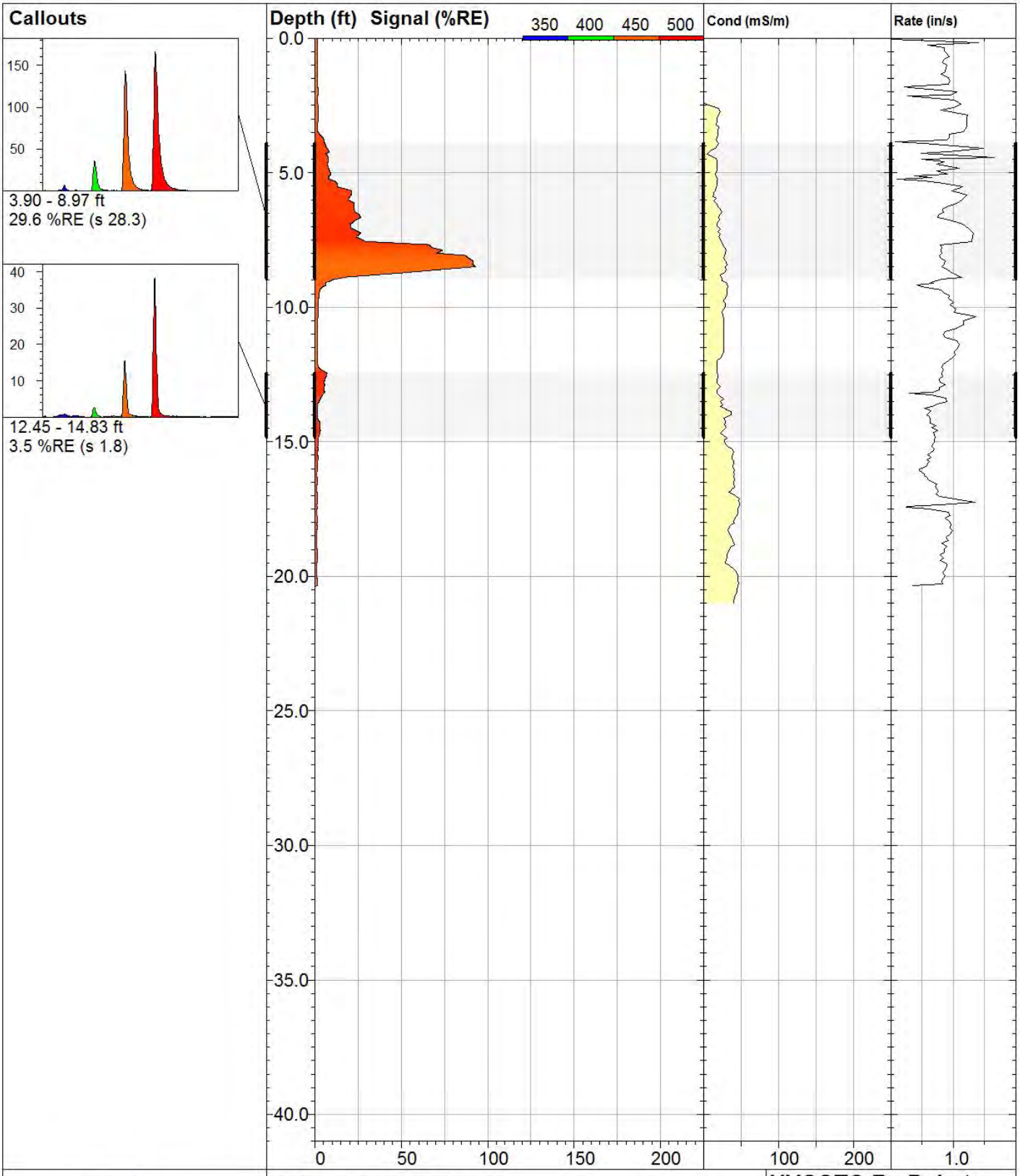
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **55.1 %RE @ 8.08 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:03 CDT**



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LIF-D0175SW40

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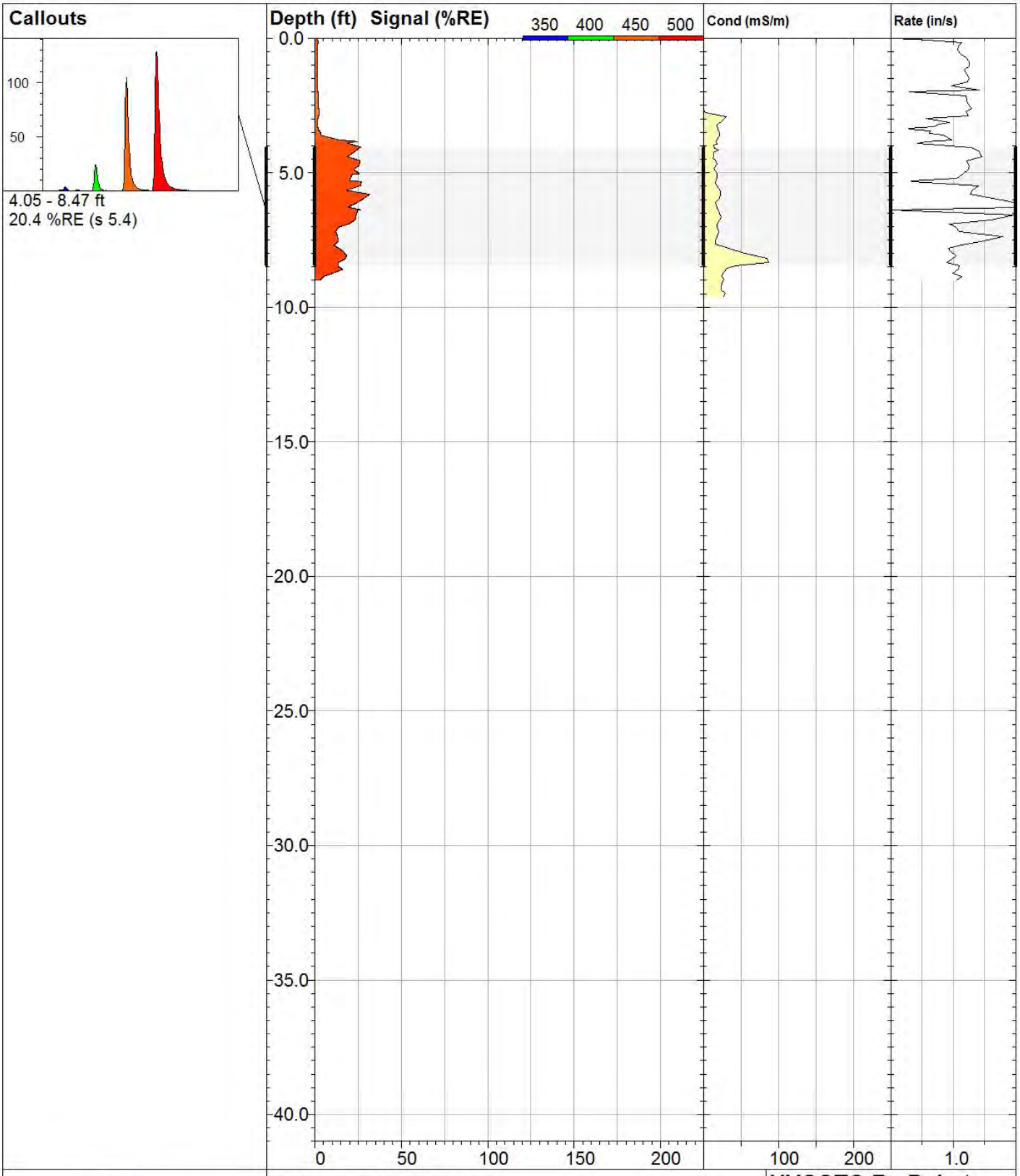
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.36 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **93.0 %RE @ 8.50 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 09:48 CDT**



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LIF-D0225SW40

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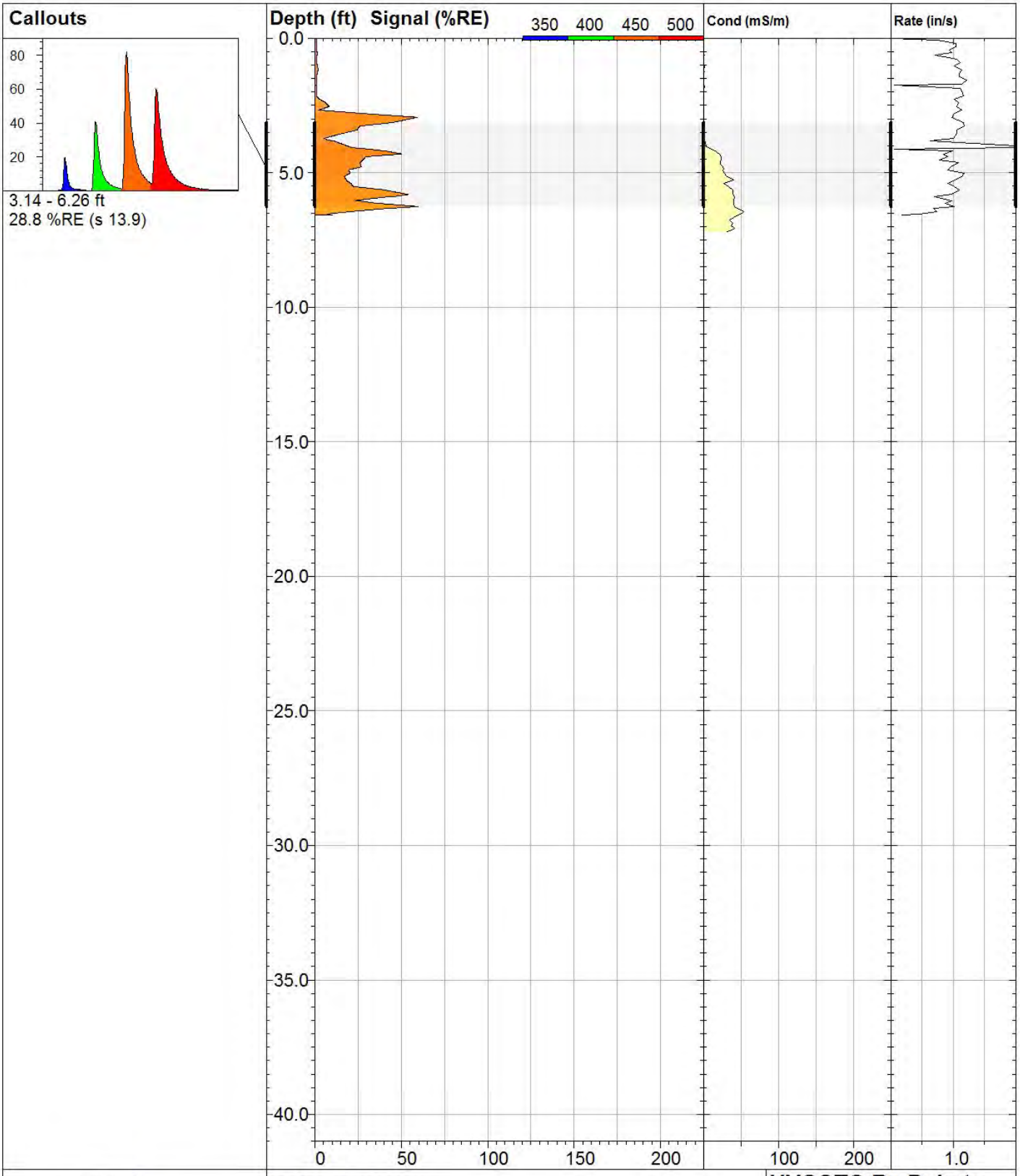
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.00 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **31.7 %RE @ 5.81 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 10:36 CDT**



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LIF-D0250

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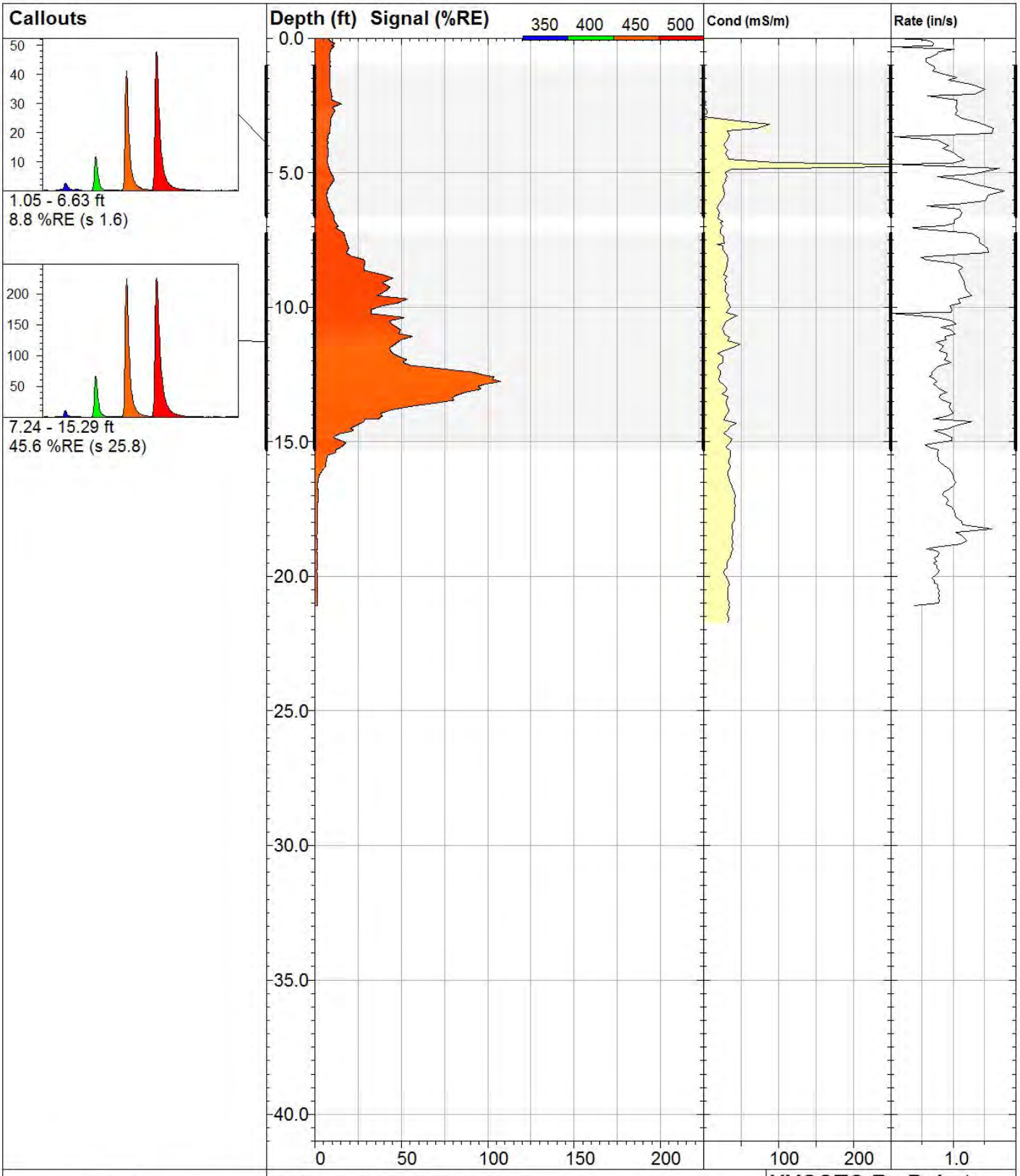
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.58 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **59.6 %RE @ 6.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:29 CDT**



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LIF-D0275SW40D

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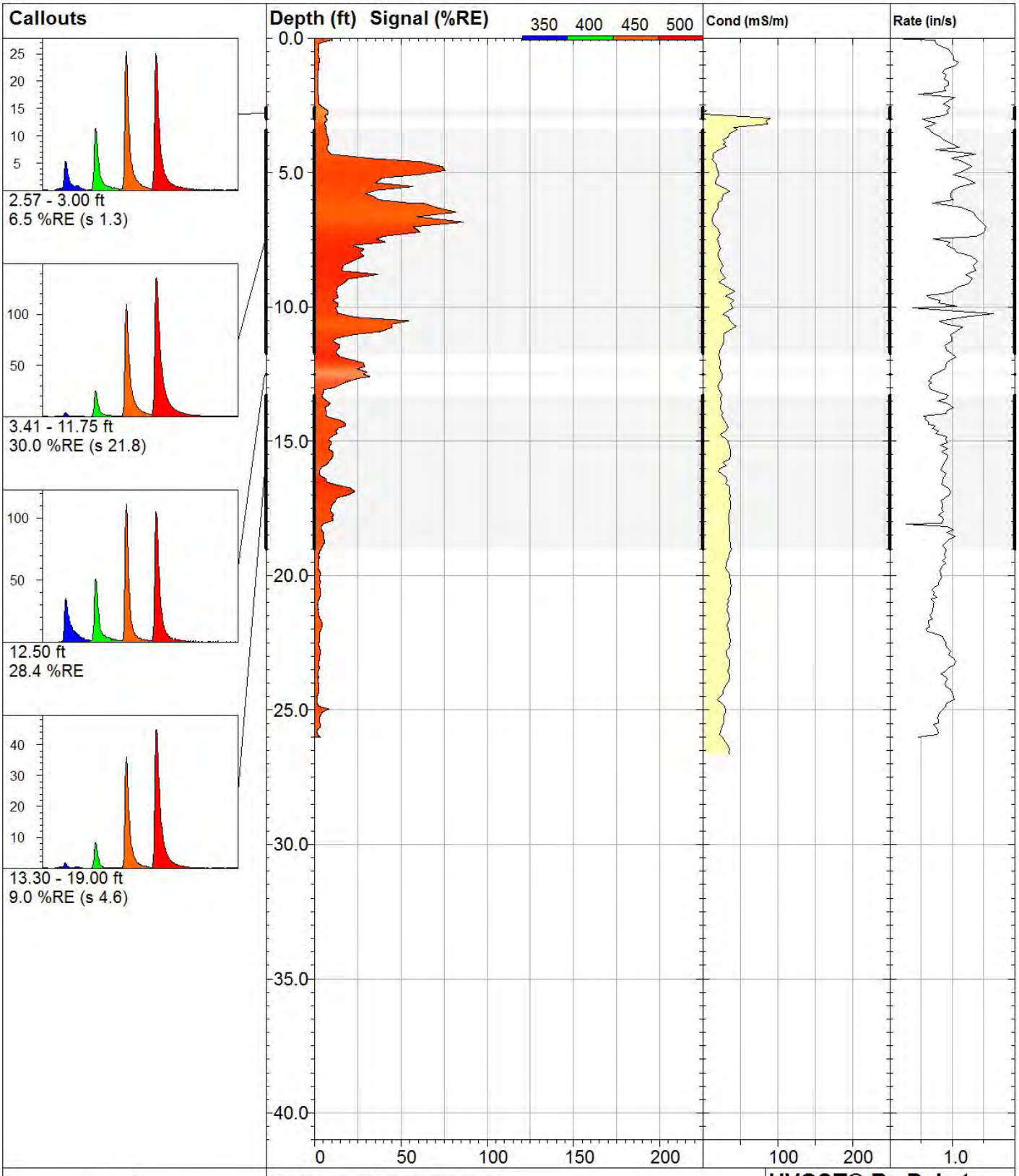
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **107.4 %RE @ 12.76 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:09 CDT**



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LIF-D0325SW40

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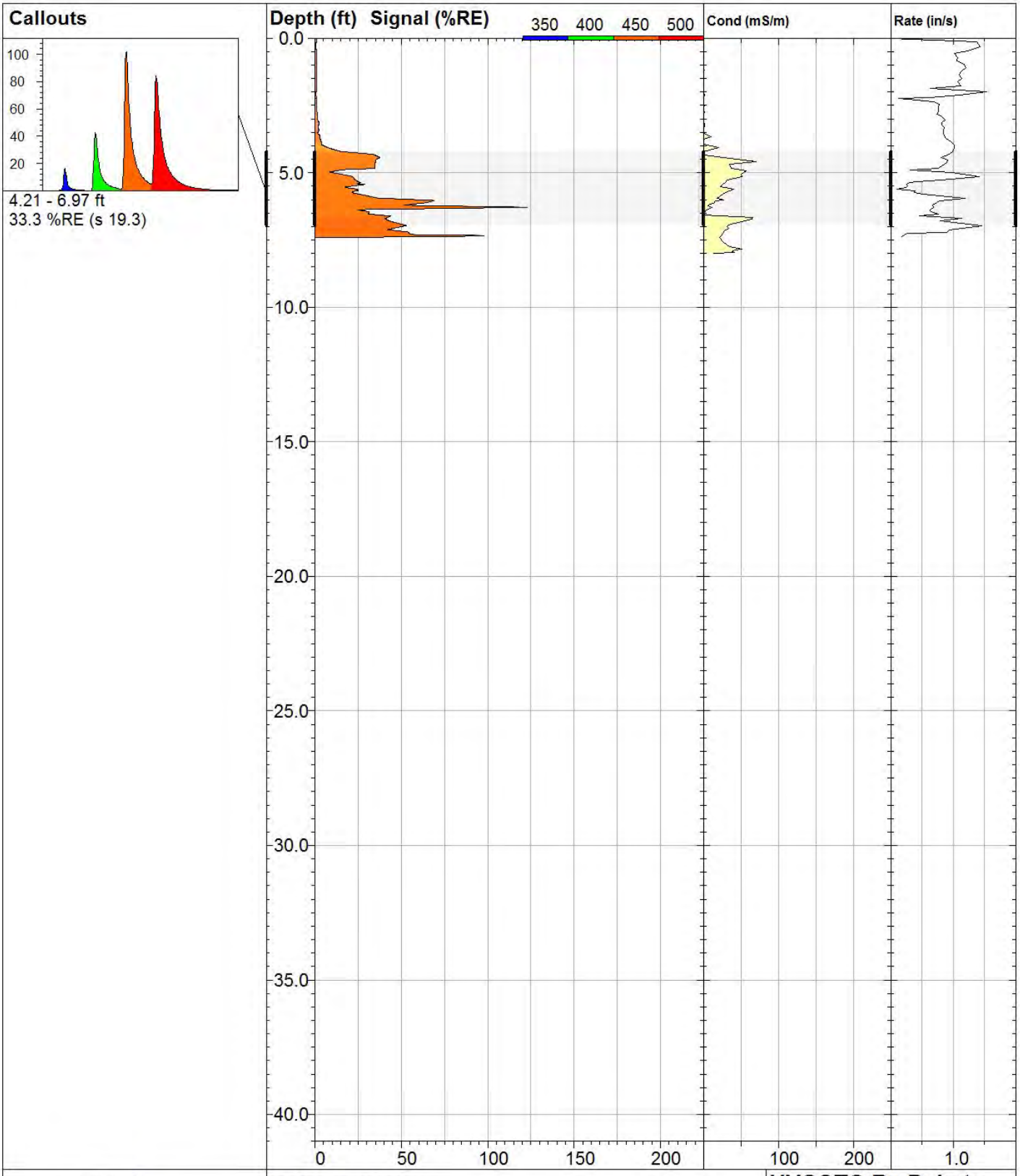
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.01 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **86.3 %RE @ 6.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:35 CDT**



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LIF-D0350

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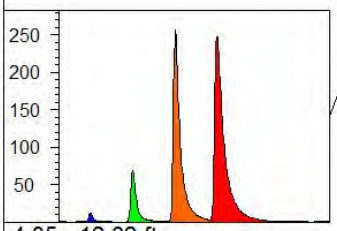
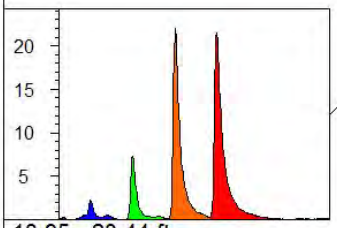
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.40 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **123.1 %RE @ 6.29 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:48 CDT**

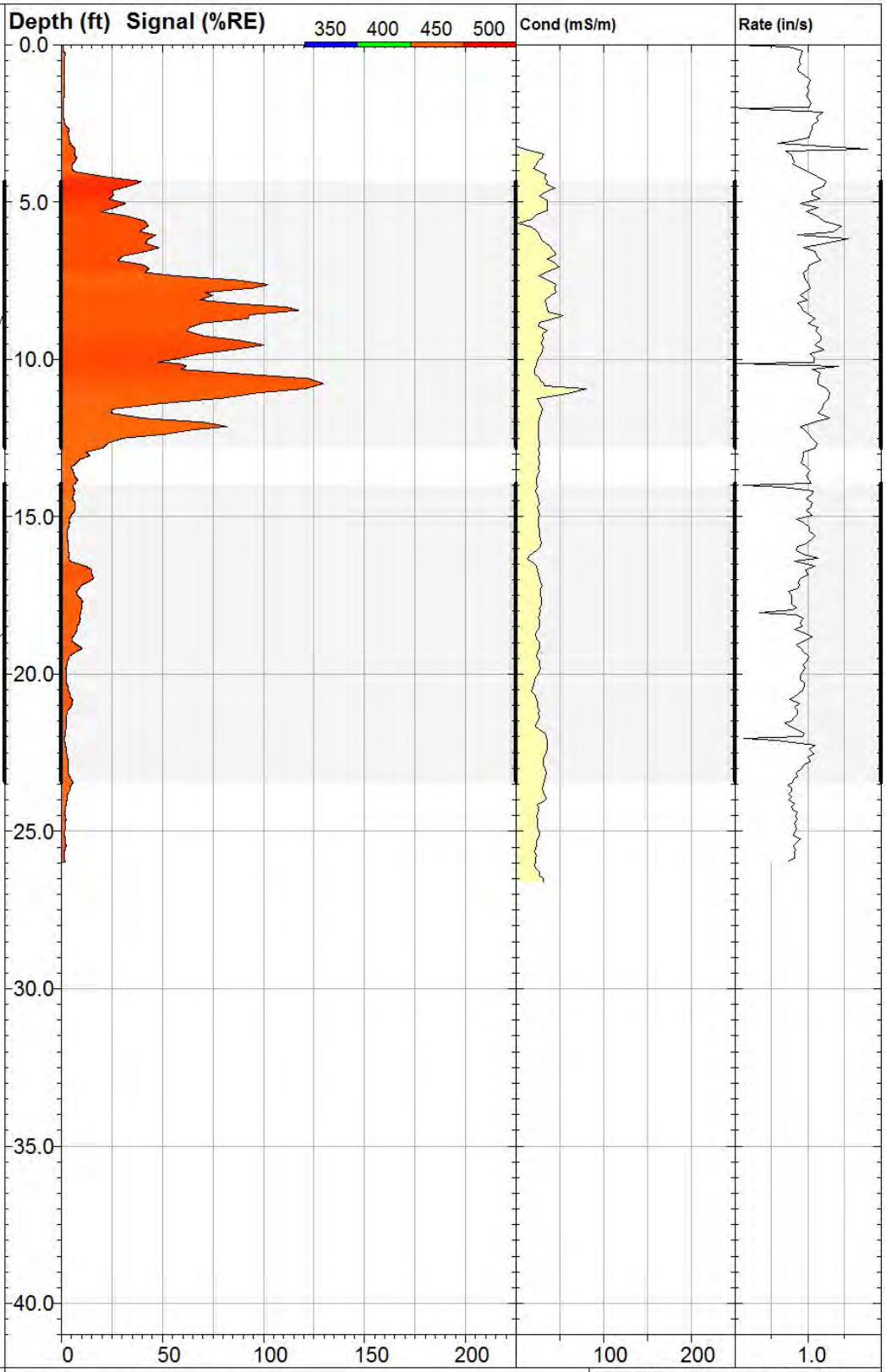
Callouts



4.35 - 12.82 ft
60.1 %RE (s 29.0)



13.95 - 23.44 ft
5.5 %RE (s 3.4)



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LIF-D0375SW40

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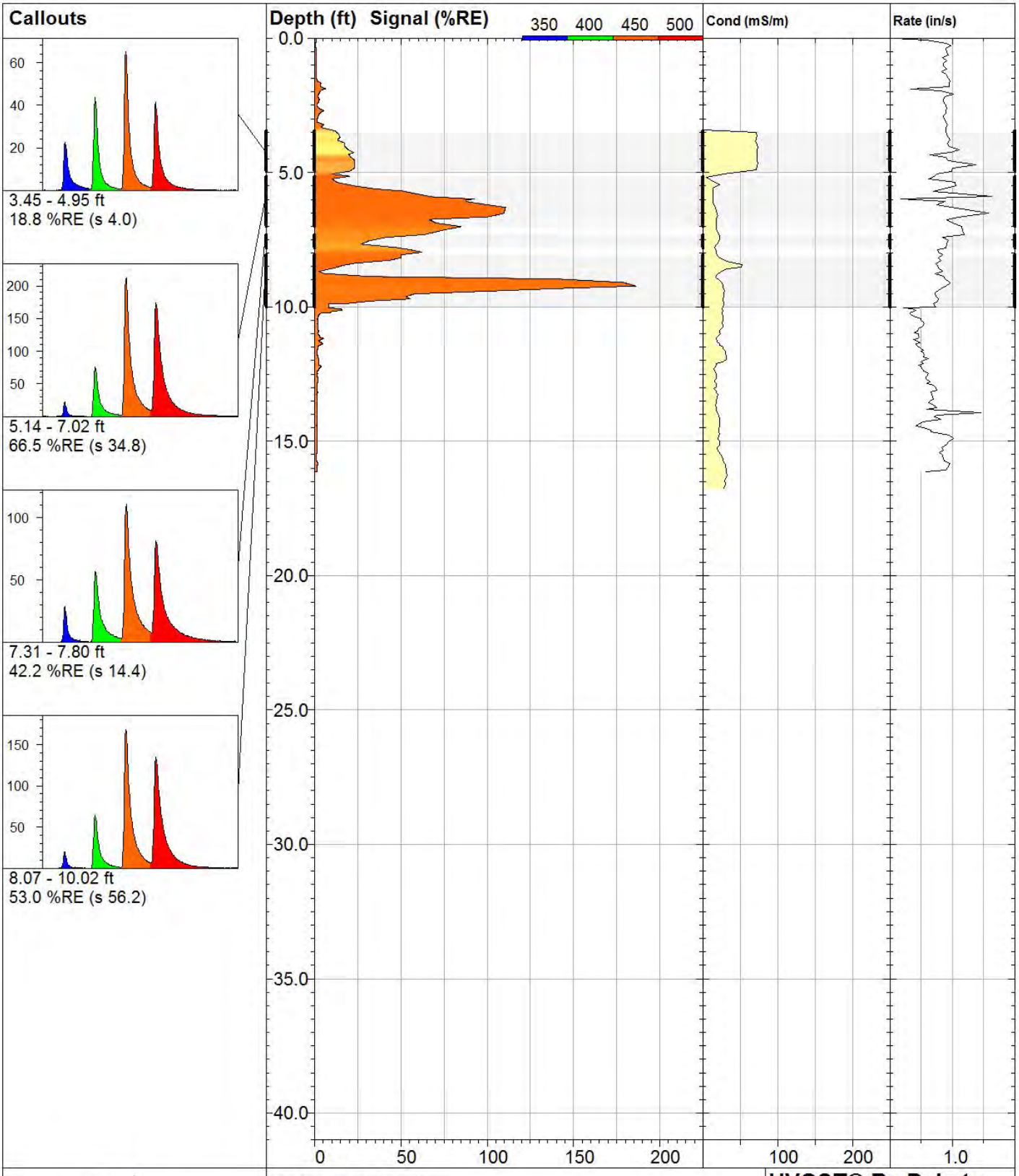
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **129.5 %RE @ 10.77 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:59 CDT**



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LIF-D0450

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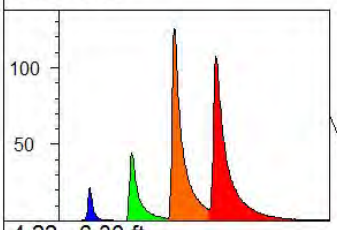
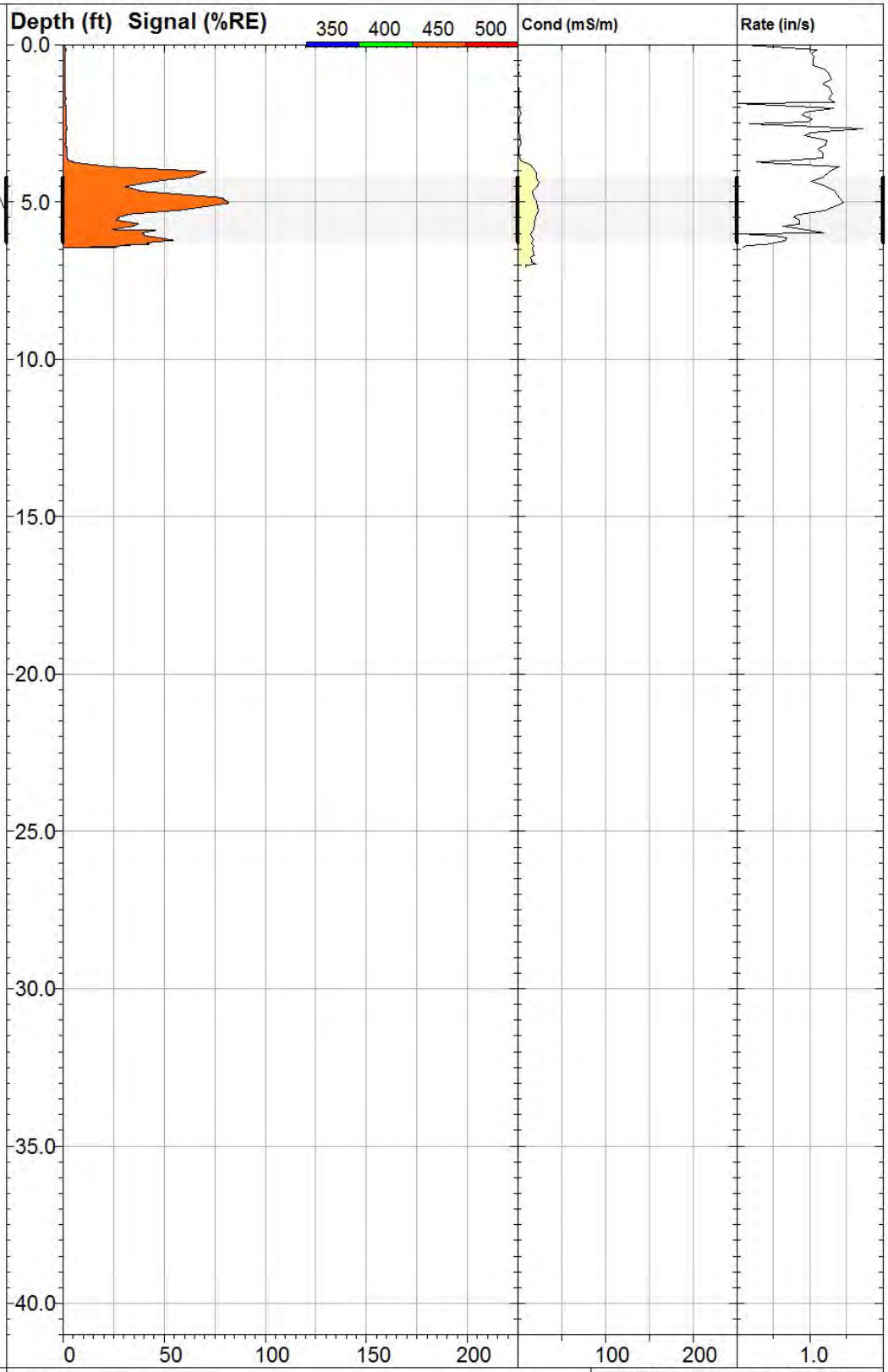
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.15 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **185.9 %RE @ 9.23 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 14:05 CDT**

Callouts



4.22 - 6.30 ft
44.3 %RE (s 16.0)



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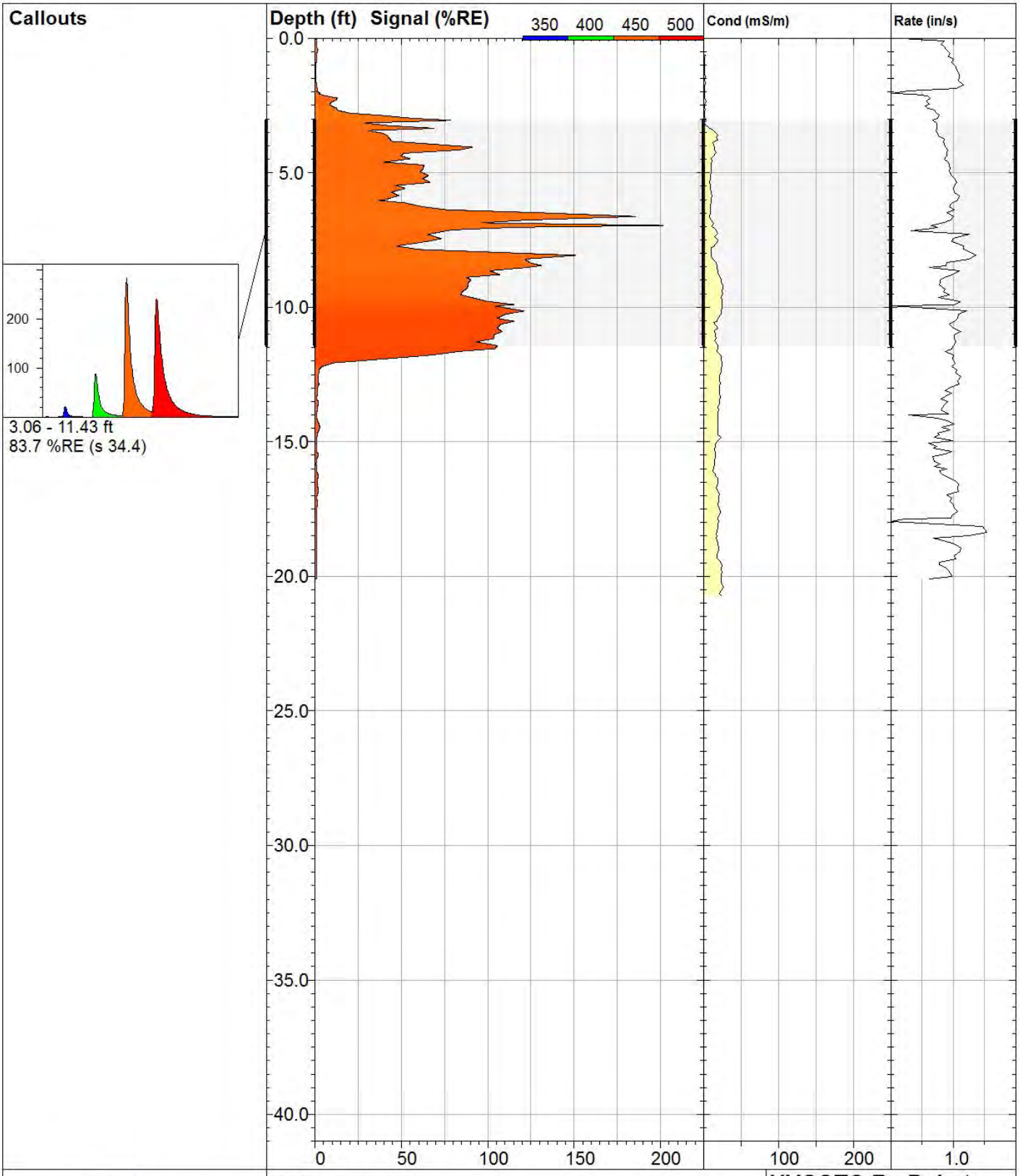
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.46 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **82.0 %RE @ 5.04 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 14:31 CDT**



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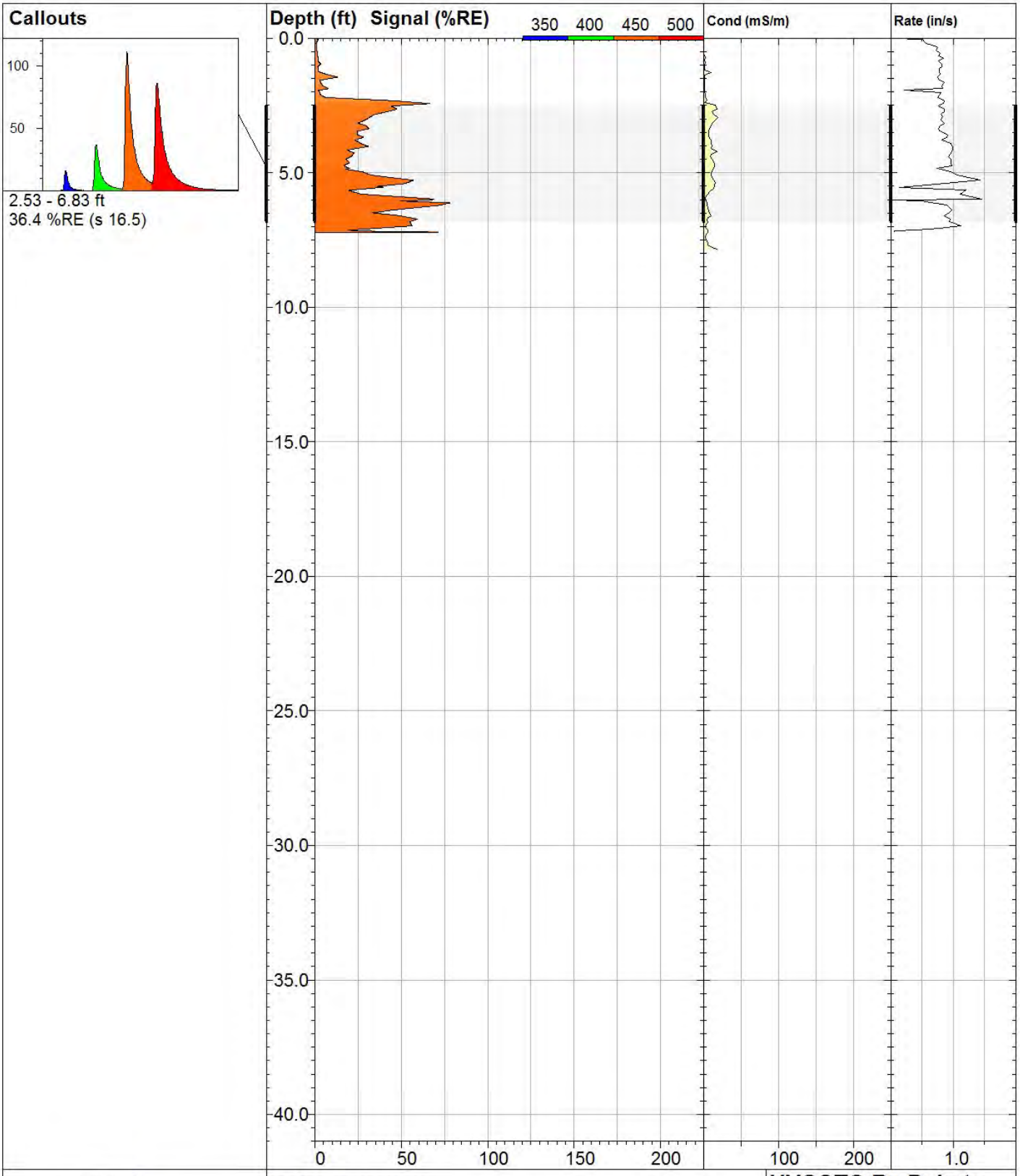
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **201.8 %RE @ 6.96 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 11:39 CDT**



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LIF-D0640

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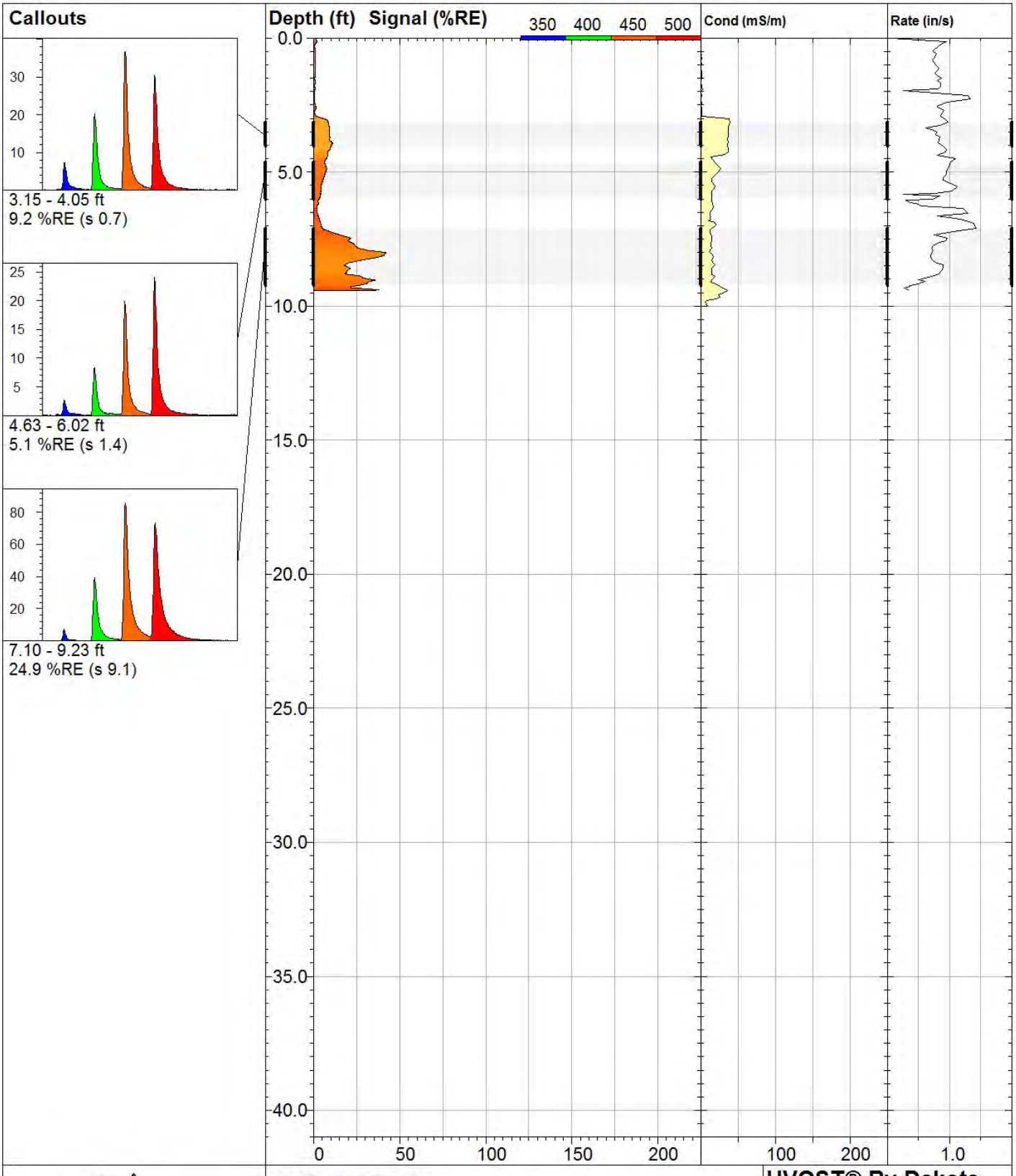
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.22 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **78.2 %RE @ 6.12 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 13:01 CDT**



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LIF-D0700

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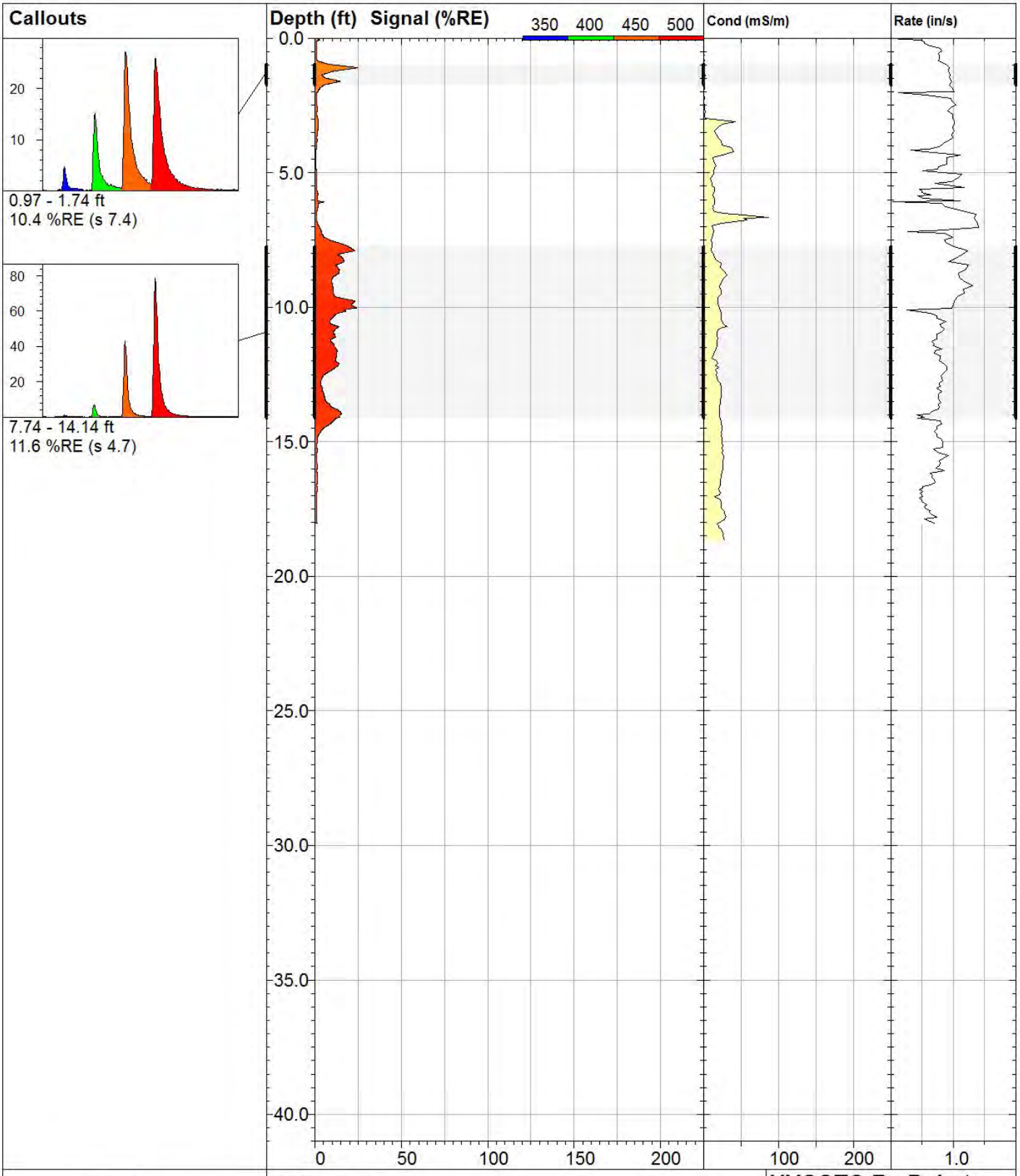
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.43 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **42.1 %RE @ 8.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 10:40 CDT**



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LIF-D0715

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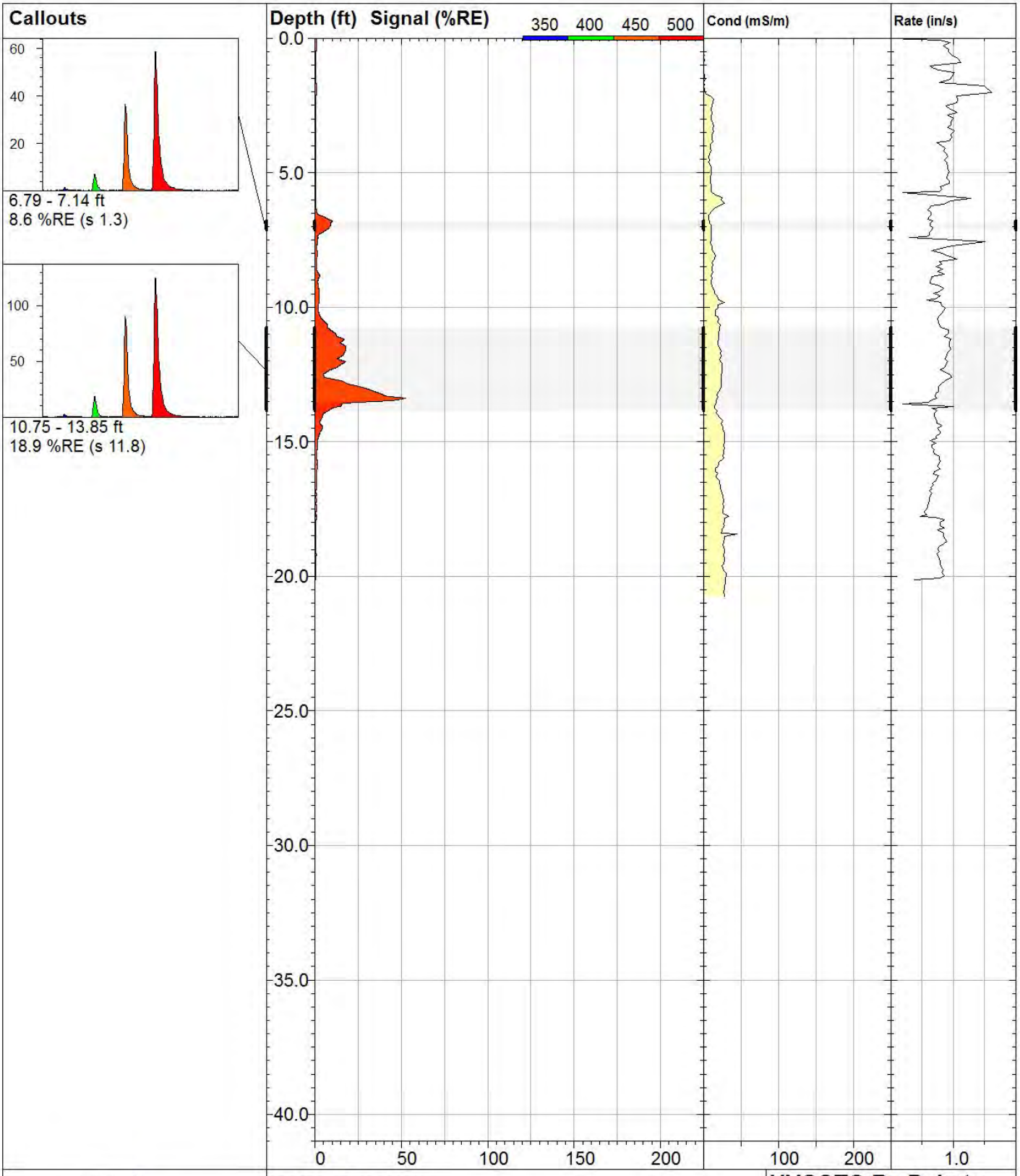
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.03 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **25.0 %RE @ 1.10 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 11:02 CDT**



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LIF-D0750

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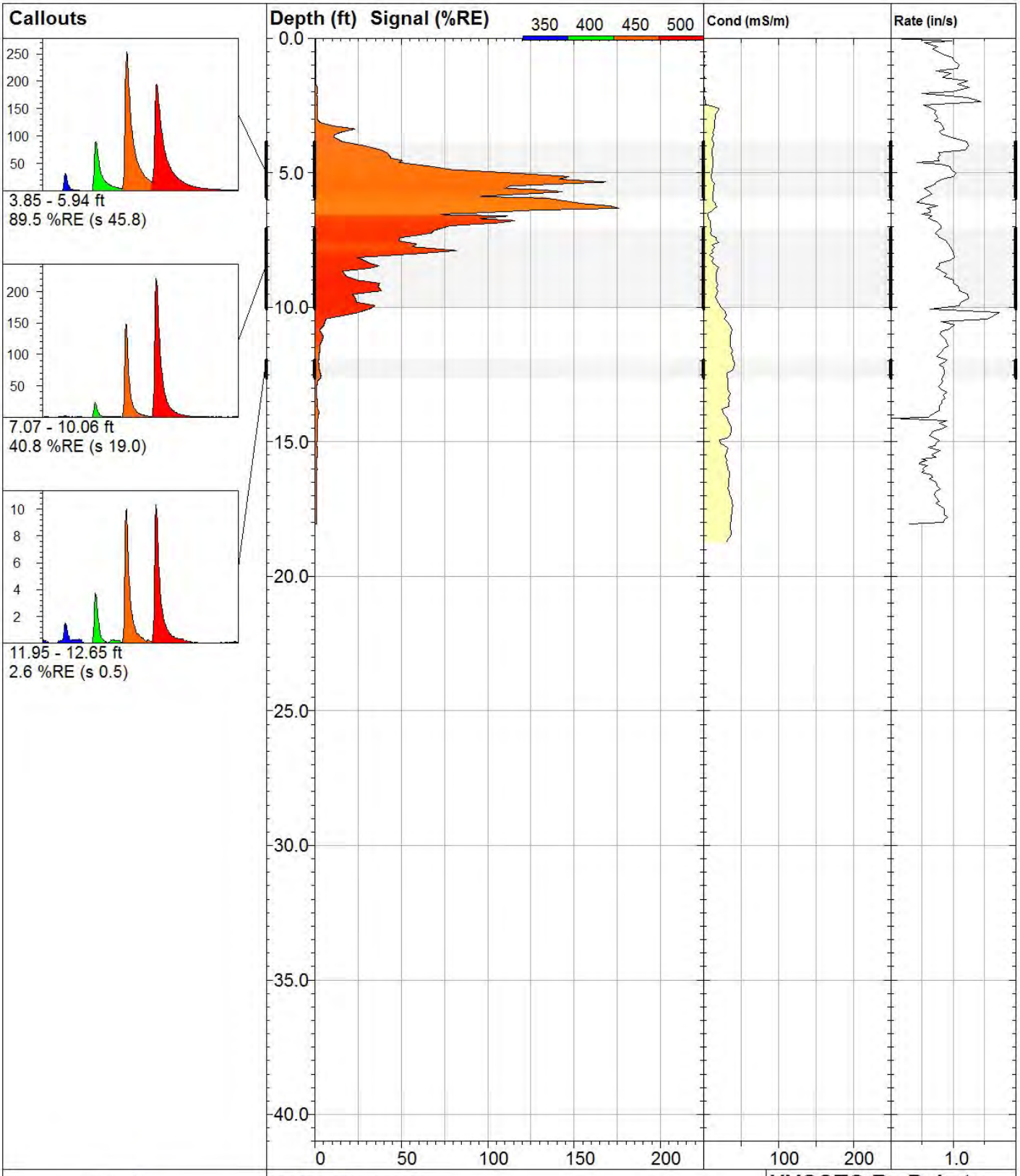
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **52.7 %RE @ 13.38 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 09:05 CDT**



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LIF-E0400

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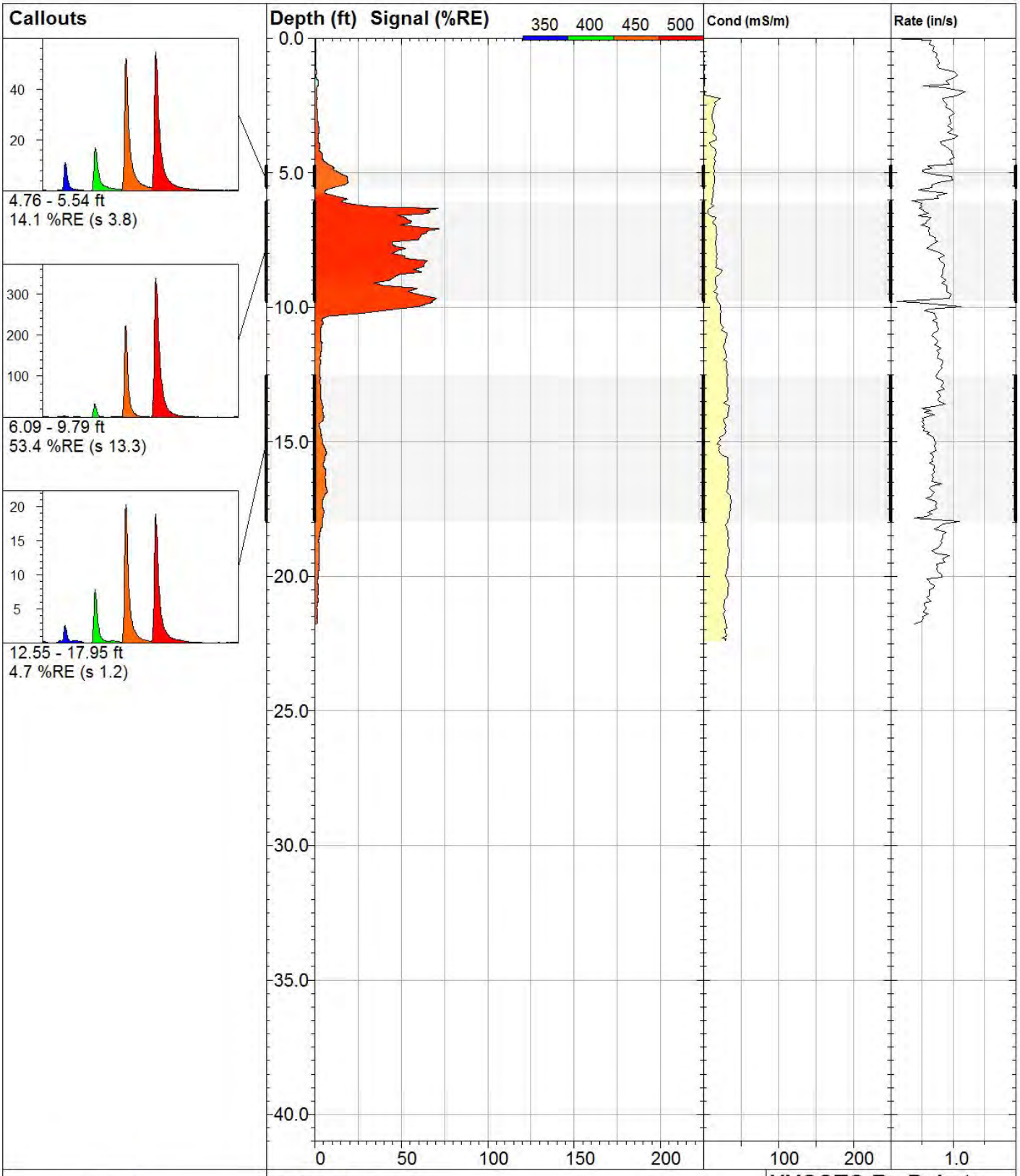
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **175.7 %RE @ 6.32 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 08:12 CDT**



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LIF-E0490

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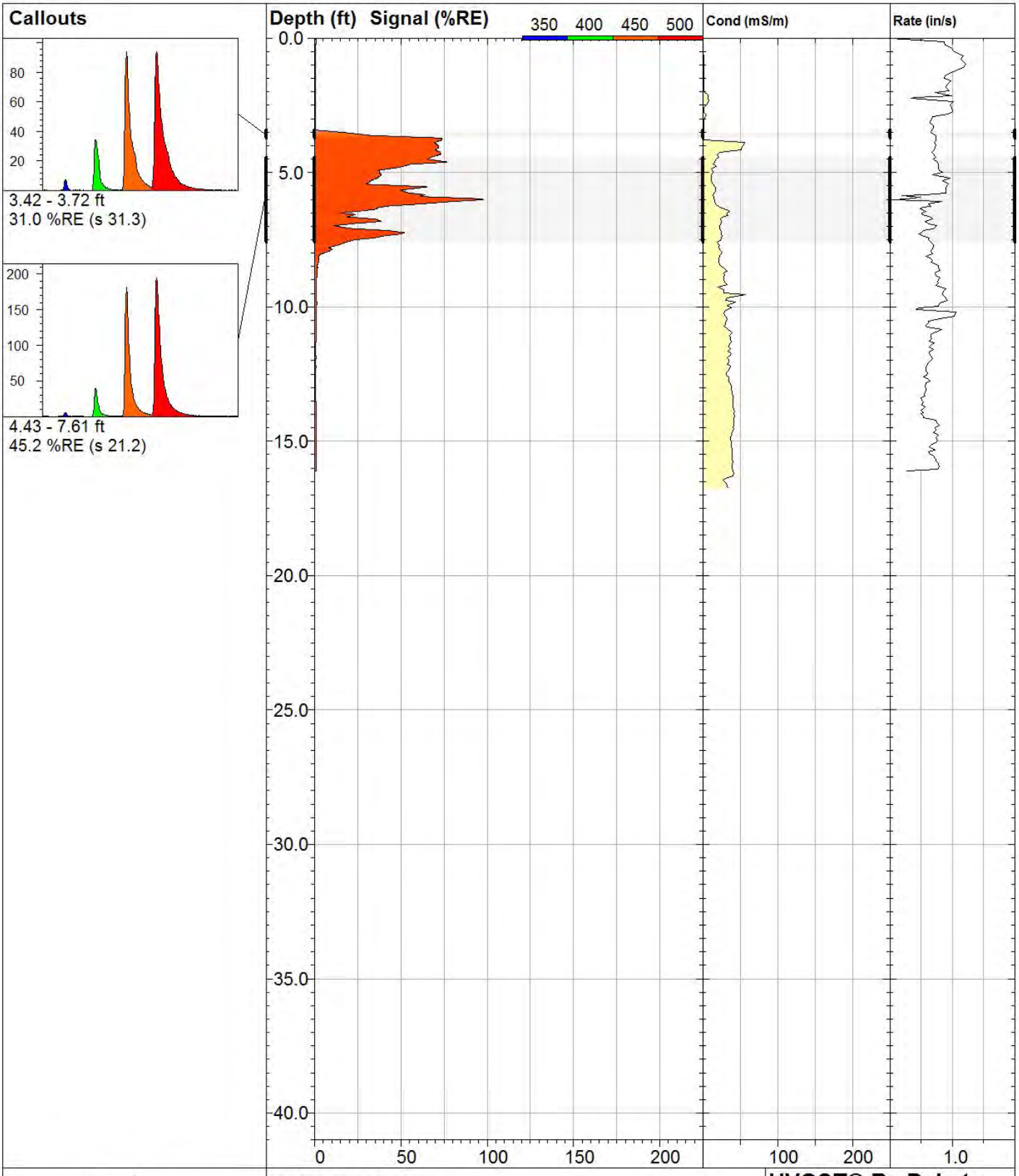
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.78 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **72.1 %RE @ 7.09 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 08:39 CDT**



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LIF-E0575

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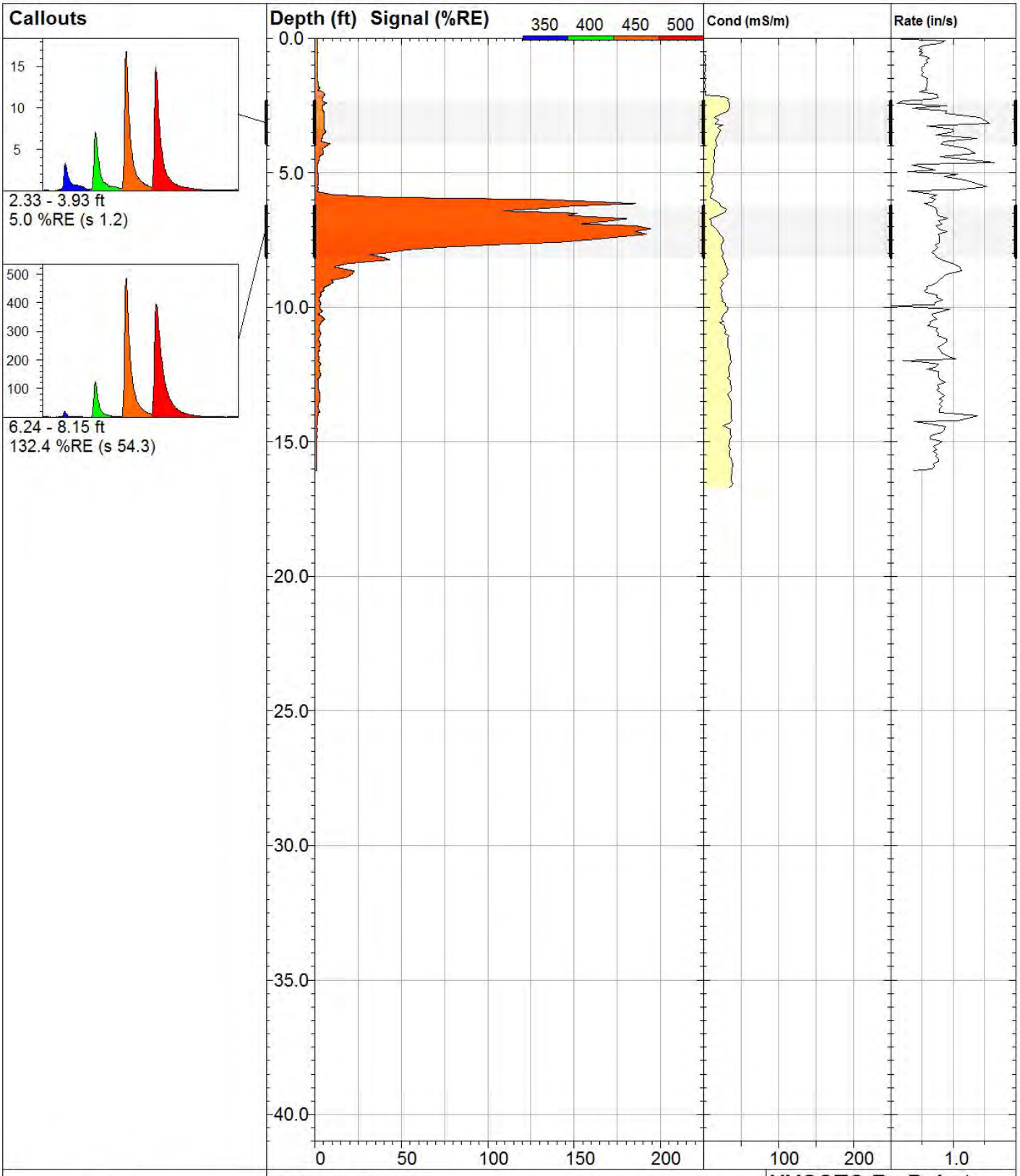
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **97.8 %RE @ 6.01 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 10:03 CDT**



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LIF-E0600

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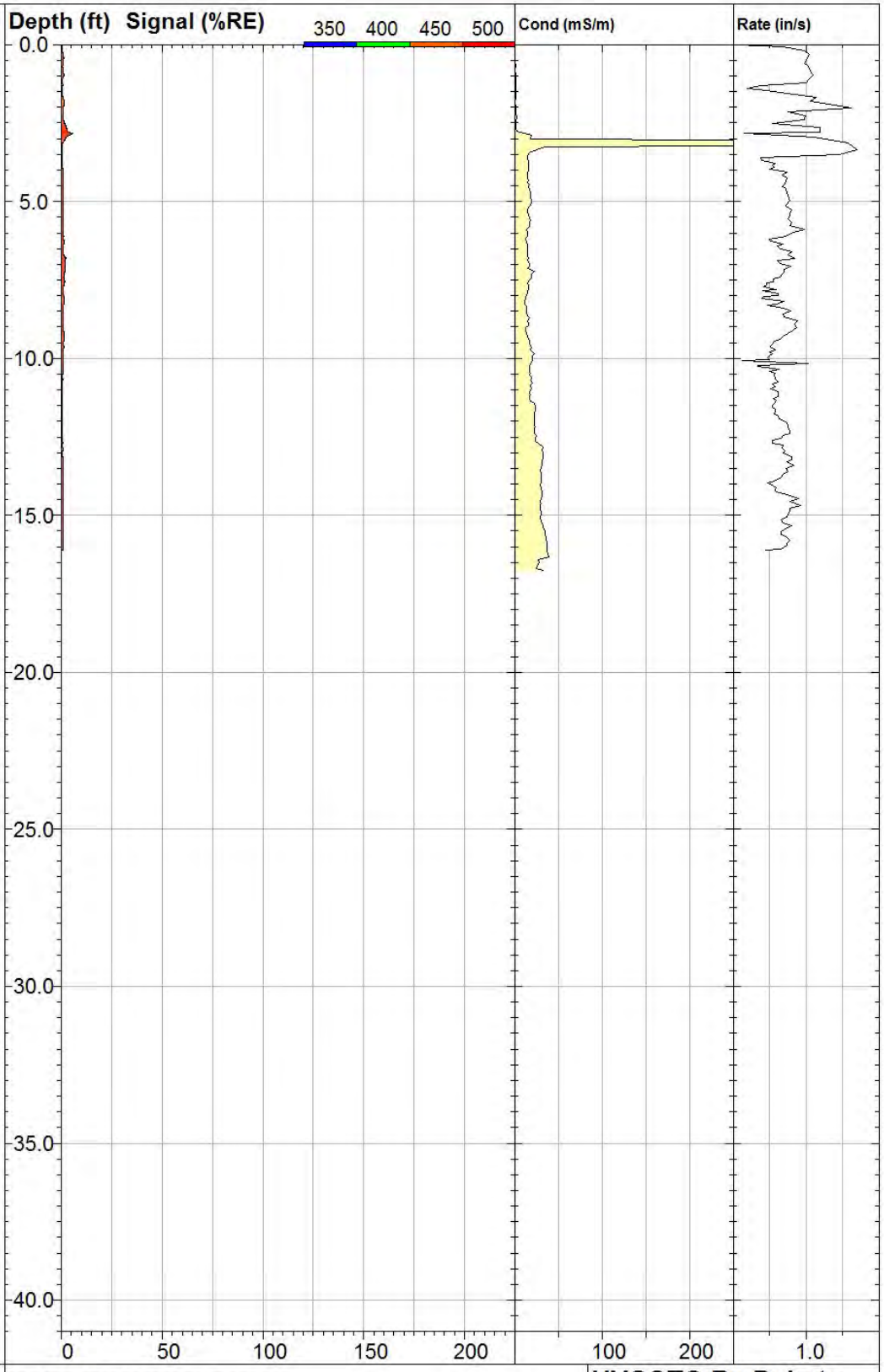
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **194.4 %RE @ 7.09 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 14:04 CDT**

Callouts



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LIF-E0600SW25

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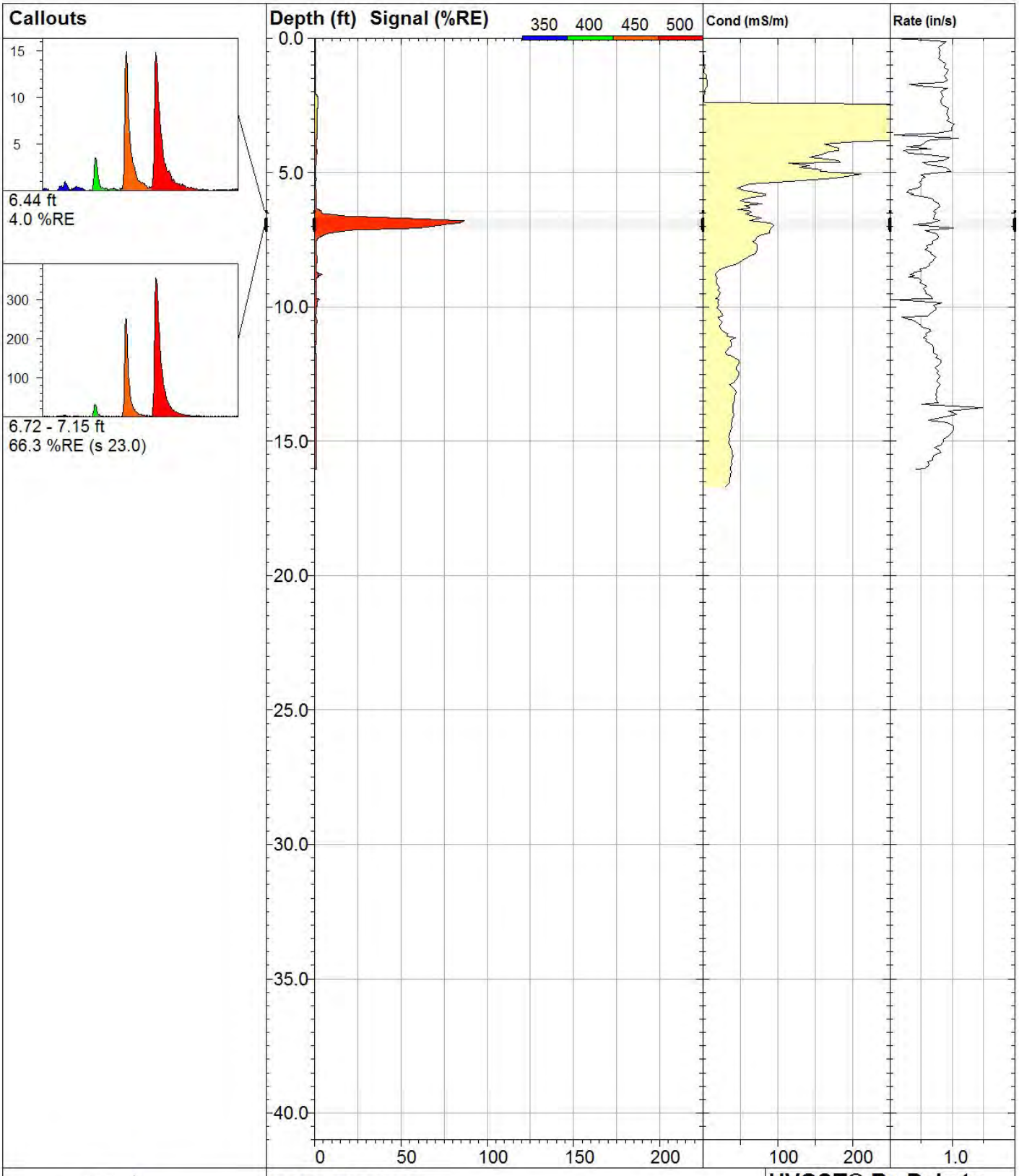
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.8 %RE @ 2.84 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 09:38 CDT**



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LIF-E0630

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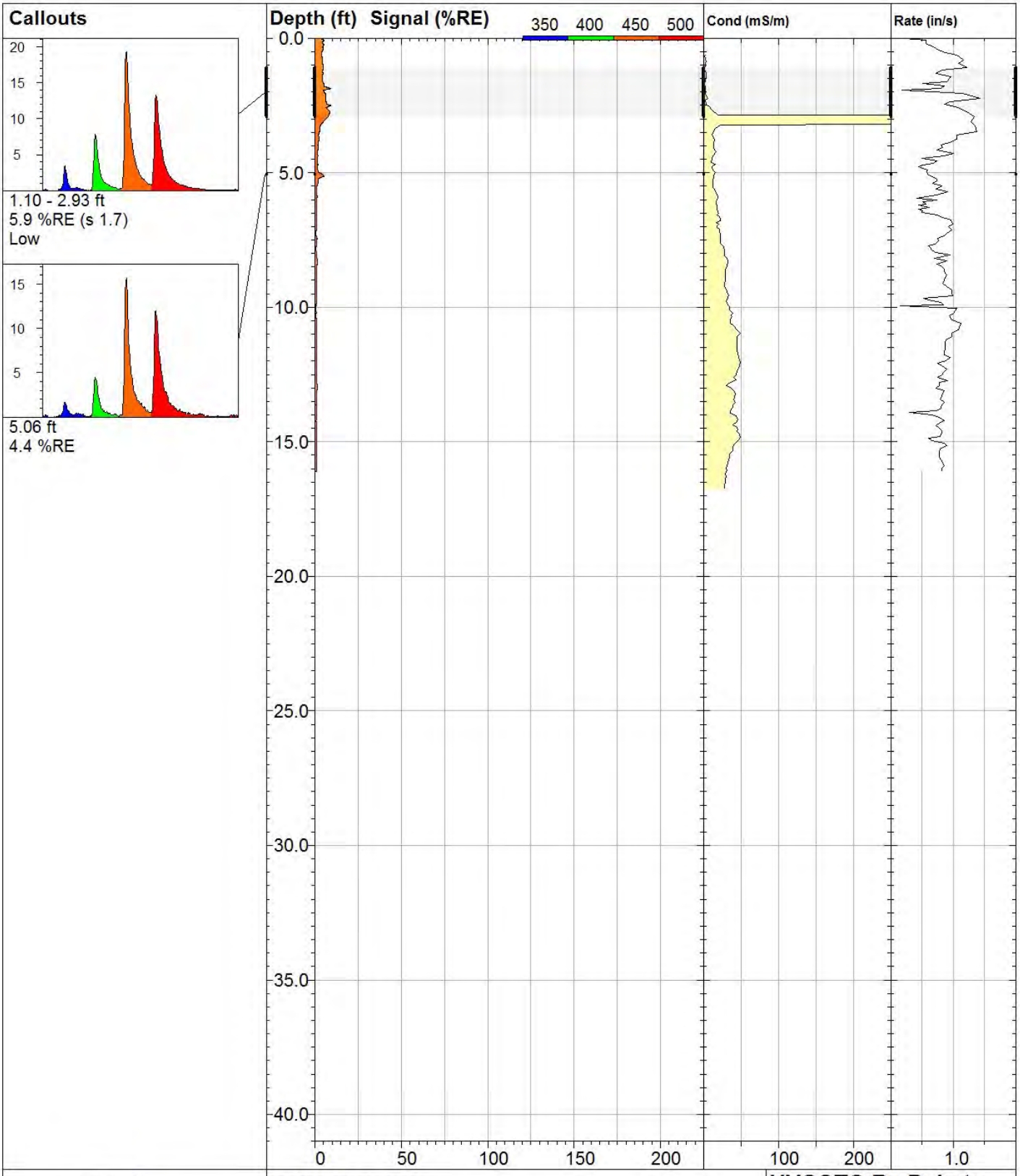
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **86.6 %RE @ 6.80 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 10:51 CDT**



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LIF-E0700

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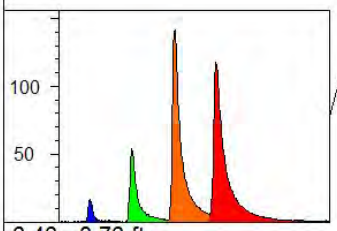
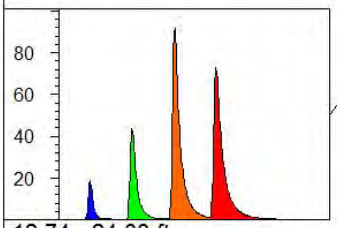
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.4 %RE @ 2.49 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 13:12 CDT**

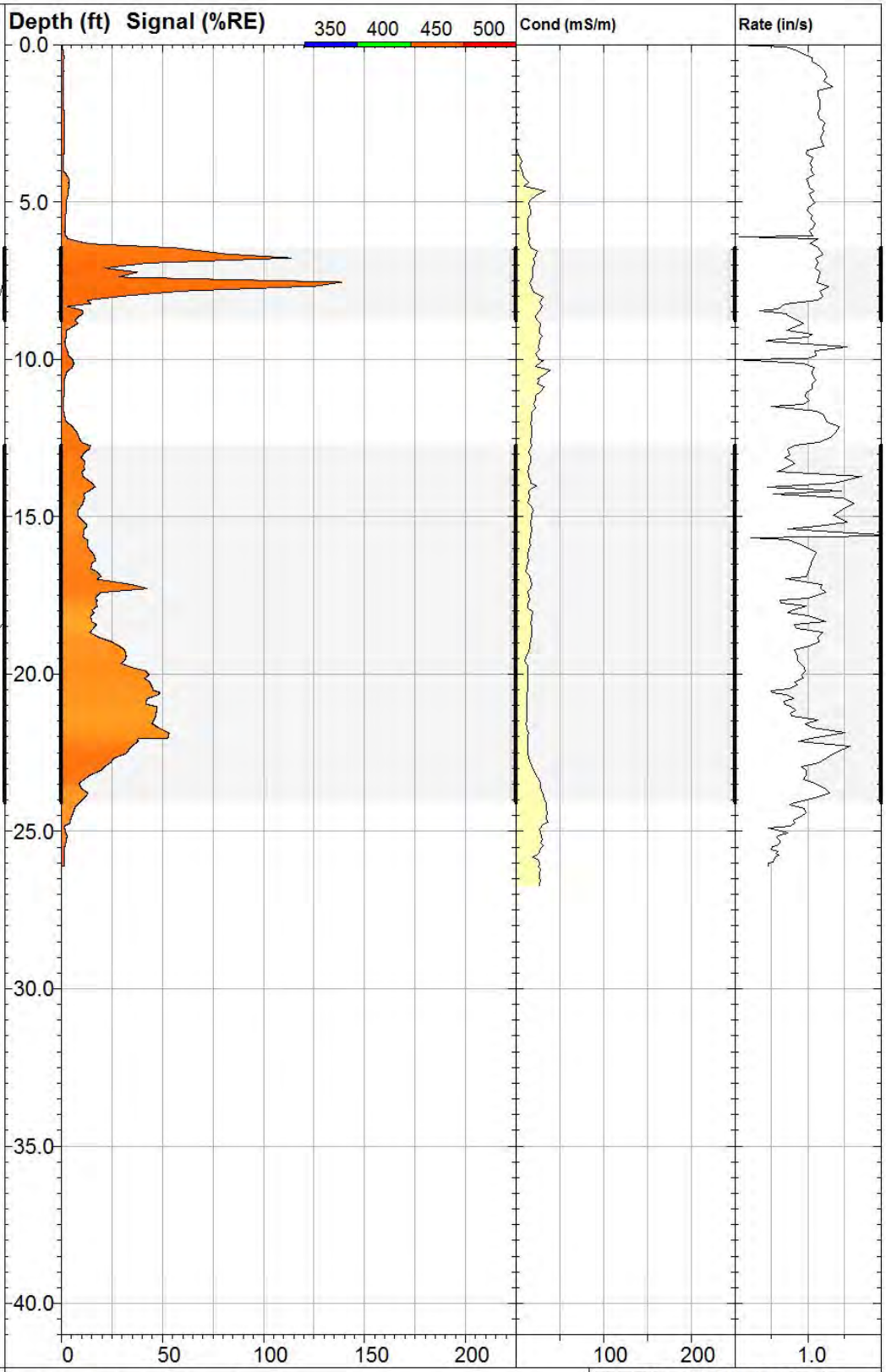
Callouts



6.46 - 8.76 ft
42.6 %RE (s 42.8)



12.74 - 24.08 ft
23.9 %RE (s 13.9)



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LIF-MW820NE20

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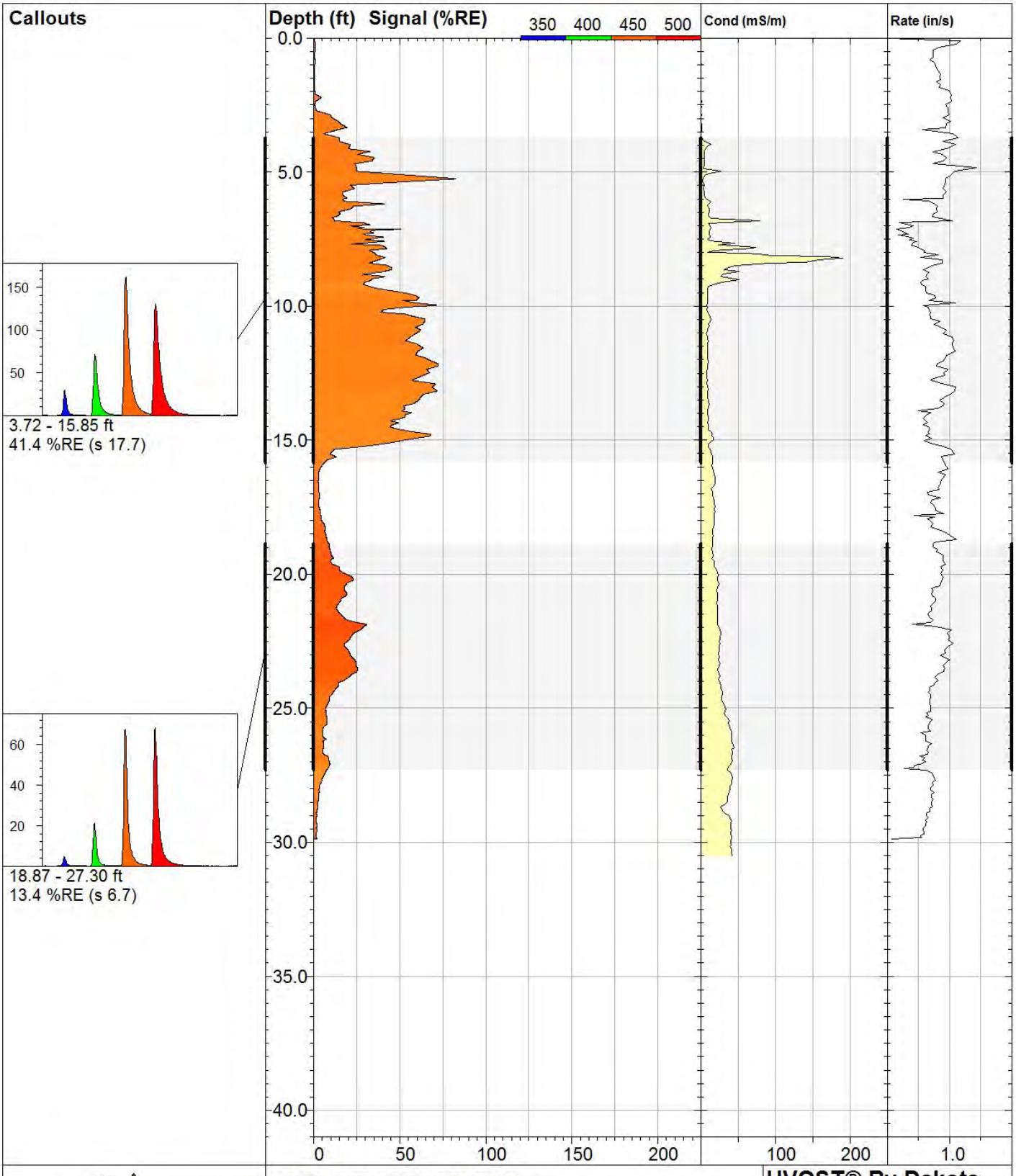
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **138.8 %RE @ 7.55 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 09:36 CDT**



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LIF-MW820SW20

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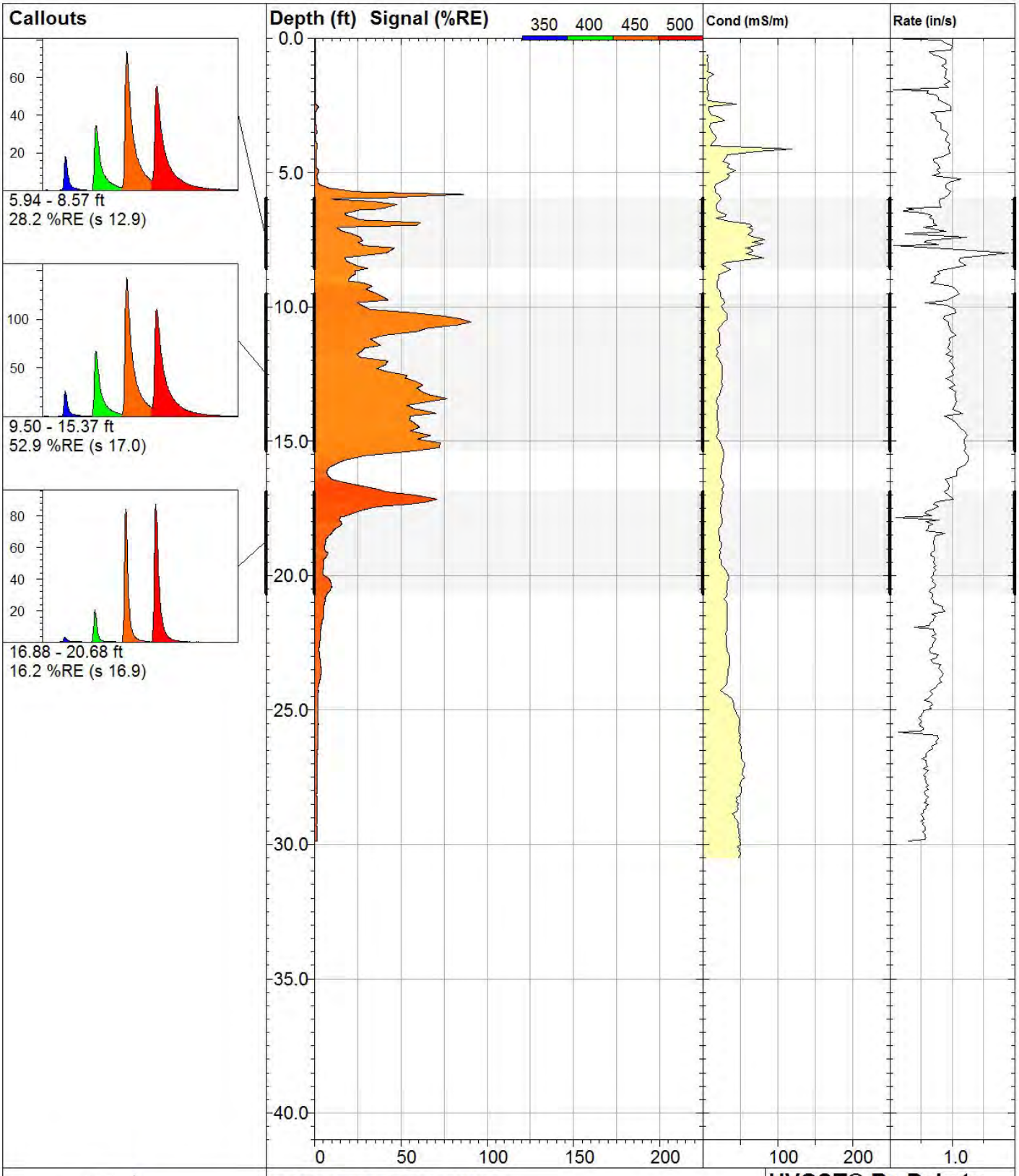
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.87 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **82.8 %RE @ 5.25 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 10:14 CDT**



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LIF-MW820SW5

UVOST® By Dakota
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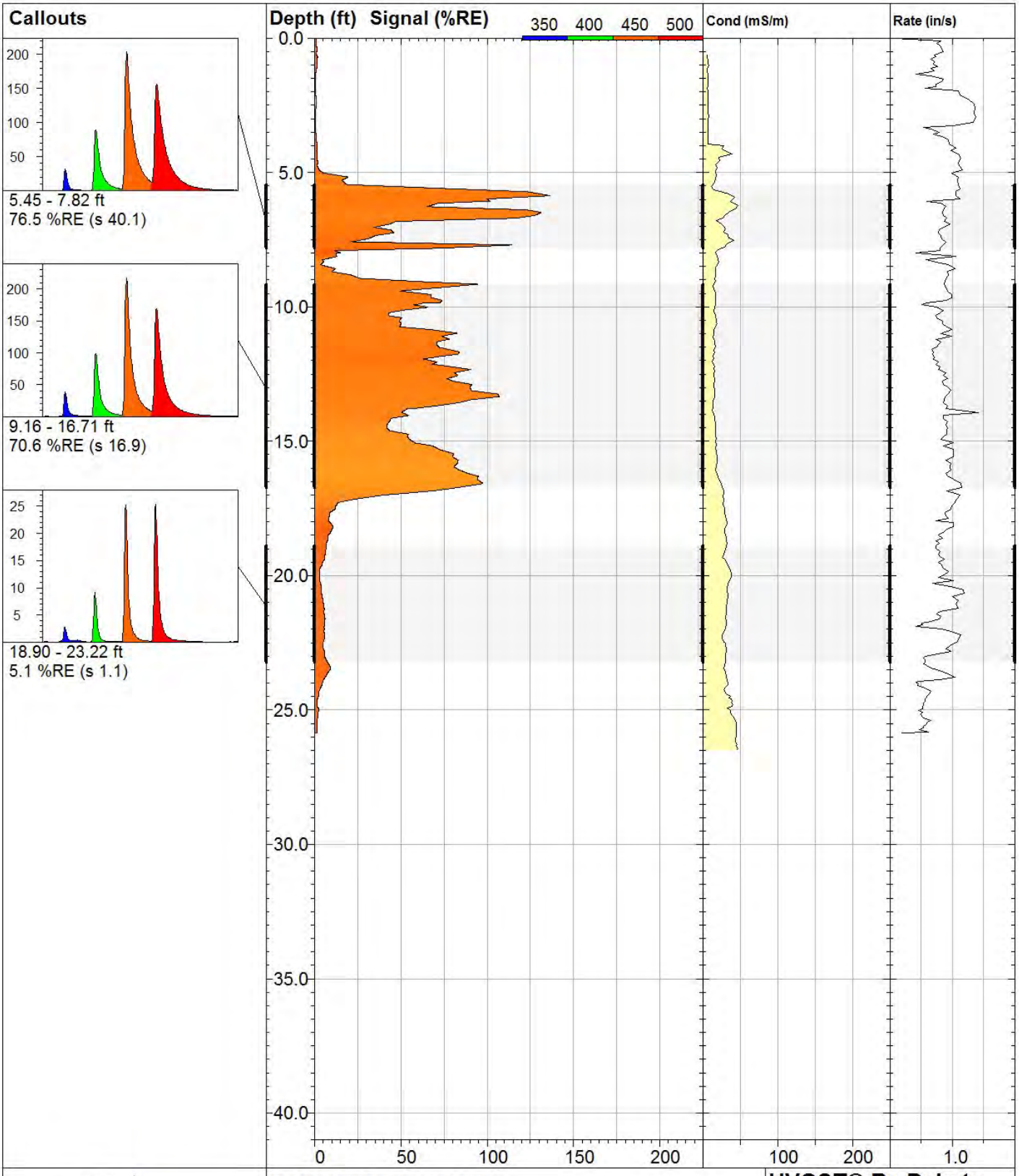
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.88 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **90.4 %RE @ 10.57 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 10:58 CDT**



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LIF-MW820W10

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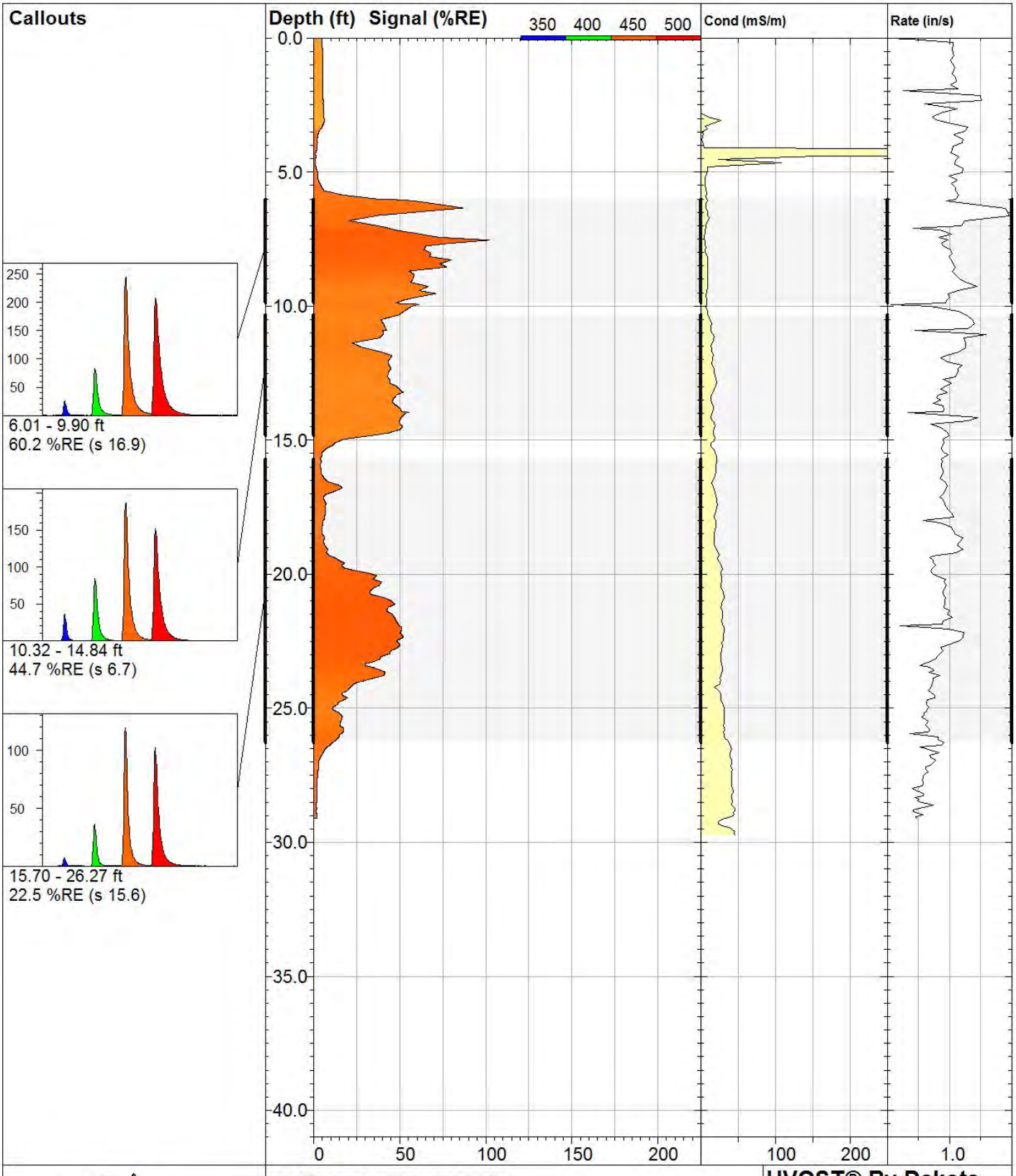
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.85 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **136.4 %RE @ 5.87 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 11:38 CDT**



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LIF-MW820W45

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Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **102.5 %RE @ 7.54 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 10:47 CDT**

Appendix C

UVOST® Logs % RE Autoscaled

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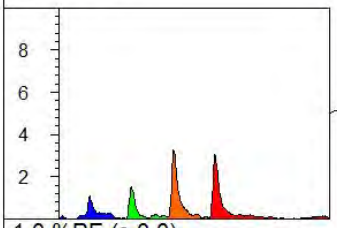
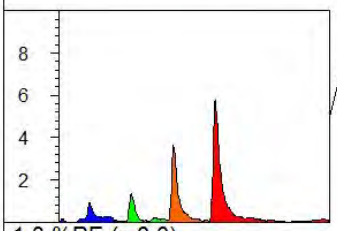
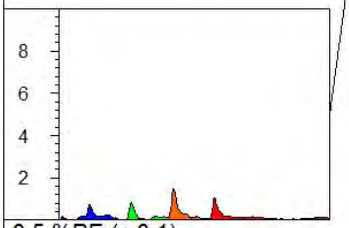
Callouts



1.0 %RE (s 0.0)
Fri, sample A, B0910

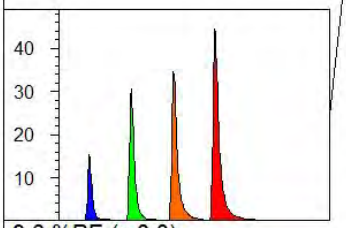


1.3 %RE (s 0.0)
Fri, sample B, B0910



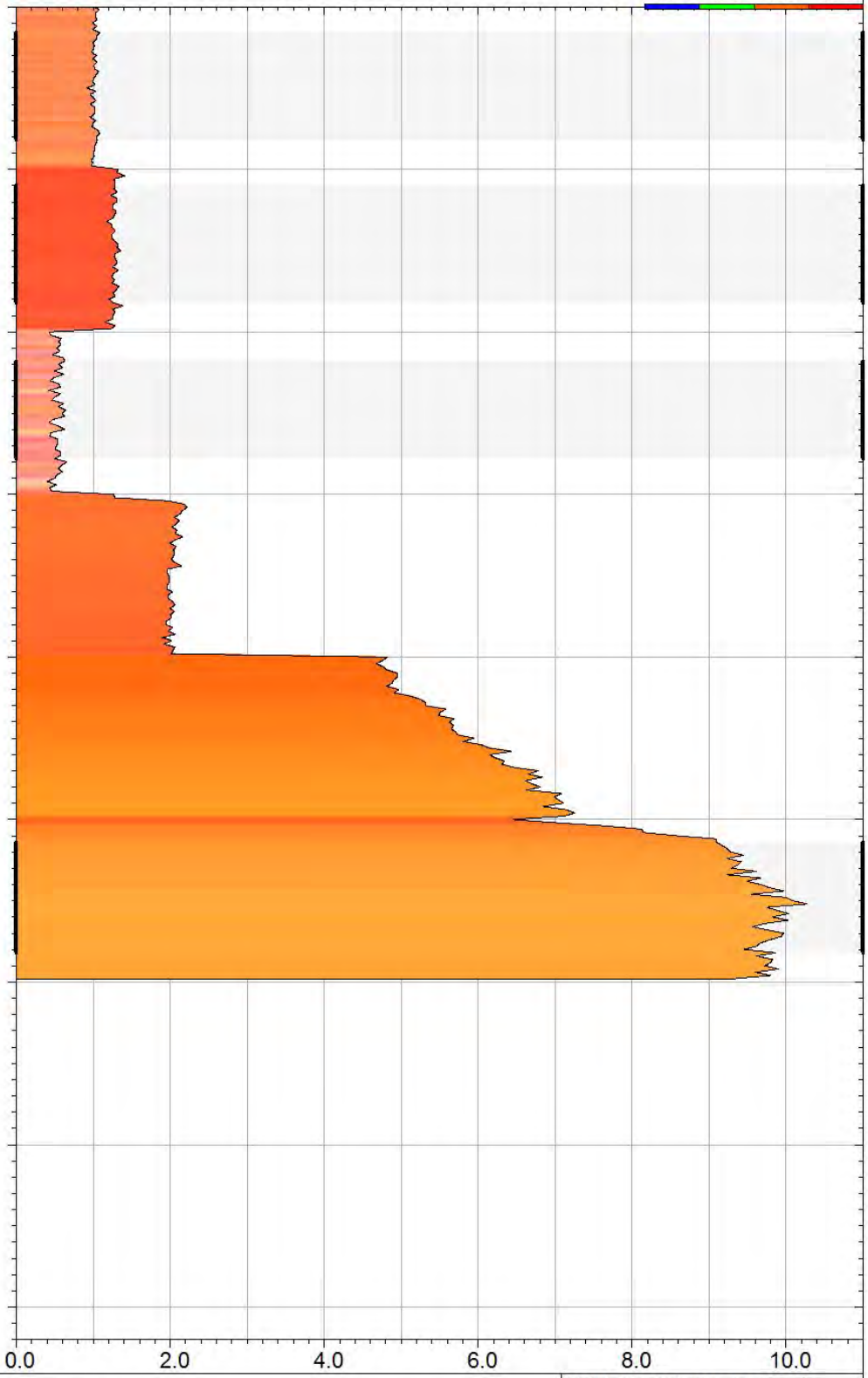
0.5 %RE (s 0.1)
background

Sample aquired Wednesday 3 readings as it was semi-lithified. Irregular surface; smoother surface, last was pressed on window.



9.6 %RE (s 0.3)
Wed sample

Signal (%RE)



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Emu-01

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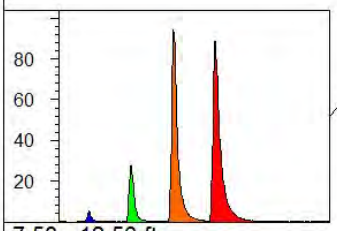
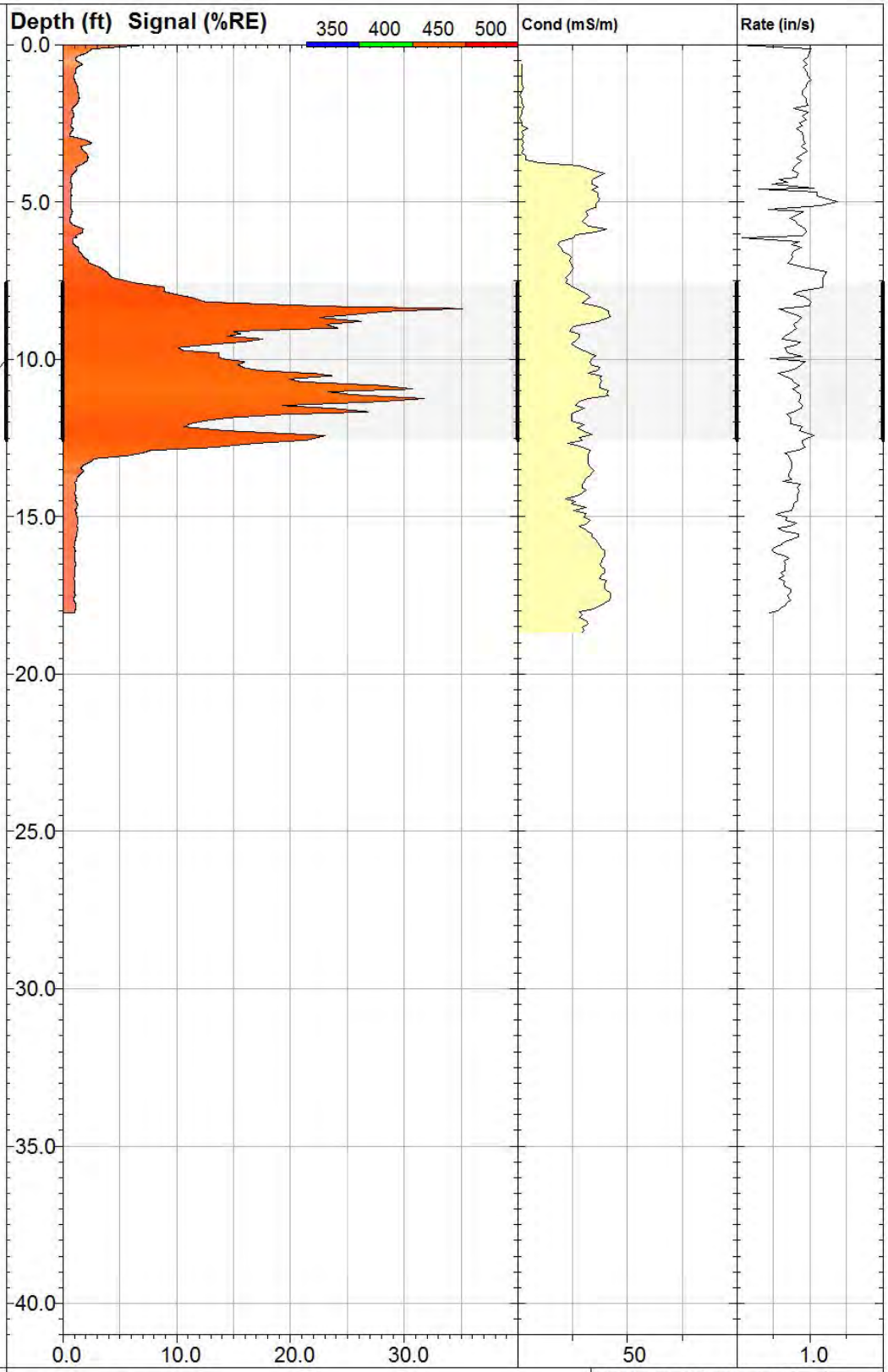
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:*
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **10.3 %RE**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 09:57 CDT**

Callouts



7.58 - 12.56 ft
18.7 %RE (s 6.9)



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LIF-A0100

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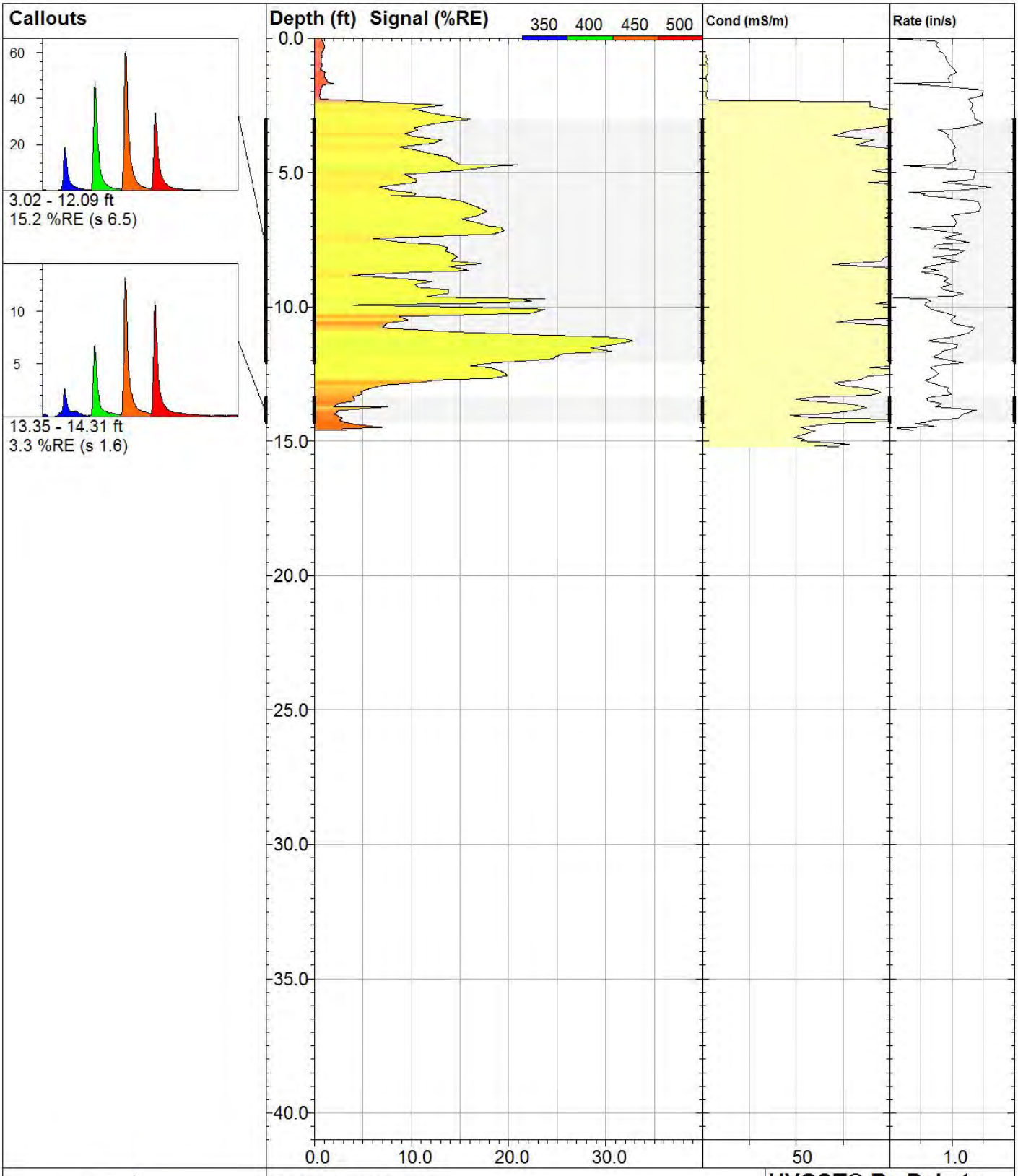
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **35.2 %RE @ 8.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 09:14 CDT**



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LIF-A0200

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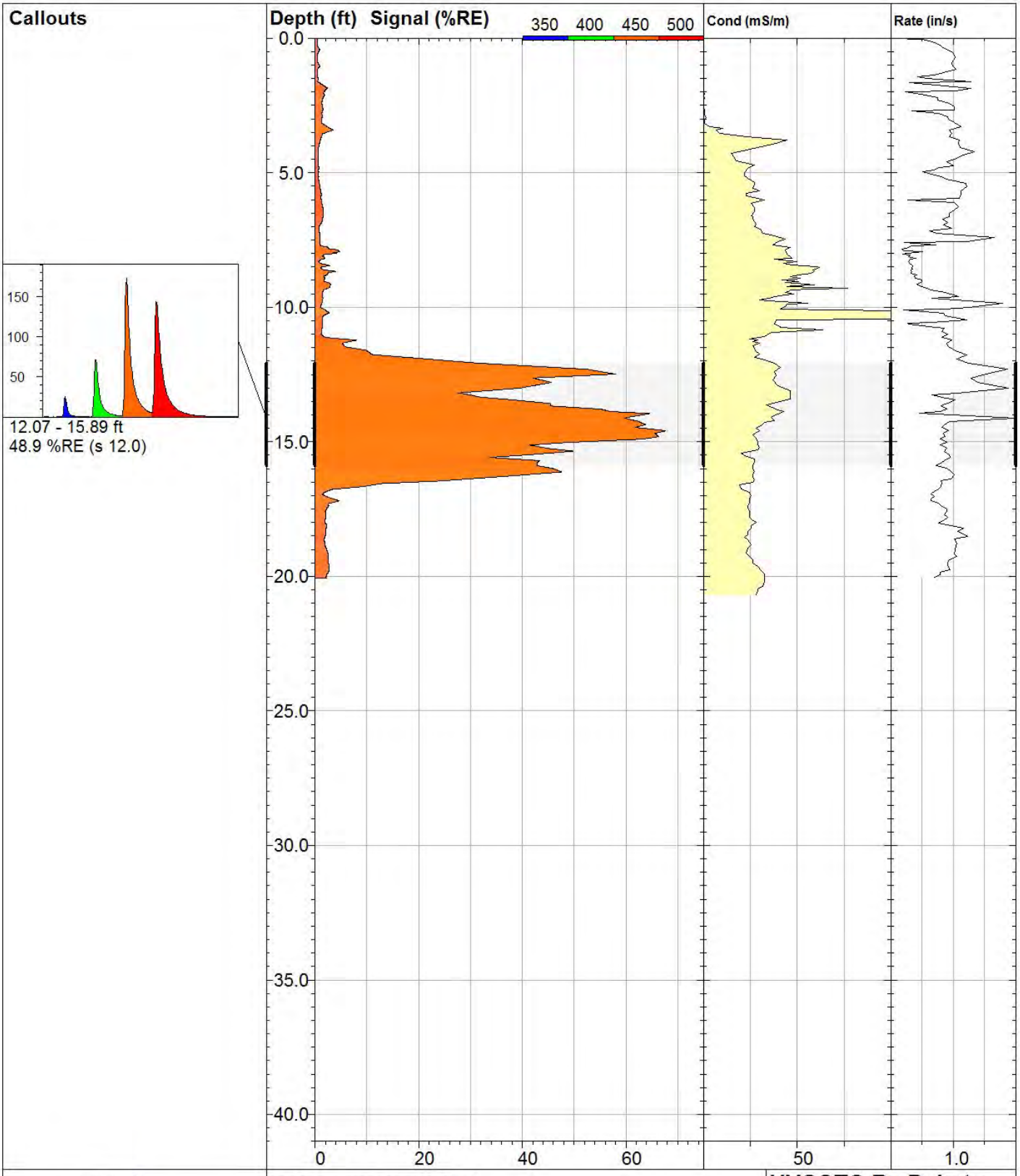
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.59 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **32.8 %RE @ 11.27 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 09:47 CDT**



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LIF-A0225SW5

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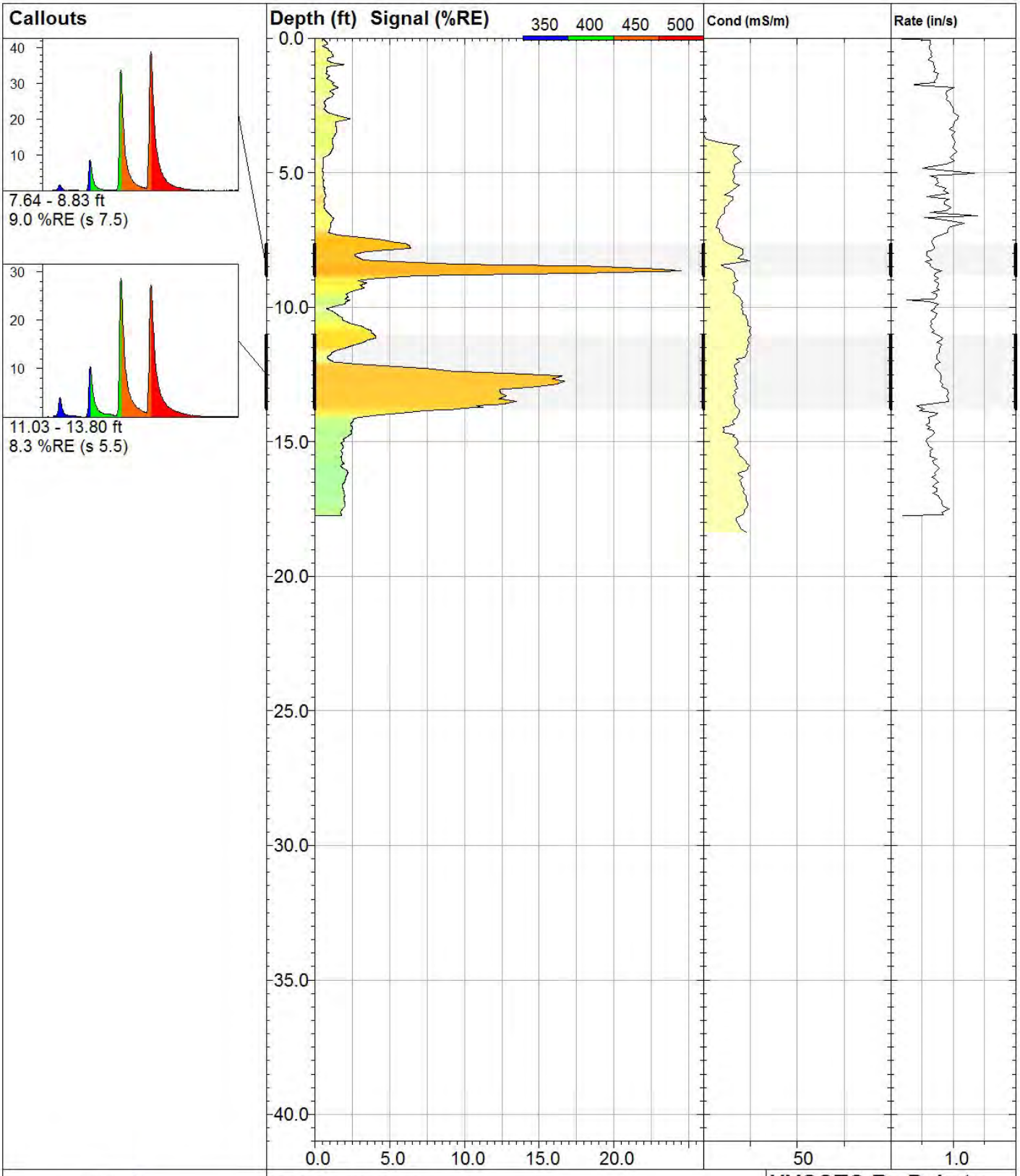
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **67.7 %RE @ 14.59 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 09:02 CDT**



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LIF-A0250

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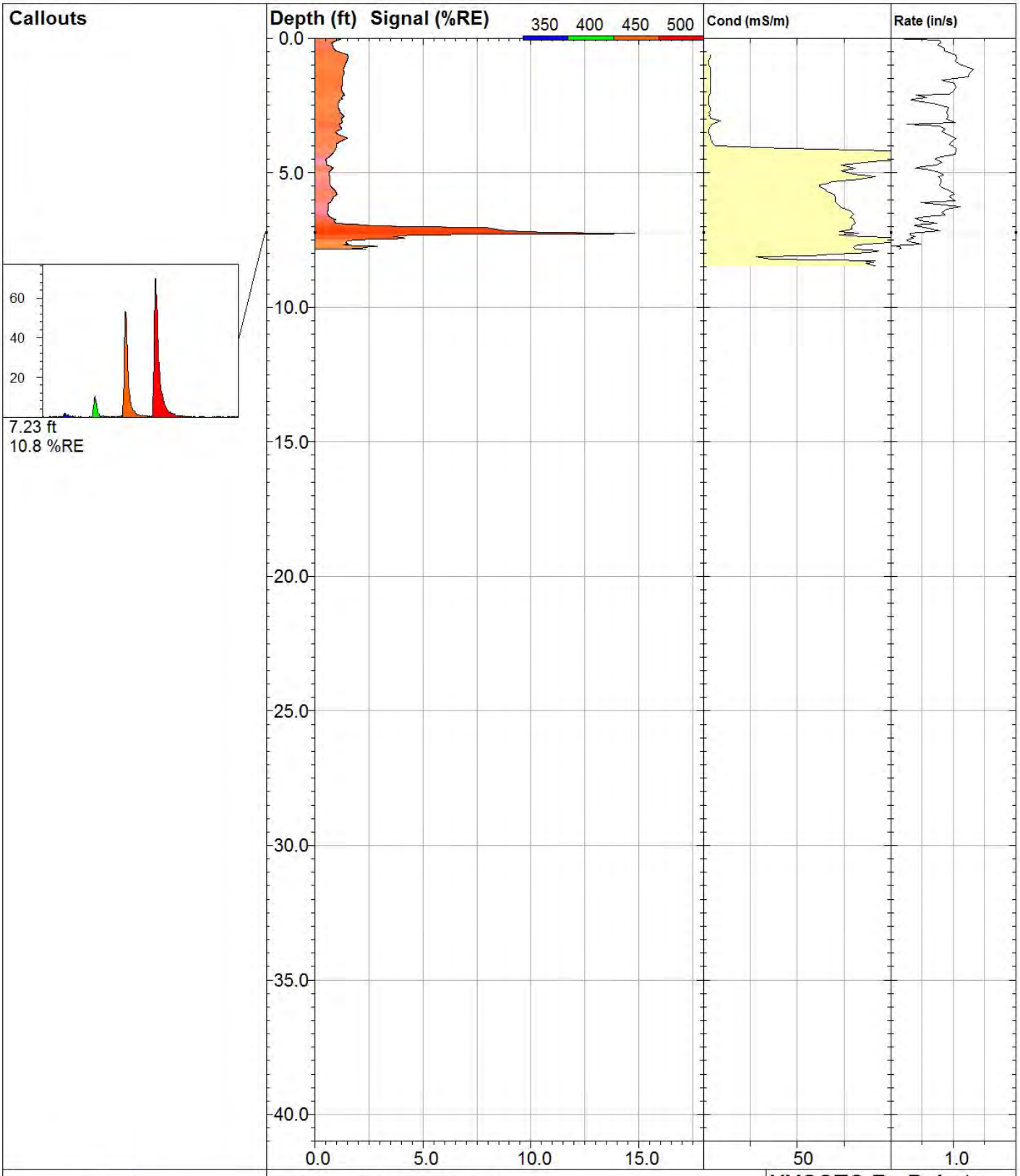
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.74 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.6 %RE @ 8.65 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 08:30 CDT**



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LIF-A0250SW20

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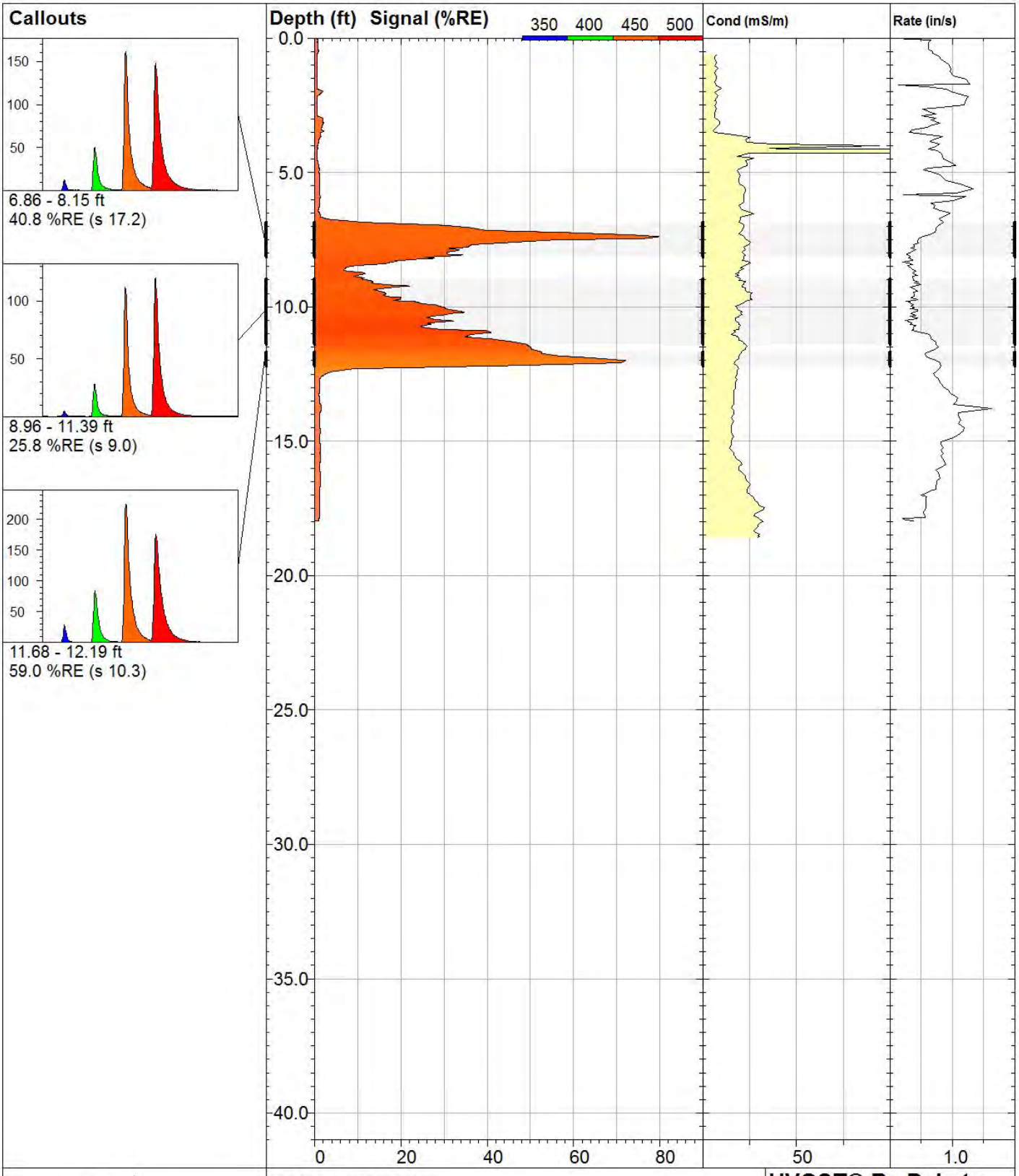
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.85 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **15.1 %RE @ 7.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:59 CDT**



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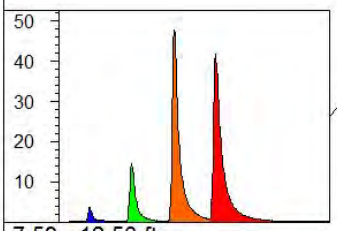
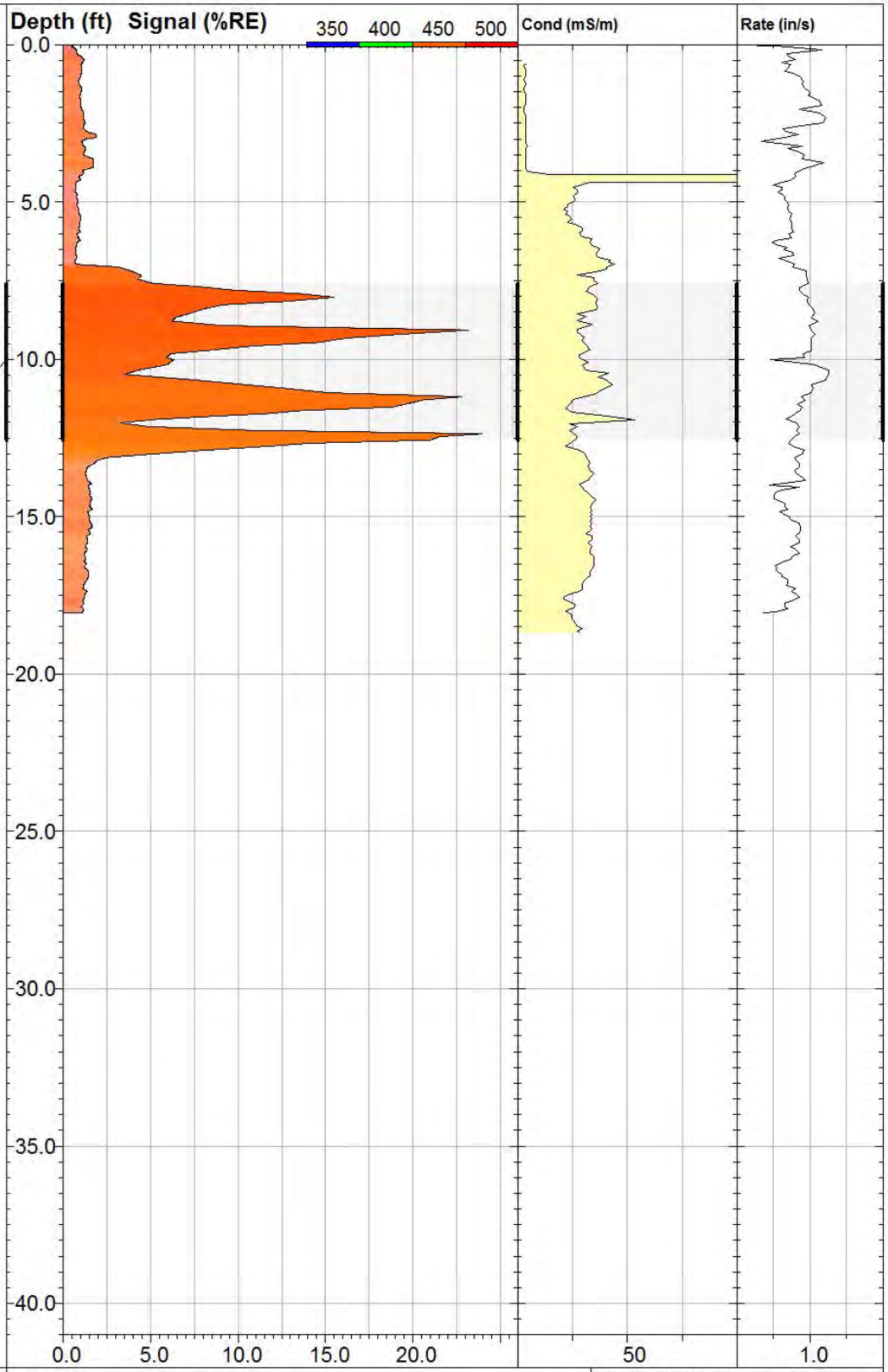
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.95 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **79.9 %RE @ 7.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 10:15 CDT**

Callouts



7.59 - 12.56 ft
11.6 %RE (s 6.1)



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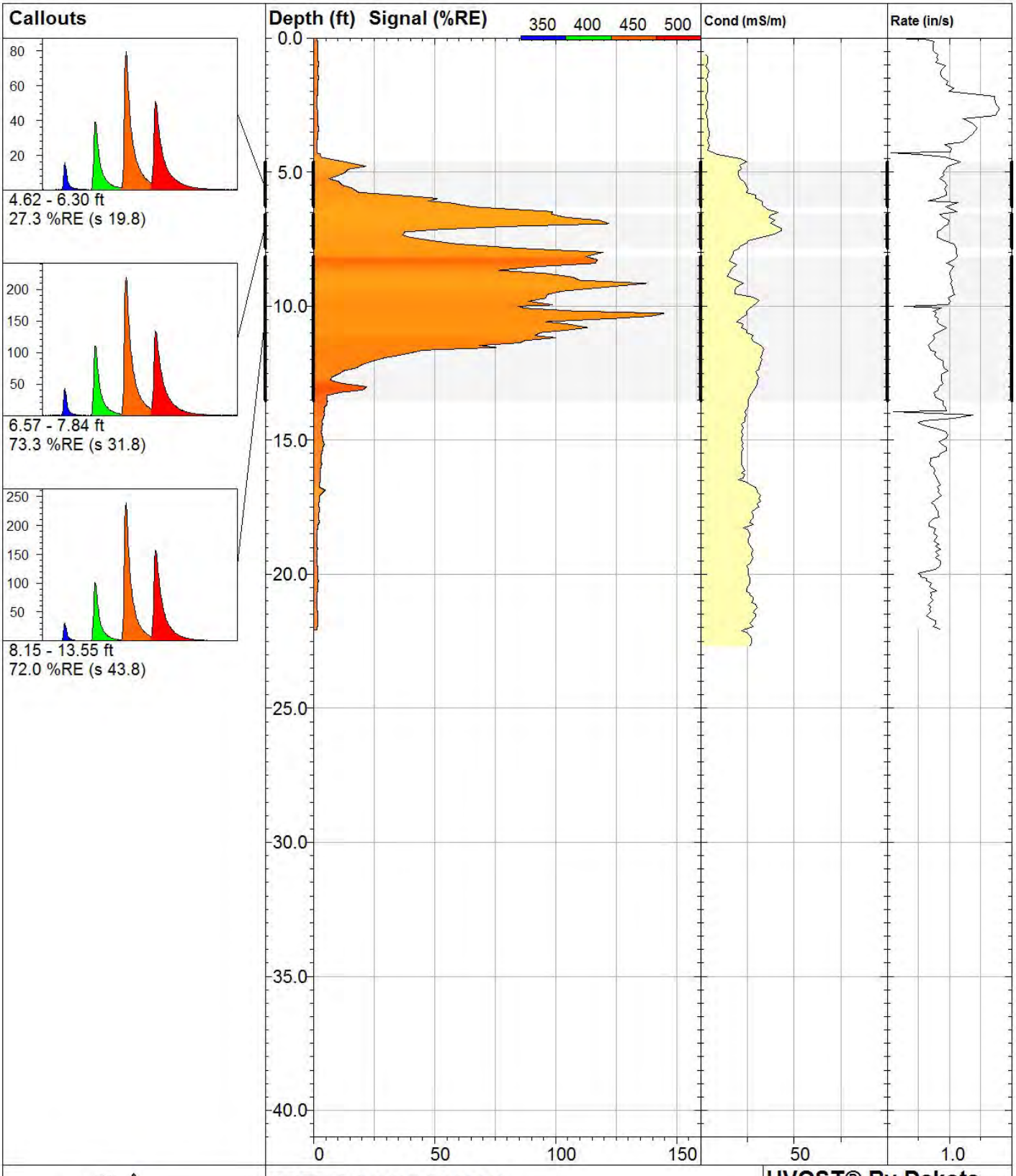
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.0 %RE @ 12.37 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:35 CDT**



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LIF-A0325SW10

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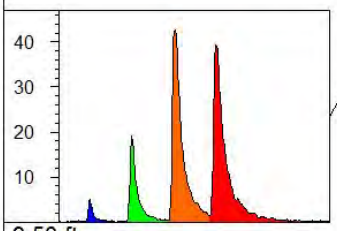
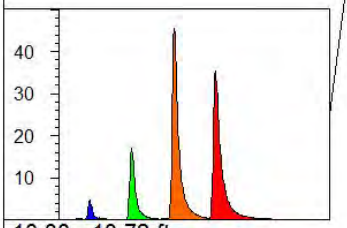
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **144.9 %RE @ 10.27 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 13:11 CDT**

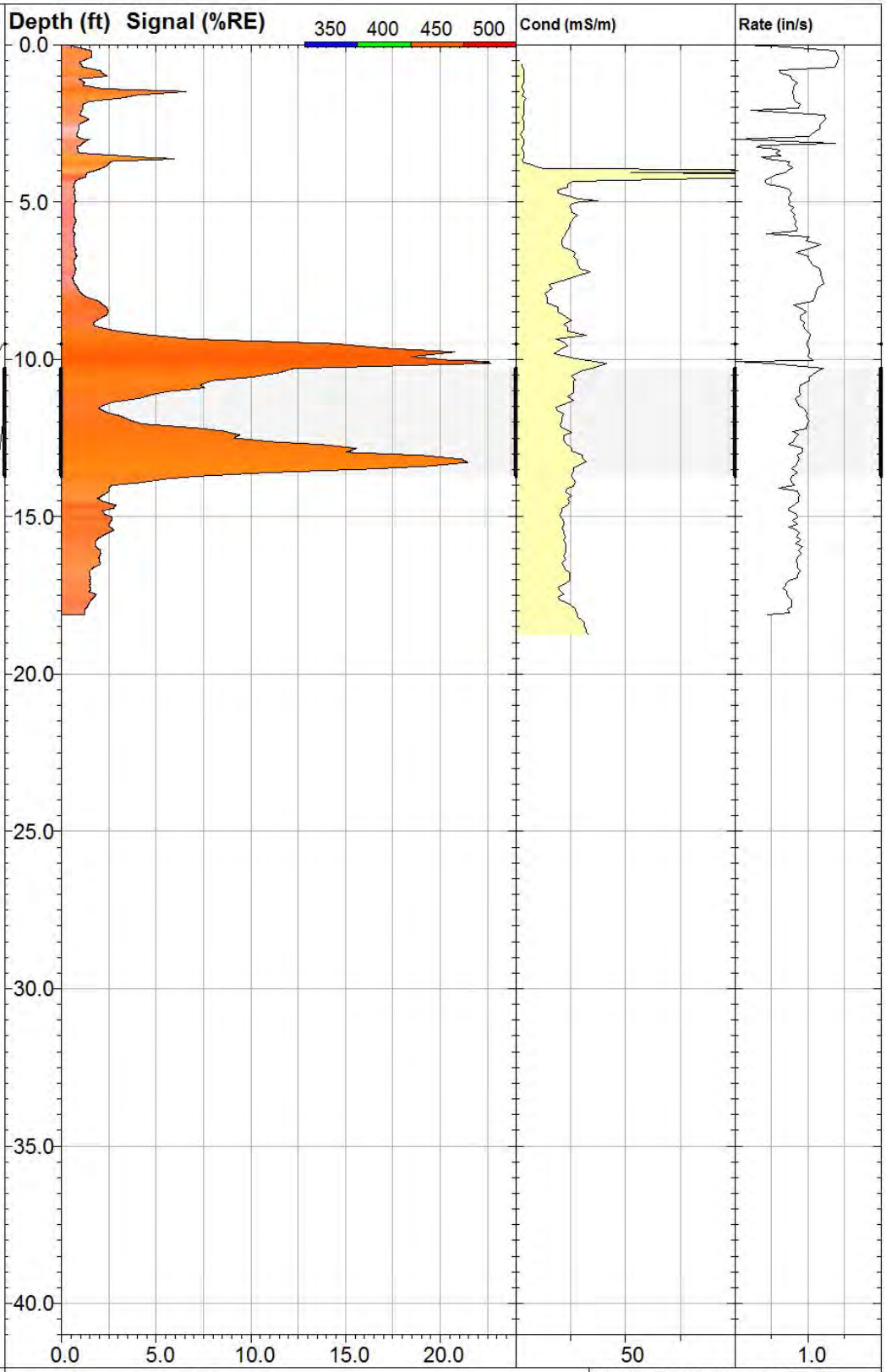
Callouts



9.50 ft
14.3 %RE



10.30 - 13.72 ft
9.6 %RE (s 5.8)



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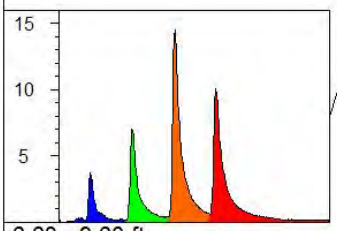
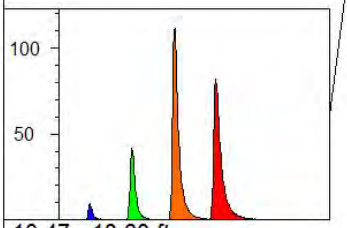
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **22.7 %RE @ 10.07 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 12:48 CDT**

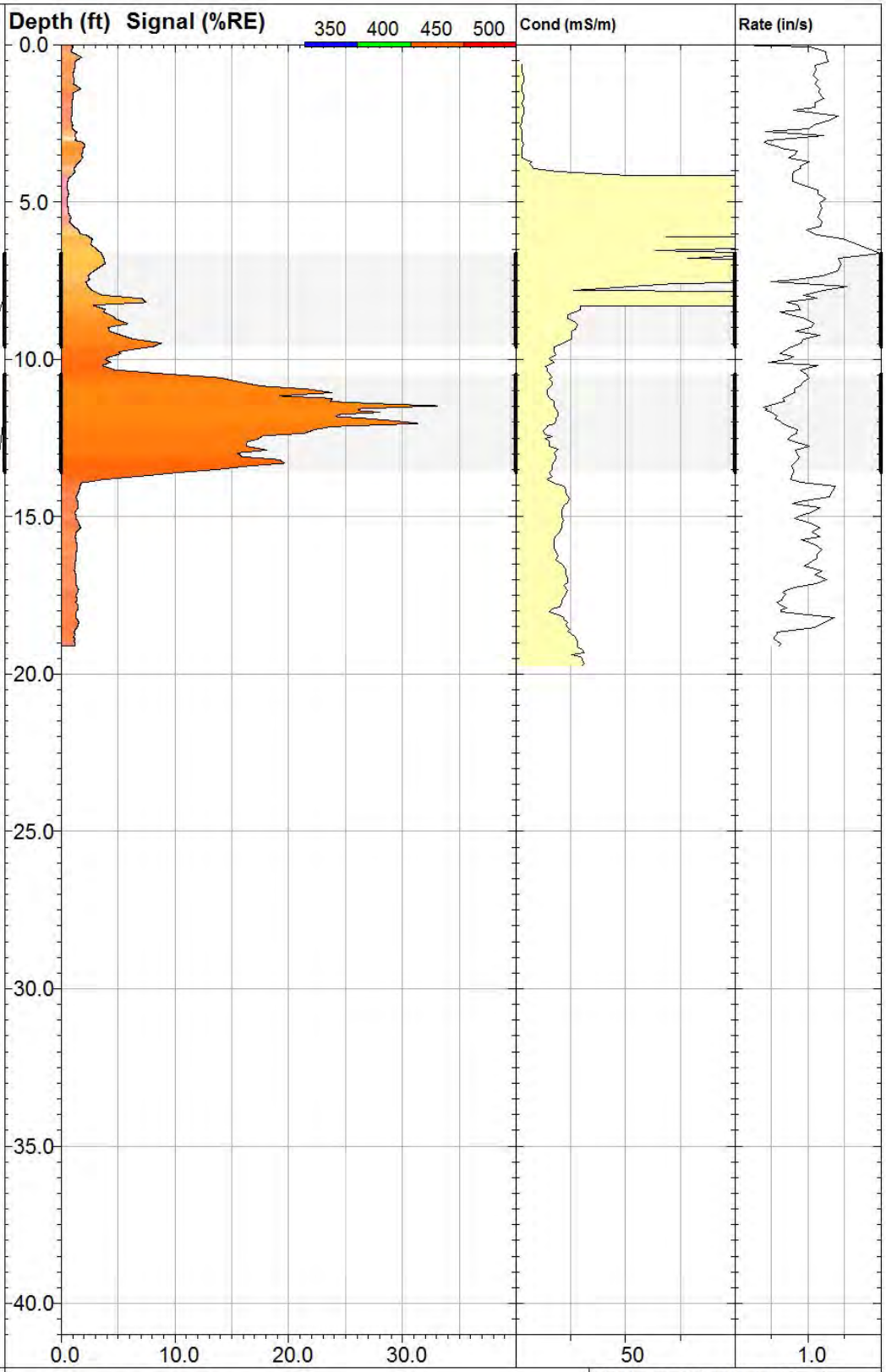
Callouts



6.63 - 9.60 ft
4.4 %RE (s 1.9)



10.47 - 13.60 ft
21.2 %RE (s 6.0)



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LIF-A0375NE25

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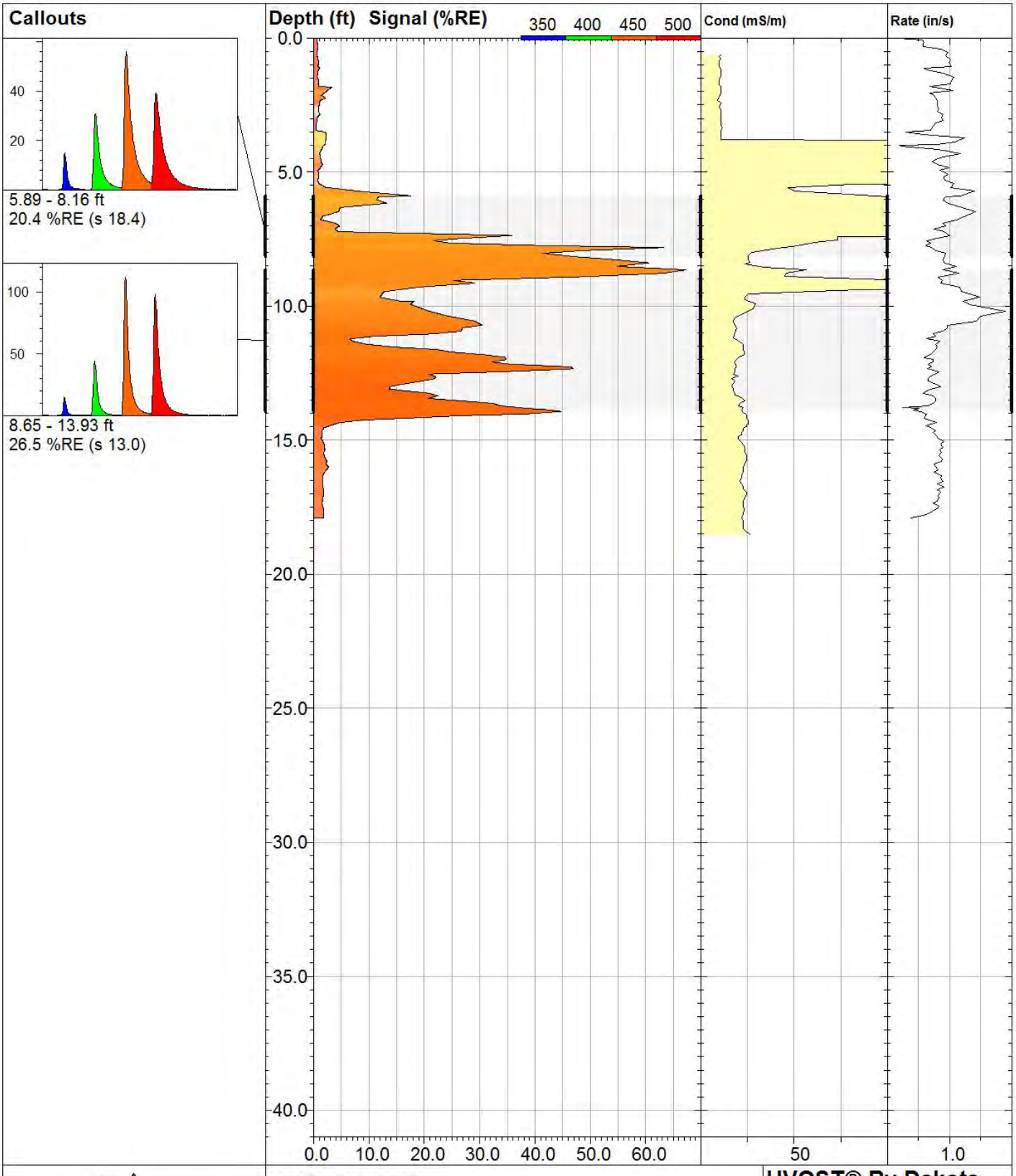
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **33.1 %RE @ 11.48 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 11:21 CDT**



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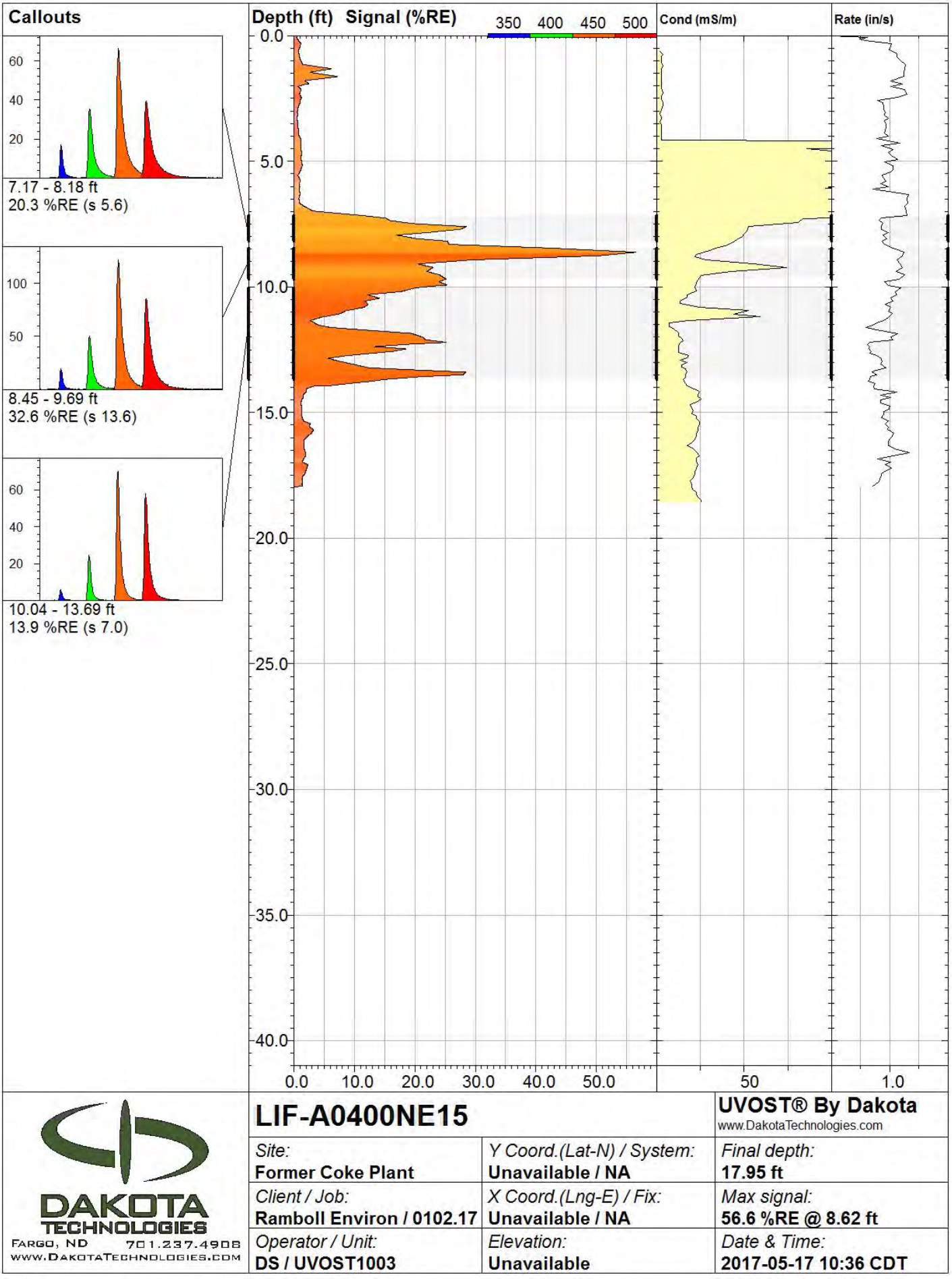
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.89 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **67.3 %RE @ 8.65 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 13:16 CDT**



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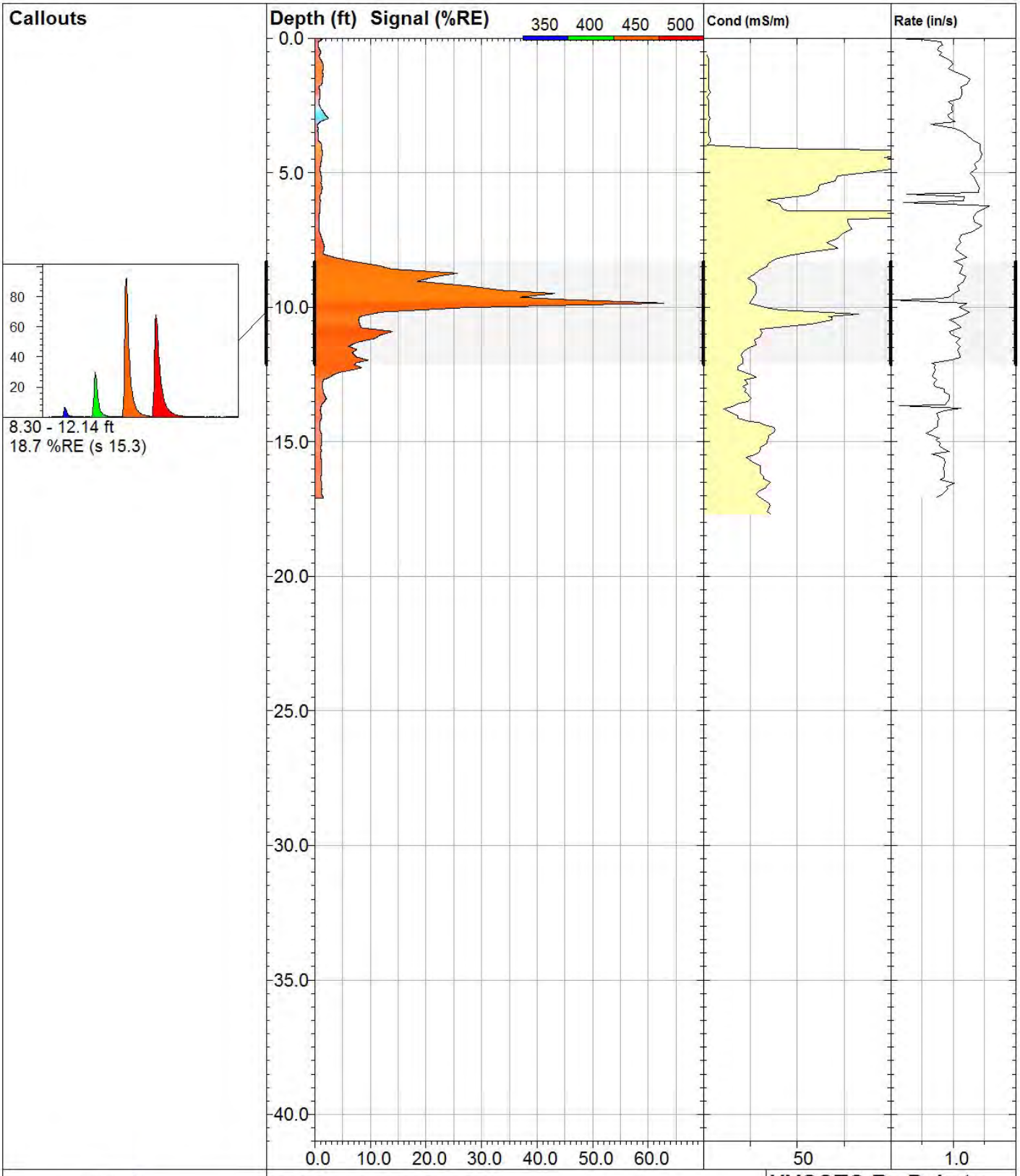
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.95 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **56.6 %RE @ 8.62 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 10:36 CDT**



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LIF-A0400NE50

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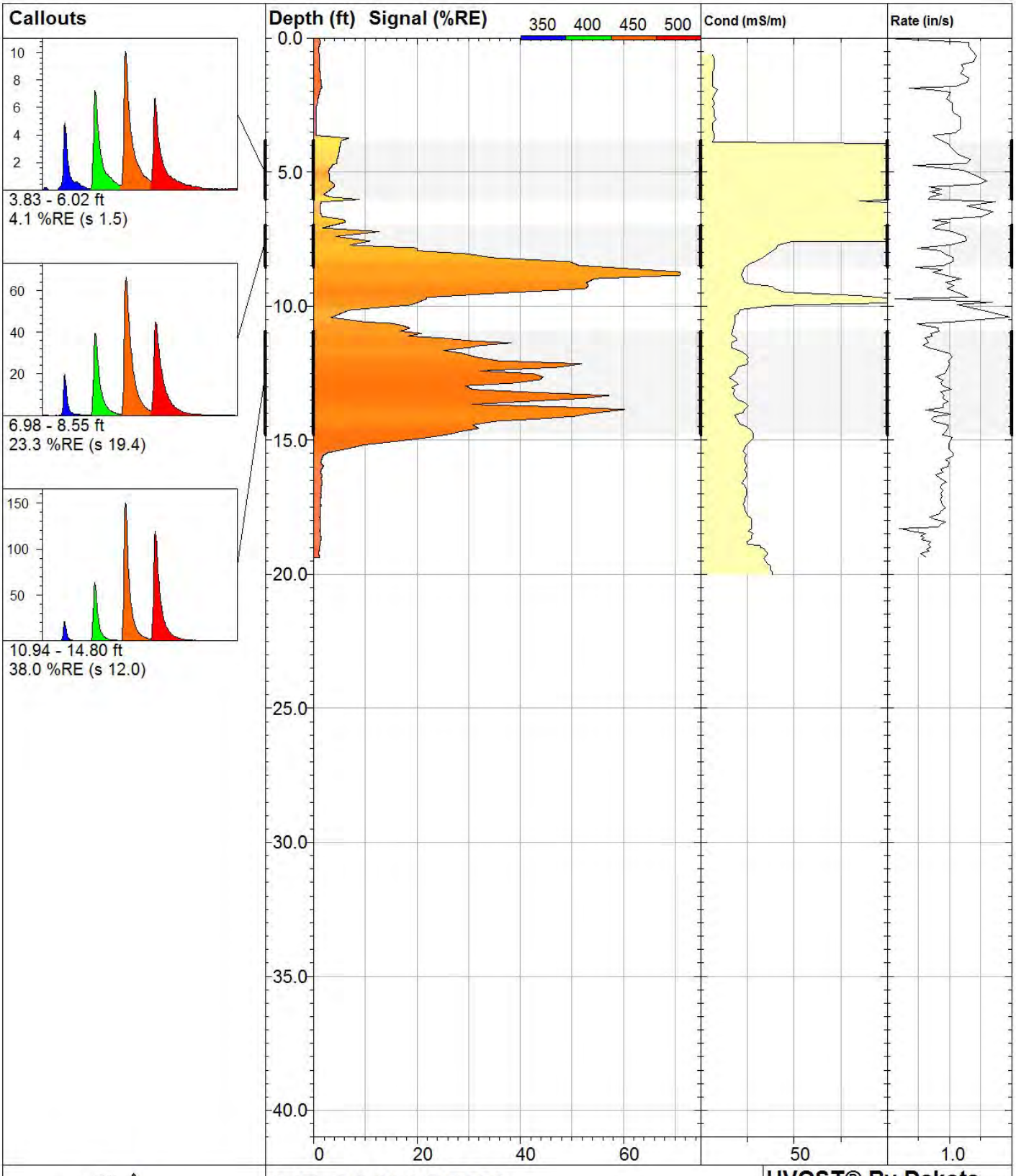
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **63.1 %RE @ 9.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 10:59 CDT**



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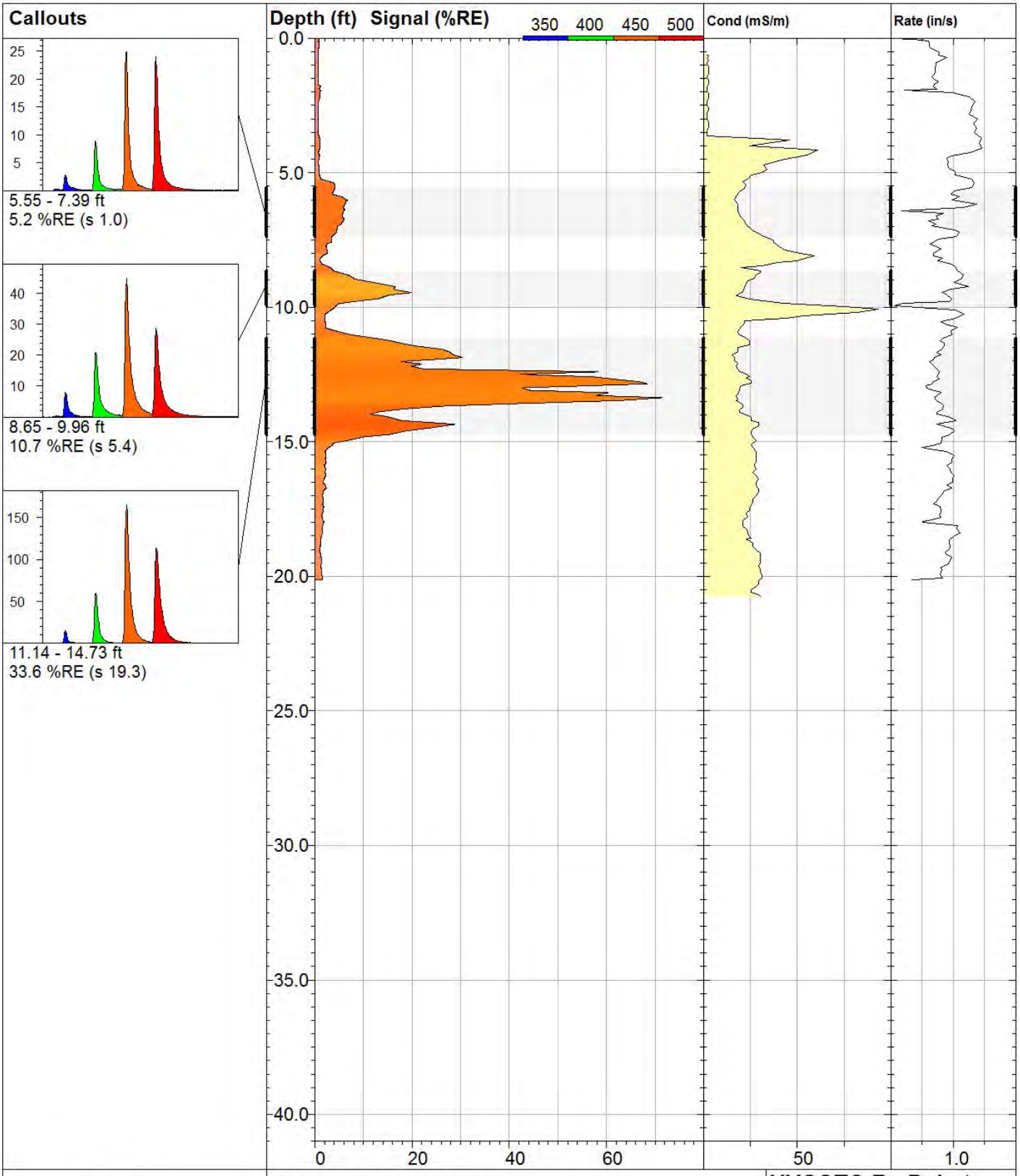
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.38 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.0 %RE @ 8.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 14:20 CDT**



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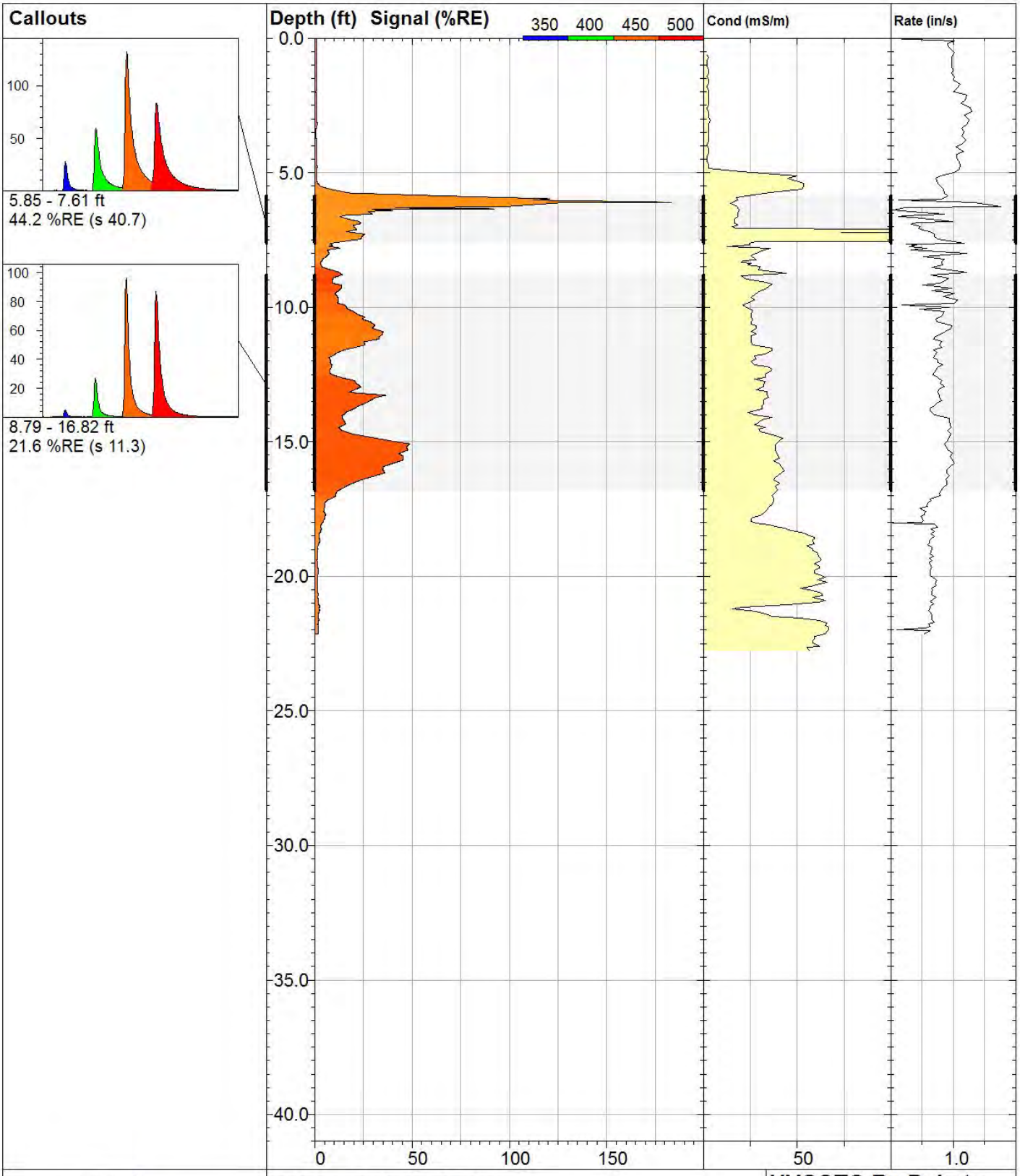
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.5 %RE @ 13.36 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 09:13 CDT**



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LIF-A0475SW63

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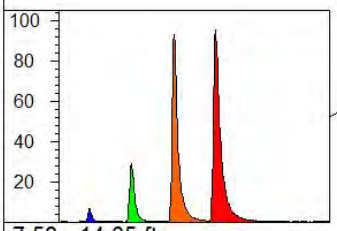
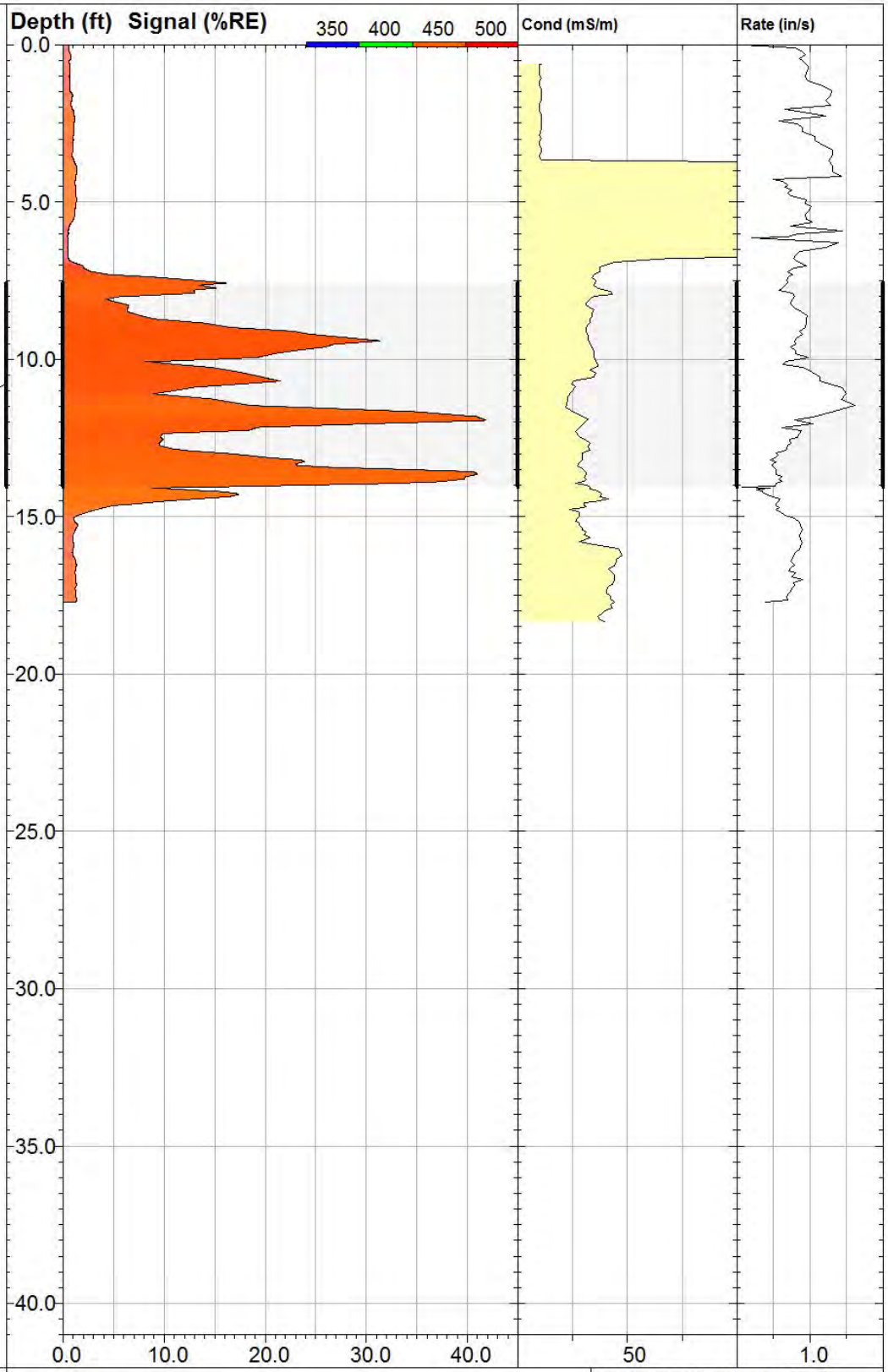
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **186.8 %RE @ 6.11 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 09:50 CDT**

Callouts



7.58 - 14.05 ft
19.5 %RE (s 10.4)



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LIF-A0500

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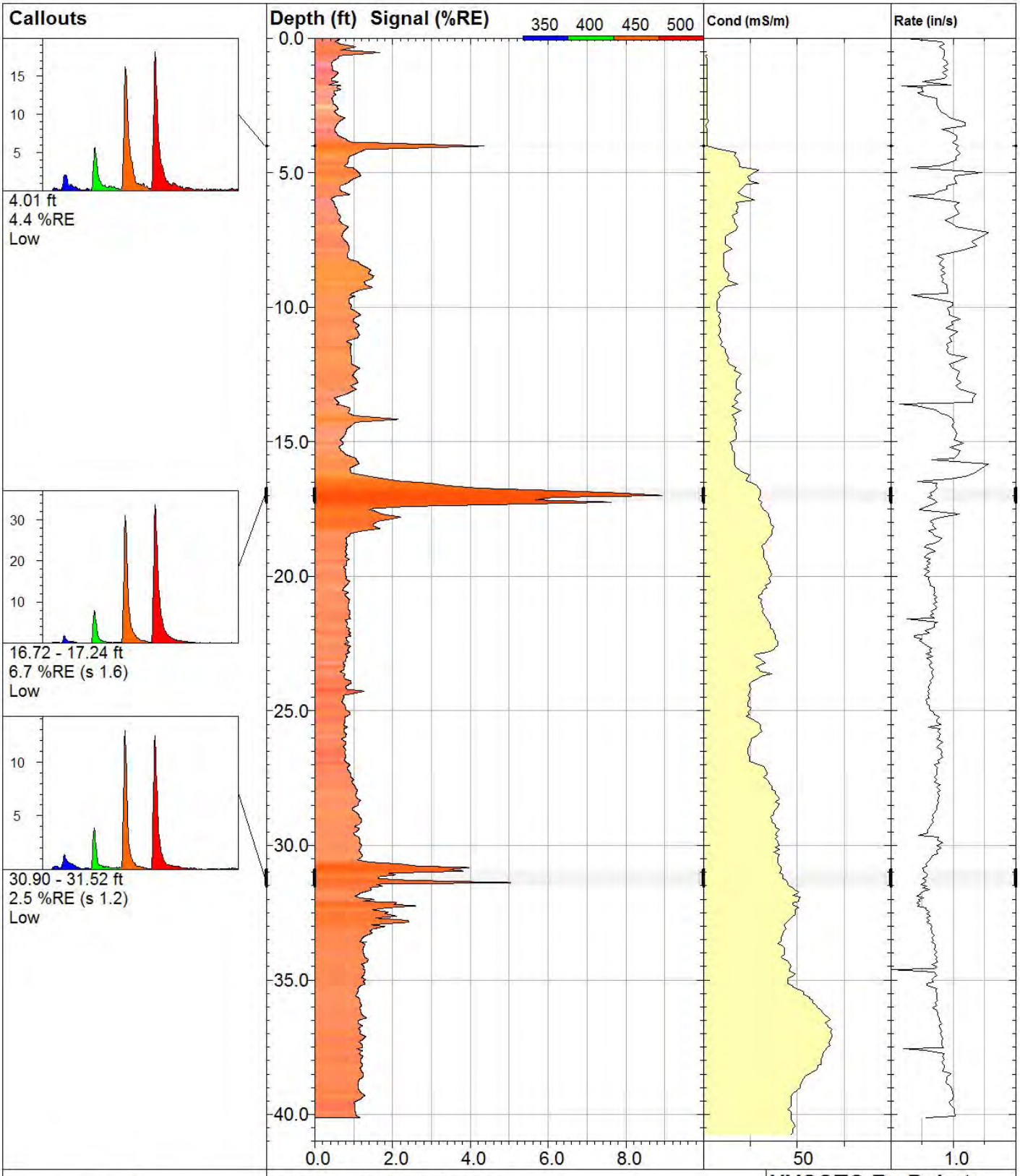
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.70 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.9 %RE @ 11.94 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 13:48 CDT**



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LIF-A0600SW10

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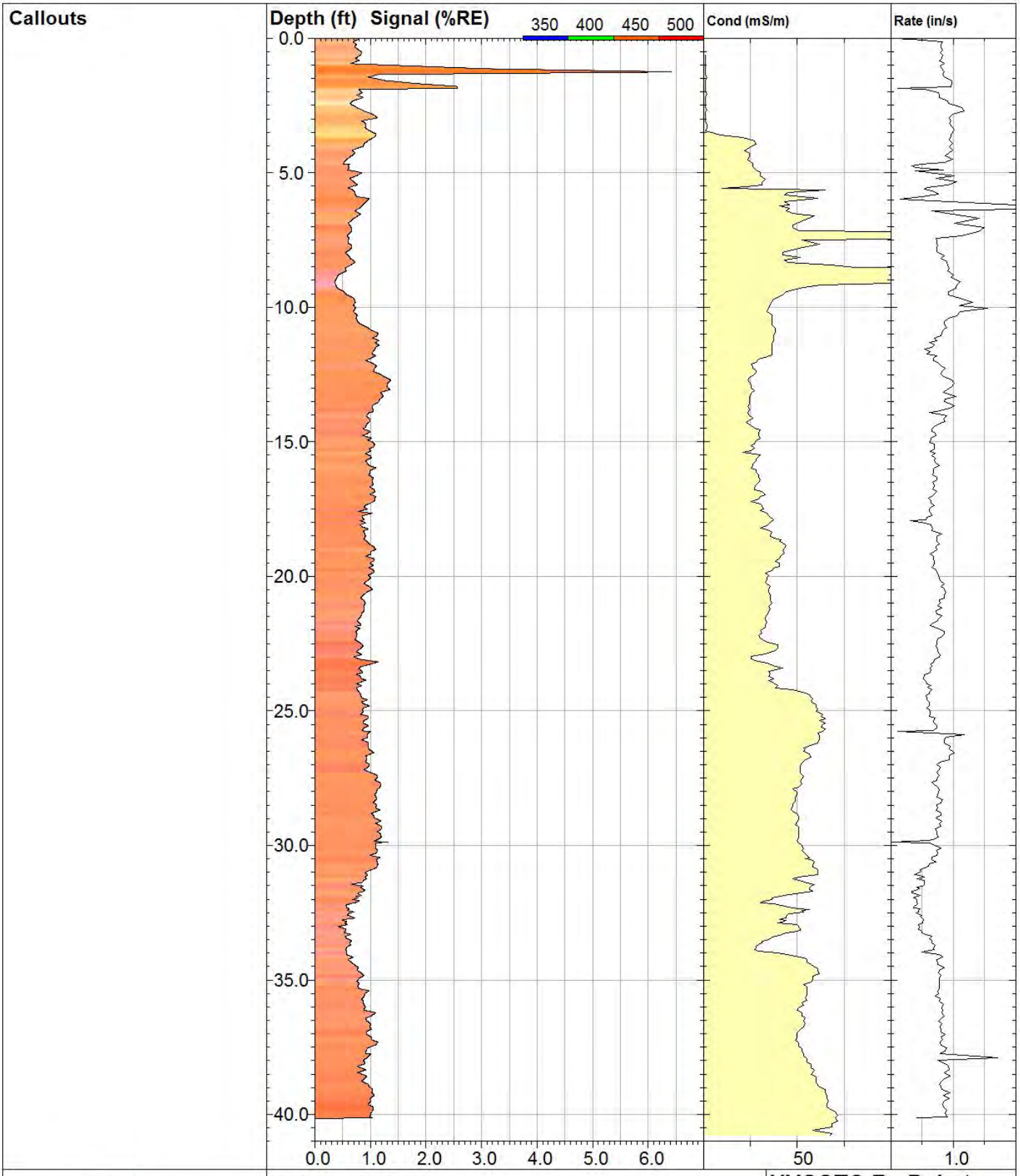
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.0 %RE @ 17.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 08:22 CDT**



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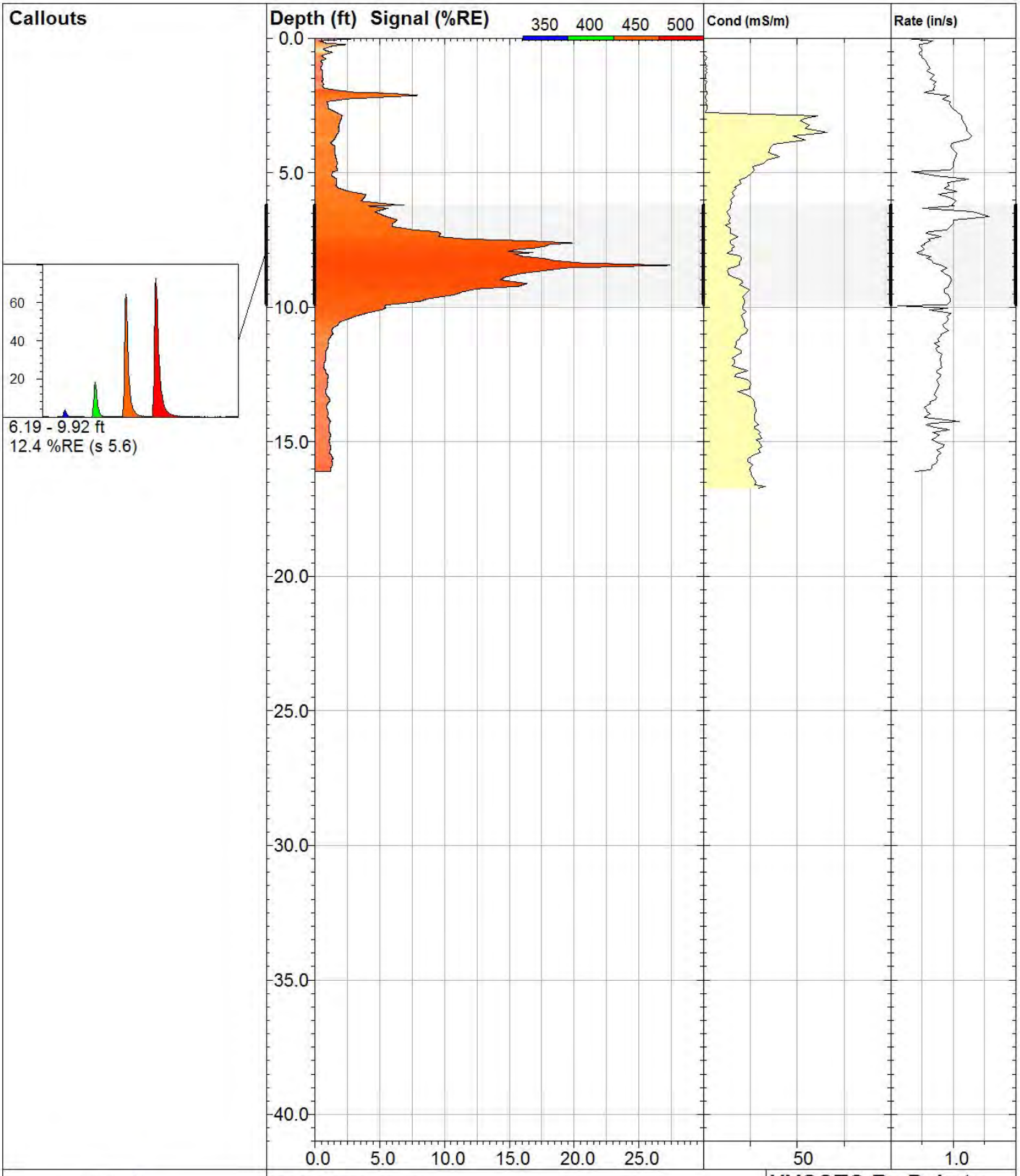
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.14 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.5 %RE @ 1.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-17 07:37 CDT**



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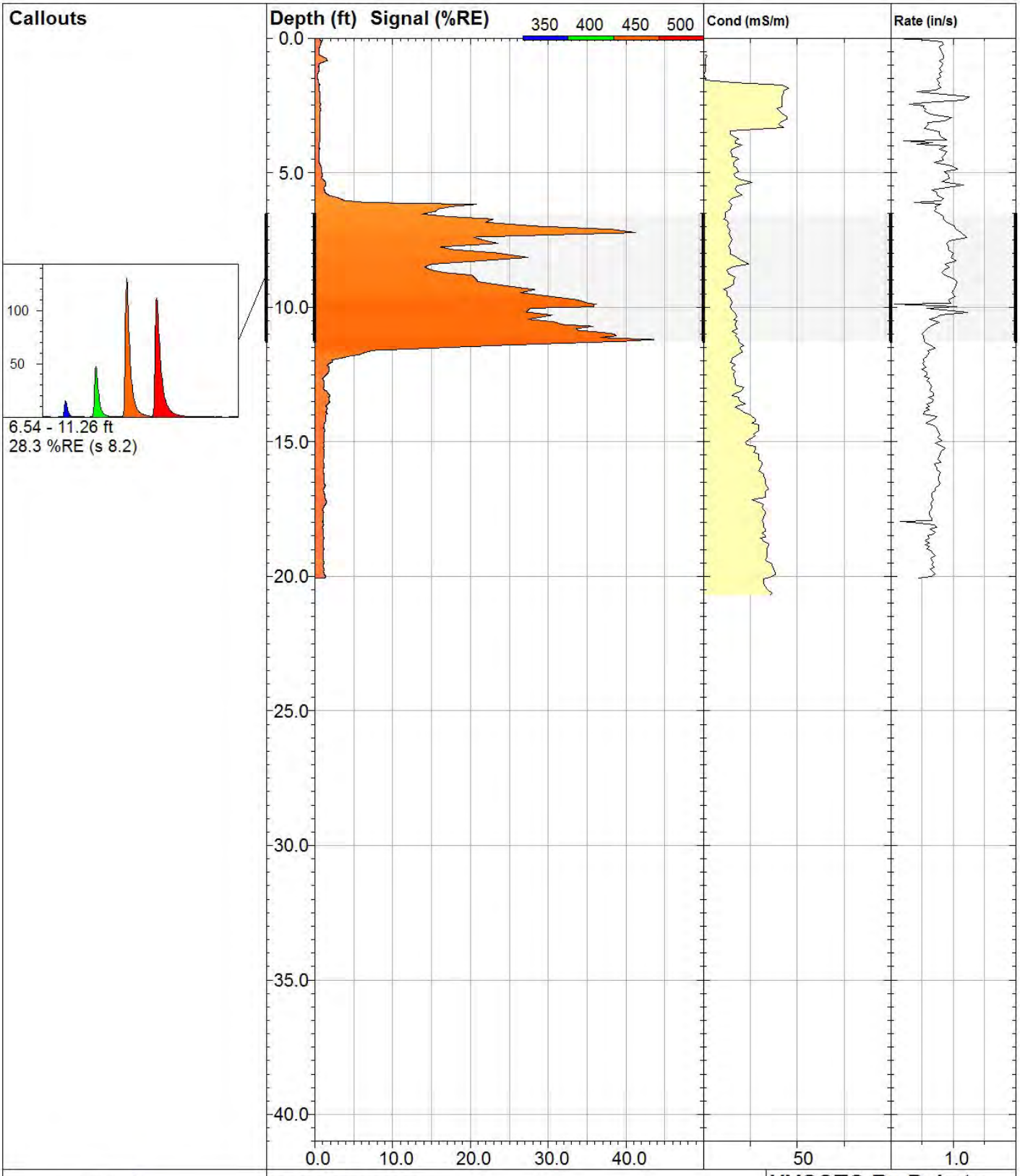
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **27.4 %RE @ 8.44 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 08:18 CDT**



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LIF-B0140

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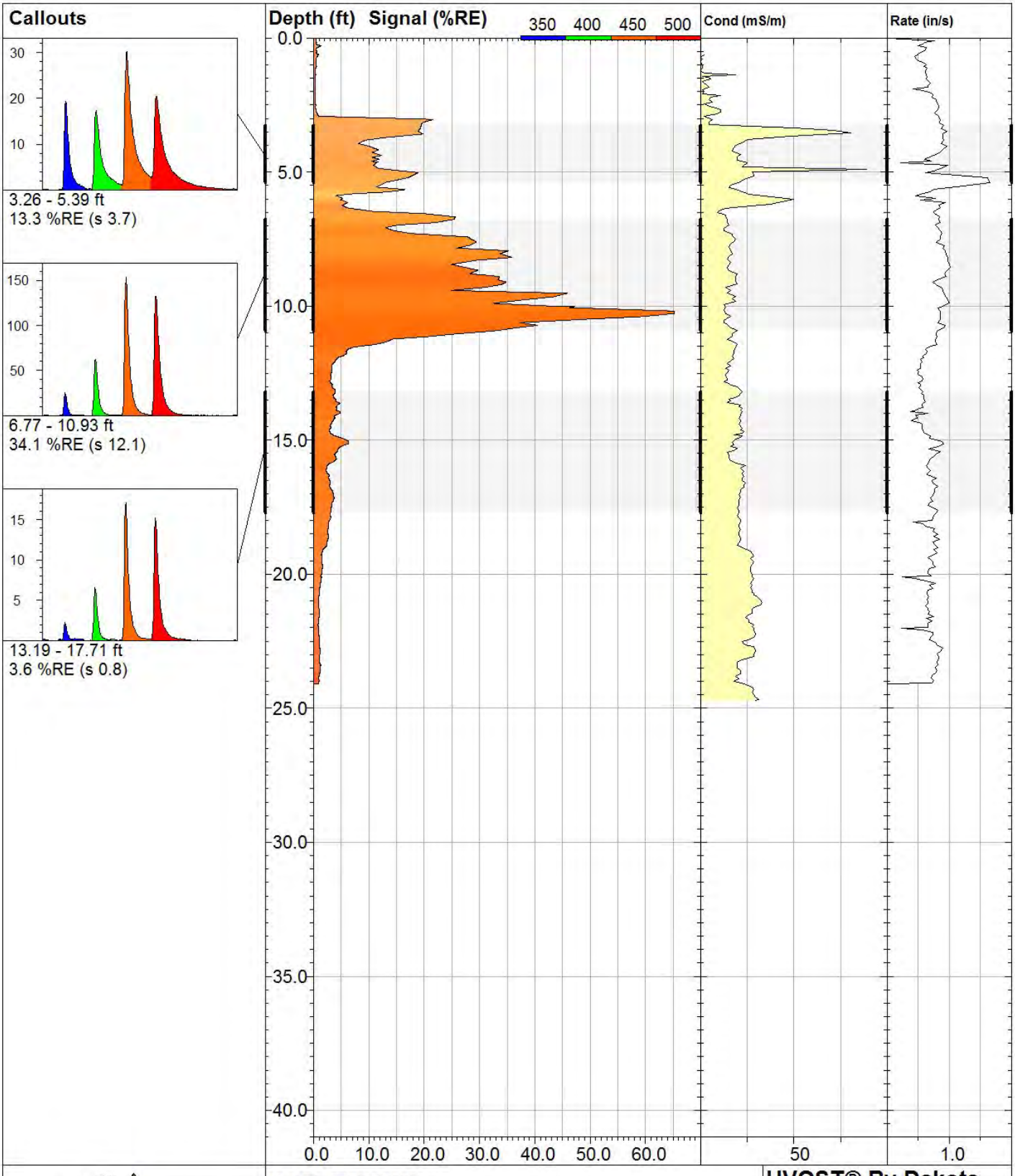
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **43.6 %RE @ 11.20 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 10:20 CDT**



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LIF-B0182

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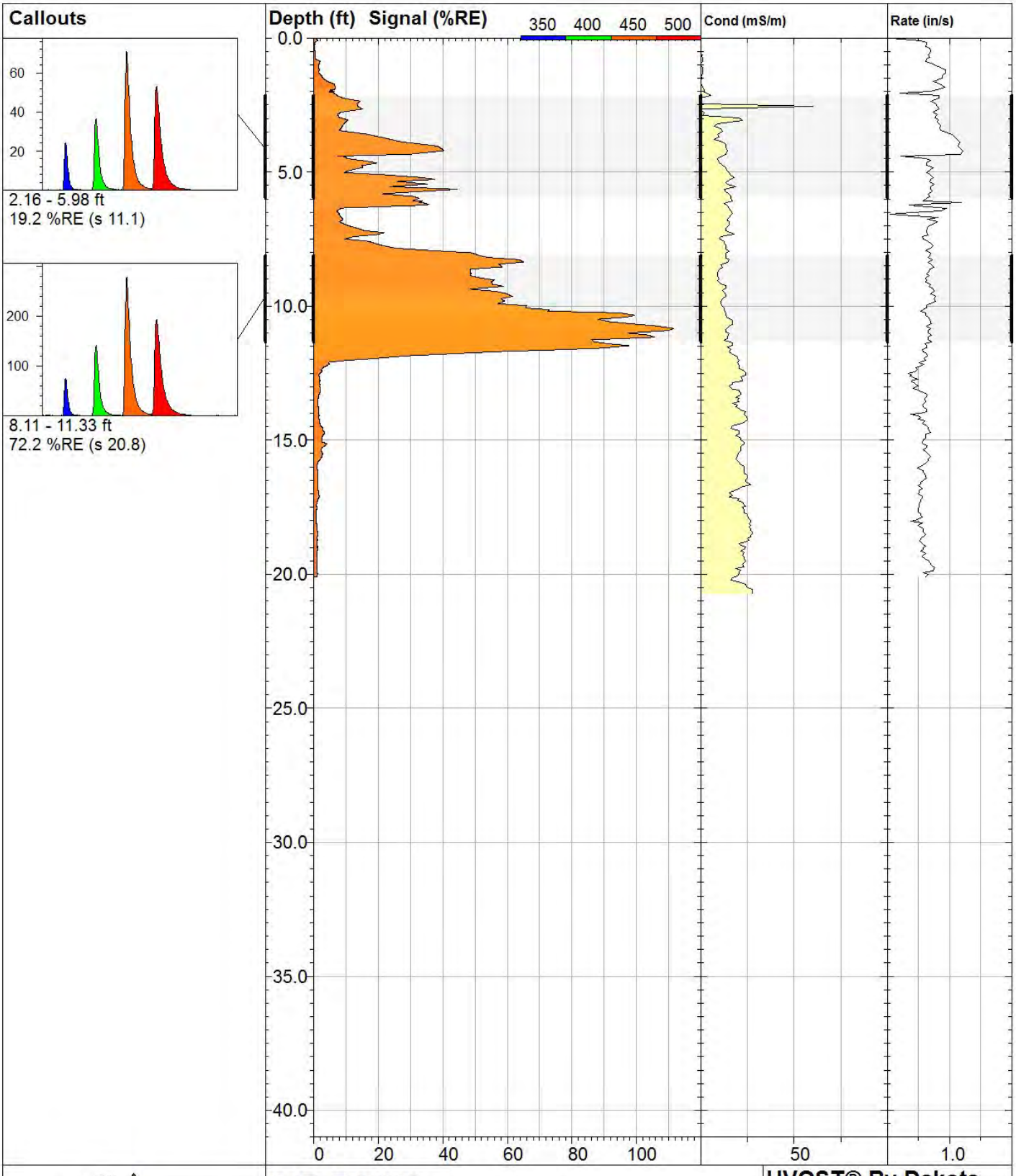
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **65.3 %RE @ 10.19 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 09:17 CDT**



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LIF-B0235

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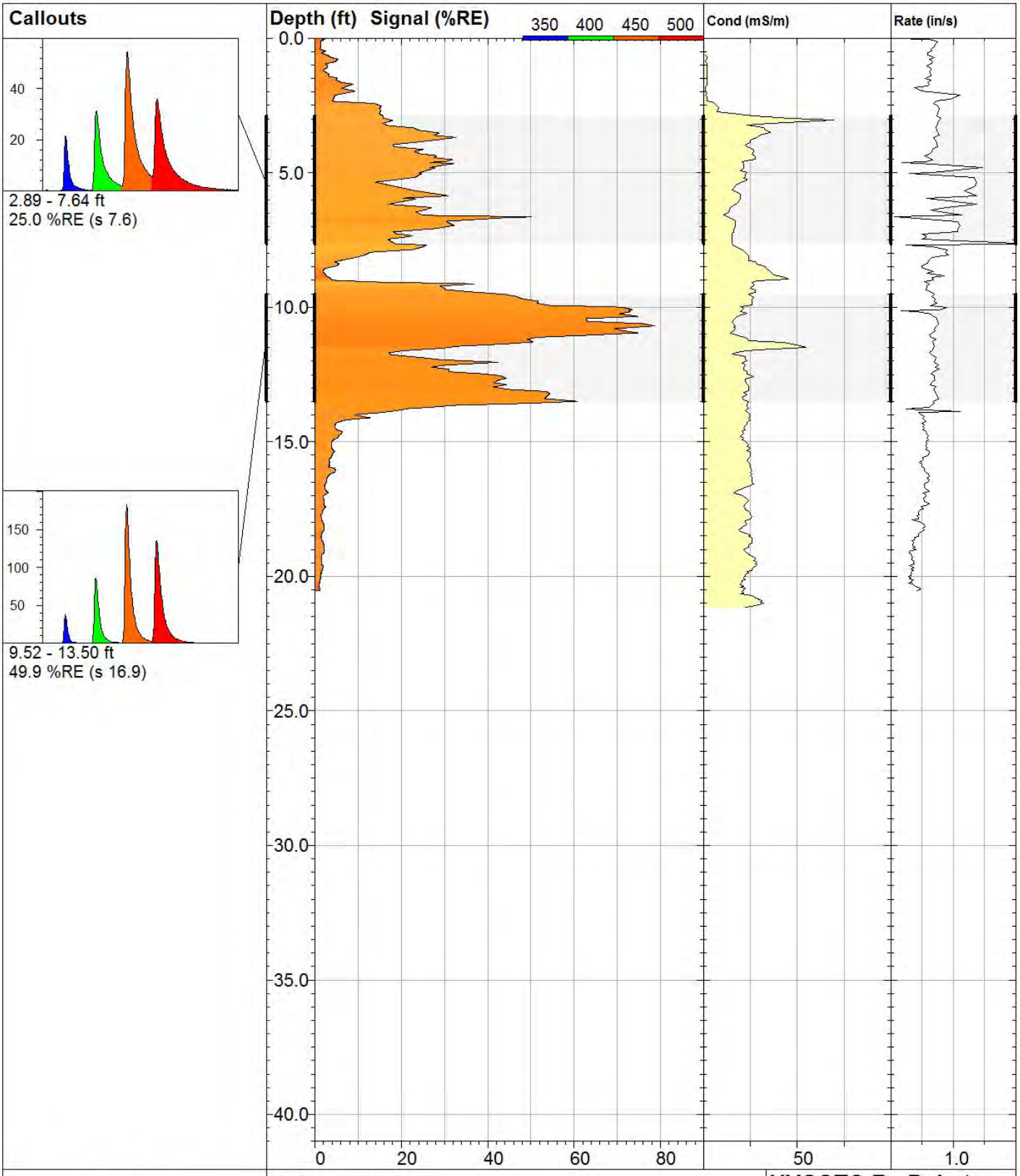
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **111.6 %RE @ 10.84 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 08:29 CDT**



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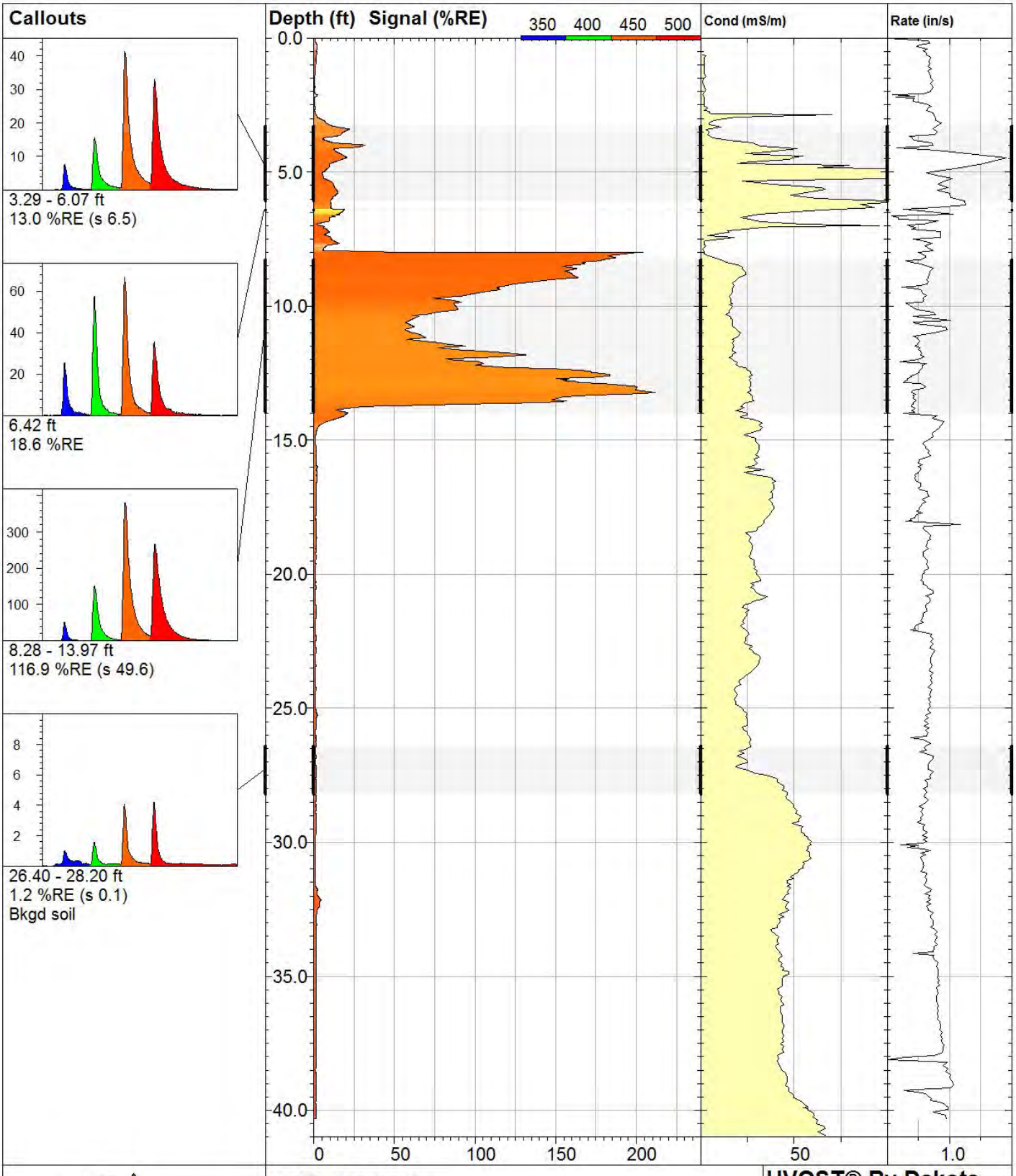
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.54 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **78.6 %RE @ 10.70 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 14:41 CDT**



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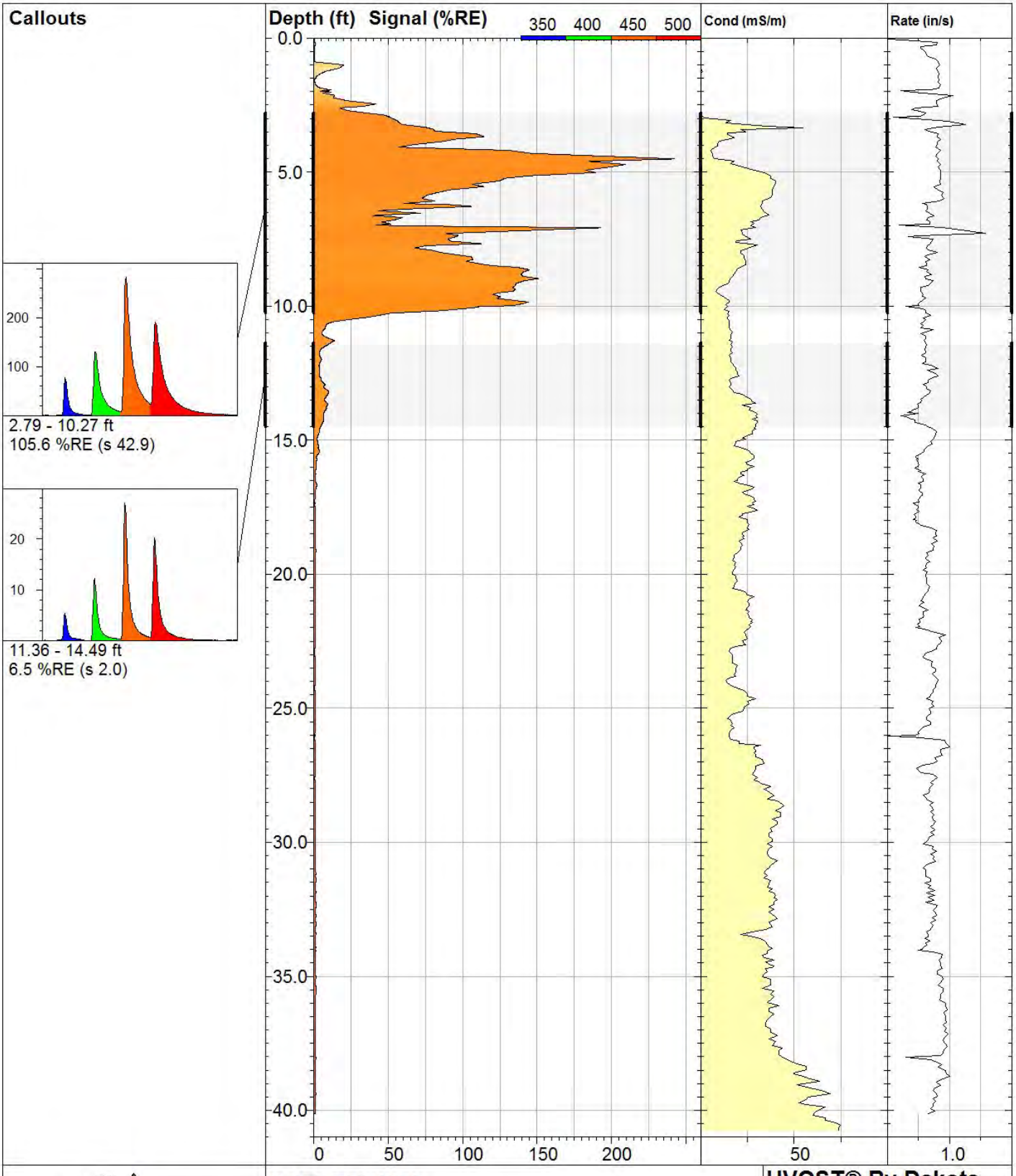
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.31 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **211.6 %RE @ 13.23 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-09 14:51 CDT**



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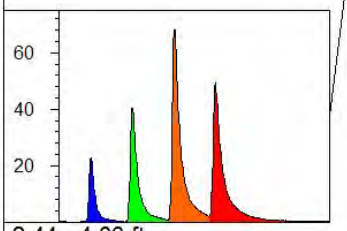
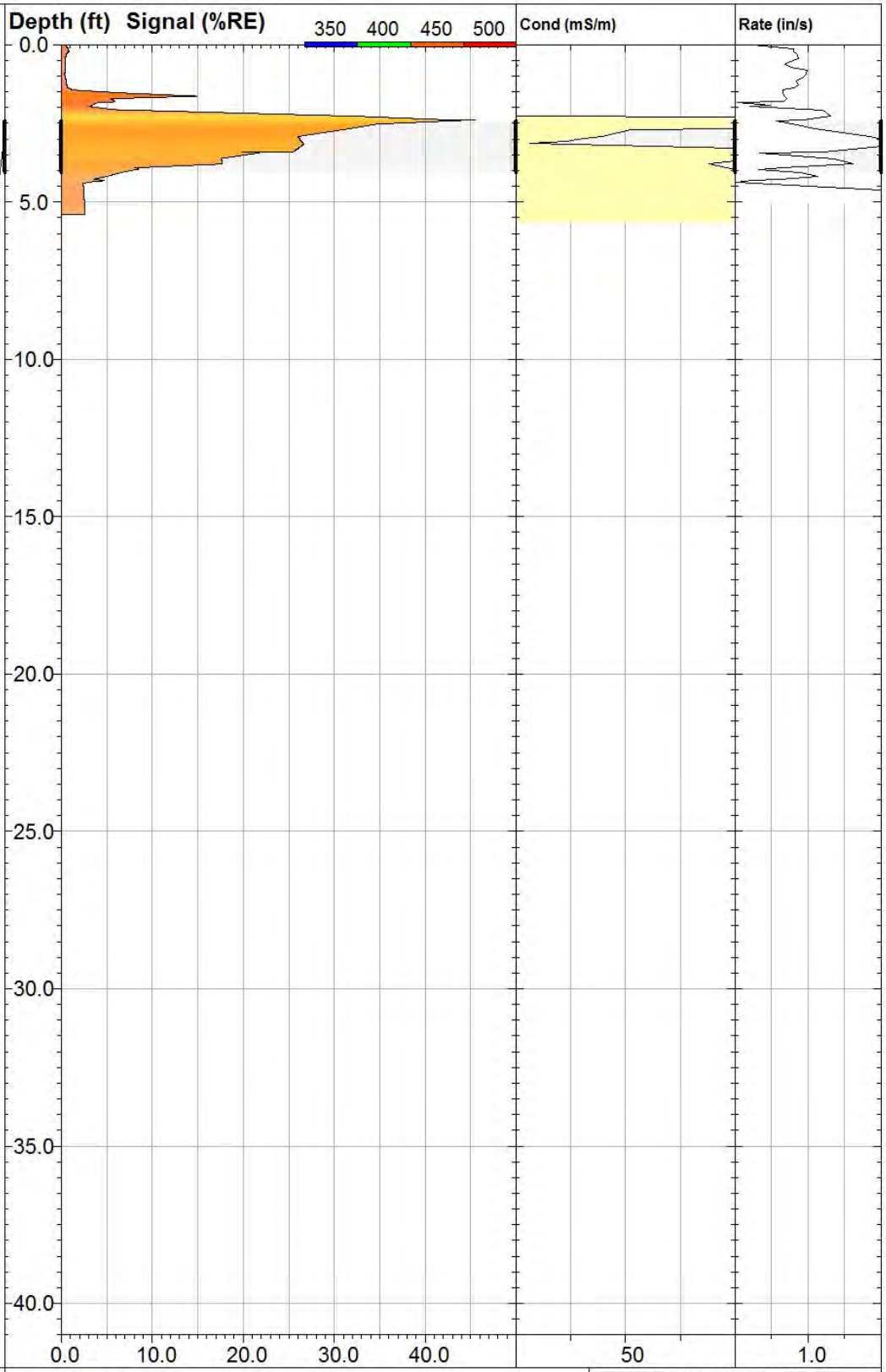
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **40.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **243.1 %RE @ 4.51 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 08:32 CDT**

Callouts



2.44 - 4.06 ft
20.2 %RE (s 11.0)



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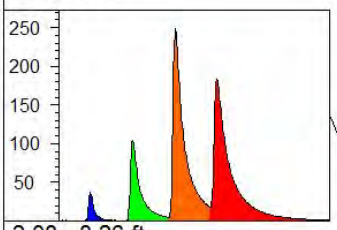
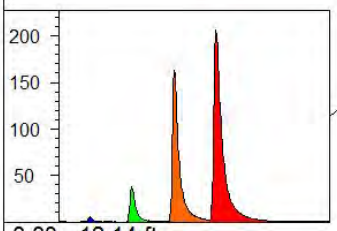
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **5.40 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **45.6 %RE @ 2.39 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 08:00 CDT**

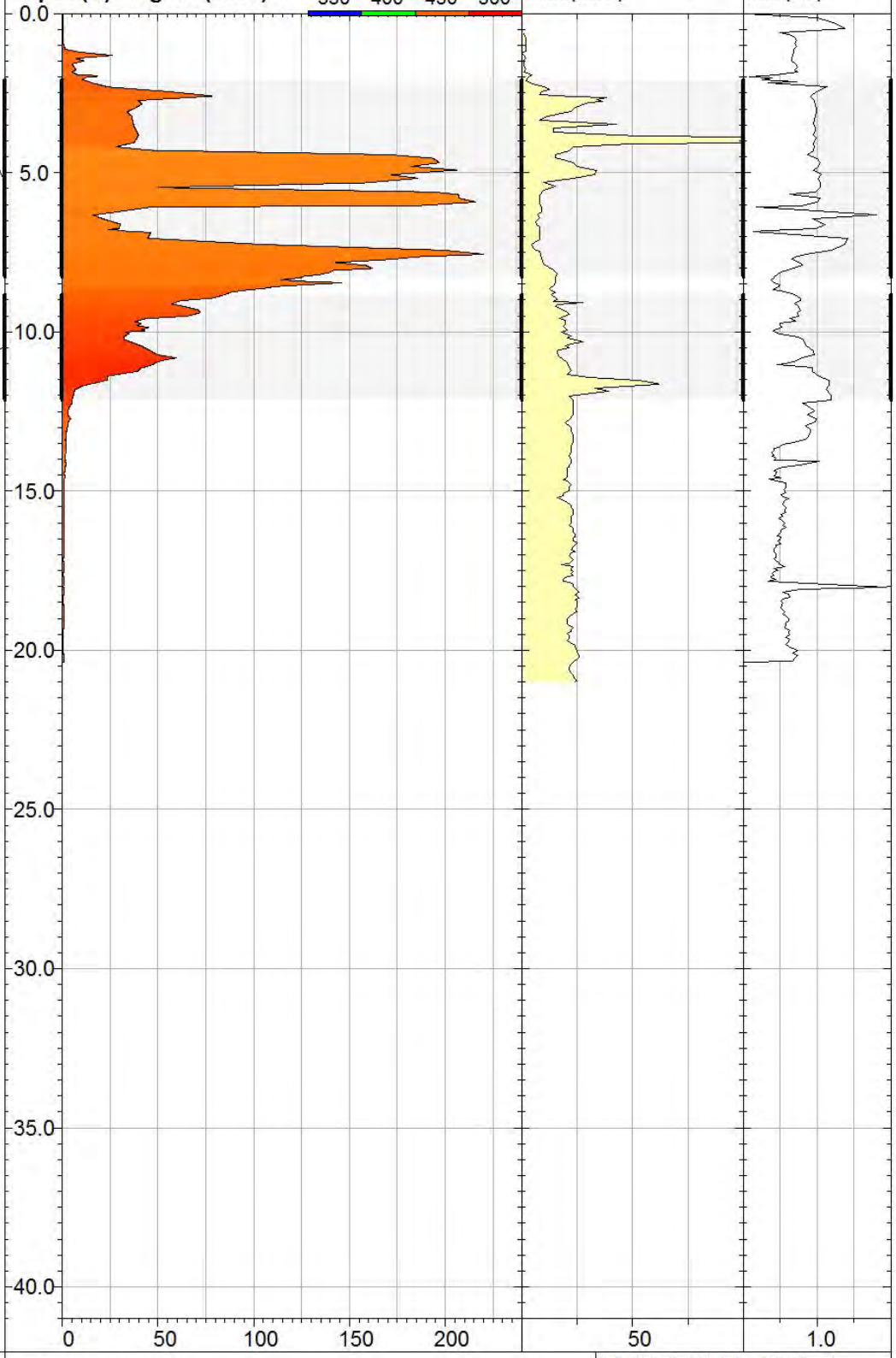
Callouts



2.08 - 8.26 ft
95.3 %RE (s 72.5)



8.83 - 12.14 ft
43.2 %RE (s 19.3)



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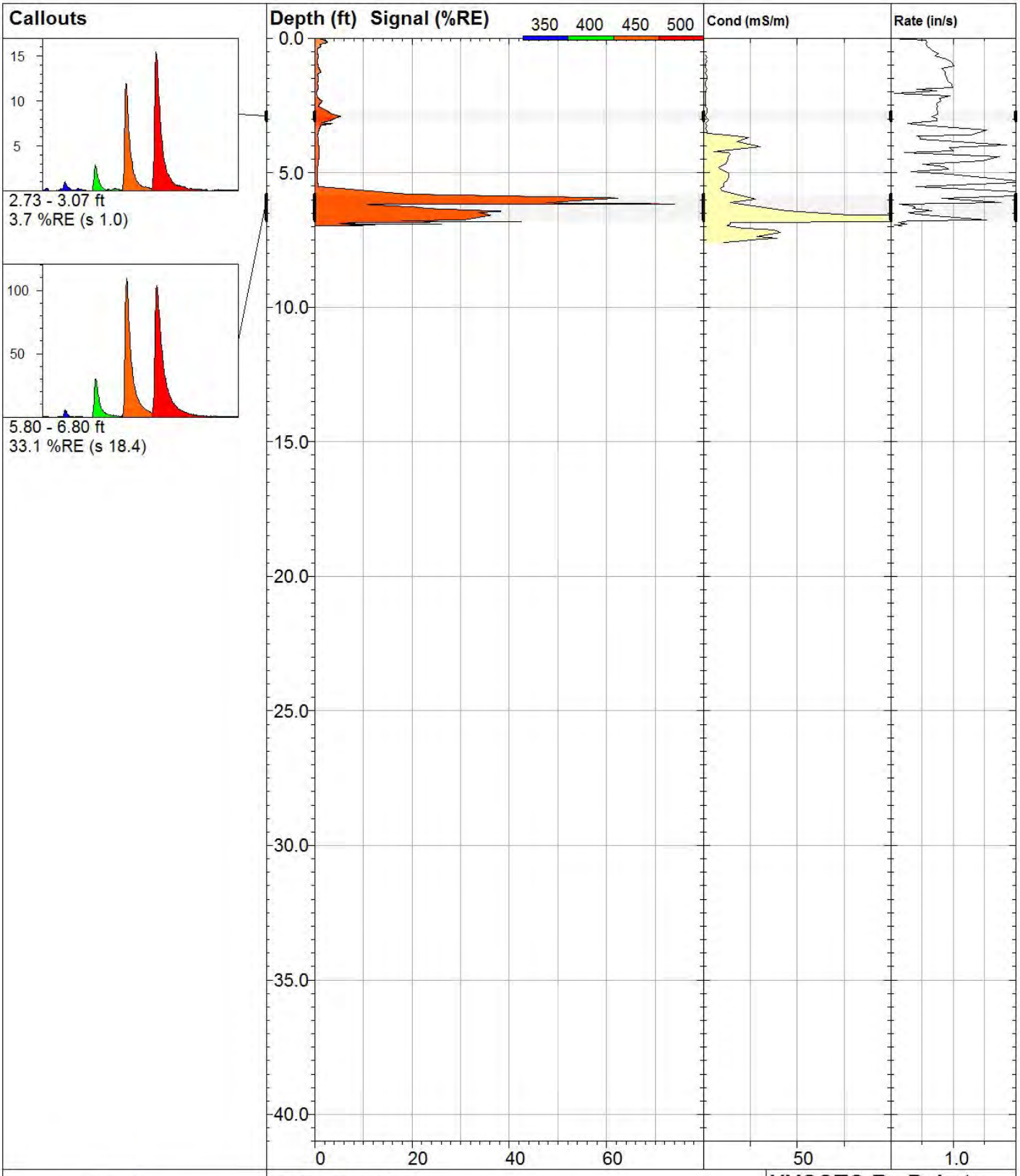
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.38 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **220.4 %RE @ 7.57 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 10:27 CDT**



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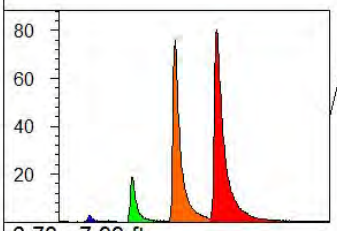
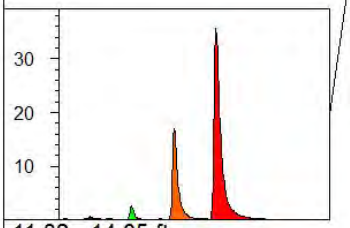
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **74.8 %RE @ 6.16 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 11:02 CDT**

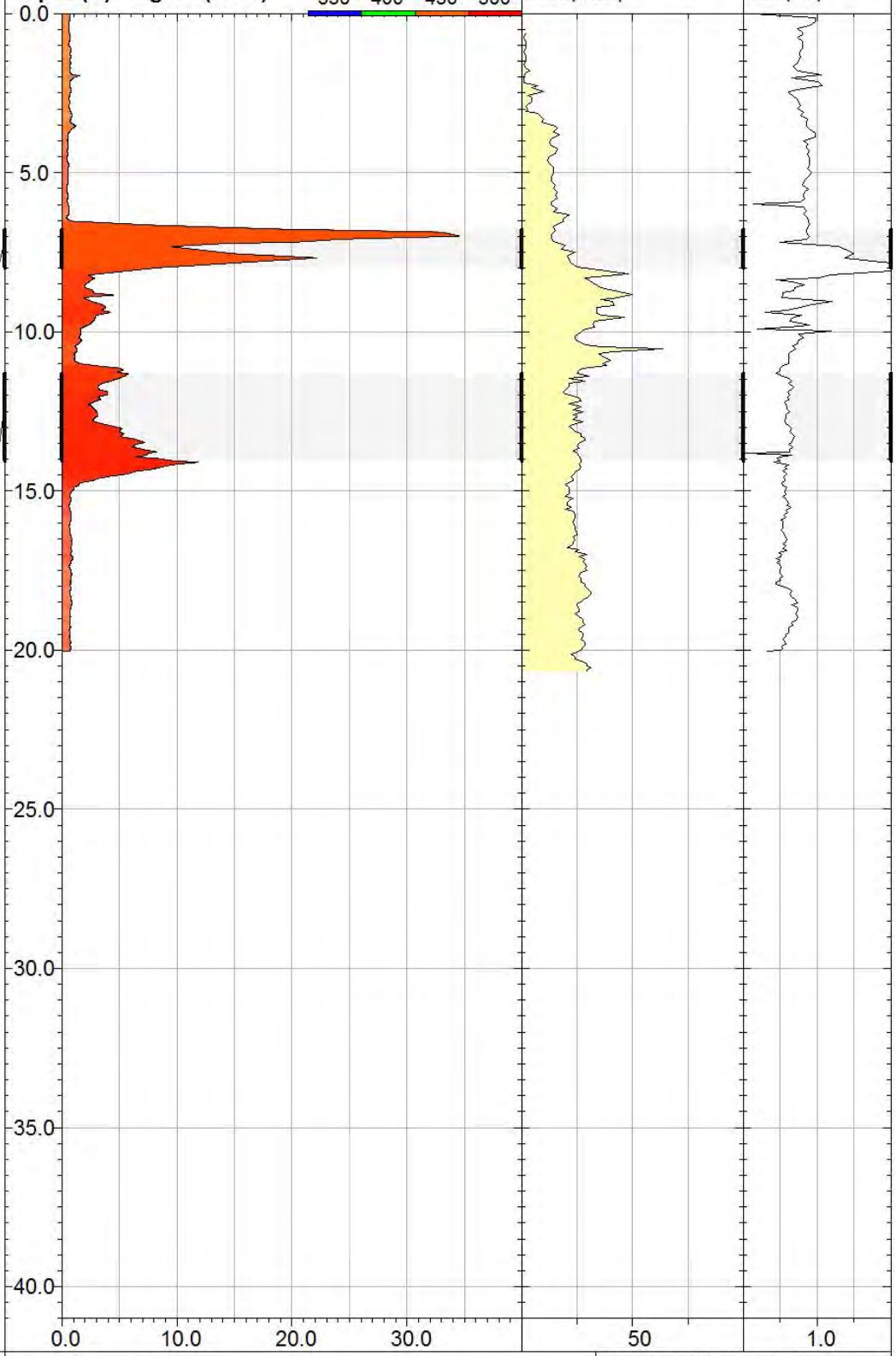
Callouts



6.78 - 7.99 ft
20.0 %RE (s 8.9)



11.32 - 14.05 ft
4.8 %RE (s 1.9)



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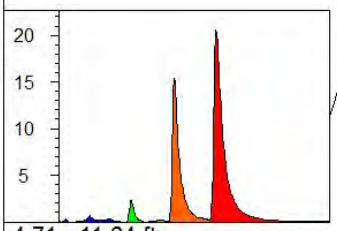
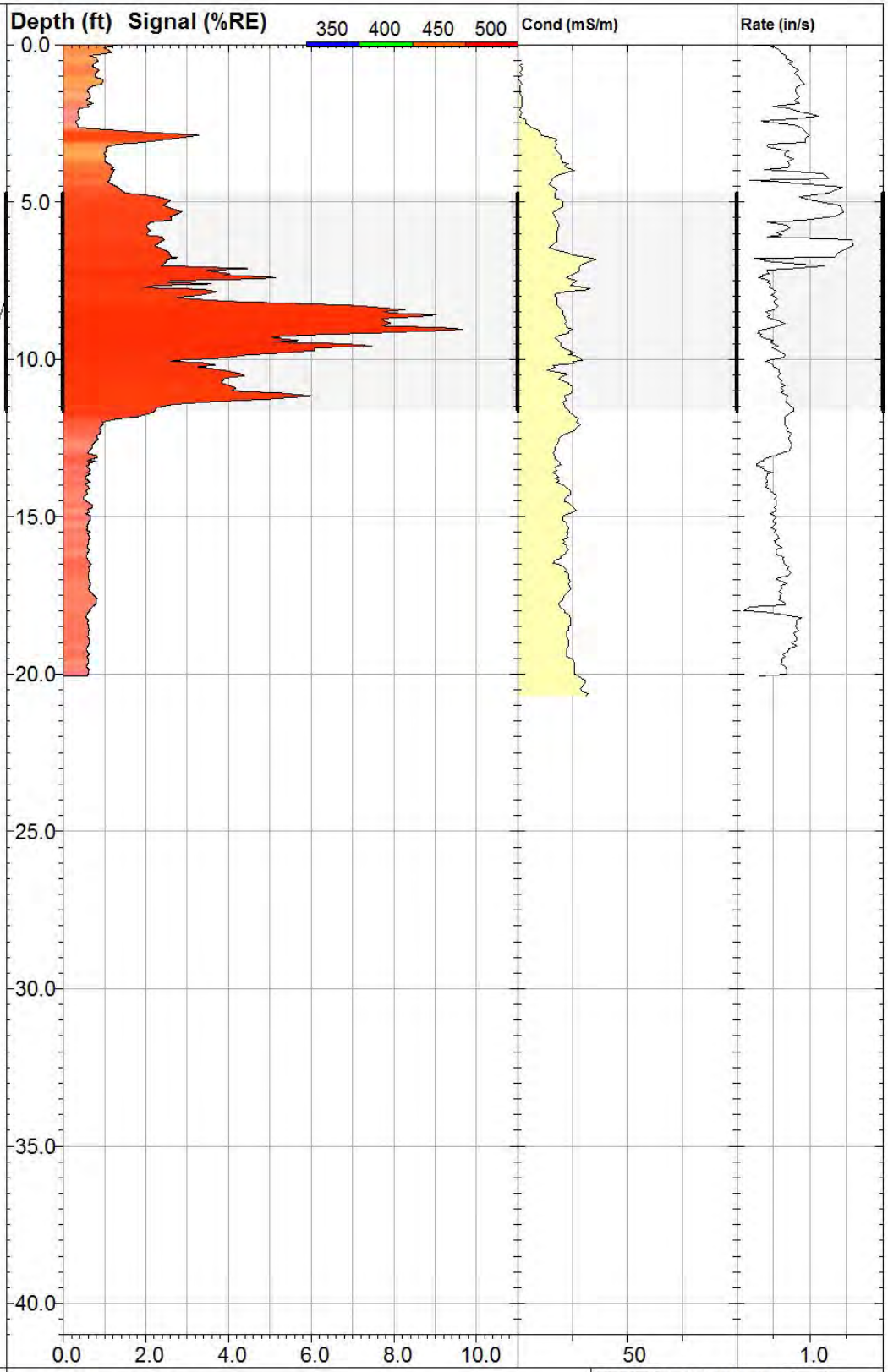
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.04 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **34.6 %RE @ 7.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 11:20 CDT**

Callouts



4.71 - 11.64 ft
4.3 %RE (s 2.1)



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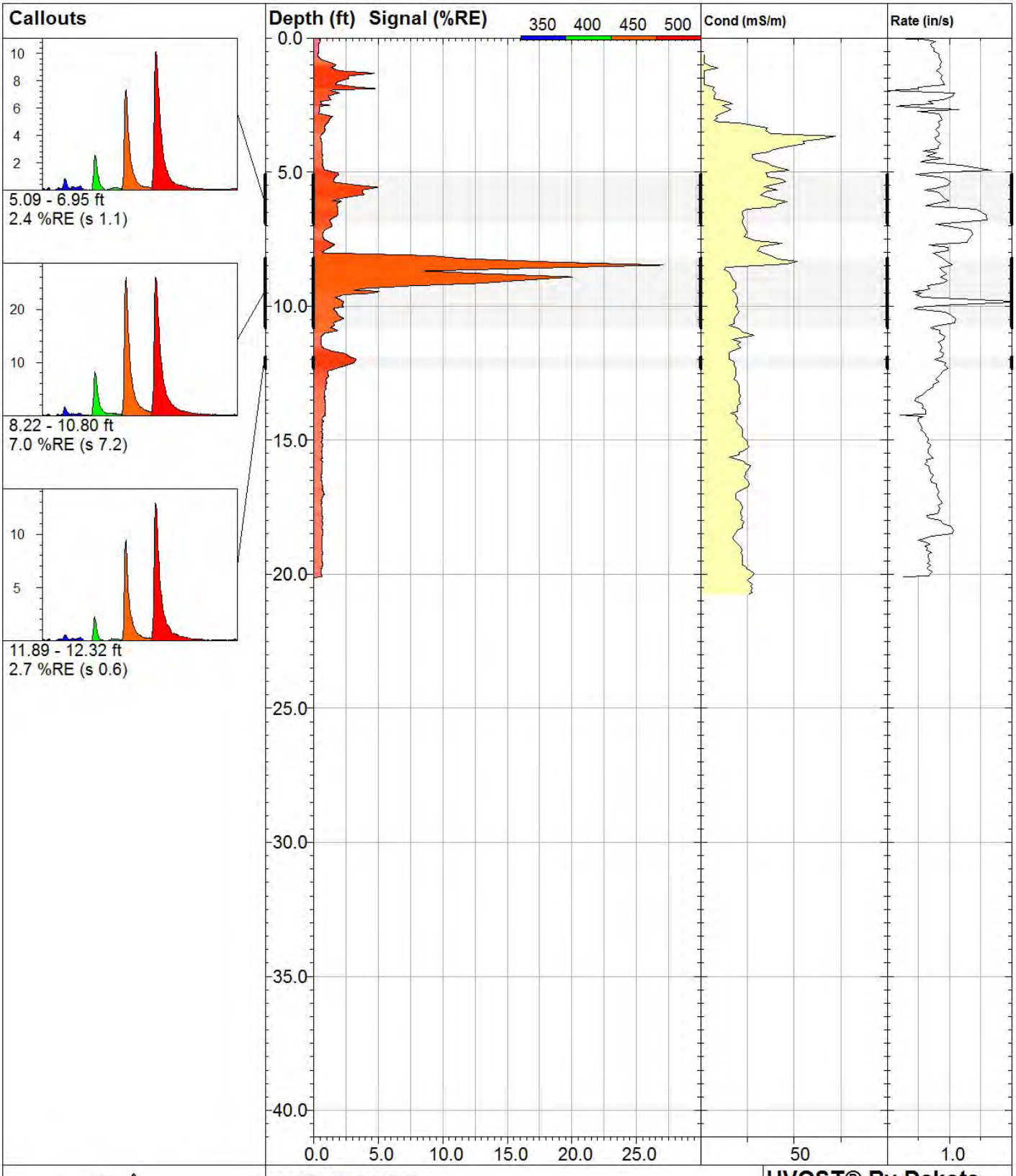
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.7 %RE @ 9.05 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 12:07 CDT**



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LIF-B0877

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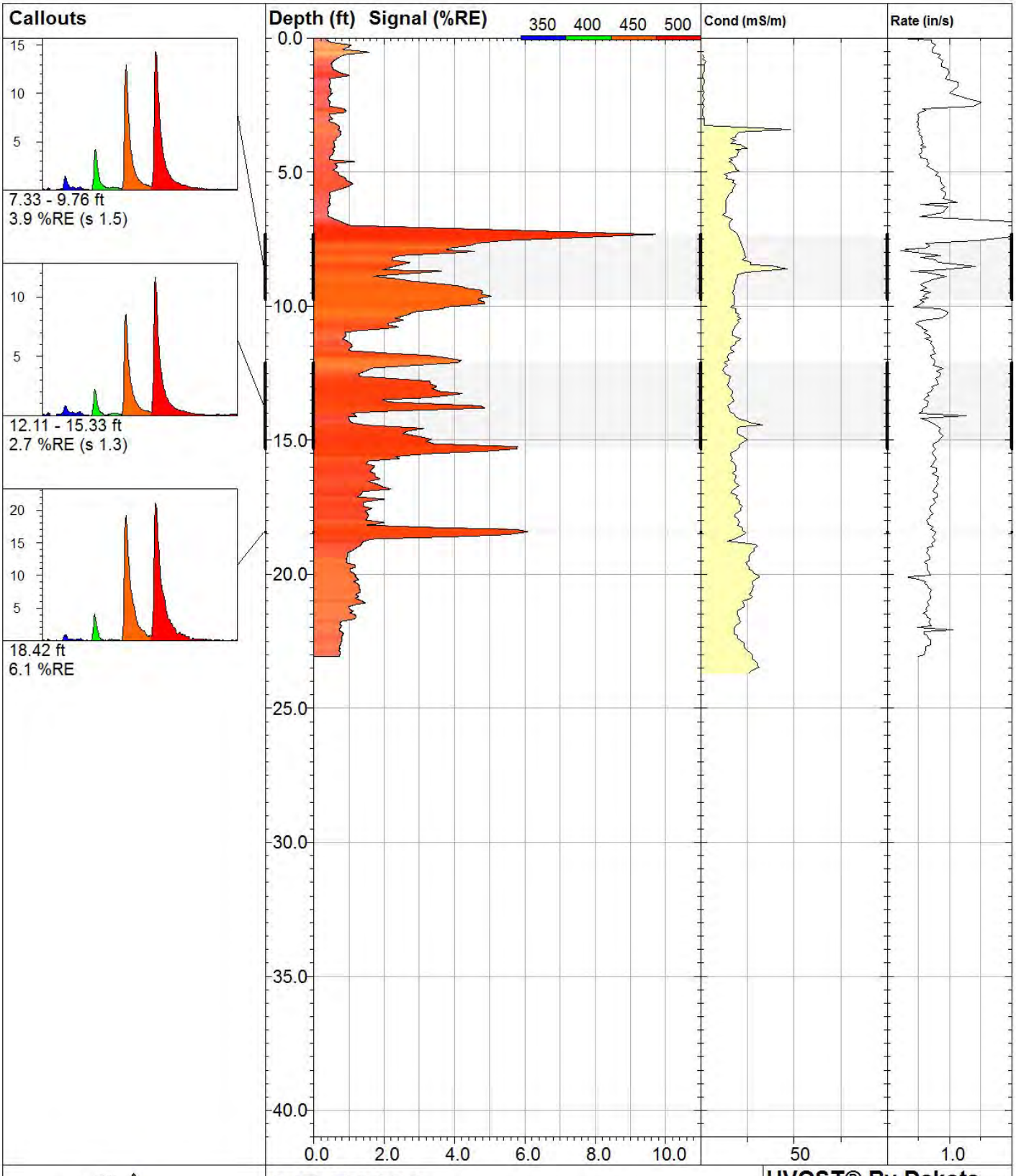
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **27.2 %RE @ 8.47 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 13:14 CDT**



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LIF-B0910

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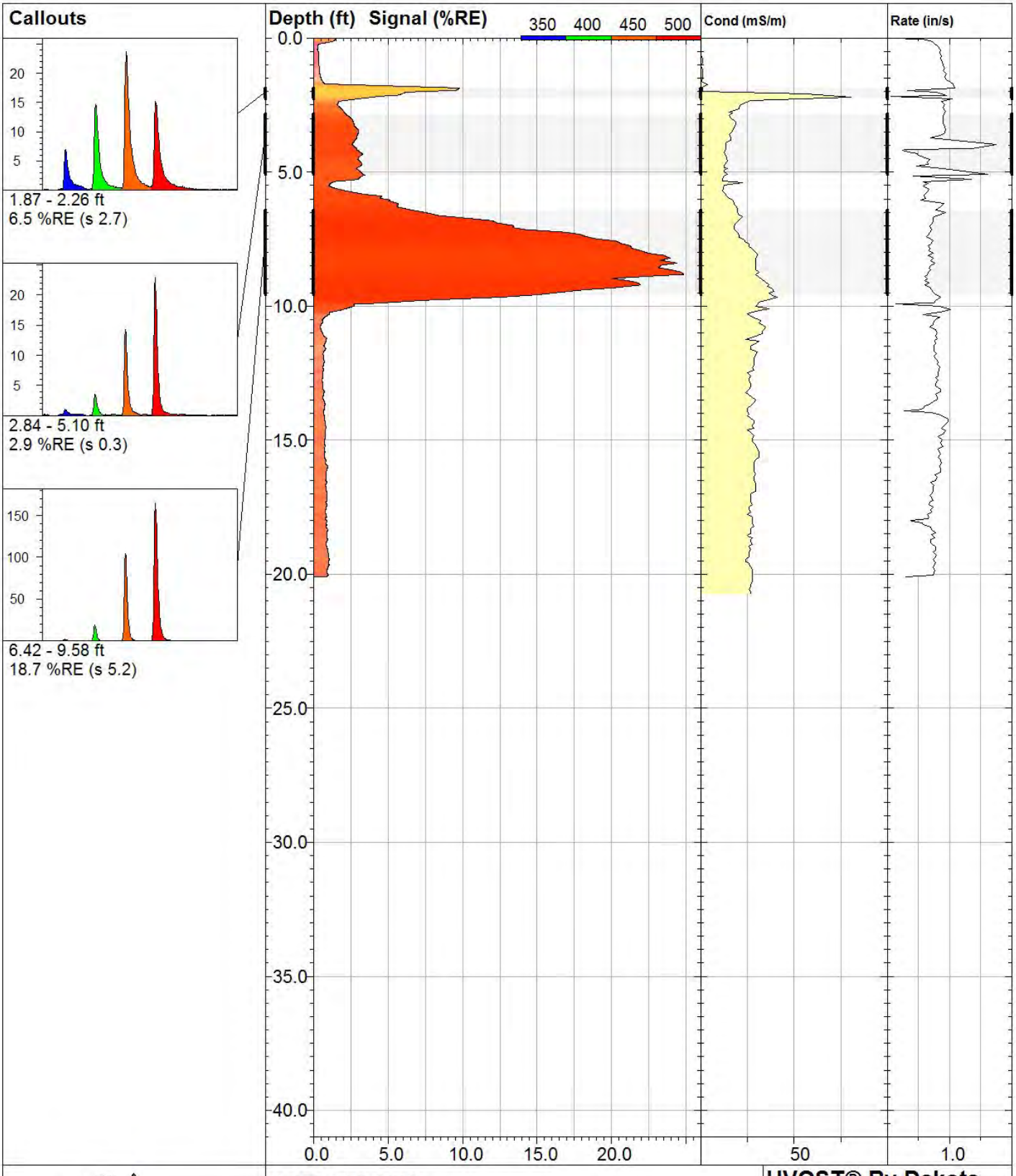
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.7 %RE @ 7.33 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-10 14:04 CDT**



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LIF-C0100

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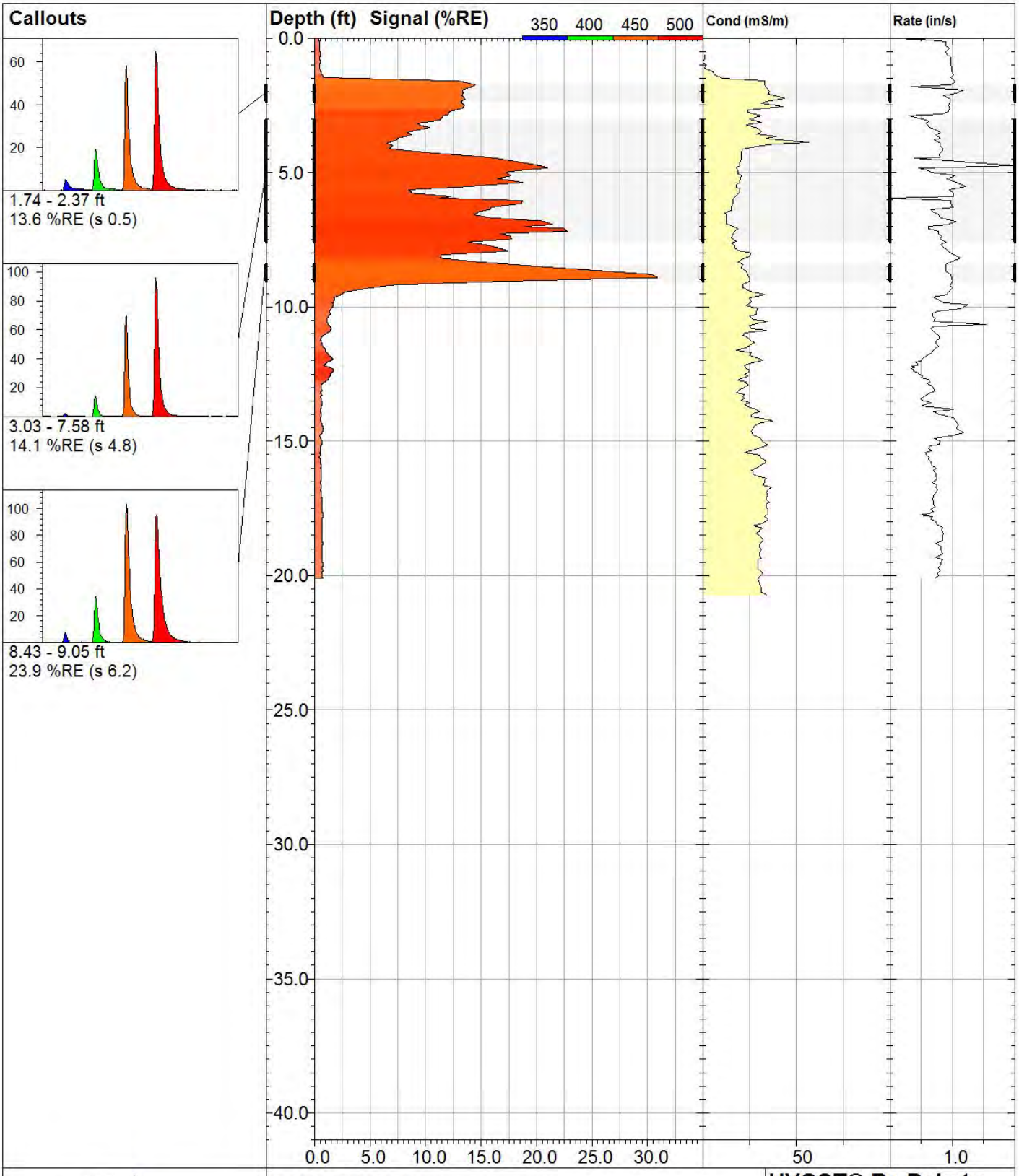
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.8 %RE @ 8.82 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 11:04 CDT**



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LIF-C0200

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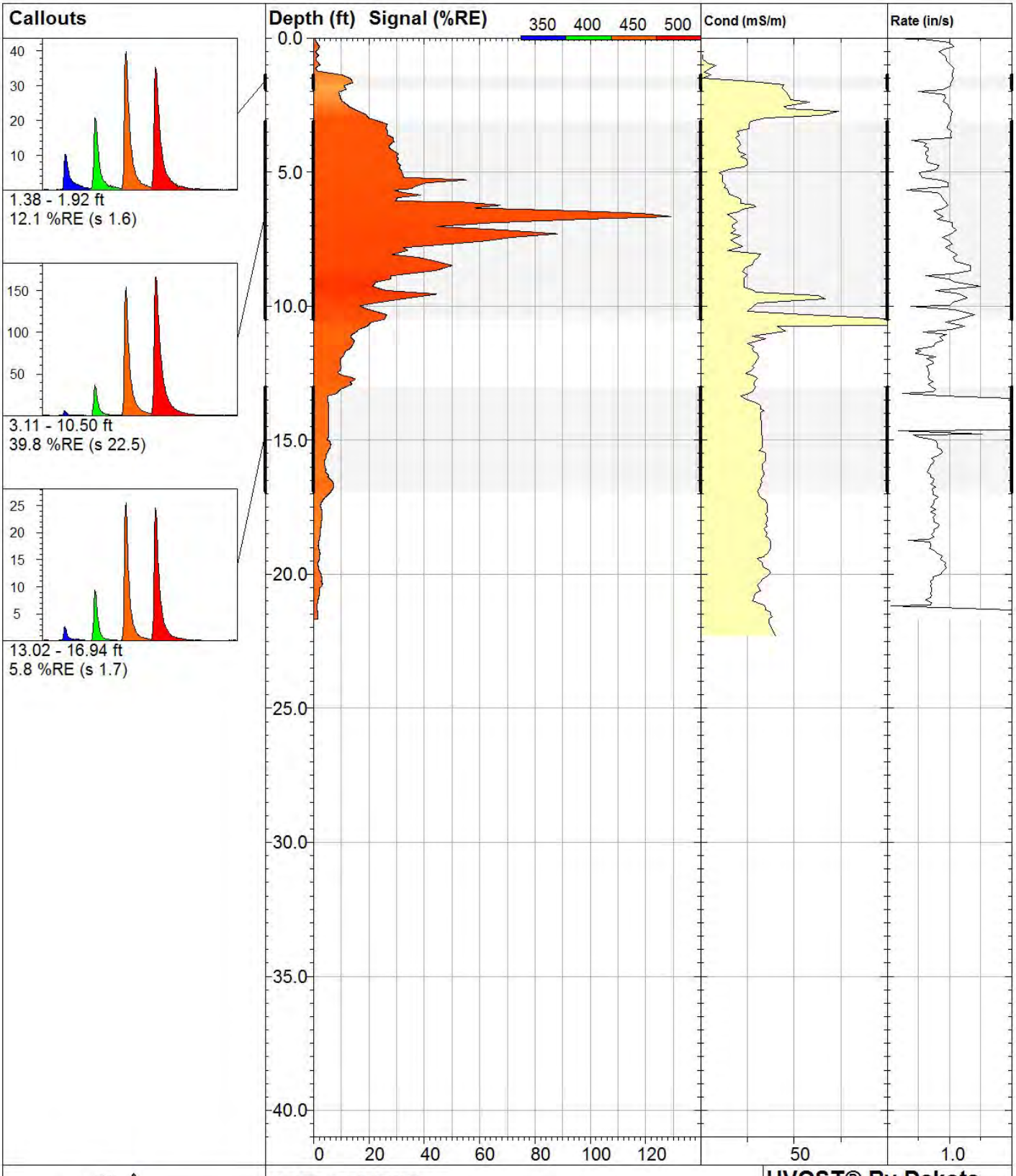
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **30.9 %RE @ 8.91 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 11:33 CDT**



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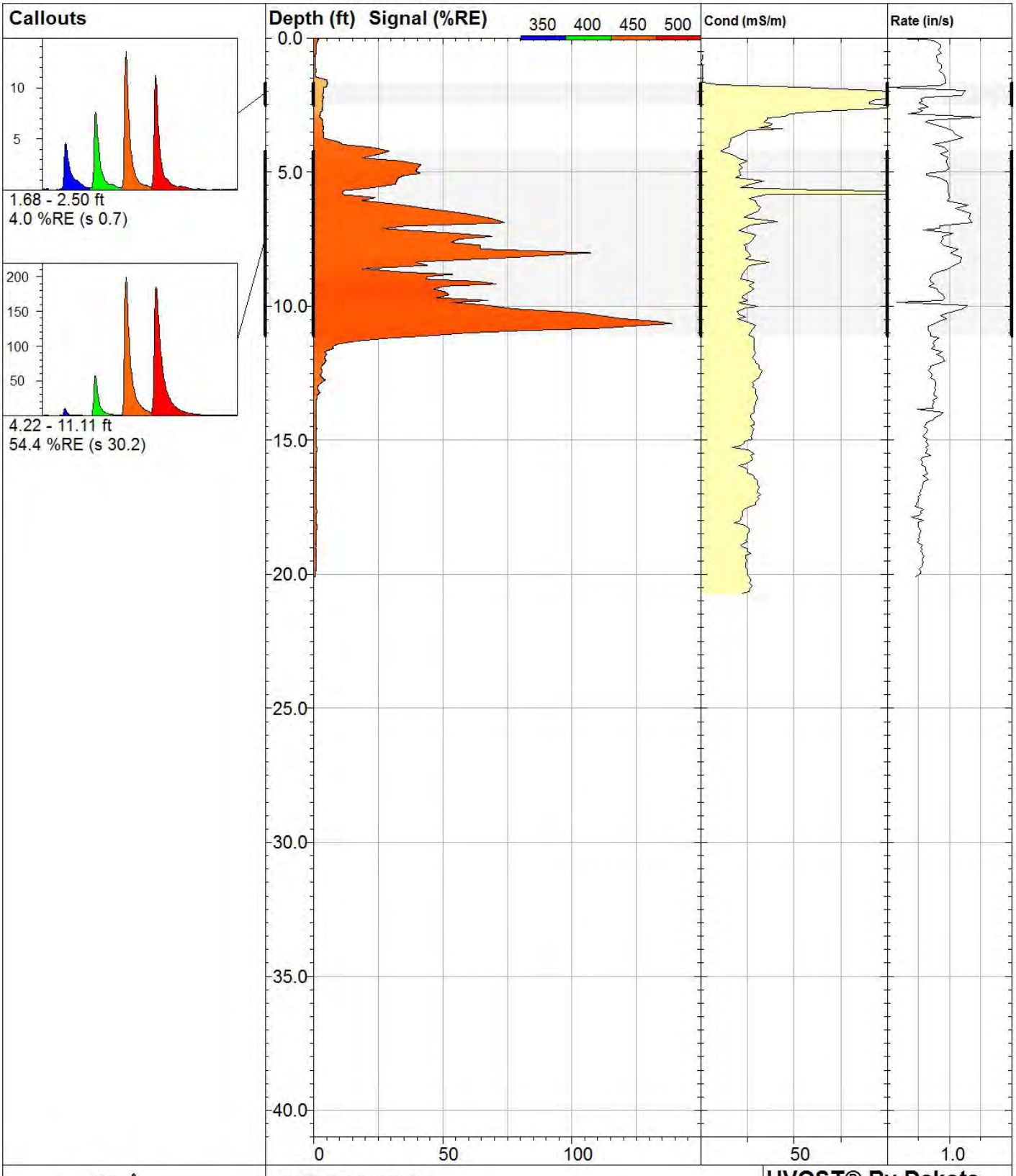
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.68 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **129.5 %RE @ 6.67 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 12:35 CDT**



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LIF-C0400

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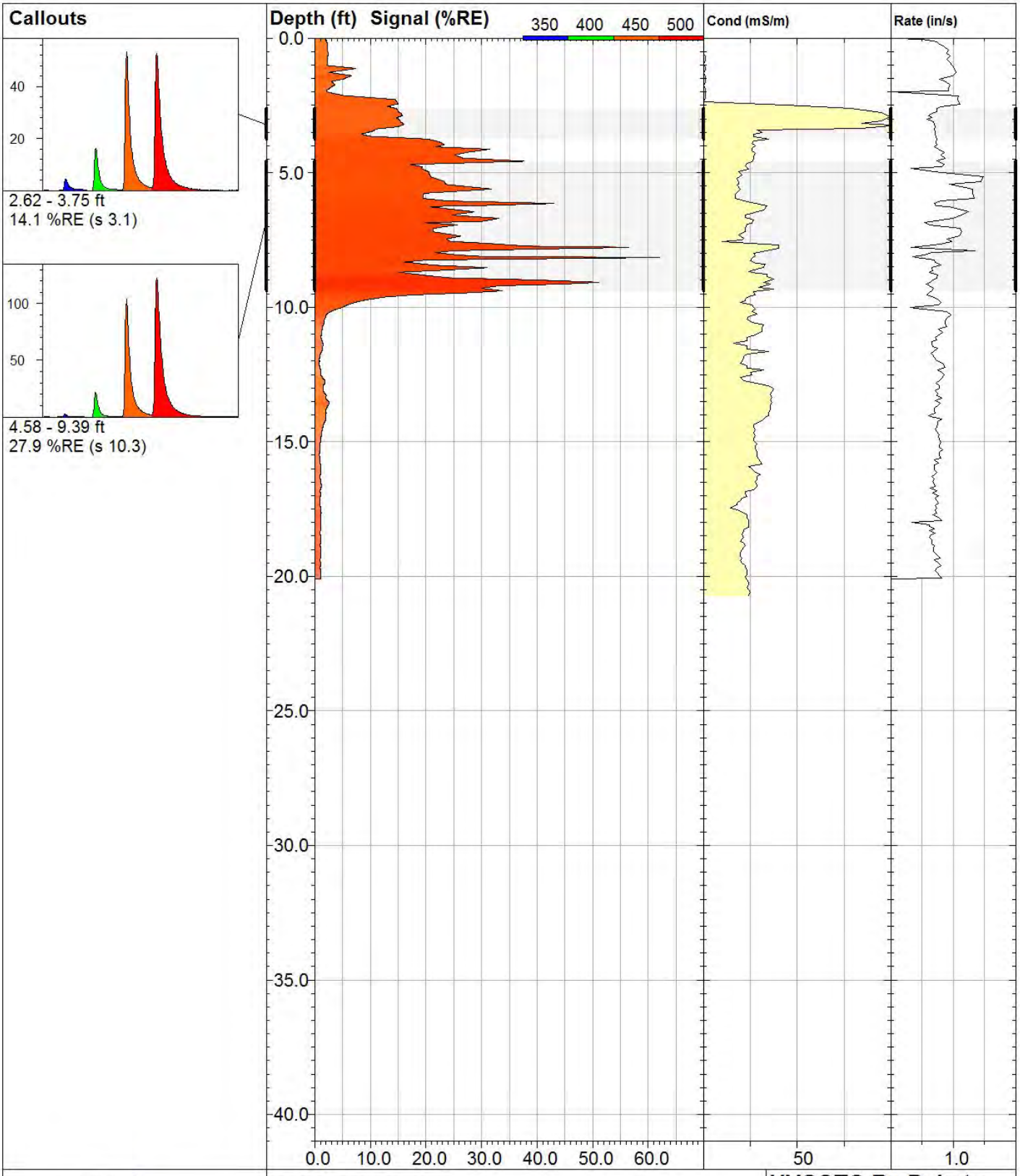
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **138.8 %RE @ 10.66 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:09 CDT**



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LIF-C0490

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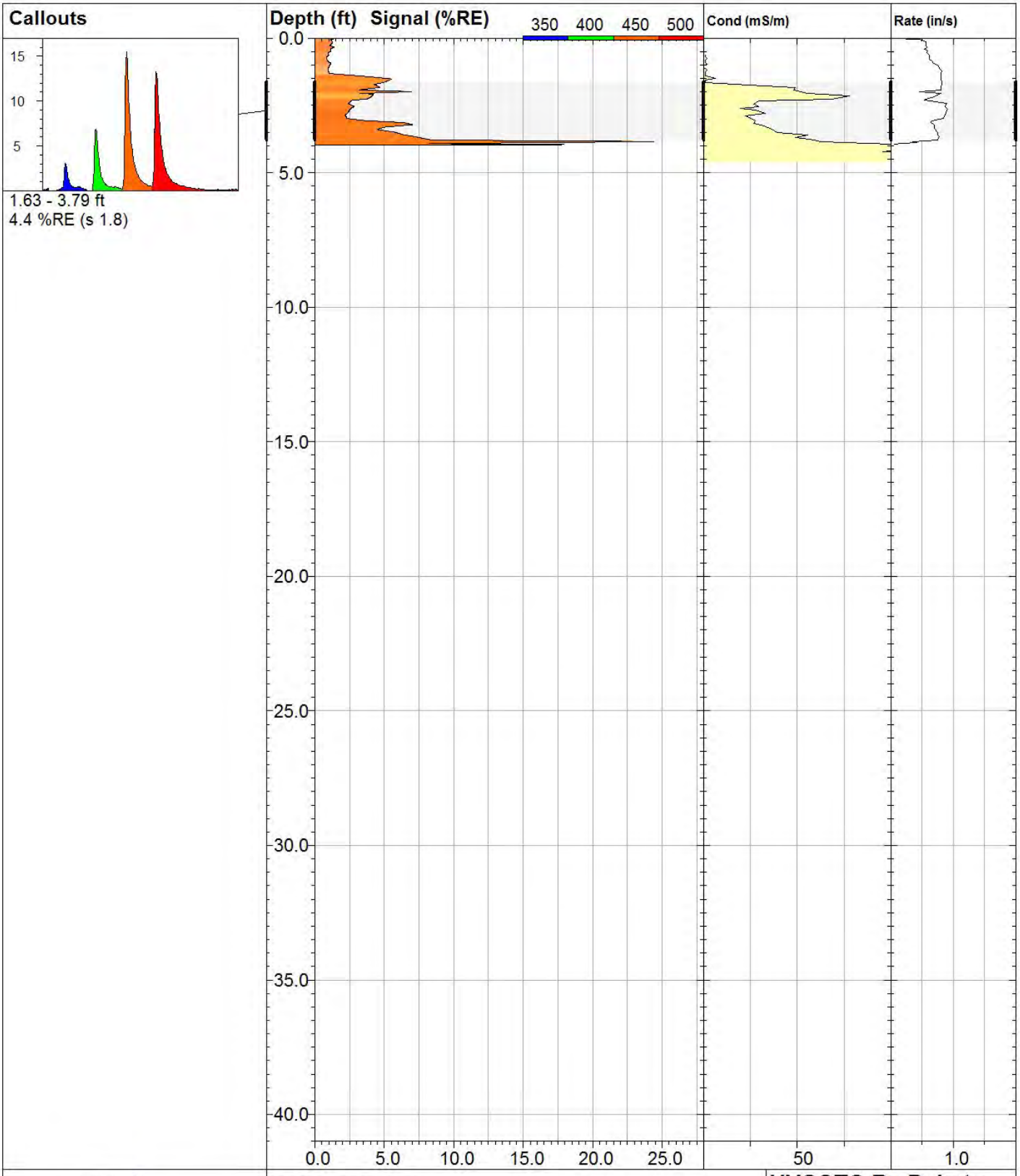
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **62.7 %RE @ 8.15 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:59 CDT**



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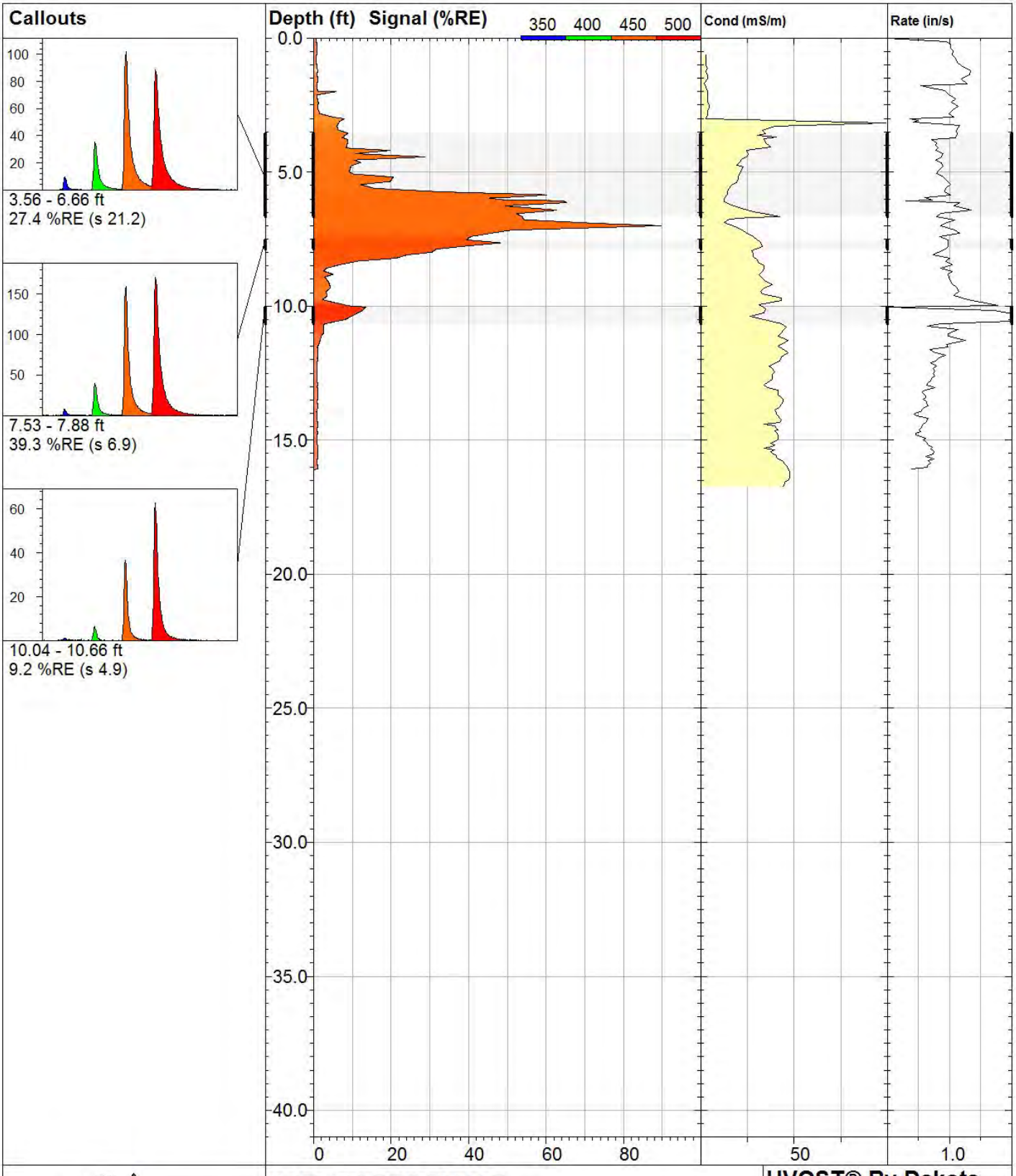
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **3.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **26.1 %RE @ 3.97 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 13:39 CDT**



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LIF-C0575SW15

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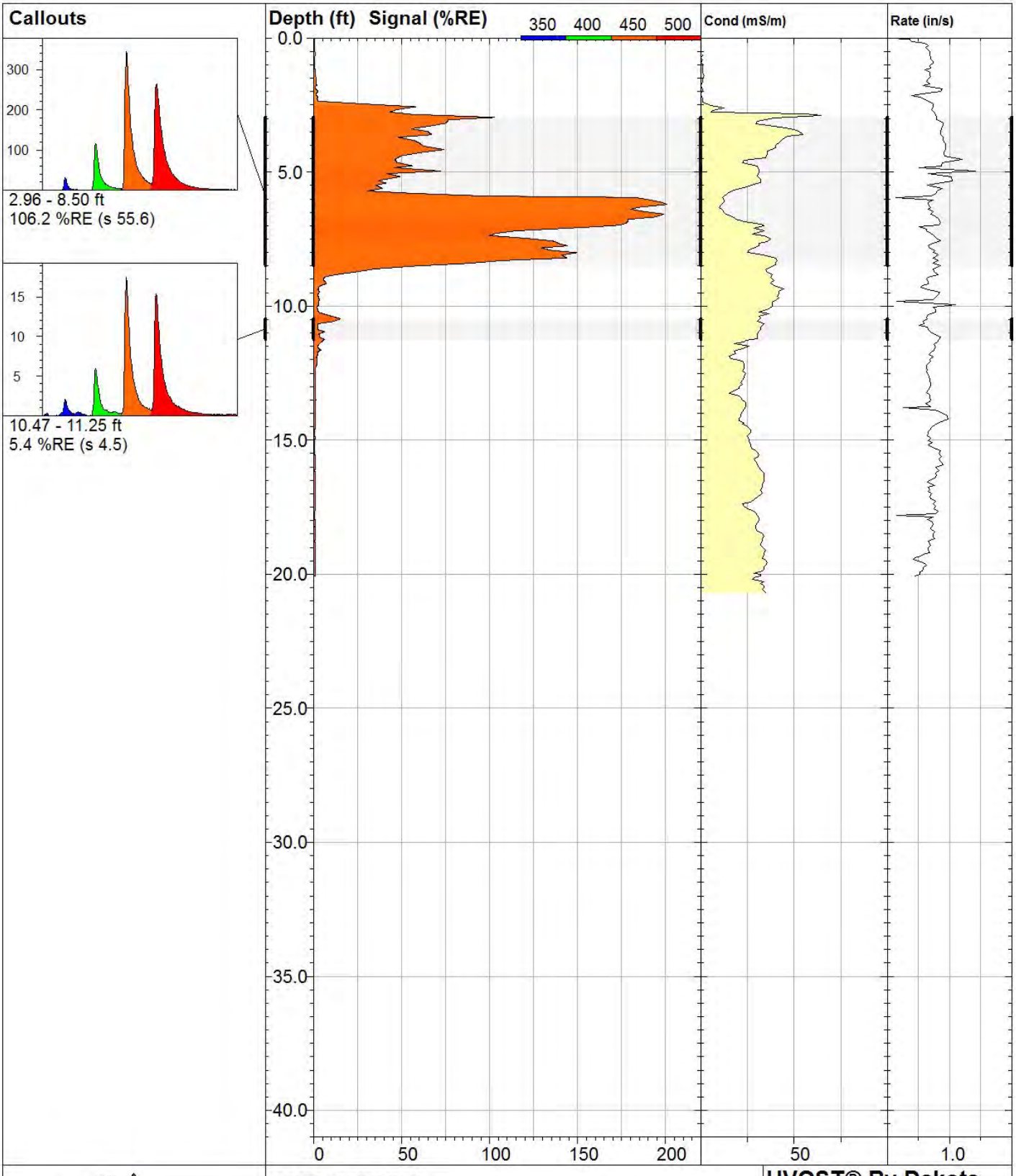
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.09 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **89.9 %RE @ 7.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 14:10 CDT**



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LIF-C0600

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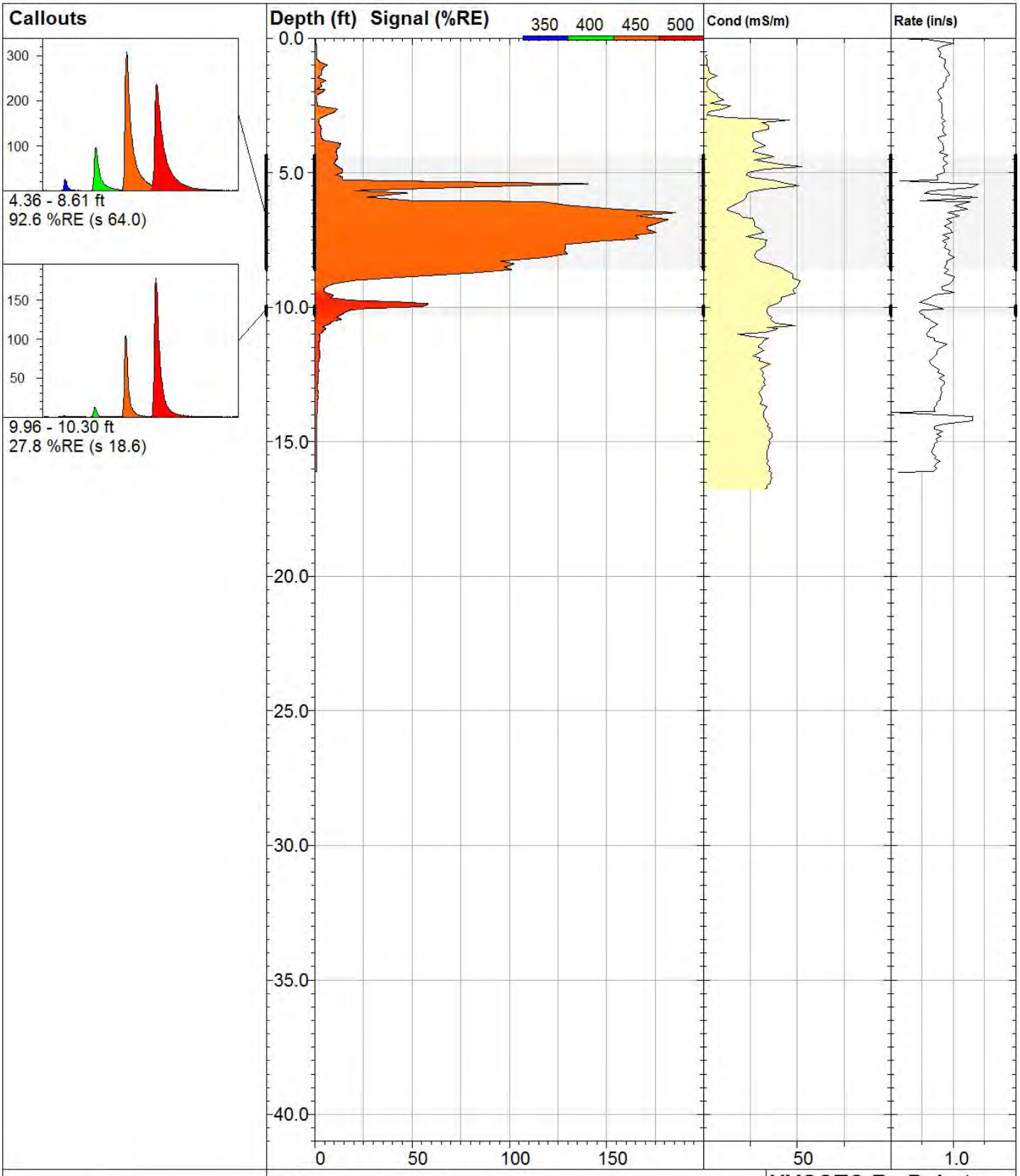
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **200.6 %RE @ 6.21 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-11 14:35 CDT**



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LIF-C0615SW10

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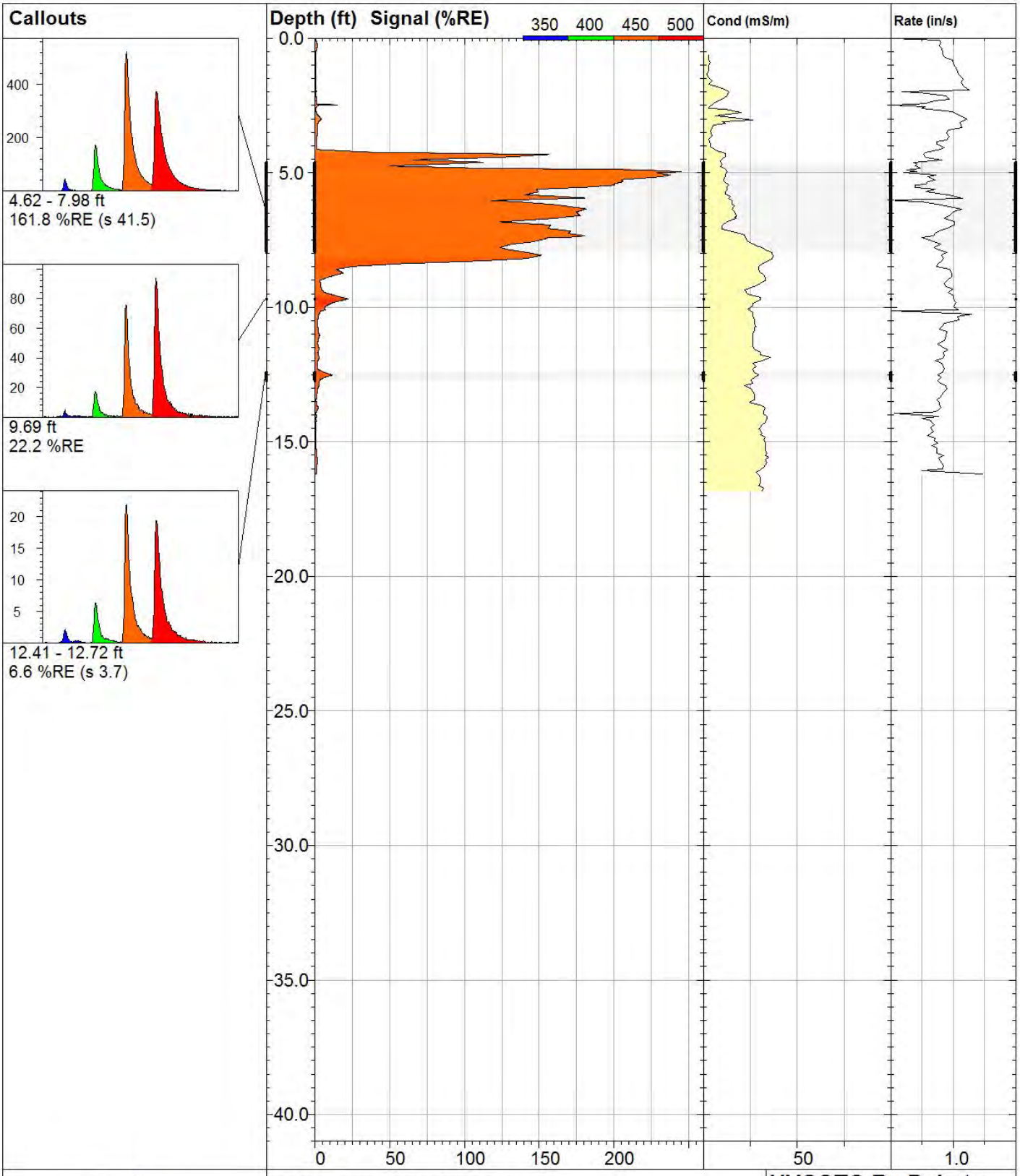
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **185.9 %RE @ 6.49 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 11:23 CDT**



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LIF-C0650SW15

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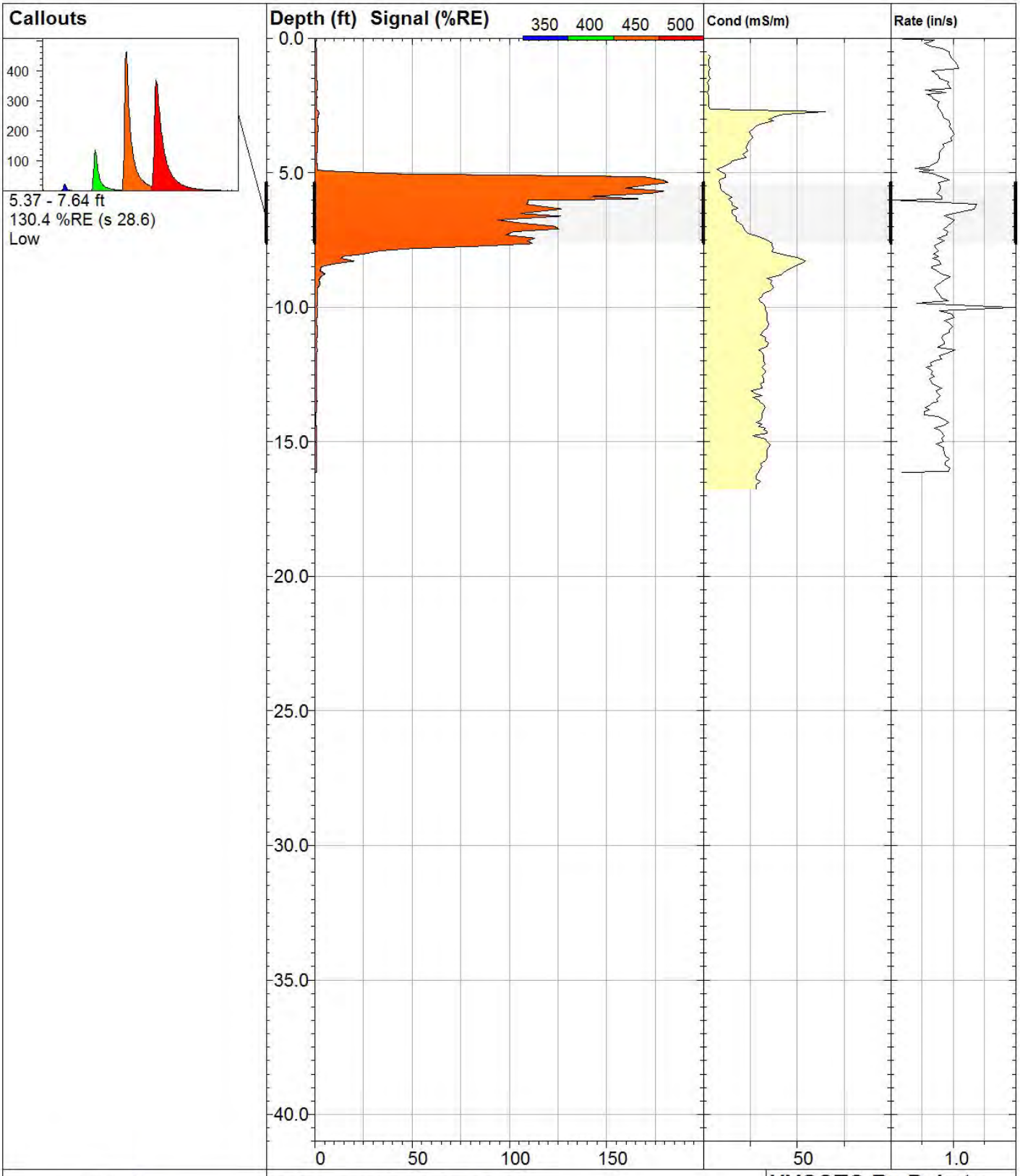
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.21 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **245.0 %RE @ 4.97 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 12:41 CDT**



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LIF-C0690SW15

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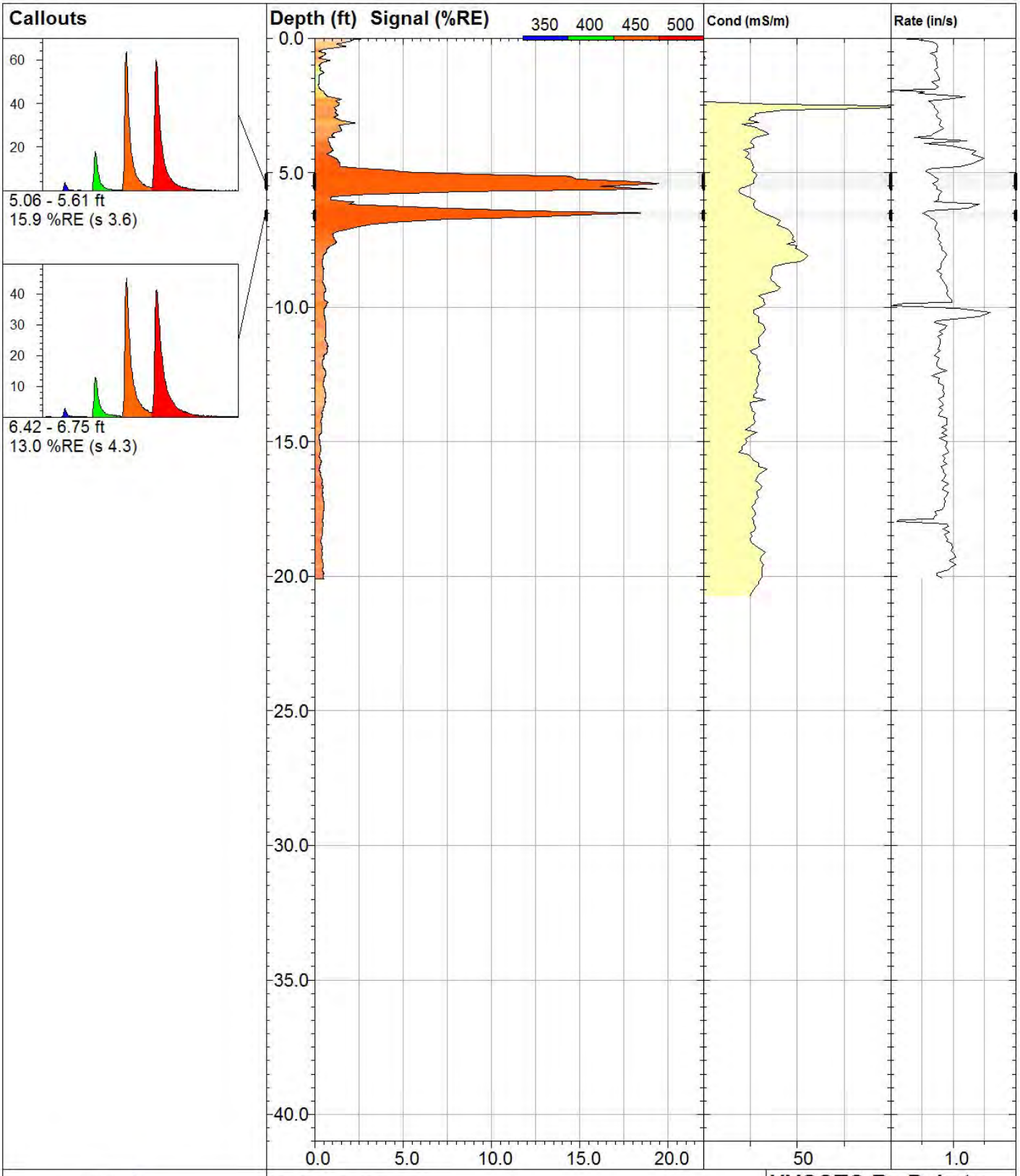
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.13 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **181.6 %RE @ 5.37 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 13:37 CDT**



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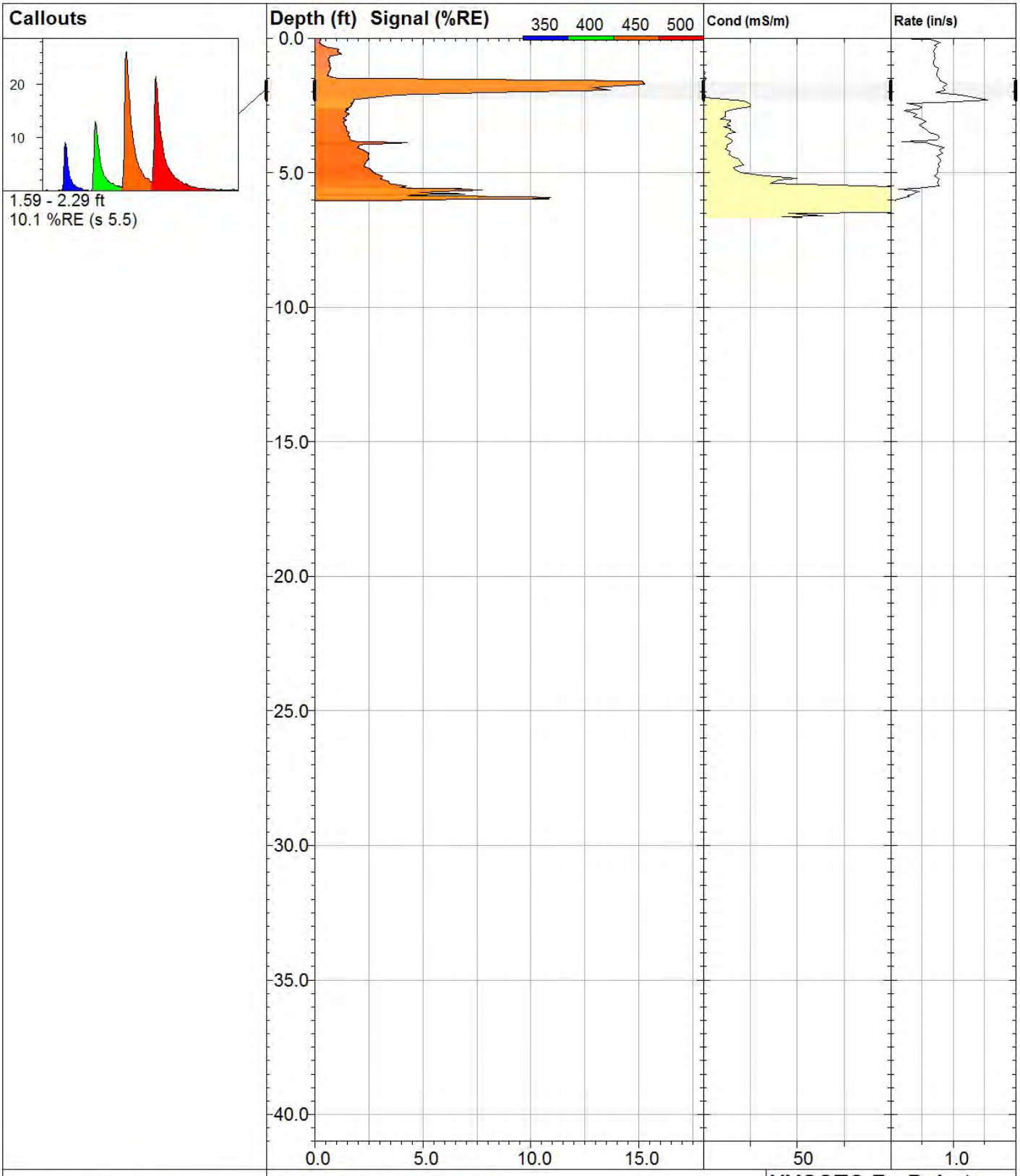
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.5 %RE @ 5.41 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 07:56 CDT**



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LIF-C0700SW20

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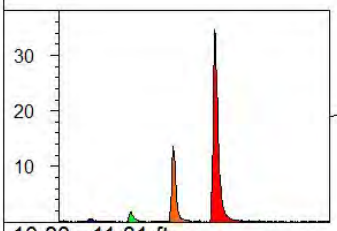
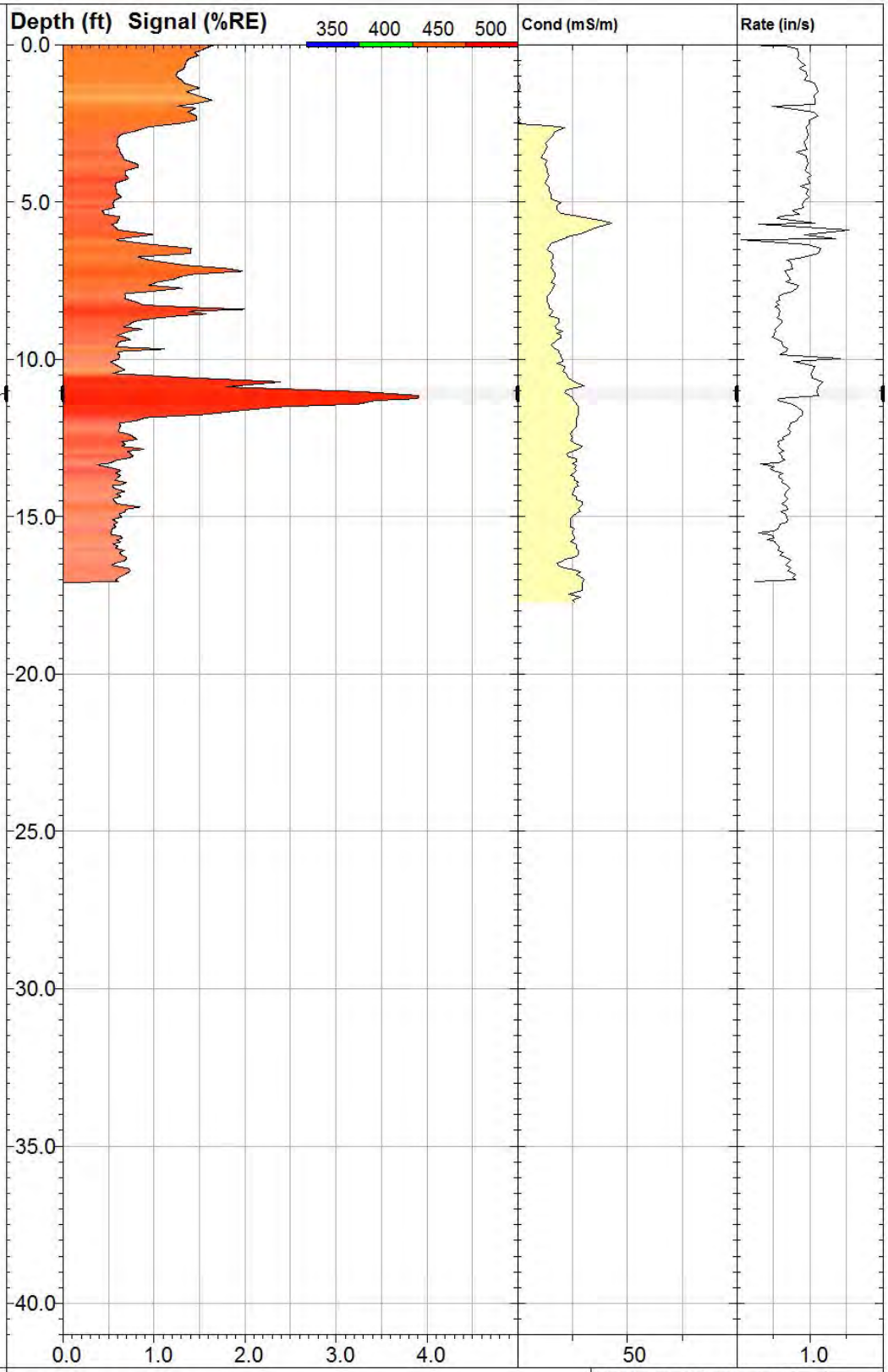
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.05 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **15.3 %RE @ 1.72 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 08:21 CDT**

Callouts



10.88 - 11.31 ft
3.3 %RE (s 0.9)
Low



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LIF-C0750

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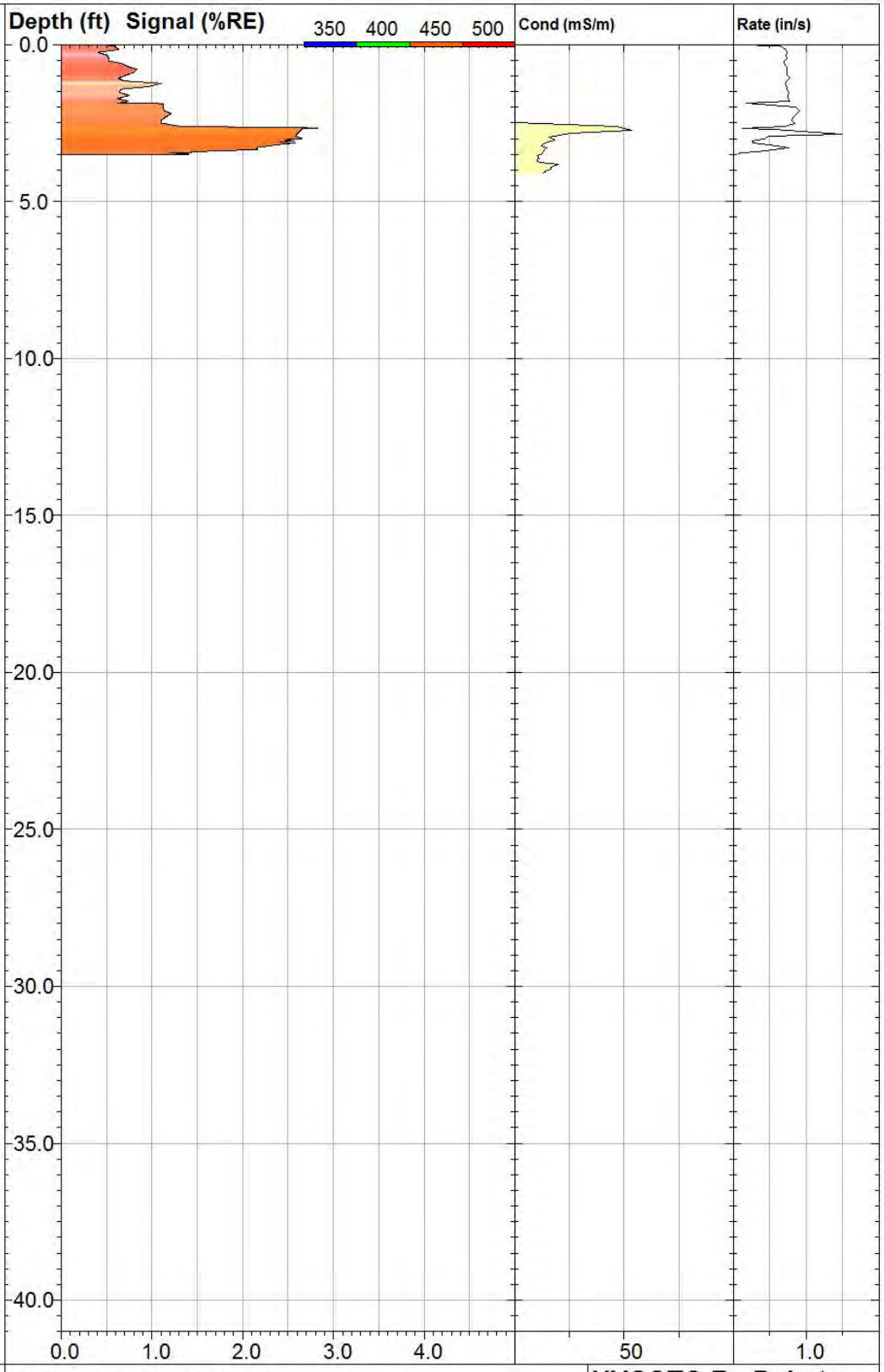
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.9 %RE @ 11.16 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 08:38 CDT**

Callouts



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LIF-D0130SW25

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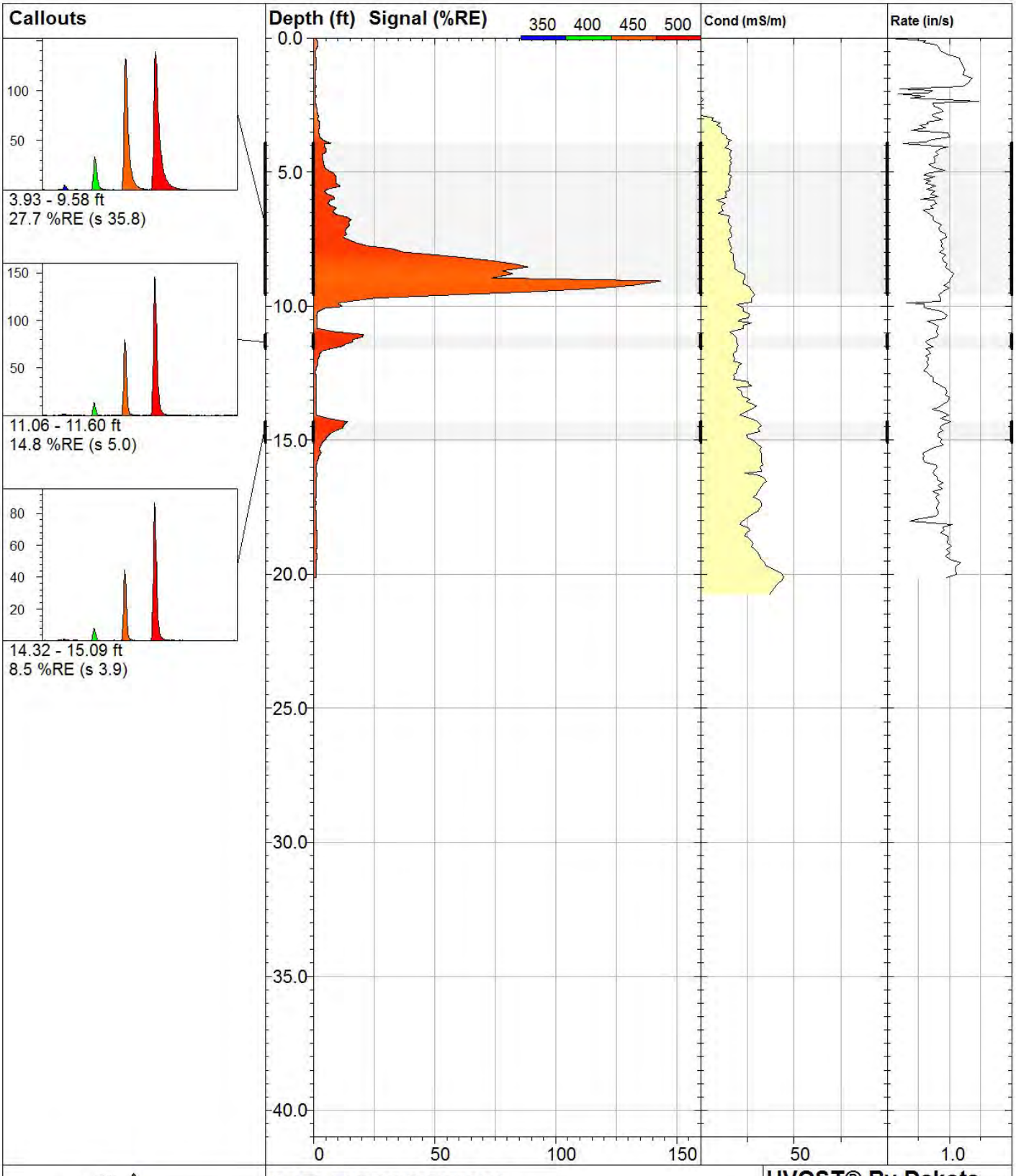
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **3.51 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **2.8 %RE @ 2.66 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 08:57 CDT**



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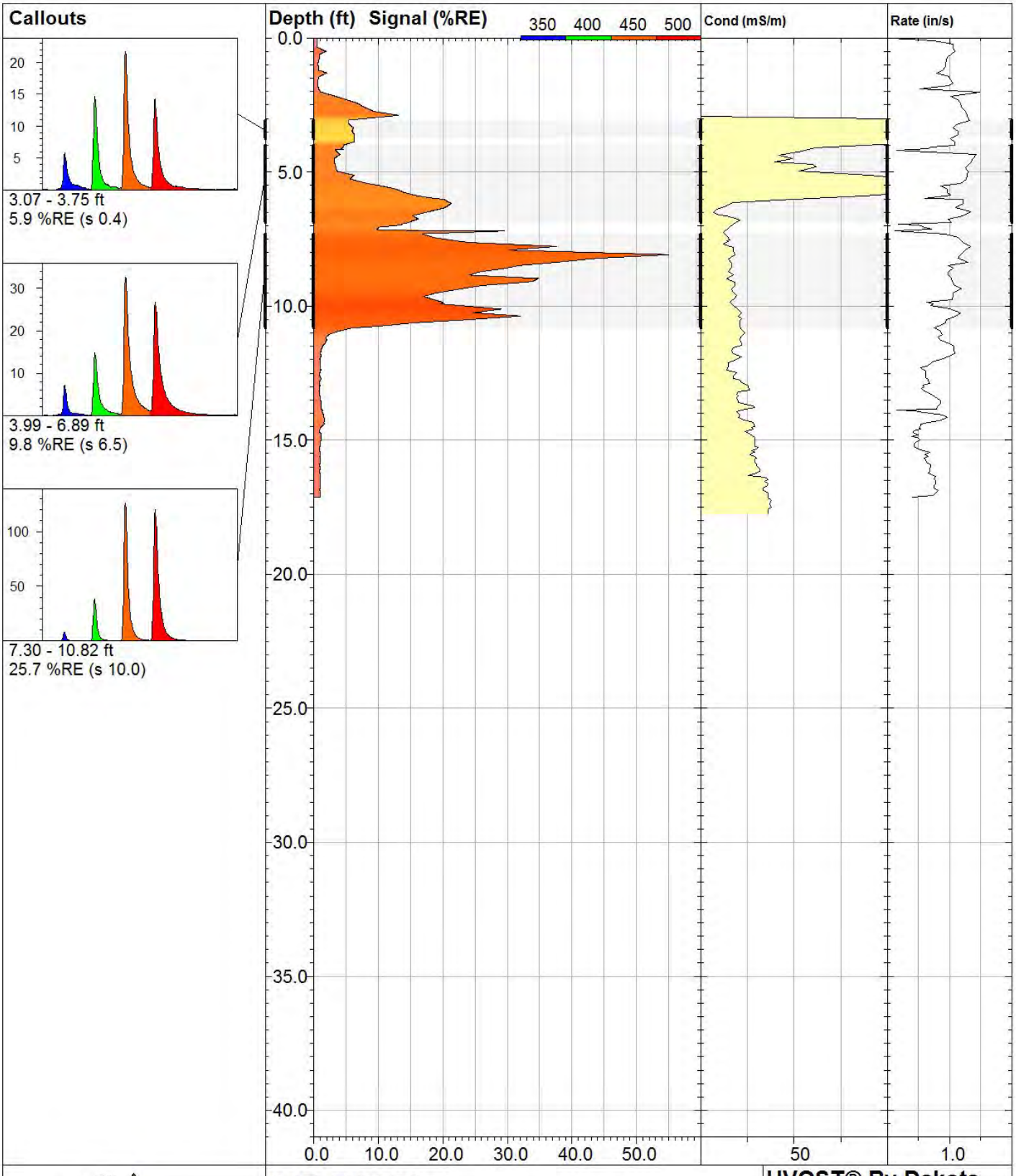
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **143.6 %RE @ 9.06 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 09:16 CDT**



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LIF-D0150

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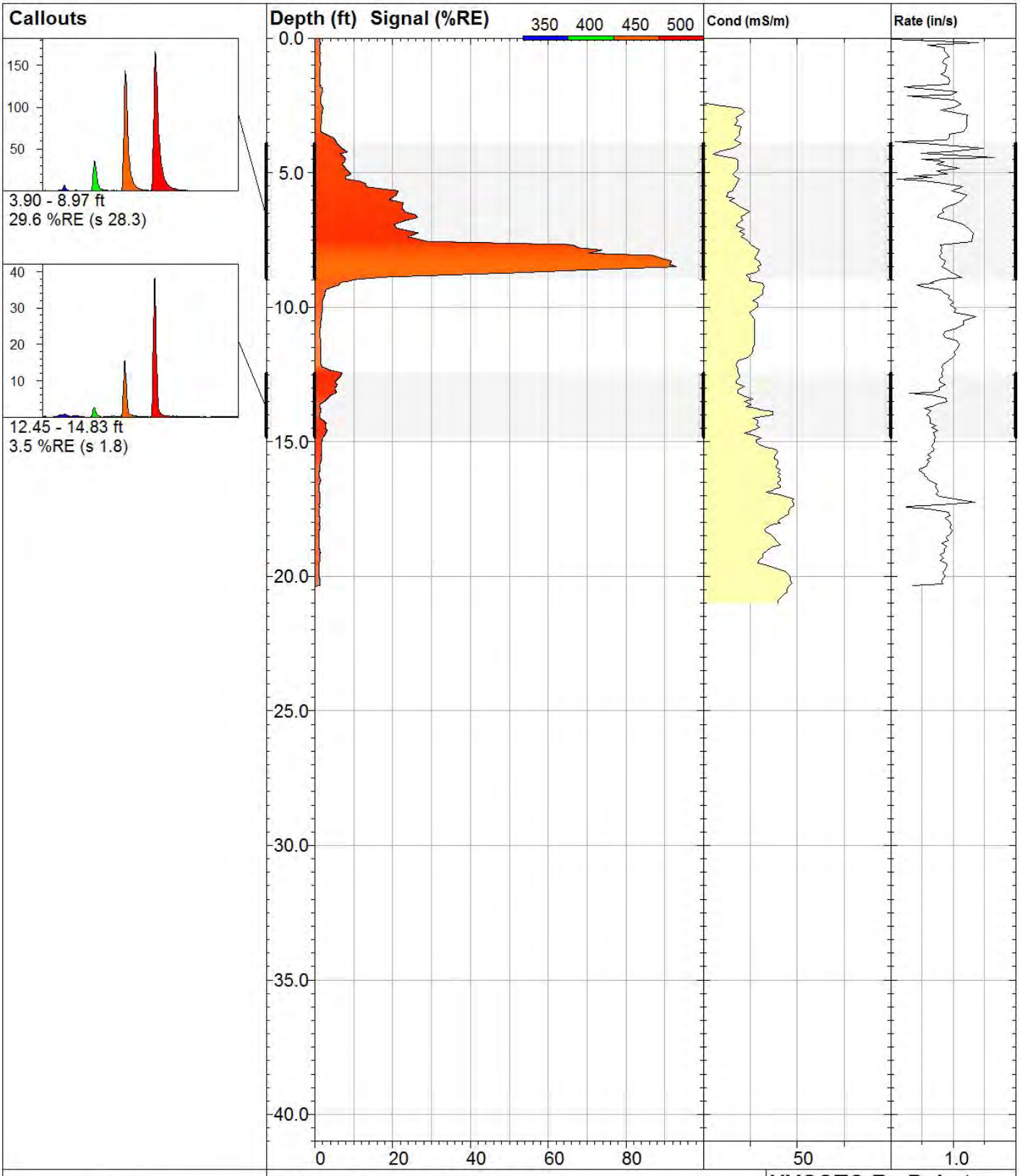
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **55.1 %RE @ 8.08 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:03 CDT**



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LIF-D0175SW40

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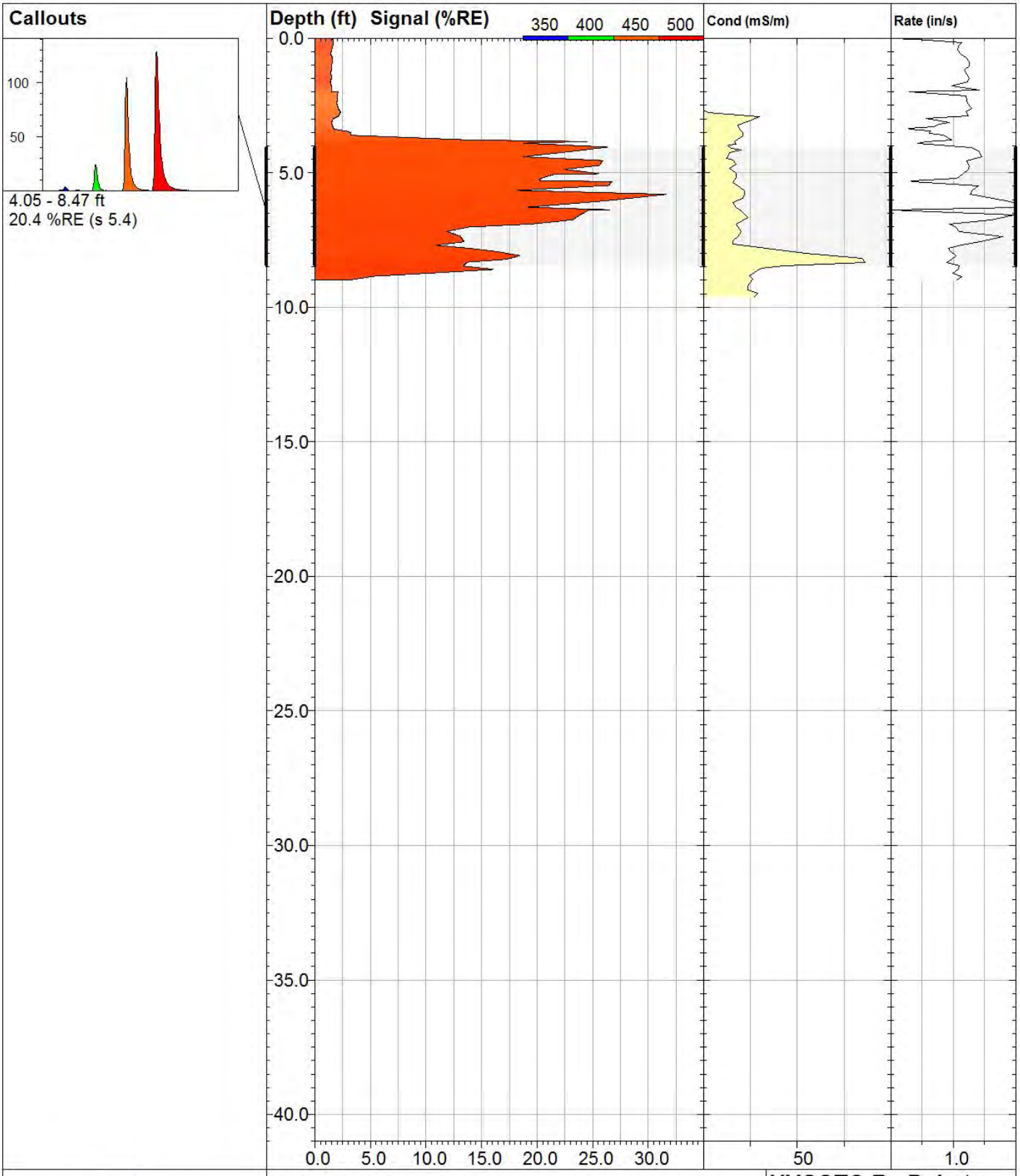
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.36 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **93.0 %RE @ 8.50 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 09:48 CDT**



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LIF-D0225SW40

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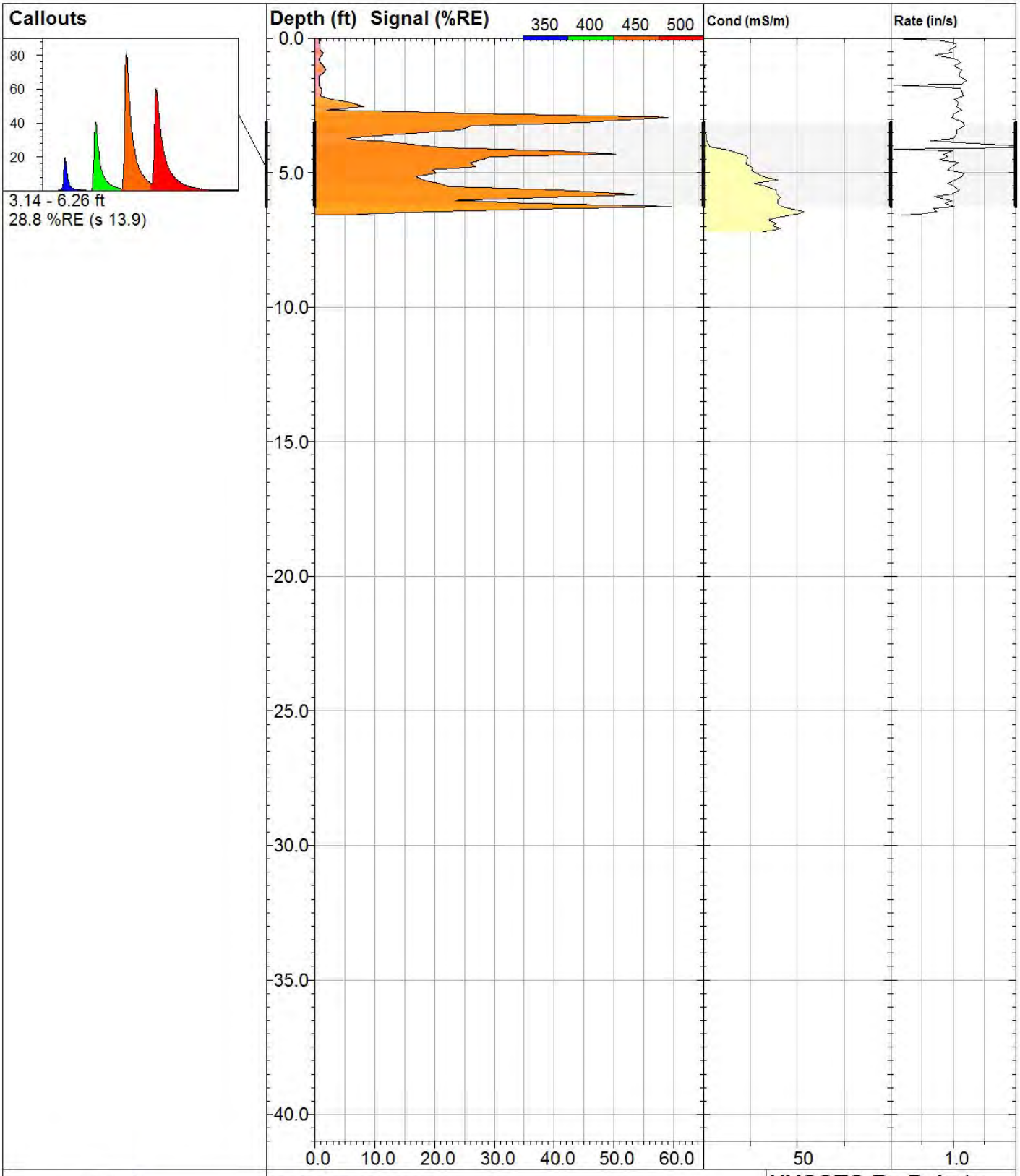
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.00 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **31.7 %RE @ 5.81 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 10:36 CDT**



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LIF-D0250

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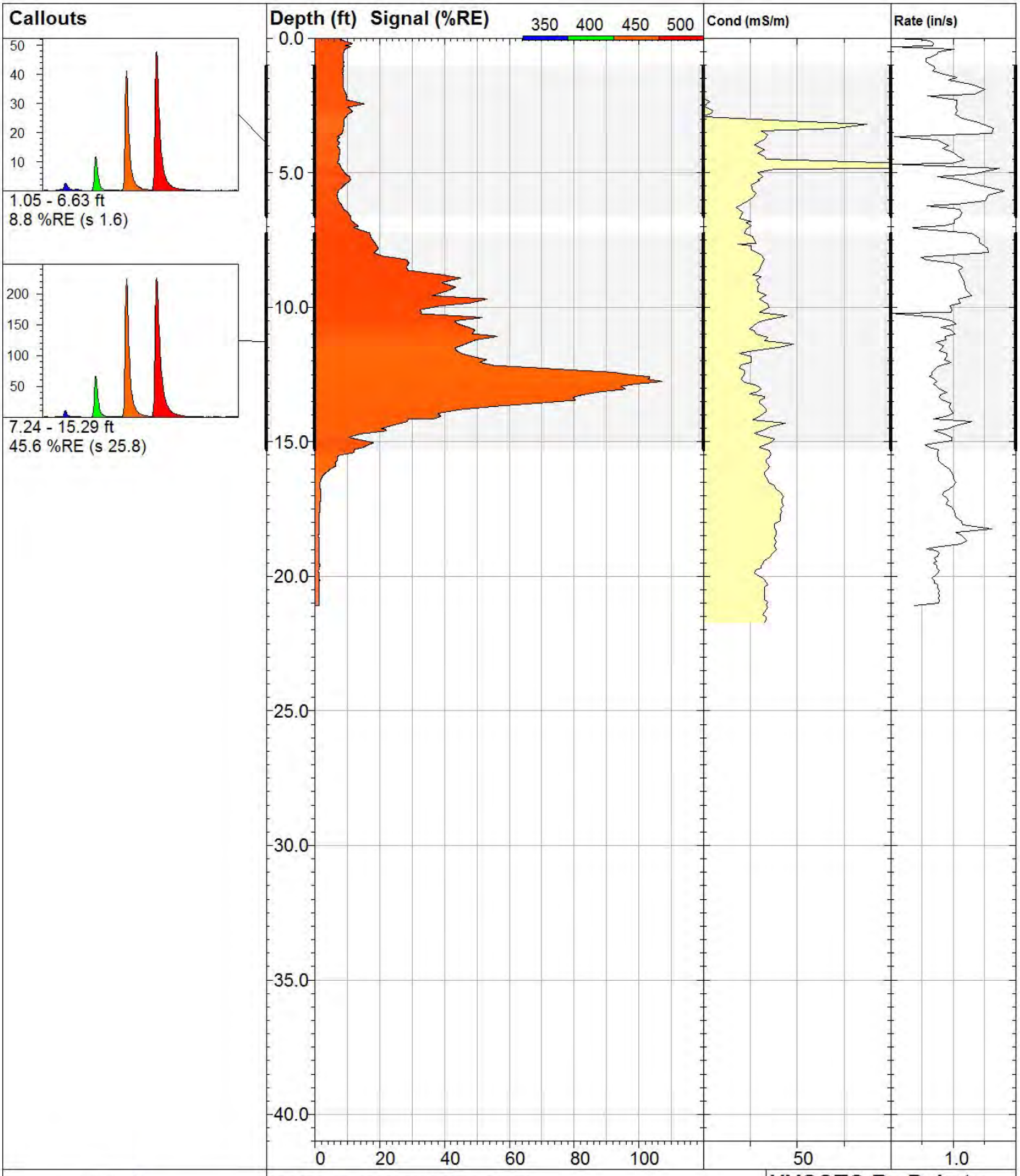
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.58 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **59.6 %RE @ 6.26 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:29 CDT**



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LIF-D0275SW40D

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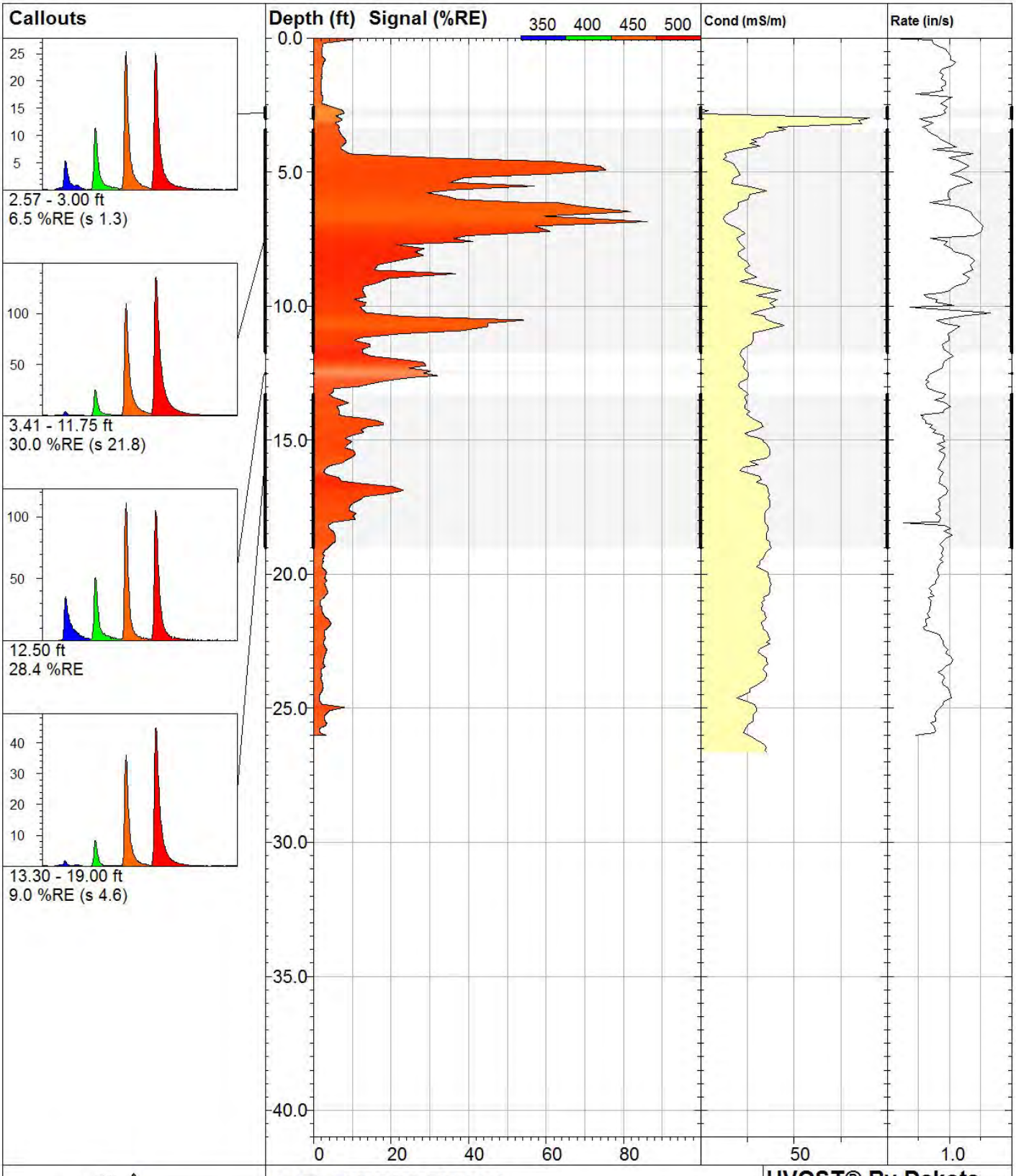
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.08 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **107.4 %RE @ 12.76 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:09 CDT**



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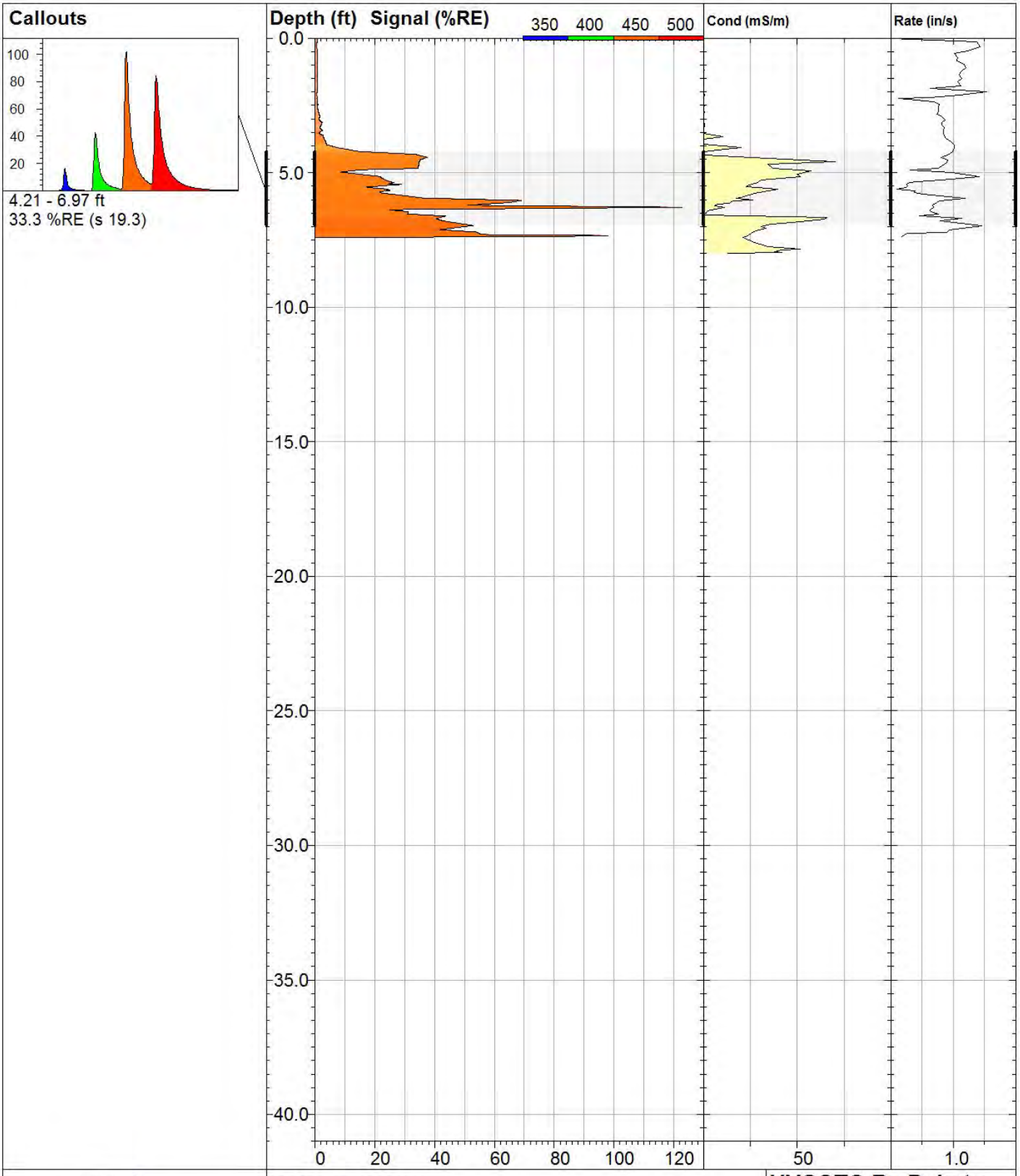
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.01 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **86.3 %RE @ 6.85 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:35 CDT**



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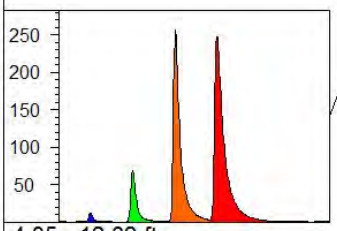
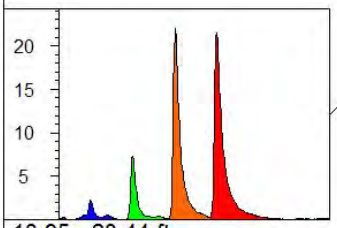
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.40 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **123.1 %RE @ 6.29 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 13:48 CDT**

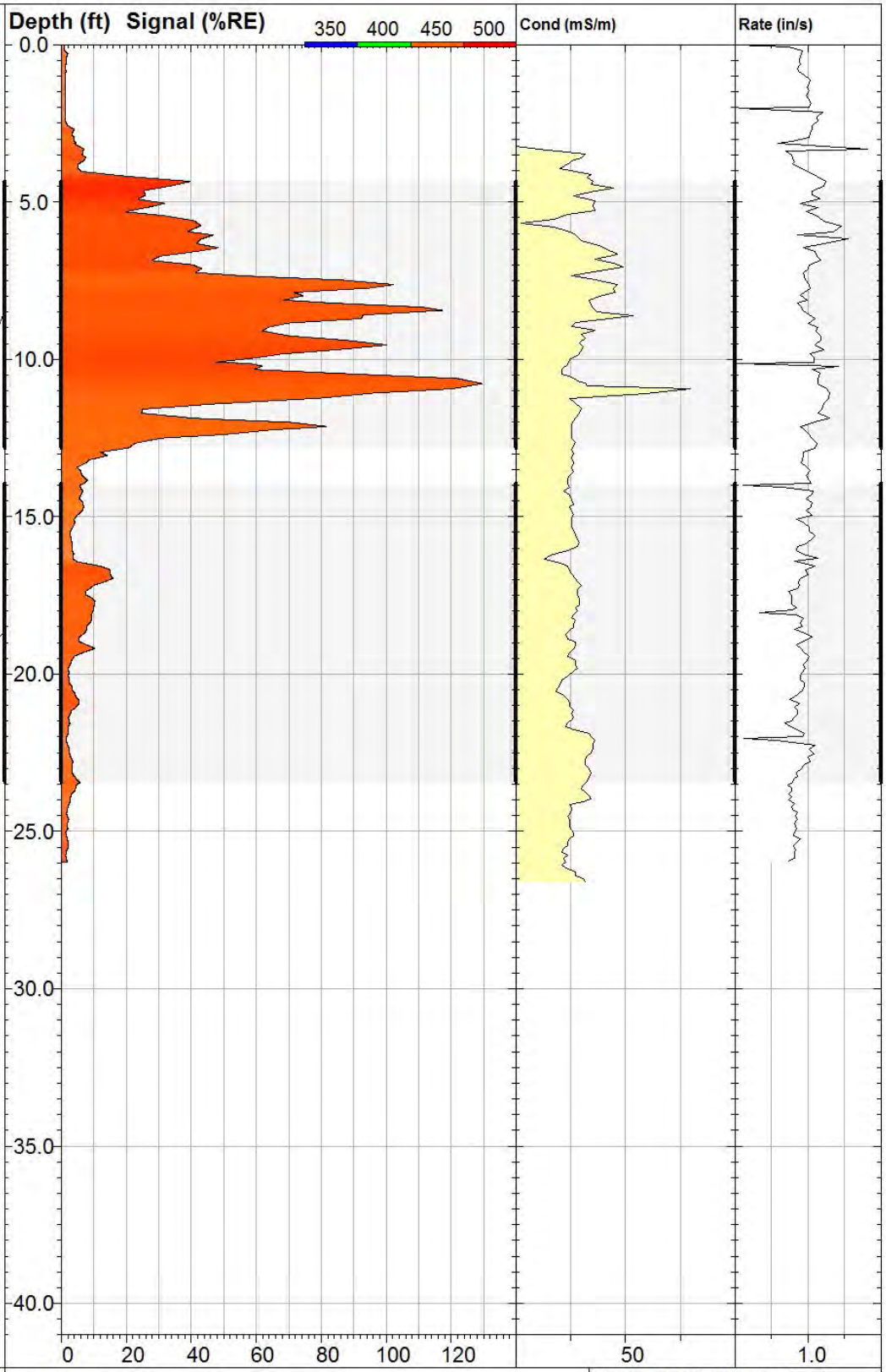
Callouts



4.35 - 12.82 ft
60.1 %RE (s 29.0)



13.95 - 23.44 ft
5.5 %RE (s 3.4)



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LIF-D0375SW40

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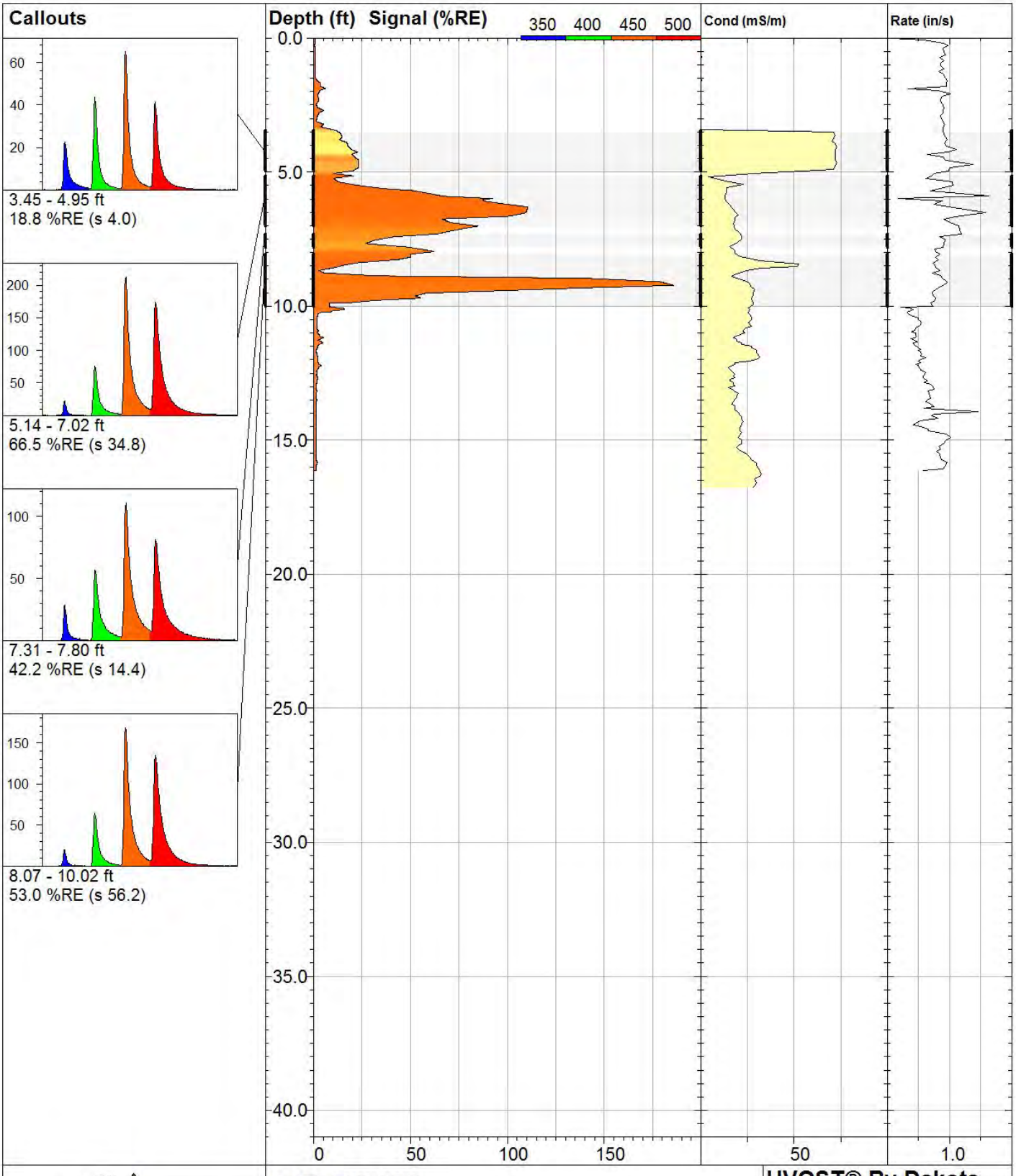
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.97 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **129.5 %RE @ 10.77 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-19 11:59 CDT**



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LIF-D0450

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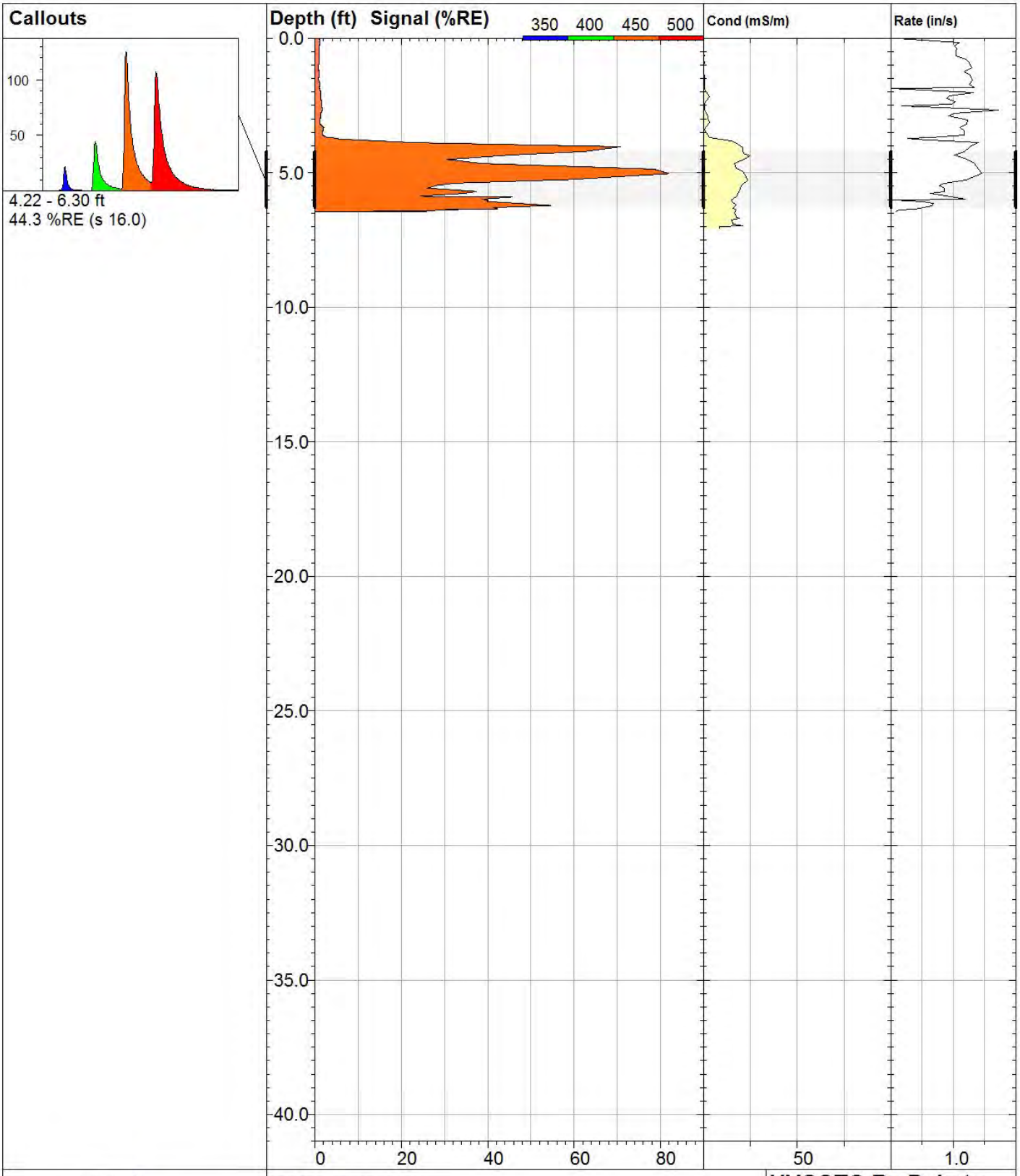
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.15 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **185.9 %RE @ 9.23 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 14:05 CDT**



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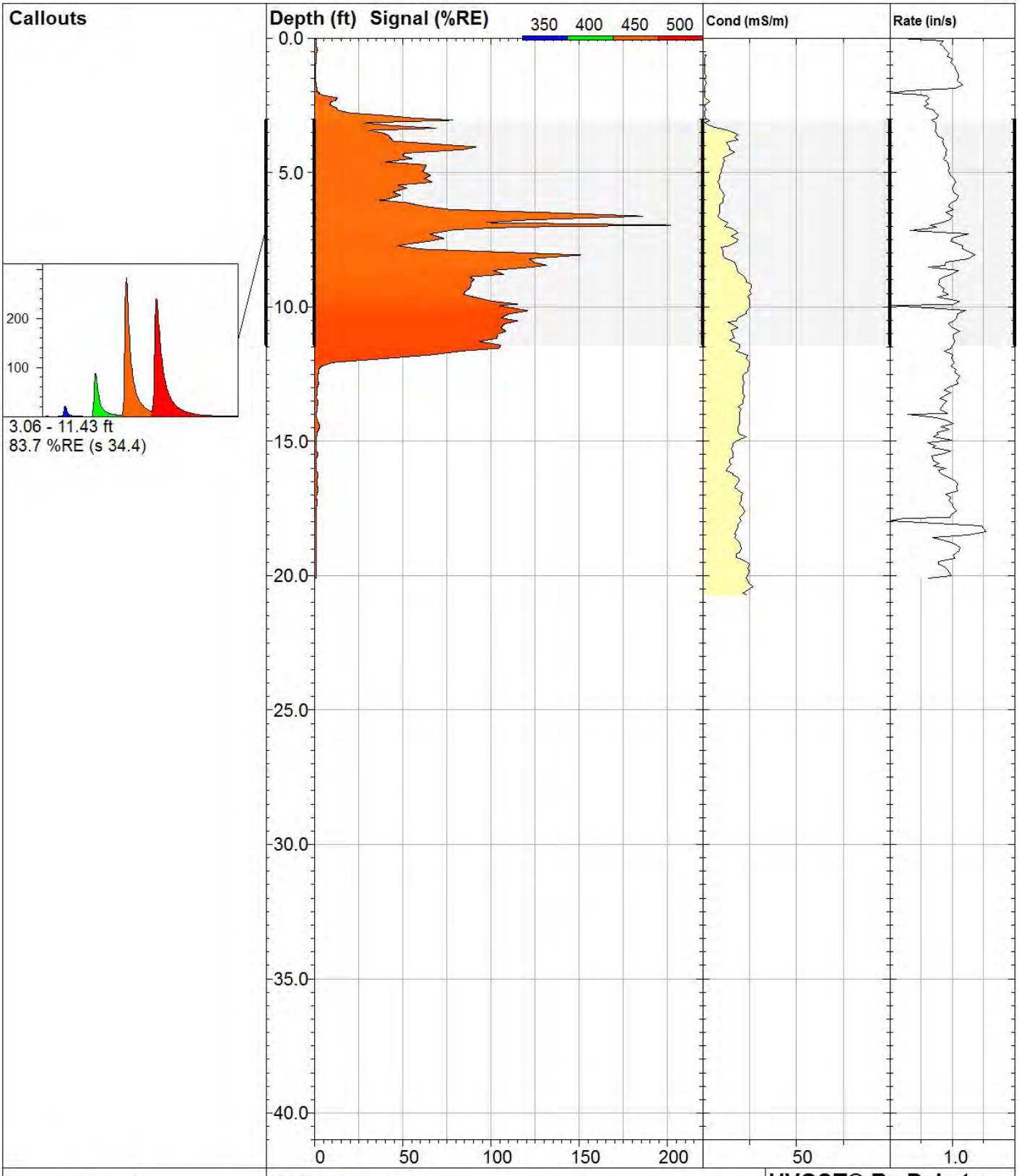
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.46 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **82.0 %RE @ 5.04 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 14:31 CDT**



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LIF-D0587

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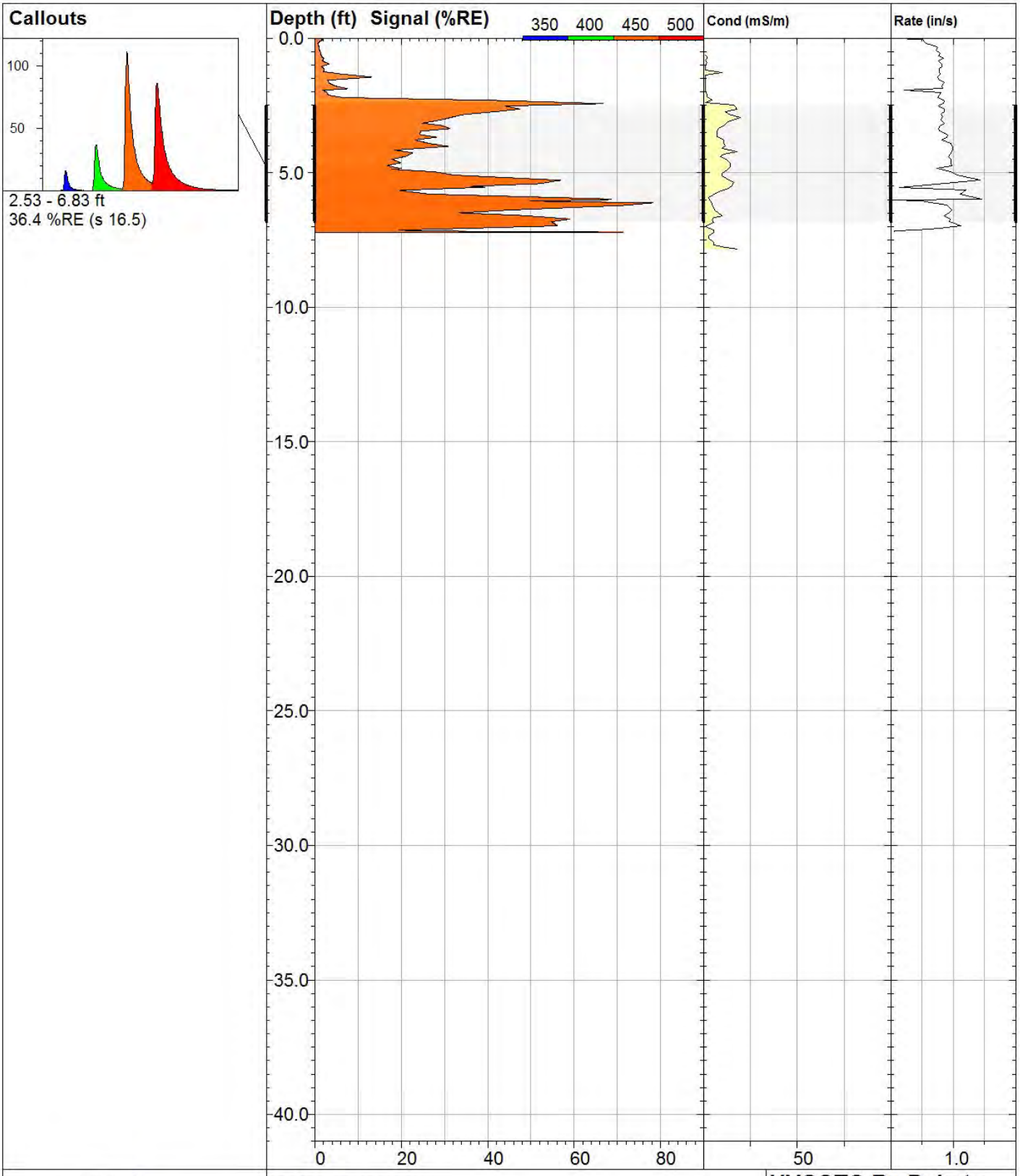
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **201.8 %RE @ 6.96 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 11:39 CDT**



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LIF-D0640

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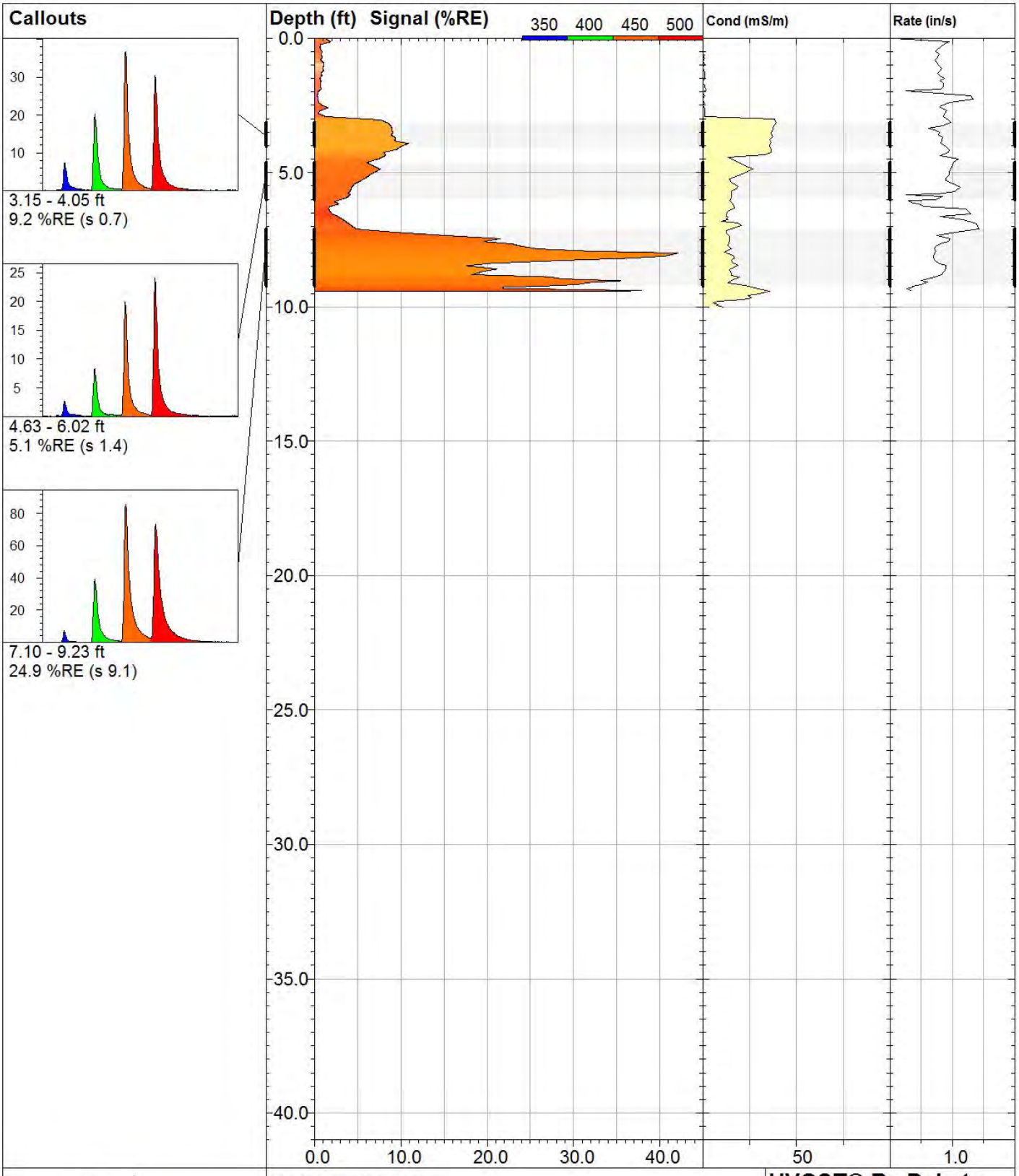
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.22 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **78.2 %RE @ 6.12 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 13:01 CDT**



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LIF-D0700

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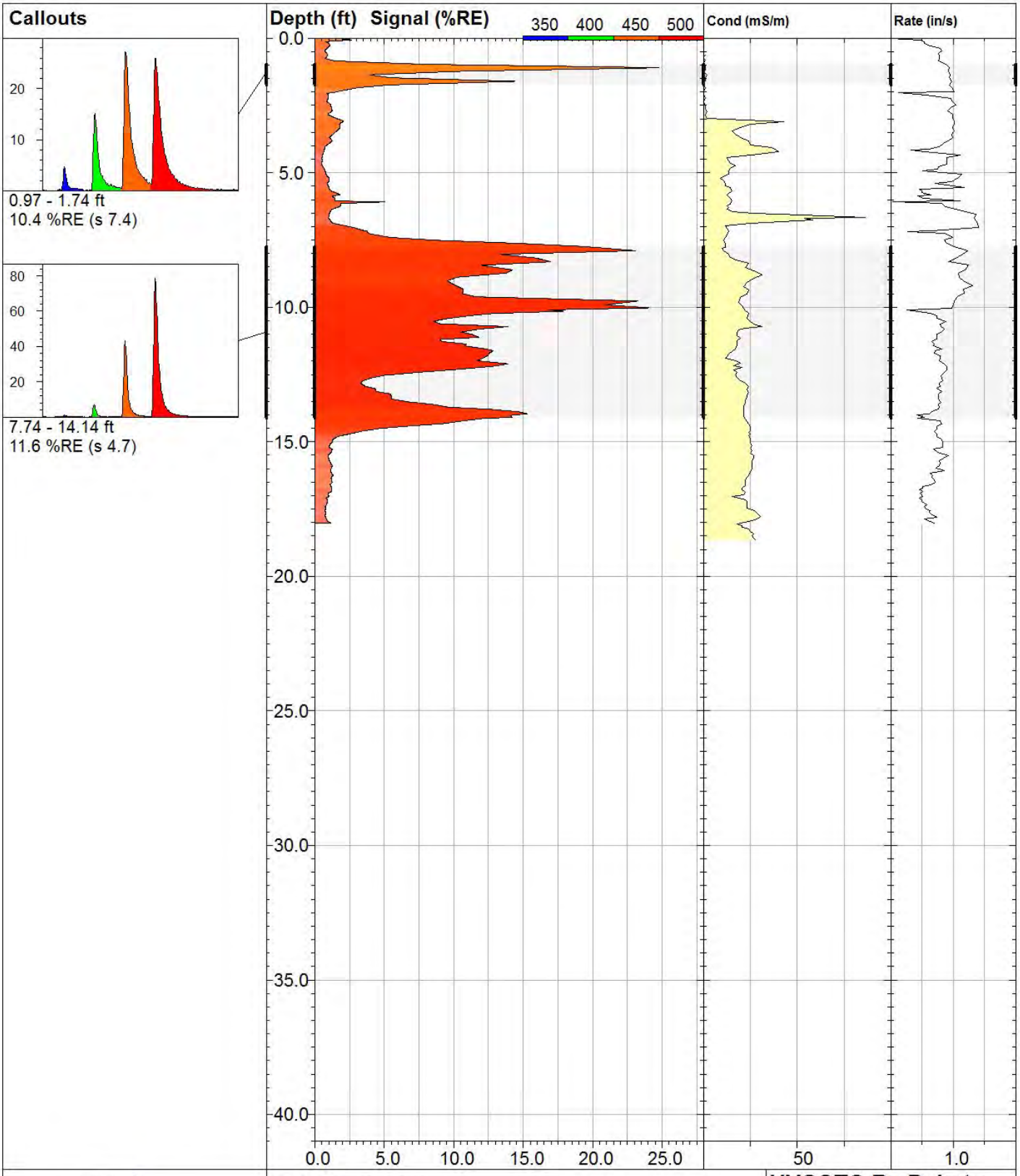
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.43 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **42.1 %RE @ 8.00 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 10:40 CDT**



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LIF-D0715

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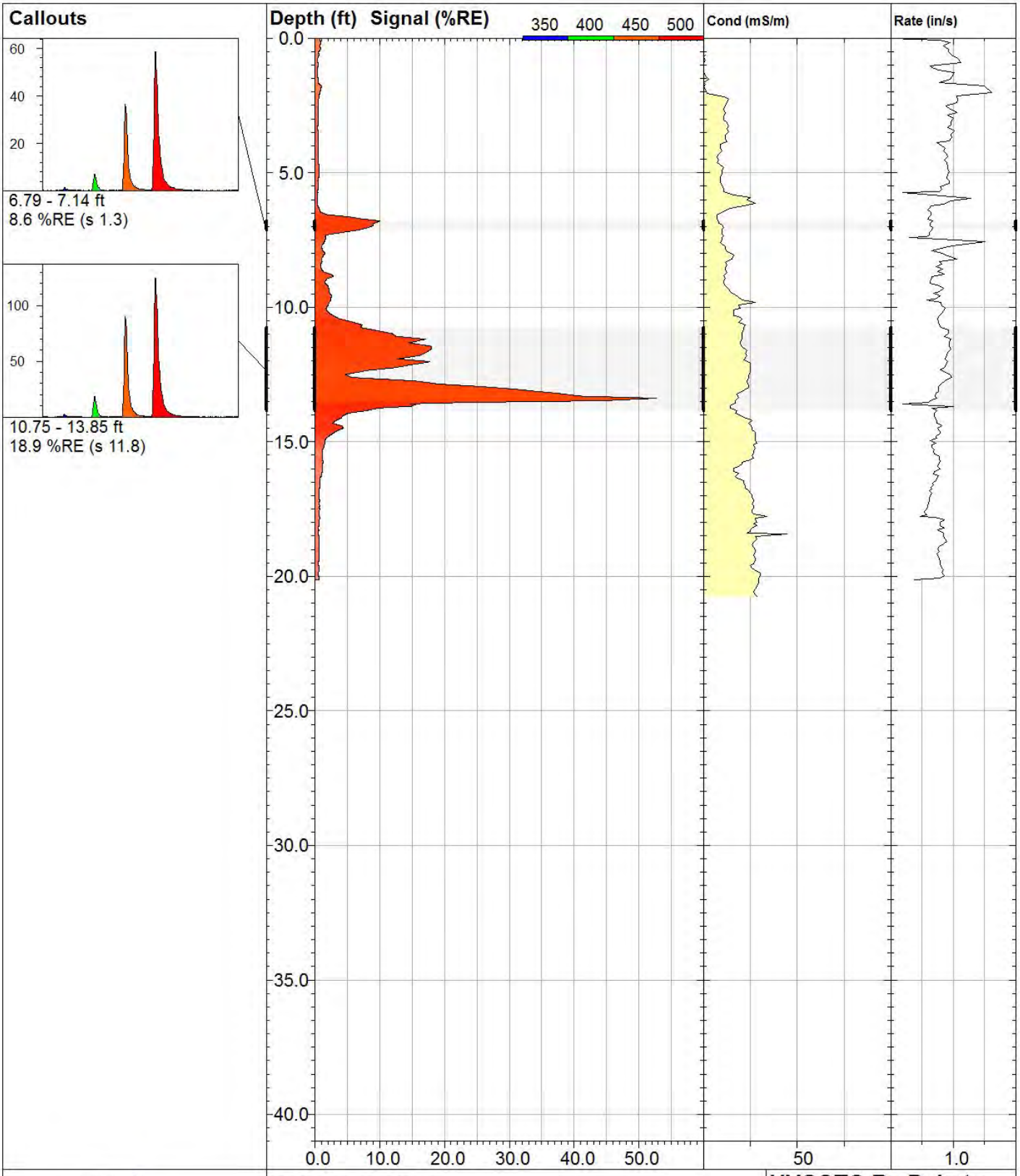
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.03 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **25.0 %RE @ 1.10 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 11:02 CDT**



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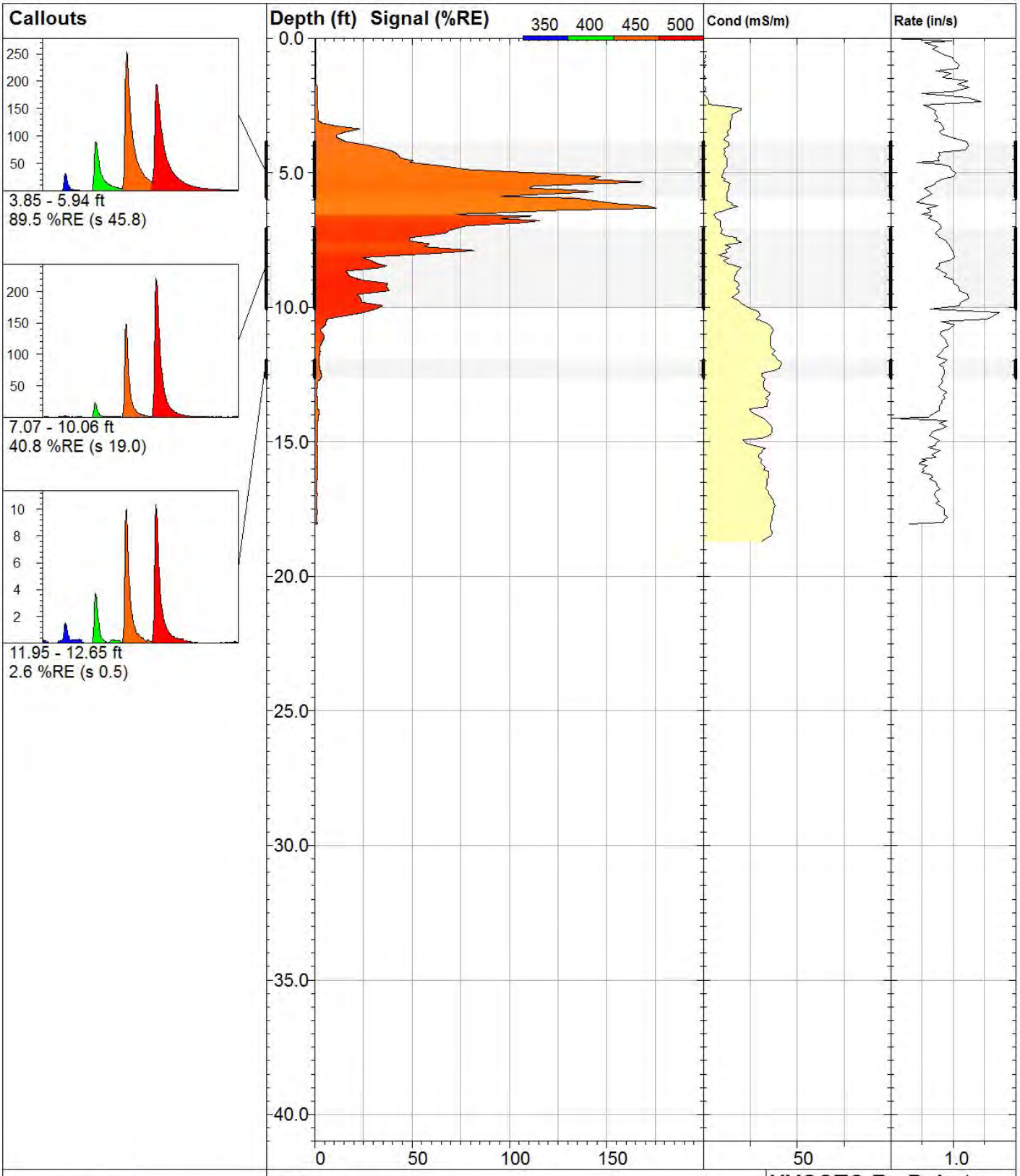
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **52.7 %RE @ 13.38 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 09:05 CDT**



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LIF-E0400

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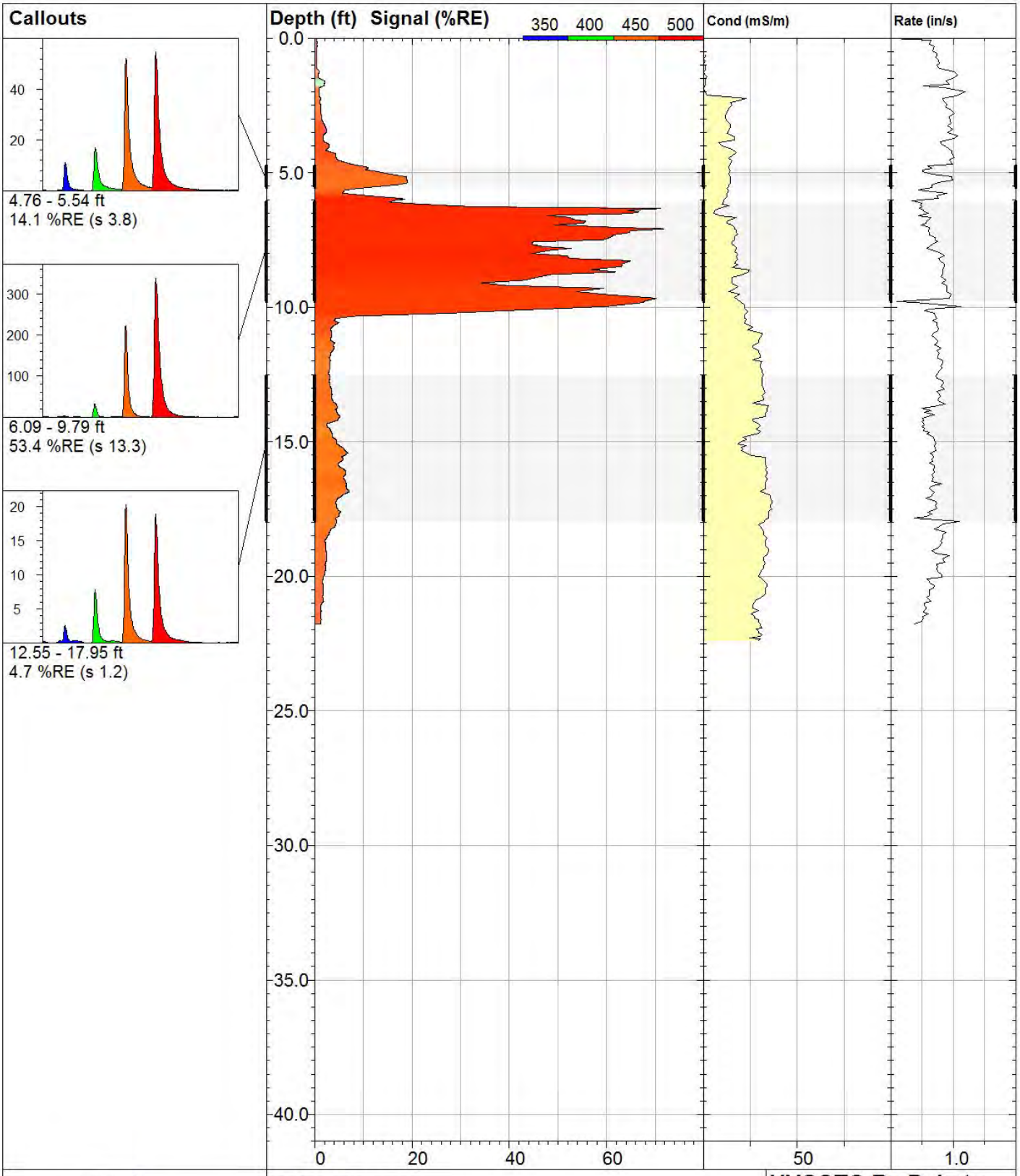
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.07 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **175.7 %RE @ 6.32 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 08:12 CDT**



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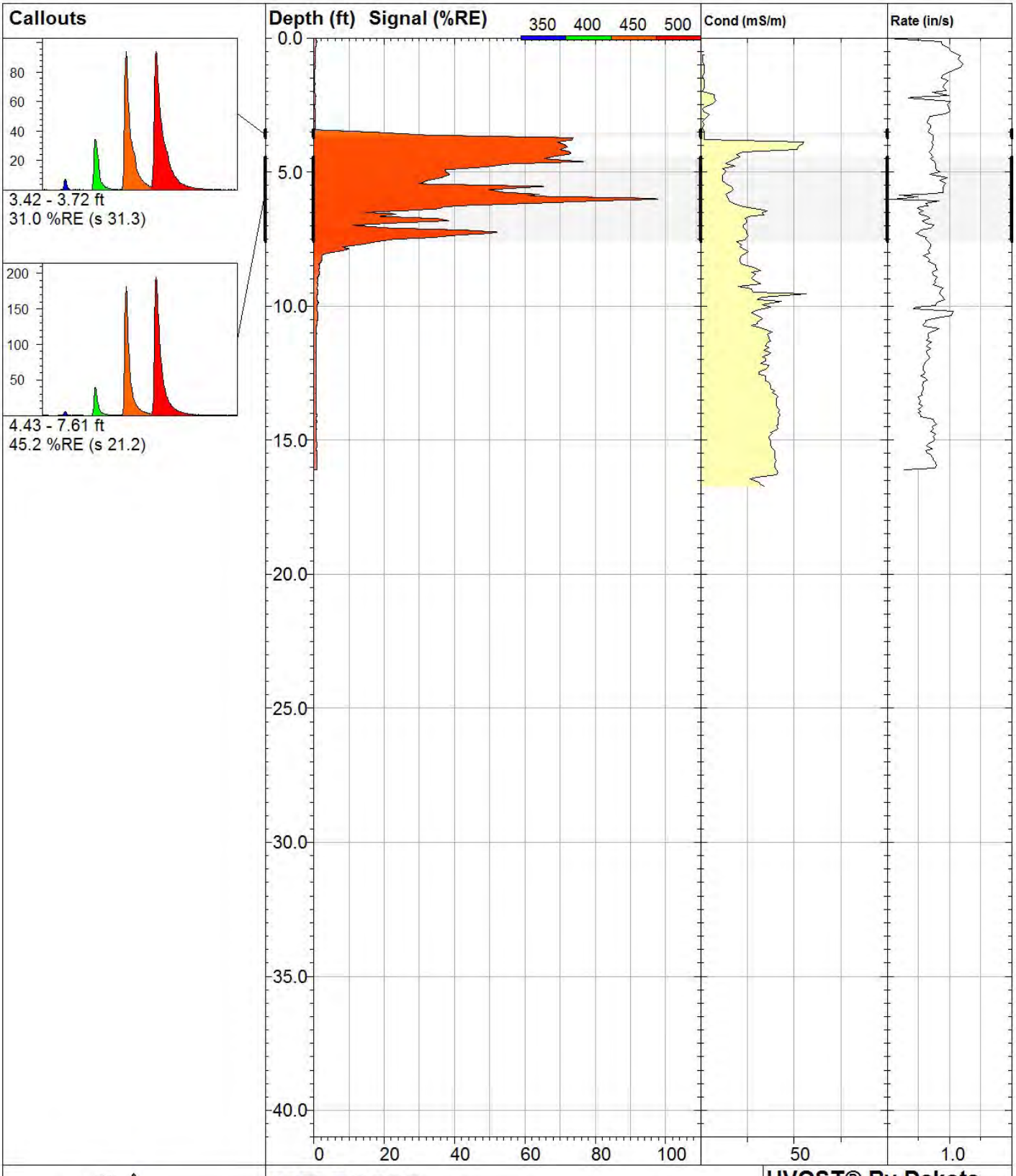
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.78 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **72.1 %RE @ 7.09 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 08:39 CDT**



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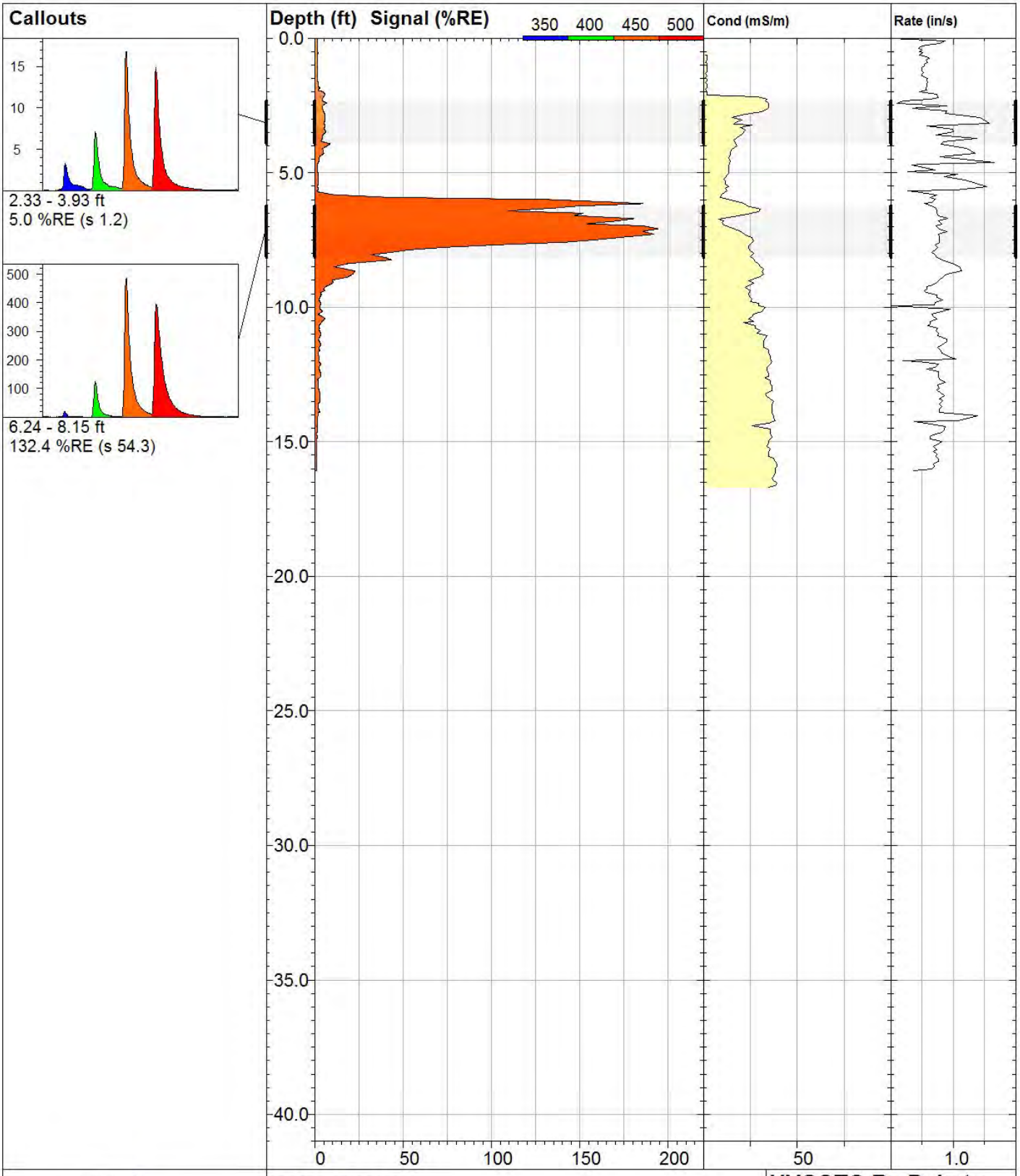
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **97.8 %RE @ 6.01 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 10:03 CDT**



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LIF-E0600

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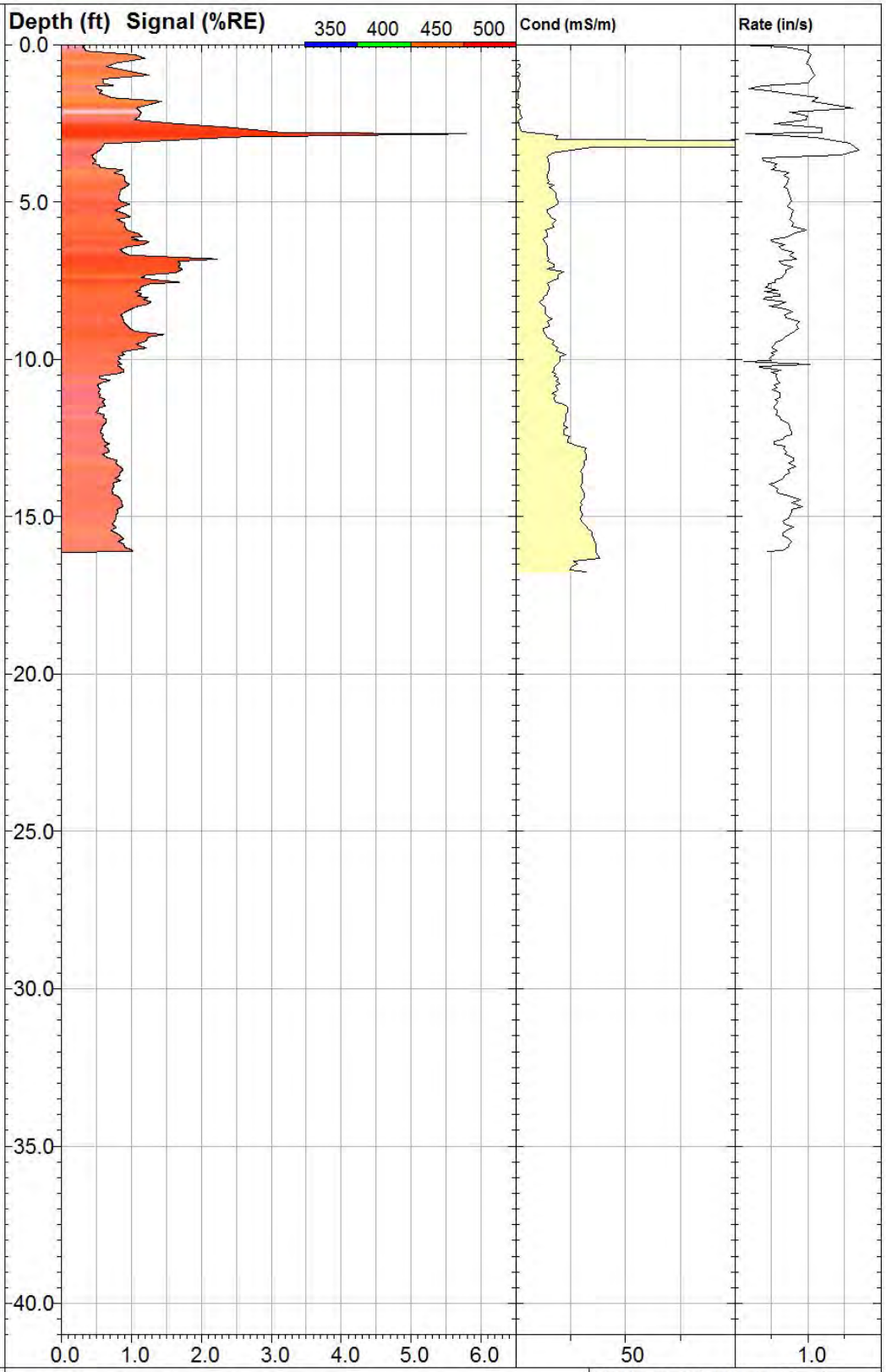
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **194.4 %RE @ 7.09 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-12 14:04 CDT**

Callouts



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LIF-E0600SW25

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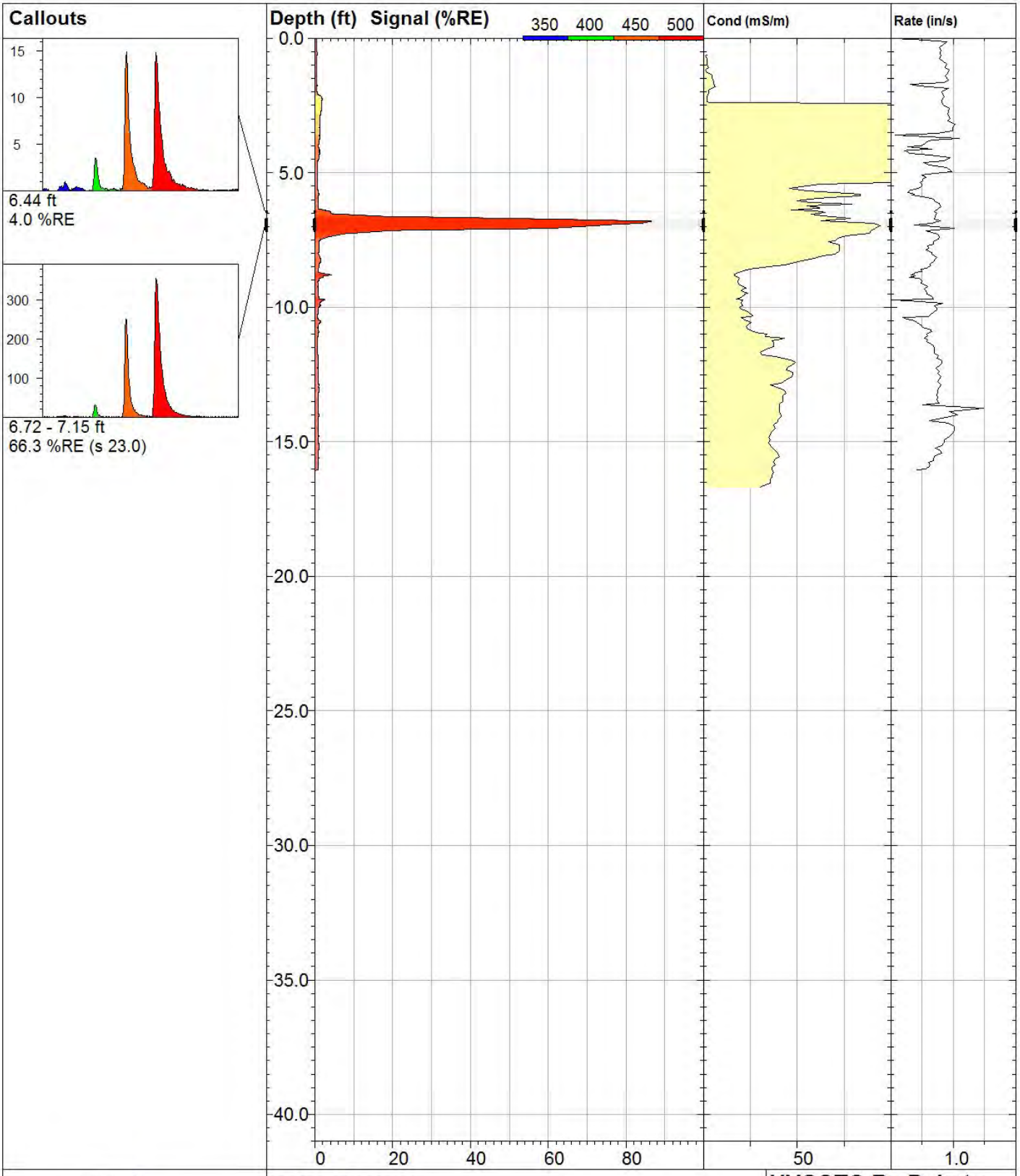
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.12 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.8 %RE @ 2.84 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 09:38 CDT**



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LIF-E0630

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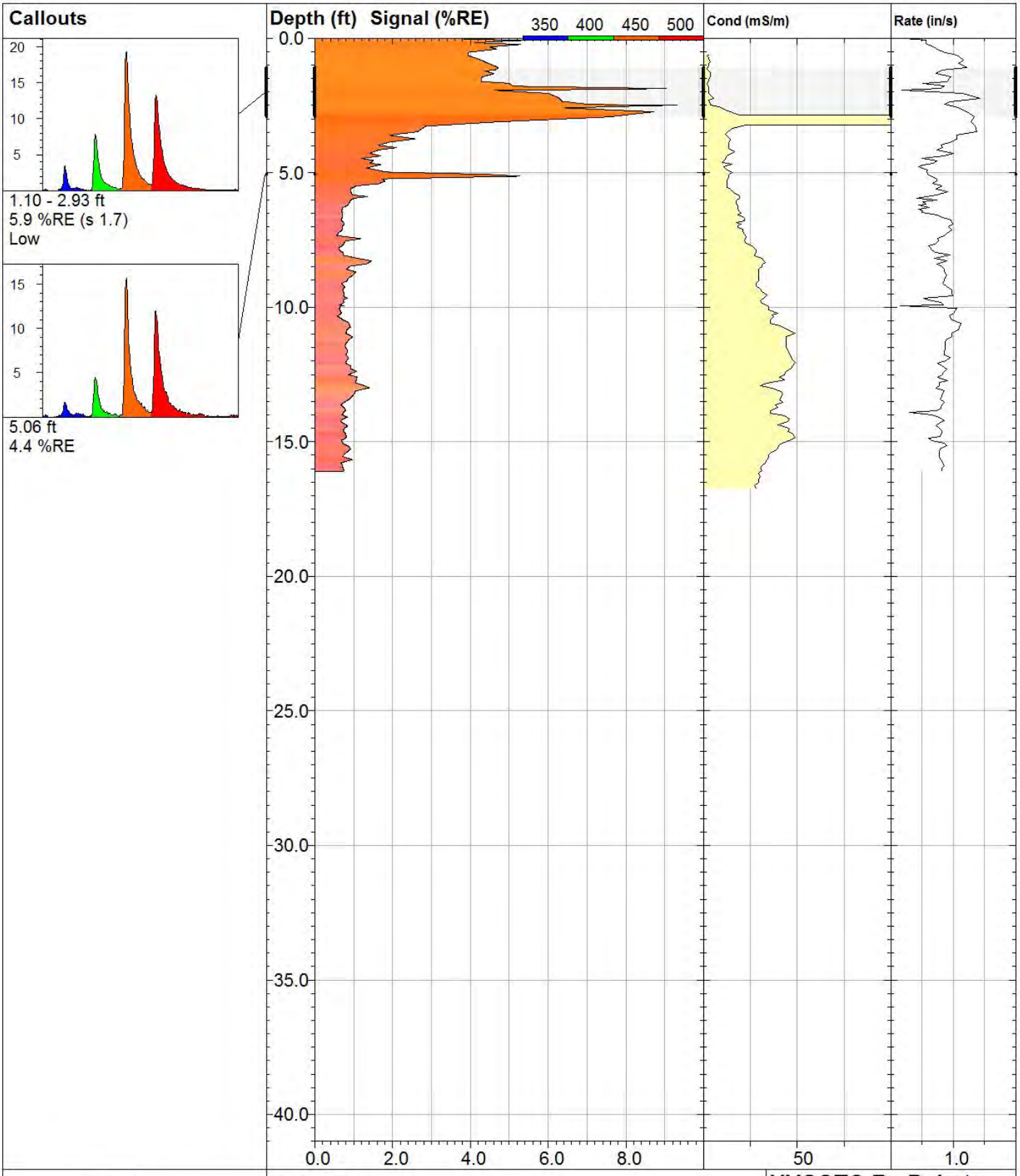
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.06 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **86.6 %RE @ 6.80 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 10:51 CDT**



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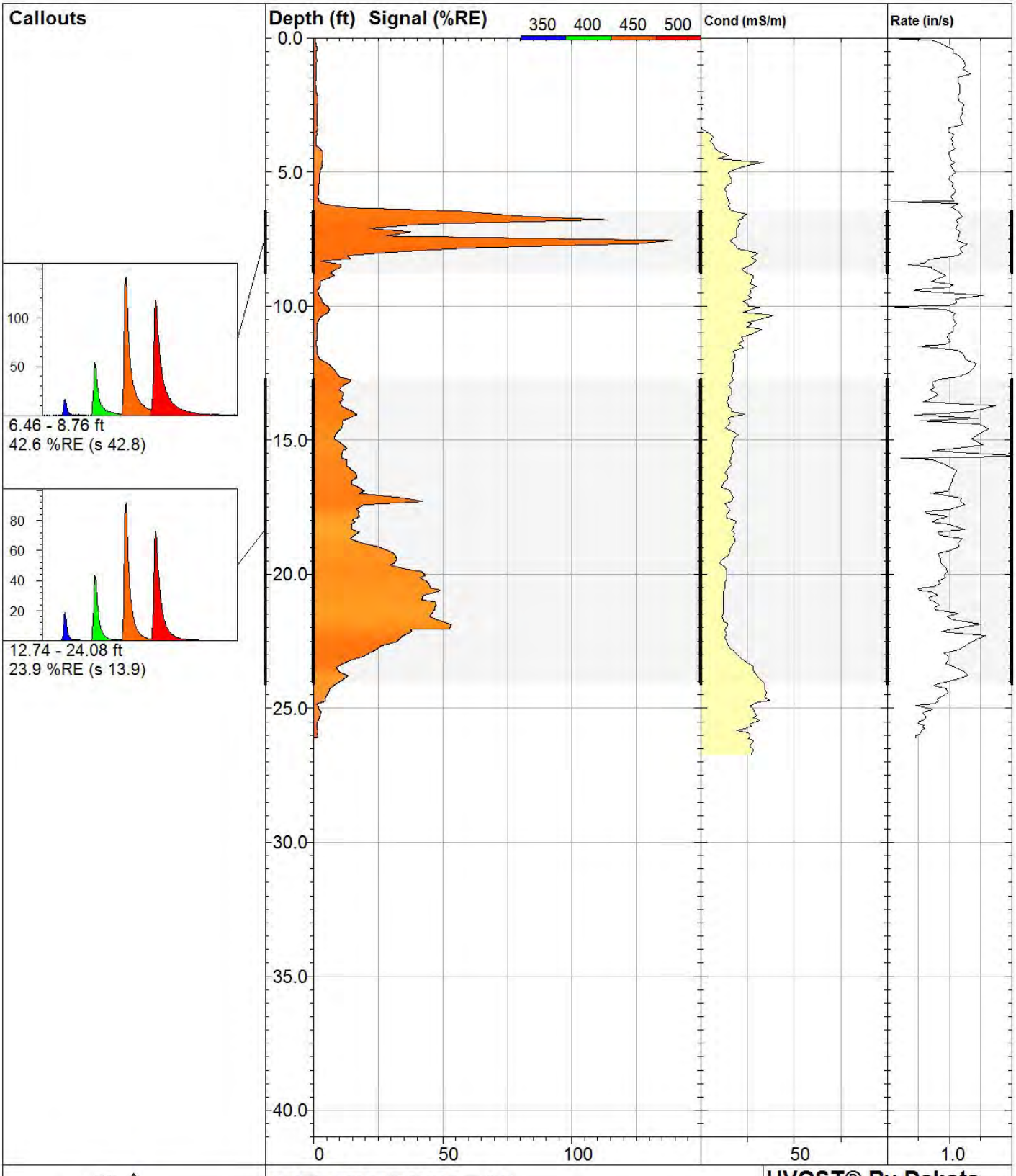
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.10 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.4 %RE @ 2.49 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-15 13:12 CDT**



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LIF-MW820NE20

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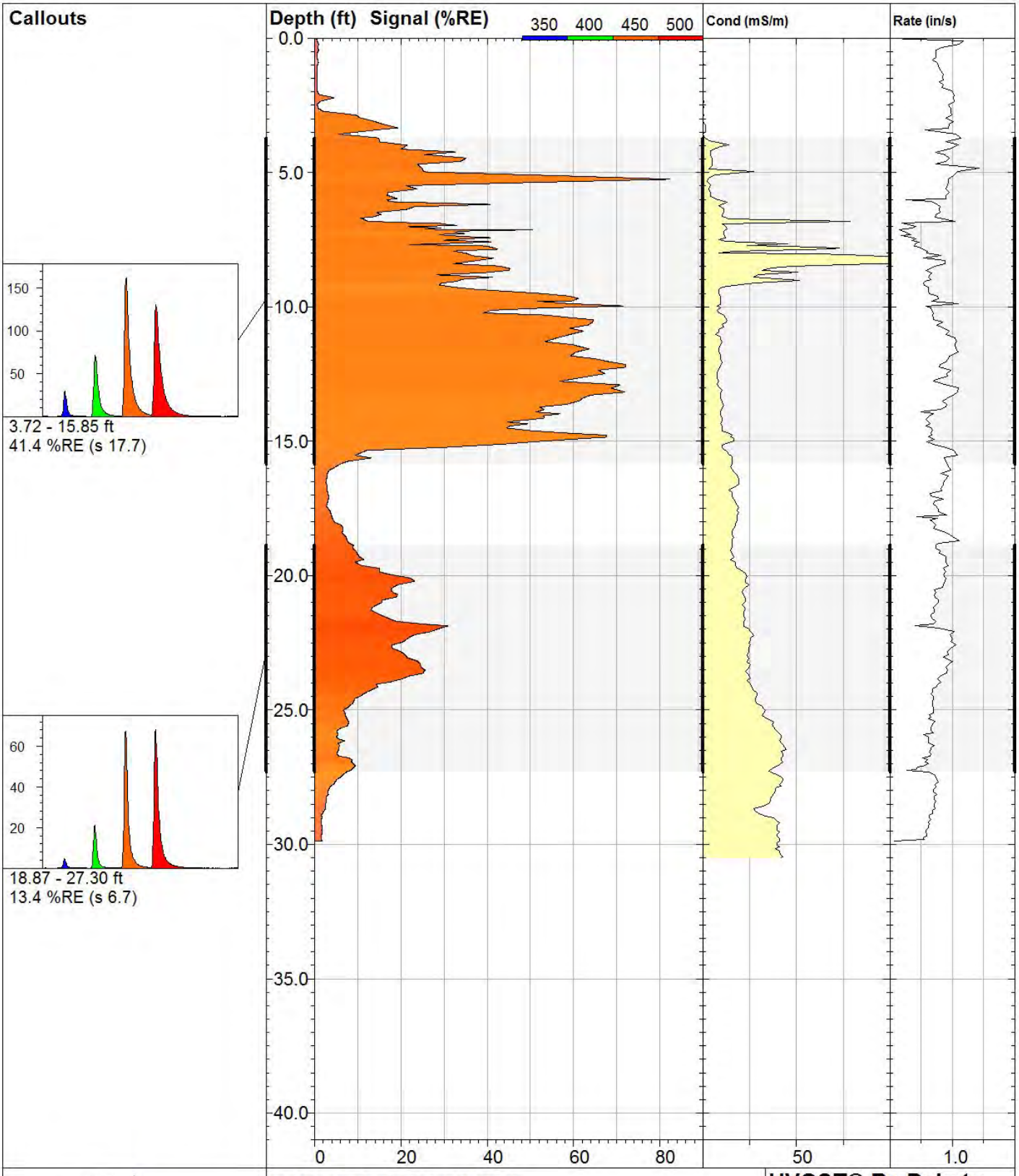
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **138.8 %RE @ 7.55 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 09:36 CDT**



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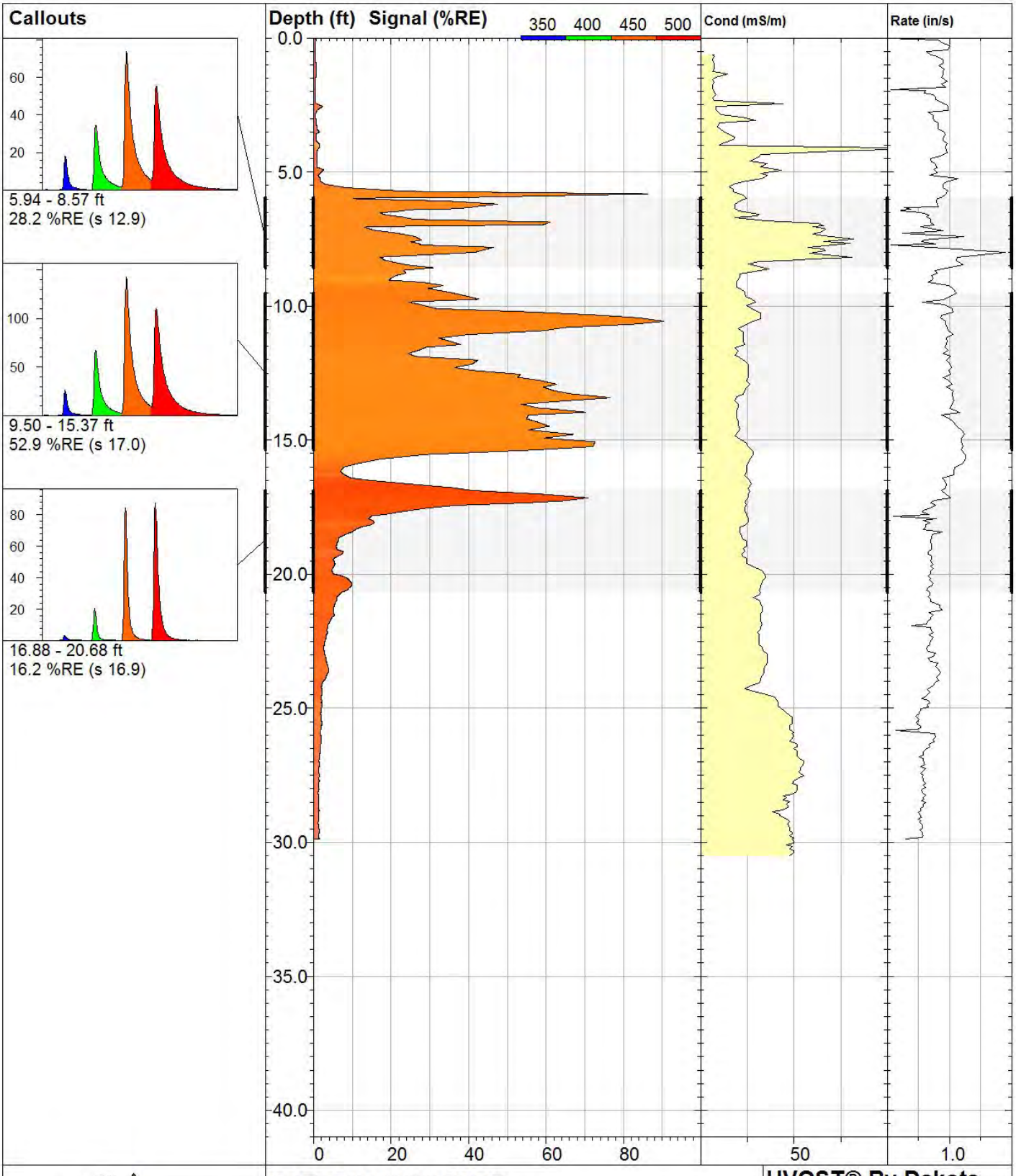
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.87 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **82.8 %RE @ 5.25 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 10:14 CDT**



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LIF-MW820SW5

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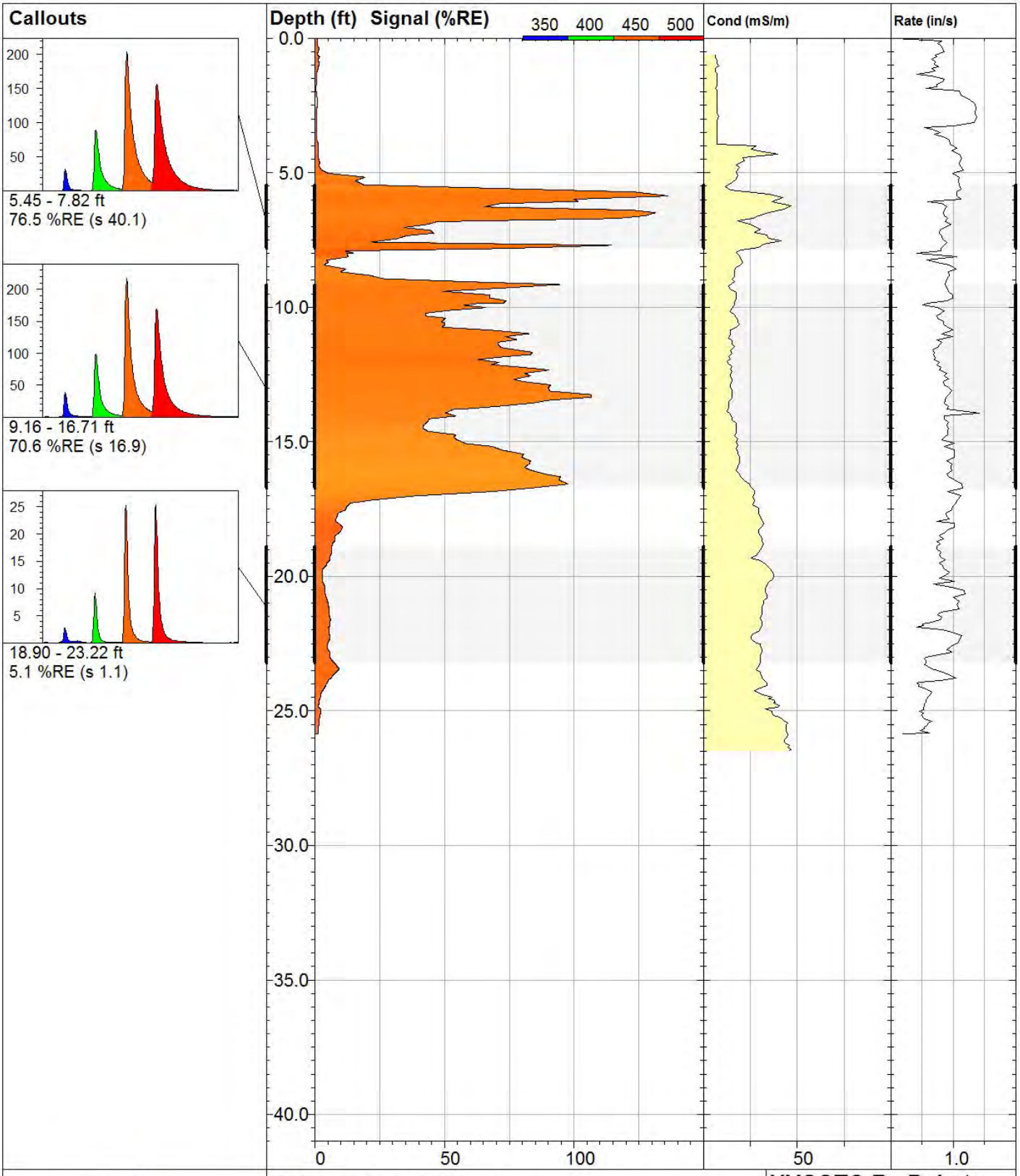
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.88 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **90.4 %RE @ 10.57 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 10:58 CDT**



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LIF-MW820W10

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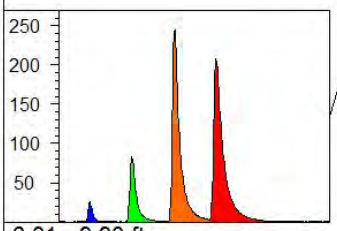
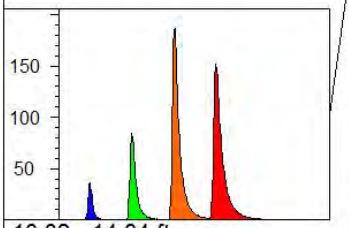
Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.85 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **136.4 %RE @ 5.87 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-16 11:38 CDT**

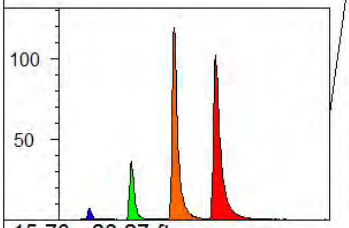
Callouts



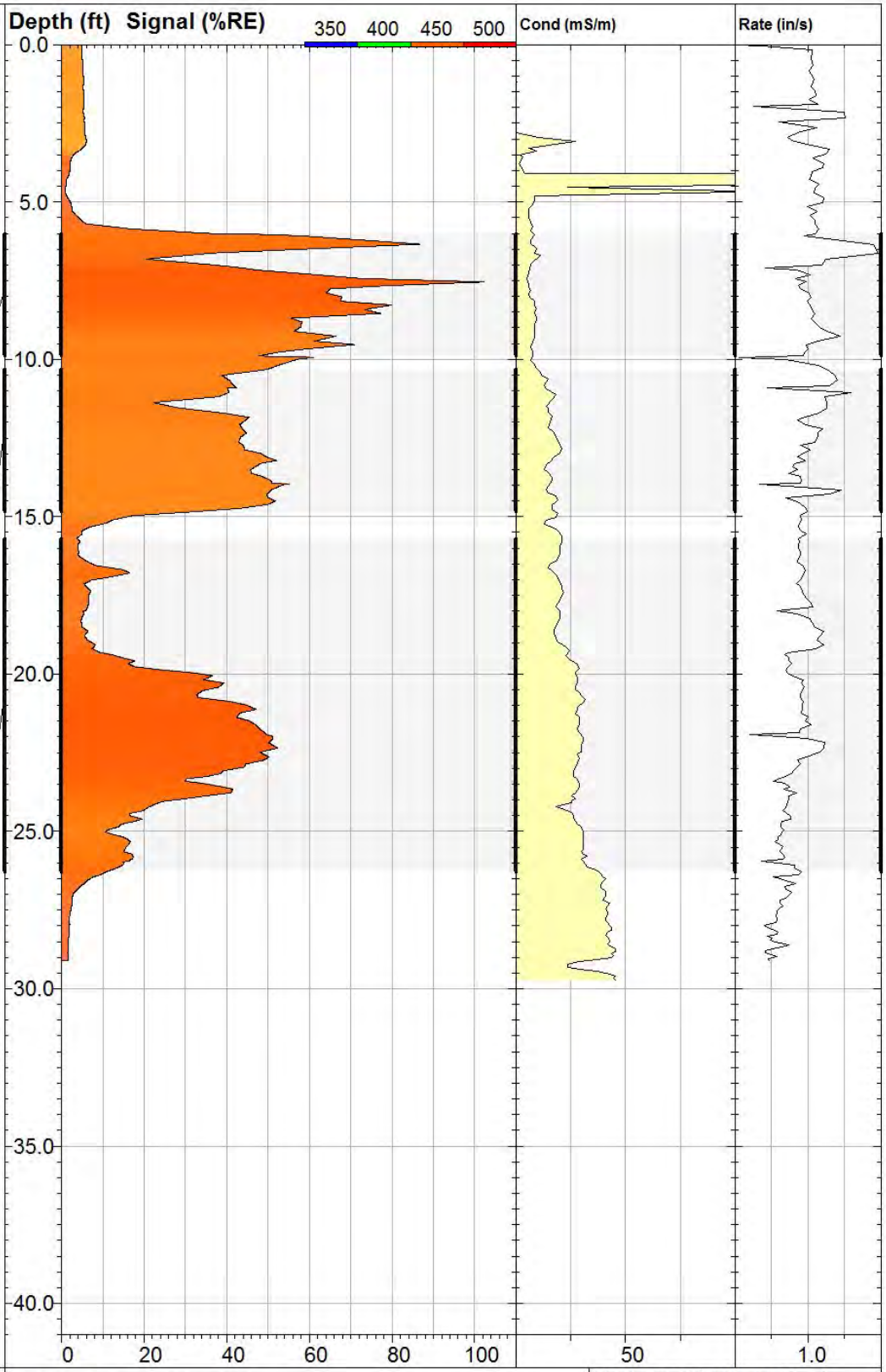
6.01 - 9.90 ft
60.2 %RE (s 16.9)



10.32 - 14.84 ft
44.7 %RE (s 6.7)



15.70 - 26.27 ft
22.5 %RE (s 15.6)



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LIF-MW820W45

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Site: **Former Coke Plant**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.11 ft**
Client / Job: **Ramboll Environ / 0102.17**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **102.5 %RE @ 7.54 ft**
Operator / Unit: **DS / UVOST1003**	*Elevation:* **Unavailable**	*Date & Time:* **2017-05-18 10:47 CDT**

Appendix D

UVOST® Reference Log

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UVOST® Reference Log

Main Plot:
Signal (total fluorescence) versus depth where signal is relative to the Reference Emitter (RE). The total area of the waveform is divided by the total area of the Reference Emitter yielding the %RE. This %RE scales with the NAPL fluorescence. The fill color is based on relative contribution of each channel's area to the total waveform area (see callout waveform). The channel-to-color relationship and corresponding wavelengths are given in the upper right corner of the main plot.

Callouts:
Waveforms from selected depths or depth ranges showing the multi-wavelength waveform for that depth. The four peaks are due to fluorescence at four wavelengths and referred to as “channels”. Each channel is assigned a color.

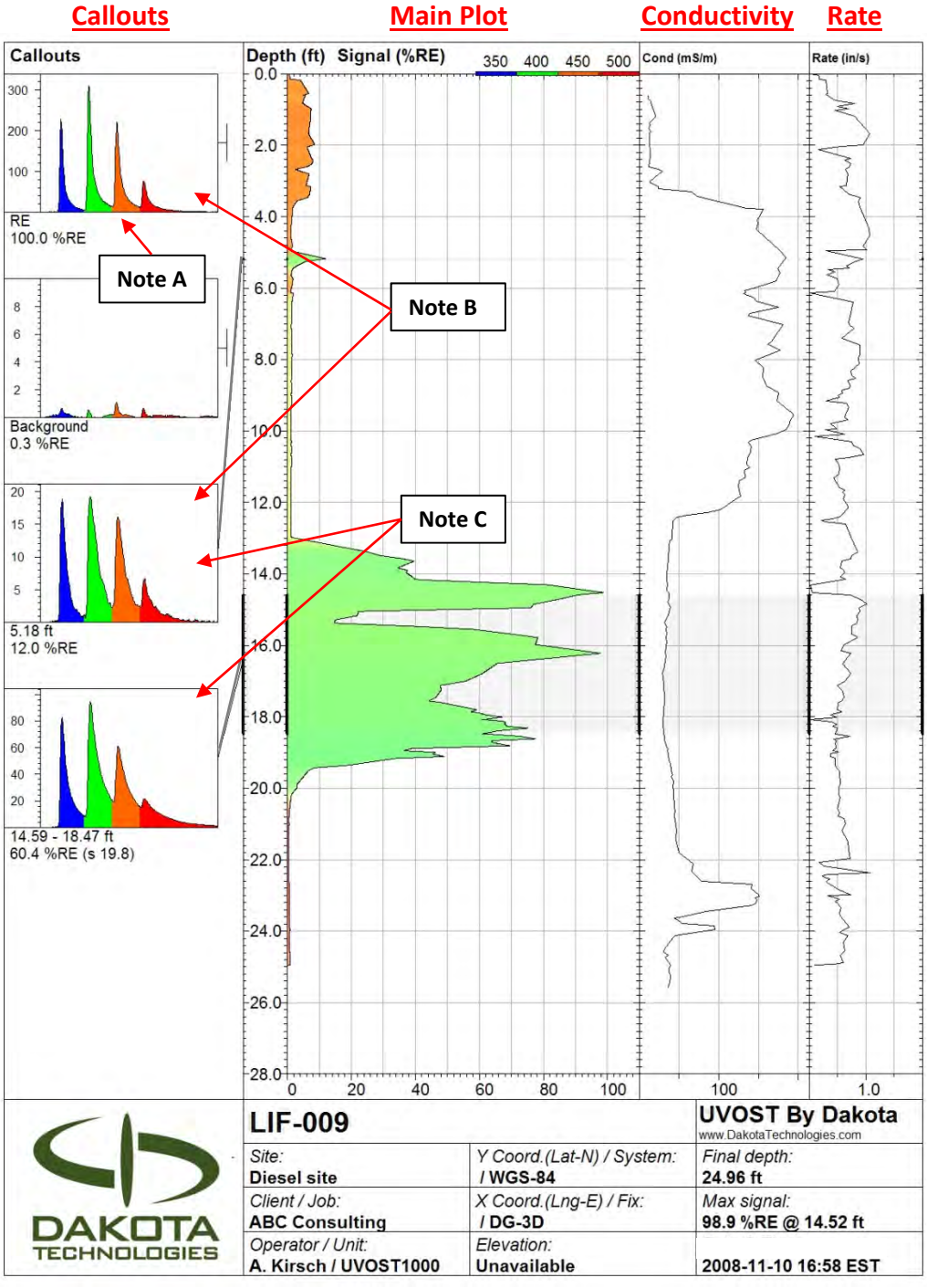
Various NAPLs will have a unique waveform "fingerprint“ due to the relative amplitude of the four channels and/or broadening of one or more channels. Basic waveform statistics and any operator notes are given below the callout.

Conductivity Plot:
The Electrical Conductivity (EC) of the soil can be logged simultaneously with the UVOST data. EC often provides insight into the stratigraphy. Note the drop in EC from 10 to 13 feet, indicating a shift from finer (clay) to larger grain size (sand) stratigraphy. This correlates with the observed NAPL distribution.

Rate:
The rate of probe advancement. Approx. 0.8 inches (2cm) per second is preferred. A noticeable decrease in the rate of advancement may be indicative of difficult probing conditions (gravel, angular sands, etc.) such as that seen here at approx. 5 ft.

Note that this log was terminated arbitrarily, not due to "refusal," which would have been indicated by a sudden rate drop at final depth.

Information Box:
Contains pertinent log information, including name and location.



Note A:
Time is along the x axis. No scale is given on callouts, but it is a consistent 320ns wide. The y axis is in mV and directly corresponds to the amount of light striking the photodetector.

Note B:
These two waveforms are clearly different. The top box is the Reference Emitter (a blend of NAPLs) always taken before each log for calibration, and the lower box is weathered diesel from the log itself.

Note C:
Callouts can be a single depth (see 3rd callout) or a range (see 4th callout). The range is noted on the depth axis by a bold line. When the callout is a range, the average and standard deviation in %RE is given below the callout.

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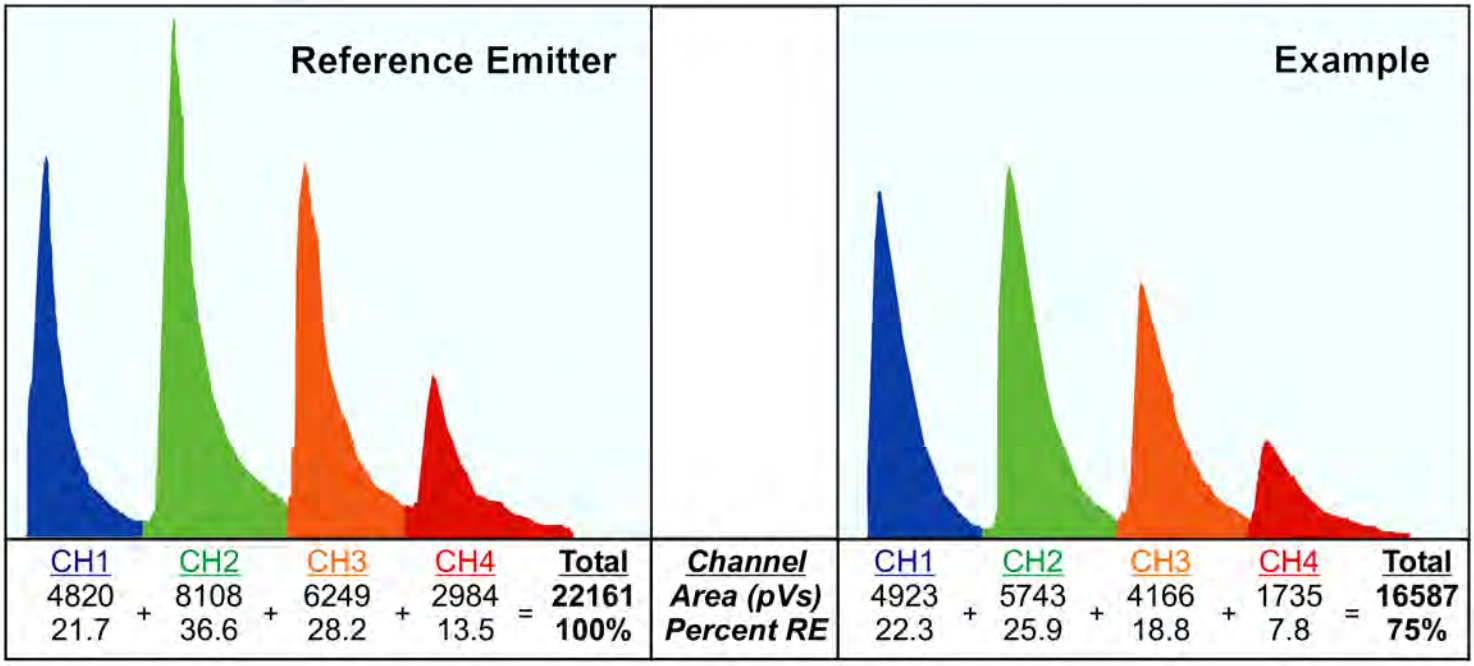
UVOST® Reference Log

Waveform Signal Calculation

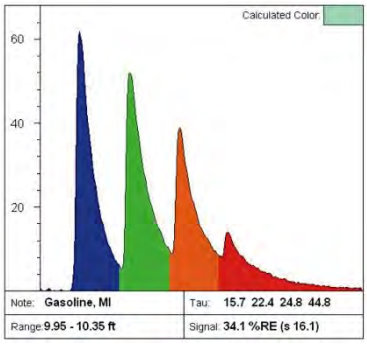


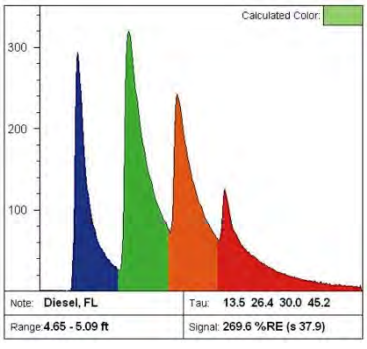
CH1	CH2	CH3	CH4	Total		CH1	CH2	CH3	CH4	Total
4820	8108	6249	2984	22161	*Channel*	4923	5743	4166	1735	16587
21.7	36.6	28.2	13.5	100%	*Area (pVs)* *Percent RE*	22.3	25.9	18.8	7.8	75%

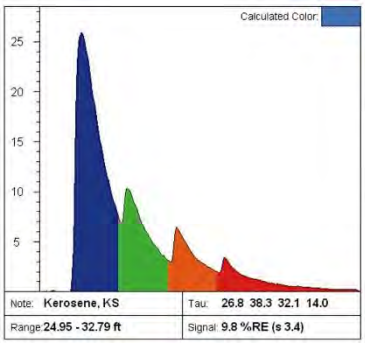
Data Files

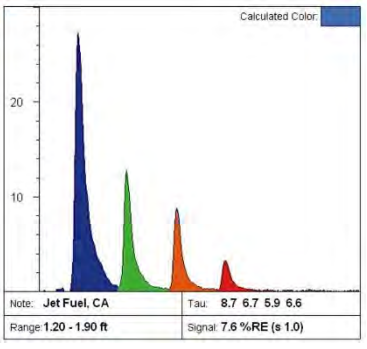
***.lif.raw.bin**	Raw data file. Header is ASCII format and contains information stored when the file was initially written (e.g. date, total depth, max signal, GPS, etc., and any information entered by the operator). All Raw waveforms are appended to the bottom of the file in a binary format.
***.lif.plt**	Stores the plot scheme history (e.g. callout depths) for associated Raw file. Transfer along with the Raw file in order to recall previous plots.
***.lif.jpg**	A .jpg image of the OST log including the main signal vs. depth plot, callouts, information, etc.
***.lif.dat.txt**	Data export of a single Raw file. Tab delimited format. No string header is provided for the columns to make importing into some programs easier. Each row is a unique depth reading. The columns are: 1-Depth; 2-Total Signal (%RE); 3-CH1%; 4-Ch2%; 5-CH3%; 6-Ch4%; 7-Rate; 8-EC Depth; 9-EC Signal; 10-Hammer Rate Depth; 11-Hammer Rate; 12-Color (RRGGBB). Summing channels 1 to 4 yields the Total Signal.
***.lif.sum.txt**	A summary file for a number of Raw files. ASCII tab delimited format. The file contains a string header. The summary includes one row for each Raw file and contains information for each filed including: the file name, GPS coordinates, max depth, max signal, and depth at which the max signal occurred.
***.lif.log.txt**	An activity log generated automatically is located in the OST application directory in the 'log' subfolder. Each OST unit the computer operates will generate a separate log file per month. A log file contains much of the header information contained within each separate Raw file, including: data rate, total depth, max signal, etc.

Common Waveforms (highly dependent on soil, weathering, etc.)









Ramboll Environ
Former Coke Plant
East Chicago, IN
Project No: 102.17

GPS Locations Map

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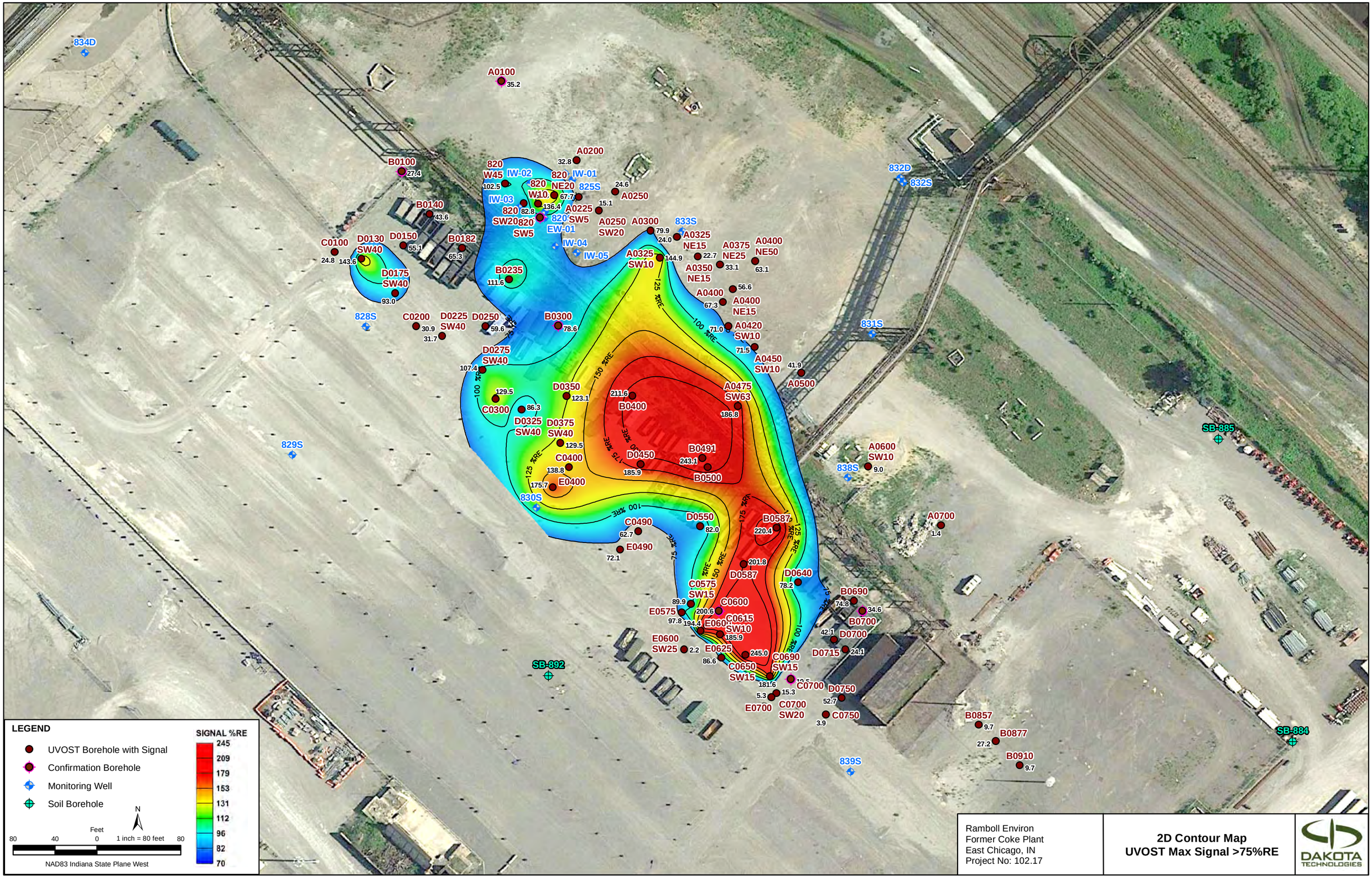
834D
A0100
35.2
A0200
32.8
B0100
27.4
820 W45
102.5
IW-02
820 NE20
820 W10
67.7
825S
24.6
A0250
IW-03
136.4
A0225
15.1
B0140
43.6
820 SW20
82.8
820 SW5
820 SW5
EW-01
A0250 SW20
A0300
79.9
24.0
833S
A0325 NE15
22.7
A0375 NE25
33.1
A0400 NE50
63.1
C0100
24.8
143.6
D0130 SW40
65.3
D0150
55.1
B0182
65.3
IW-04
IW-05
A0325 SW10
144.9
A0350 NE15
B0235
111.6
D0175 SW40
93.0
56.6
A0400
67.3
A0400 NE15
828S
C0200
30.9
31.7
D0225 SW40
D0250
59.6
B0300
78.6
71.0
A0420 SW10
71.5
D0275 SW40
107.4
A0450 SW10
41.9
A0500
125 %RE
100 %RE
150 %RE
175 %RE
129.5
D0350
123.1
211.6
B0400
A0475 SW63
186.8
C0300
86.3
D0325 SW40
D0375 SW40
129.5
B0491
243.1
C0400
138.8
D0450
185.9
B0500
E0400
175.7
829S
830S
D0550
82.0
C0490
62.7
E0490
72.1
B0587
220.4
201.8
D0587
D0640
78.2
C0575 SW15
89.9
C0600
200.6
E0575
97.8
194.4
C0615
E060
SW10
185.9
E0600 SW25
2.2
E0625
86.6
245.0
C0690 SW15
C0650 SW15
181.6
C0700
15.3
5.3
E0700
C0700 SW20
D0750
52.7
C0750
3.9
SB-892
831S
832D
832S
SB-885
838S
A0600 SW10
9.0
A0700
1.4
B0690
74.8
34.6
B0700
42.1
D0700
D0715
24.1
B0857
9.7
B0877
27.2
B0910
9.7
839S
SB-884
LEGEND
UVOST Borehole with Signal
Confirmation Borehole
Monitoring Well
Soil Borehole
SIGNAL %RE
245
209
179
153
131
112
96
82
70
N
Feet
80 40 0 1 inch = 80 feet 80
NAD83 Indiana State Plane West
Ramboll Environ
Former Coke Plant
East Chicago, IN
Project No: 102.17
2D Contour Map
UVOST Max Signal >75%RE
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APPENDIX G

LEVEL IV LABORATORY REPORTS

Included on CD in Hard Copy

APPENDIX H

EXPANDED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT ADDENDUM

ADDENDUM TO EXPANDED SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

Ramboll Environ US Corporation (Ramboll Environ) prepared an expanded screening level ecological risk assessment (SLERA) for the former Coke Plant property (the "site") that lies within the ArcelorMittal, LLC (West Mill) property, which is located at 3001 Dickey Road in East Chicago, Lake County, Indiana. The SLERA was submitted to the United States Environmental Protection Agency (USEPA) in November 2015 (Ramboll Environ, 2015). The assessment concluded that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.

The SLERA was phased, whereby the most conservative approach was used in the first tier to readily screen out those constituents that clearly do not pose an ecological risk, with subsequent tiers providing more detailed, accurate and site-specific analyses for only those constituents that did not screen out at the initial tier. Most constituents screened out in Tier 1 or Tier 2. The Tier 3 risk analysis ruled out the likelihood of adverse effects on aquatic organisms from the remaining constituents. USEPA accepted the SLERA on August 8, 2016, following several rounds of review, comments, and revisions.

Since the submission and acceptance of the SLERA, additional groundwater samples have been collected and analyzed. This addendum applies these more recent data to the Tier 3 risk analysis with the objective of determining whether the new data change the overall conclusions of the SLERA.

Consistent with the SLERA (Ramboll Environ, 2015), the following are evaluated in the revised Tier 3 risk analysis for aquatic organisms:

- Metals: cadmium, copper, iron, manganese, potassium, selenium, and sodium;
- Polycyclic aromatic hydrocarbons (PAHs): low molecular weight polycyclic aromatic hydrocarbons (LMWPAHs) and high molecular weight polycyclic aromatic hydrocarbons (HMWPAHs);
- Semivolatile organic compounds (SVOCs): 2,4-dimethylphenol, bis(2-chloroethoxy)methane, and phenol;
- Volatile organic compounds (VOCs): benzene and methyl chloride;
- Other: cyanide, ammonia, phenolics, sulfate, and sulfide.

The Tier 3 methodology is virtually identical to those used in the 2015 SLERA (other than using the updated dataset) and are not detailed here. In brief, the above constituents are evaluated based on refined screening values[1], evaluation of the nine monitoring wells that are most representative of groundwater that discharges to the canal via the breach in the sheet pile wall, a site-specific groundwater to surface water dilution factor, volatility, and frequency of detection. The nine groundwater monitoring wells considered in this analysis are: MW-803S, MW-808S, MW-809S, MW-809M, MW-810S, MW-817S, MW-826M, MW-826S, and MW-827S.

For the constituents considered in the refined risk analysis, Tier 3 concentrations are generated based on the 95% UCL (or maximum) concentrations from the nine wells (2012, 2013, and 2017 data combined) divided by the estimated dilution factor of 3,250. Table 1 lists the Tier 3 modeled surface water concentrations. HQs are calculated in Table 1 as the ratios of the Tier 3 surface water concentrations to the refined screening values. HQs could not be calculated for bis(2-chloroethoxy)methane or methyl chloride because screening values were not identified for these two constituents. HQs do not exceed

[1] The refined screening values were selected in a manner consistent with that of the 2015 SLERA, except that Region 4 ESLs are now recommended by Region 5.

1 for the remaining 17 constituents, indicating that adverse effects are unlikely and no further ecological evaluation is warranted. Both bis(2-chloroethoxy)methane and methyl chloride are evaluated qualitatively as described in the SLERA (Ramboll Environ, 2015).

In summary, the 2017 sampling data confirm the previous conclusion that significant ecological risks are not predicted for aquatic organisms exposed to constituents in groundwater that are released to the ship canal via the breach in the sheet pile wall.

References

Ramboll Environ. 2015. Expanded Screening Level Ecological Risk Assessment. Prepared for ArcelorMittal USA. November.

USEPA. 2018. Region 4 Ecological Risk Assessment Supplemental Guidance. March 2018 Update. United States Environmental Protection Agency.

Table 1: Revised Tier 3 Analysis

Constituent	Tier 3 Estimated Surface Water Concentration[a] (mg/L)	Screening Value (mg/L)	Screening Value Basis[b]	Hazard Quotient
Cadmium	ND	0.0010	ESL	ND
Copper	0.0000026	0.013	ESL	0.0002
Iron	0.00237	1	ESL	0.002
Manganese	0.00016	0.093	ESL	0.002
Potassium	0.0088	202	RSV	0.00004
Selenium	0.0000020	0.005	ESL	0.0004
Sodium	0.080	680	ESL	0.0001
Cyanide, total	0.00015	0.0052	ESL	0.03
Nitrogen, ammonia (as N)	0.037	0.68	ASV	0.05
Phenolics, total recoverable	0.0012	0.16	ESL	0.008
Sulfate	0.19	360	RSV	0.0005
Sulfide	0.0019	0.02	ASV	0.1
LMWPAH	0.000015	0.0017	ASV	0.009
HMWPAH	0.0000013	0.0016	ASV	0.0008
2,4-dimethylphenol	0.00014	0.015	ESL	0.009
bis(2-chloroethoxy)methane	ND	NSV	NSV	NSV
Phenol	0.0008	0.16	ESL	0.005
Benzene	0.0048	0.16	ESL	0.03
Methyl chloride (chloromethane)	0.00000011	NSV	NSV	NSV

a. Estimated based on 95% upper confidence limits of mean groundwater concentrations in the nine wells with potential to discharge via the breach in the sheet pile wall (i.e., MW-803S, MW-808S, MW-809S, MW-809M, MW-810S, MW-817S, MW-826M, MW-826S, and MW-827S) and adjusted using a site-specific dilution factor of 3250, as described in Attachment 3 of SLERA (Ramboll Environ, 2015).

b. Screening values were selected in the following hierarchy: ESL, ASV, RSV.

ASV: Alternative Screening Value; basis is listed in Table 2-1 of the SLERA (Ramboll Environ, 2015).

ESL: United States Environmental Protection Agency Region 4 Ecological Screening Level

mg/L: milligram(s) per liter

ND: constituent was never detected in the Tier 3 wells

NSV: no screening value

RSV: Refined screening value, as described in Table 4-1 of the SLERA (Ramboll Environ 2015).

APPENDIX I

FOCUSED HUMAN HEALTH RISK ASSESSMENT ADDENDUM

ADDENDUM TO THE FOCUSED HUMAN HEALTH RISK ASSESSMENT (HHRA)

Ramboll Environ US Corporation (Ramboll Environ) prepared a focused Human Health Risk Assessment (HHRA) for the former Coke Plant property (the "site") that lies within the ArcelorMittal, LLC (West Mill) property, which is located at 3001 Dickey Road in East Chicago, Lake County, Indiana. The HHRA was submitted to the United States Environmental Protection Agency (USEPA) in as Appendix C of the Ramboll Environ Pre-Design Work Plan (Revision 2) in September 2016 (Ramboll Environ, 2016). Despite the use of numerous health protective assumptions, this Focused HHRA did not identify any constituents in groundwater that pose an unacceptable risk for human receptors. As indicated in the HHRA, the Pre-Design investigation included further characterization of the clean granular fill layer overlying slag-fill/soil at the Site and those data are described further here.

Analyses for Groundwater

The 2016 HHRA screening of site groundwater was based on data from 2012 and 2013. This analysis uses the same approach used in the 2016 HHRA, but the analysis is updated to include data from 2012, 2013, and one round of data from 2017 to determine whether inclusion of these data change the conclusions of the HHRA.

As in the 2016 analysis this updated HHRA included seven steps: Step 1: identification of non-detected constituents in groundwater, which are not considered further; Steps 2 and 3: comparison of maximum detected constituent concentrations with Maximum Contaminant Levels (MCLs), and Risk Based Concentrations (RBCs)[1], respectively; and Step 4: comparison of the 95 percent upper confidence limit (UCL) on-site groundwater concentrations with their respective MCLs, or RBCs. Site groundwater concentrations included data from 2012, 2013, and 2017 and were considered first based on maximum concentrations (Steps 1 to 3) and then based on a 95 percent UCL on the mean (UCL) (Step 4).

The UCL used in Step 4 was based on wells most proximate to the breach in the sheet piling (i.e., MW-827S, MW-810S, MW-826S, MW-826M, MW-809S, and MW-809M), and wells which were used to define the UCLs for arsenic, benzene, and sodium (i.e., MW-803S, MW-808S, MW-808D, MW-809D, and MW-817S). In these first four steps, the dilution of groundwater constituents in migration from groundwater to surface water was represented through application of a 10-fold dilution factor that was applied to the MCL and RBCs for non-bioaccumulative constituents. Step 5 was conducted for arsenic, benzene, and sodium and included comparison of the their respective UCLs calculated based on a more representative set of wells (i.e., excluding deep wells MW-808D and MW-809D) and a site-specific dilution factor of 3,250 as detailed in Attachment 3 of the SLERA (*Technical Memorandum: Estimated Groundwater Discharge to Surface Water Dilution Factor Former Coke Plant, ArcelorMittal, East Chicago, Indiana*).

Table 3-1 shows the findings of Steps 1 through 5. As indicated there, no constituents had UCLs greater than their respective screening levels in Step 5 indicating risks were within acceptable levels.

Potential risks related to consumption of fish that bioaccumulate constituents from groundwater were considered in Steps 6 and 7 through comparison with RBCs calculated using USEPA (2018) RSL calculator and assuming 32 gallons per day (g/day), for 350 days per year for 26 years, which is equivalent to fifty 8-ounce meals per year. This analysis considered bioaccumulative compounds, arsenic, cadmium, chromium, copper, lead, nickel, selenium, and zinc by estimating tissue concentrations through use of bioconcentration factors (Table 3-2). Consistent with the SLERA, polycyclic aromatic hydrocarbons

[1] RBCs for surface water and for fish tissue were updated for this assessment using the USEPA Regional Screening Level calculator and the same assumptions as applied in the 2016 HHRA.

(PAHs) were not considered because of rapid metabolism. In Step 6, RBCs for fish consumption were compared with estimated fish tissue concentrations derived using the 95 percent upper confidence limit on the mean calculated based on the 11 wells described in Step 4. This analysis determined that arsenic concentrations in fish tissue would exceed the screening RBC for fish consumption (Table 3-3).

Only arsenic was considered further in Step 7, which included comparison of the arsenic tissue concentration derived based on the UCL from 9 wells (i.e., excluding deep wells MW- 808D and MW-809D) and the site-specific dilution factor as described in the SLERA Attachment 3. Consistent with the findings of the 2016 HHRA, these analyses indicated that consumption of 50 meals per year of fish that have bioaccumulated constituents from the Ship Canal would not represent an unacceptable human health risk (Table 3-3).

Analyses for Soil

Slag-fill data collected in 2012 and in 2017 were compared with the Data Quality Objectives (DQO) (Table 3-4). In this comparison, the data for the shallowest slag-fill interval (<2 feet below ground surface) and the DQOs for direct contact with slag-fill are the most relevant for consideration at this site. In Table 3-4, the site data for surface slag-fill are compared with the Indiana Department of Environmental Management (IDEM) screening levels for direct contact with commercial or industrial soils that were in place in 2009 and were identified as DQOs, and also with the IDEM commercial industrial screening values that were updated in 2018. While several PAHs had concentrations in at least on location that were greater than the 2009 direct contact values (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3)pyrene), only benzo(a)pyrene had a concentration greater than the 2018 IDEM Screening Levels. A UCL of 11.7 mg/kg was calculated for benzo(a)pyrene based on all available surface soil data for 2012 and 2017. The site UCL is lower than the 2018 IDEM screening value of 21 mg/kg for benzo(a)pyrene, indicating that risks are within acceptable levels.

Conclusions

Despite the use of numerous health protective assumptions, this Focused HHRA update did not identify any constituents in groundwater or soil that pose an unacceptable risk for human receptors. In addition, although this assessment has been based on current groundwater concentrations, we have concluded that groundwater will be remediated, which will result in lower groundwater concentrations than have been assumed in this report. As such, the Focused HHRA overestimates site concentrations and risks; and therefore, is considered to be highly health protective of site users.

References

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TABLES

Table 3-1: Human Health Risk Screening: Comparison of Groundwater Constituent Concentrations with MCLs and RBCs

Group	Analyte	Frequency of Detection	Maximum Detect	Units	Step 1: Detected Ever Detected?	Step 2: MCL Compared with Max				Step 3: Risk-based Concentrations Compared with Max				Step 4: SL Compared to UCL of 11 Wells[D]				Step 5: Unadjusted SL Compared to UCL of 9 Wells[E]			
						MCL (mg/L)	Adjusted MCL[A]	Max/Adj MCL	Retain Further?	RBC (mg/L)[G]	Adjusted RBC (mg/L)[A]	Max/Adj RBC	Retain Further?	95% BCA UCL[D]	UCL/SL[A,B]	Retain?	Basis	95% BCA UCL[E]	UCL/SL[B]	Retain?	Basis
Metals	Antimony	15 / 24	0.0037	mg/L	**Yes**	0.006	0.06	0.06	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Arsenic*	22 / 24	0.2	mg/L	**Yes**	0.01	0.01	20	**Yes**	0.039	0.0387	5	**Yes**	0.058	1.5	**Yes**	**UCL > Adj SL**	5.48E-06	0.00014	No	SL > UCL
Metals	Beryllium	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
Metals	Boron	24 / 24	0.45	mg/L	**Yes**	NA	NA	NA	**Yes**	1,440	14400	0.00003	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Cadmium*	3 / 24	0.00042	mg/L	**Yes**	0.005	0.005	0.08	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Chromium*	22 / 24	0.024	mg/L	**Yes**	0.100	0.10	0.2	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Copper*	24 / 24	0.11	mg/L	**Yes**	1.300	1.30	0.08	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Iron	23 / 24	7.7	mg/L	**Yes**	NA	NA	NA	**Yes**	5,050	50500	0.0002	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Lead*	15 / 24	0.0016	mg/L	**Yes**	0.015	0.02	0.1	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Manganese	24 / 24	1.5	mg/L	**Yes**	NA	NA	NA	**Yes**	79	785	0.0019	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Mercury	2 / 24	0.000056	mg/L	**Yes**	0.002	0.02	0.003	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Molybdenum	22 / 24	0.023	mg/L	**Yes**	NA	NA	NA	**Yes**	36.1	361	0.00006	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Nickel*	23 / 24	0.018	mg/L	**Yes**	NA	NA	NA	**Yes**	120	120	0.0002	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Potassium	24 / 24	62	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
Metals	Selenium*	24 / 24	0.027	mg/L	**Yes**	0.050	0.05	0.5	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Silver*	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
Metals	Sodium	24 / 24	1300	mg/L	**Yes**	20 [C]	200.00	6.50	**Yes**	NSL	NA	NA	**Yes**	428.4	2.14	**Yes**	**UCL > Adj SL**	0.039	0.0020	No	SL > UCL
Metals	Thallium	10 / 24	0.0032	mg/L	**Yes**	0.002	0.02	0.2	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
Metals	Tin	13 / 24	0.011	mg/L	**Yes**	NA	NA	NA	**Yes**	4,330	43300	0.0000003	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Vanadium	23 / 24	0.096	mg/L	**Yes**	NA	NA	NA	**Yes**	12.6	126	0.0008	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Metals	Zinc*	24 / 24	0.032	mg/L	**Yes**	NA	NA	NA	**Yes**	2,210	2210	0.00001	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Other	Chloride	24 / 24	450	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
Other	Cyanide, Total	24 / 24	33	mg/L	**Yes**	0.200	2	17	**Yes**	4.33	43.3	0.8	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
Other	Nitrogen, Ammonia (As N)	24 / 24	370	mg/L	**Yes**	30 [C]	300	1.2	**Yes**	NSL	NA	NA	**Yes**	127.3	0.4	No	Adj SL > UCL	NR	NR	NR	Adj SL > UCL
Other	Phenolics, Total Recoverable	16 / 24	420	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
Other	Sulfate	24 / 24	9200	mg/L	**Yes**	500 c	5000	1.84	**Yes**	NSL	NA	NA	**Yes**	2735	0.547	No	Adj SL > UCL	NR	NR	NR	Adj SL > UCL
Other	Sulfide	20 / 24	350	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
PAHs	Acenaphthene*	21 / 36	0.085	mg/L	**Yes**	NA	NA	NA	**Yes**	27.4	27.4	0.003	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Acenaphthylene*	31 / 36	0.0031	mg/L	**Yes**	NA	NA	NA	**Yes**	4.5	4.49	0.0007	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Anthracene*	29 / 36	0.0042	mg/L	**Yes**	NA	NA	NA	**Yes**	73.3	73.3	0.0001	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Benzo[a]anthracene*	27 / 36	0.001	mg/L	**Yes**	NA	NA	NA	**Yes**	0.146	0.146	0.01	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Benzo[a]pyrene*	8 / 36	0.012	mg/L	**Yes**	0.0002	0.0002	60.0	**Yes**	0.015	0.0146	0.8	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Benzo[b]fluoranthene*	12 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	0.146	0.146	0.08	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Benzo[g,h,i]perylene*	12 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	4.490	4.49	0.0027	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Benzo[k]fluoranthene*	7 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	1.460	1.46	0.0082	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Chrysene*	7 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	14.600	14.6	0.0008	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Dibenzo[a,h]anthracene*	7 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	0.015	0.0146	0.82	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Fluoranthene*	17 / 36	0.018	mg/L	**Yes**	NA	NA	NA	**Yes**	304	304	0.00006	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Fluorene*	18 / 36	0.03	mg/L	**Yes**	NA	NA	NA	**Yes**	13.5	13.5	0.002	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	HMWPAH*	29 / 33	0.04864	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
PAHs	Indeno[1,2,3cd]pyrene*	9 / 36	0.012	mg/L	**Yes**	NA	NA	NA	**Yes**	0.146	0.146	0.08	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	LMWPAH*	31 / 33	0.254	mg/L	**Yes**	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
PAHs	Naphthalene	29 / 36	0.13	mg/L	**Yes**	NA	NA	NA	**Yes**	18.6	186	0.0007	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Phenanthrene*	20 / 36	0.0054	mg/L	**Yes**	NA	NA	NA	**Yes**	4.49	4.49	0.001	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
PAHs	Pyrene*	15 / 36	0.0071	mg/L	**Yes**	NA	NA	NA	**Yes**	4.49	4.49	0.002	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	1,2,4-Trichlorobenzene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	1,2-Dichlorobenzene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	1,2-Diphenyl-hydrazine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	1,4-Dichlorobenzene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,4,5-Trichlorophenol	0 / 3		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,4,6-Trichlorophenol	0 / 45		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,4-Dichlorophenol	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,4-Dimethylphenol	18 / 36	3.6	mg/L	**Yes**	NA	NA	NA	**Yes**	58.2	582	0.006	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	2,4-Dinitrophenol	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,4-Dinitrotoluene	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2,6-Dinitrotoluene	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2-Chloronaphthalene	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2-Chlorophenol	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	2-Nitrophenol (o-Nitrophenol)	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	3,3-Dichlorobenzidine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	4,6-Dinitro-o-cresol	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	4-Bromophenyl phenyl ether*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	4-Chlorophenyl phenyl ether*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	4-Nitrophenol (p-Nitrophenol)	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Benzidine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	bis(2-Chloroethoxy)methane	1 / 36	0.046	mg/L	**Yes**	NA	NA	NA	**Yes**	18.2	182	0.00025	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	bis(2-Chloroethyl)ether	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	bis(2-Chloroisopropyl)ether	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	bis(2-Ethylhexyl)phthalate	10 / 36	0.065	mg/L	**Yes**	NA	NA	NA	**Yes**	4.62	46.2	0.00141	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	Butyl benzyl phthalate	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Diethyl phthalate	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Dimethyl phthalate	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Di-n-butyl phthalate	18 / 36	0.044	mg/L	**Yes**	NA	NA	NA	**Yes**	46.7	467	0.00009	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	Di-n-octyl phthalate	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Hexachlorobenzene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Hexachlorobutadiene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Hexachlorocyclopentadiene*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Hexachloroethane*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Isophorone	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Nitrobenzene	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	N-Nitrosodimethylamine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	N-Nitrosodi-n-propylamine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	N-Nitrosodiphenylamine	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	p-Chloro-m-cresol	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Pentachlorophenol*	0 / 36		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
SVOCs	Phenol	19 / 36	120	mg/L	**Yes**	NA	NA	NA	**Yes**	1,490	14900	0.008	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
SVOCs	Total Cresol	5 / 12	96	mg/L	**Yes**	NA	NA	NA	**Yes**	160	1600	0.060	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
VOCs	1,1,1-Trichloroethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	1,1,2,2-Tetrachloroethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	1,1-Dichloroethane	1 / 24	0.085	mg/L	**Yes**	NA	NA	NA	**Yes**	4.00	40	0.00213	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
VOCs	1,1-Dichloroethene	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	1,2-Dichloroethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	1,2-Dichloropropane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	1,3-Dichloropropane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	2-Chloroethyl vinyl ether	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Acrolein	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Acrylonitrile	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected

Table 3-1: Human Health Risk Screening: Comparison of Groundwater Constituent Concentrations with MCLs and RBCs

					Step 1:	Step 2: MCL Compared with Max				Step 3: Risk-based Concentrations Compared with Max				Step 4: SL Compared to UCL of 11 Wells[D]				Step 5: Unadjusted SL Compared to UCL of 9 Wells[E]			
Group	Analyte	Frequency of Detection	Maximum Detect	Units	Ever Detected?	MCL (mg/L)	Adjusted MCL[A]	Max/Adj MCL	Retain Further?	RBC (mg/L)[G]	Adjusted RBC (mg/L)[A]	Max/Adj RBC	Retain Further?	95% BCA UCL[D]	UCL/SL[A,B]	Retain?	Basis	95% BCA UCL[E]	UCL/SL[B]	Retain?	Basis
VOCs	Benzene	19 / 24	82	mg/L	**Yes**	0.005	0.05	1640	**Yes**	0.259	2.59	32	**Yes**	18	7	**Yes**	**UCL > Adj SL**	0.0047	0.018	No	SL > UCL
VOCs	Bis(chloromethyl)ether [TIC]	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Bromoform	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Carbon tetrachloride	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Chlorobenzene	3 / 24	0.1	mg/L	**Yes**	0.100	1.0	0.1000	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
VOCs	Chloroethane	0 / 24		mg/L	No	NA	NA	NA	**Yes**	NSL	NA	NA	**Yes**	No SL	No SL	No SL	No SL	No SL	No SL	No SL	No SL
VOCs	Chloroform	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Dibromochloromethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Dichlorobromomethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Dichlorodifluoromethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Ethylbenzene	8 / 24	0.1	mg/L	**Yes**	0.700	7.0	0.014	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
VOCs	Methyl Bromide (Bromomethane)	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Methyl Chloride (Chloromethane)	4 / 24	0.1	mg/L	**Yes**	NA	NA	NA	**Yes**	0.19	1.9	0.05263	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
VOCs	Methylene chloride	7 / 24	0.84	mg/L	**Yes**	NA	NA	NA	**Yes**	4.50	45	0.02	No	NR	NR	NR	Adj RBC > Max	NR	NR	NR	Adj RBC > Max
VOCs	Tetrachloroethene	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Toluene	11 / 24	7.9	mg/L	**Yes**	1.000	10	0.8	No	NR	NR	NR	NR	NR	NR	NR	Adj MCL > Max	NR	NR	NR	Adj MCL > Max
VOCs	trans-1,2-Dichloroethene	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Trichlorofluoromethane	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected
VOCs	Vinyl chloride	0 / 24		mg/L	No	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Not Detected	NR	NR	NR	Not Detected

A. Nonbioaccumulative chemical screening levels are adjusted by a factor of 10 to account for dilution. Bioaccumlative chemical screening levels are not.
B. Where both an MCL and RBC were available, the RBC is preferentially used in this screening step. If no RBC is available (e.g., NH3), the MCL value is used.
C. Screening values for ammonia, sulfate and sodium are based on EPA's Health Advisory Levels
D. Surface water concentration is estimated as 95%UCL concentration in wells most proximate to the breach in the sheet piling and wells used to define the benzene plume (MW-803S, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-810S, MW-817S, MW-826S, MW-826M, MW-827S) sampled in 2012 and/or 2013. The surface water concentration was not estimated for any constituent that was not retained following Steps 1-3. This UCL is consistent with the UCL used in the SLERA Tier 2 evaluation.
E. Tier 3 surface water concentration for arsenic, soduim and benzene are estimated based on groundwater concentrations in the following nine wells (i.e., MW-803S, MW-808S, MW-809S, MW-809M, MW-810S, MW-817S, MW-826M, MW-826S, and MW-827S) to result in a UCLs, which are adjusted here using a site-specific dilution factor of 3,250, as described in SLERA Attachment 3 and as used in the SLERA Tier 4 evaluation.
F. Detection limits for arsenic in undetected samples were <0.00015 mg/L and detection limits for benzene ranged from <0.00008 mg/L to <0.00017 mg/L.
G. RBCs are not available for Acenaphthylene, Benzo[g,h,i]perylene and Phenanthrene. The RBC for Pyrene was used as a surrogate for these compounds.
An RBC is not available for Methyl Chloride. The Indiana residential tapwater screening value for Methyl Chloride was used instead.

*: Bioaccumulative as determined by Table 4-2 in EPA-823-R-00-001 (2000) "Bioaccumulation testing and interpretation for the purpose of sediment quality assessment."
HMWPAHs: high molecular weight PAHs. PAHs are addressed as individual compounds rather than the summed group of HMWPAHs in this screening.
LMWPAHs: Low molecular weight PAHs. PAHs are addressed as individual compounds rather than the summed group of LMWPAHs in this screening.
MCL: Maximum Contaminant Level
NA: Not available
No SL: No MCL or risk-based concentration values are available for these compounds.
NSL: No MCL or risk-based concentration values are available for these compounds.
NR: not relevant. Compounds screened out in previous step.
PAHs: polycyclic aromatic hydrocarbons
RBC: risk-based concentration
SL: screening level (refers to both MCL and RBC).
UCL: Upper confidence limit on the mean

Table 3-2. Modeled Fish Tissue Concentrations
Former Coke Plant, East Chicago, IN

Constituent	Surface Water to Fish BCF Equation[a]	Multiplier	Rationale	FOD			Step 6: UCL of 11 Wells - No Dilution Factor				Step 7: UCL of 9 Wells With Dilution Factor			
							Estimated Surface Water Concentration (mg/L)		Modeled Fish Tissue Concentration (mg/kg ww)		Estimated Surface Water Concentration (mg/L)		Modeled Fish Tissue Concentration (mg/kg ww)	
							Mean	UCL of 11 Wells[b,d]	Mean	UCL of 11 Wells[b]	Mean	UCL of 9 Wells[c, d]	Mean	UCL of 9 Wells[c]
Arsenic	Cf = 280 * Cw	280	HAZWRAP 1994 as cited in SRNS 2012	22	/	24	0.034	0.058	9.56	16.27	0.000004	0.0000055	0.001098	0.0015
Cadmium	Cf = 50 * Cw	50	HAZWRAP 1994 as cited in SRNS 2012	3	/	24	0.0001	0.00042	0.01	0.02	0.00000002	0.0000001	0.000001	0.00001
Chromium	Cf = 200 * Cw	200	HAZWRAP 1994 as cited in SRNS 2012	22	/	24	0.005	0.0083	1.05	1.65	0.000001	0.0000009	0.000148	0.0002
Copper	Cf = 210 * Cw	210	HAZWRAP 1994 as cited in SRNS 2012	24	/	24	0.009	0.025	1.95	5.23	0.000001	0.0000010	0.000137	0.0002
Lead	Cf = 300 * Cw	300	HAZWRAP 1994 as cited in SRNS 2012	15	/	24	0.0003	0.00044	0.08	0.13	0.000000	0.0000001	0.000018	0.00003
Nickel	Cf = 100 * Cw	100	HAZWRAP 1994 as cited in SRNS 2012	23	/	24	0.006	0.0083	0.61	0.83	0.000001	0.0000017	0.000125	0.0002
Selenium	Cf = 8 * Cw	8	HAZWRAP 1994 as cited in SRNS 2012	24	/	24	0.008	0.0112	0.06	0.09	0.000001	0.0000020	0.000012	0.0000
Zinc	Cf = 1000 * Cw	1,000	HAZWRAP 1994 as cited in SRNS 2012	24	/	24	0.010	0.014	10.38	13.90	0.000003	0.0000042	0.003014	0.0042

a. All BCFs based on HAZWRAP 1994 as cited in SRNS 2012. PAHs were not included here because of rapid metabolism (See Text)

b. Step 6: Surface water concentration is estimated as 95%UCL concentration in wells most proximate to the breach in the sheet piling and wells used to define the benzene plume (MW-803S, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-810S, MW-817S, MW-826S, MW-826M, MW-827S)

c. Step 7. Surface water concentration for arsenic is estimated based on groundwater concentrations in the following nine wells (i.e., MW-803S, MW-808S, MW-809S, MW-809M, MW-810S, MW-817S, MW-826M, MW-826S, and MW-827S) to result in means or UCLs which are adjusted here using a site-specific dilution factor of 3,250, as described in SLERA Attachment 3 and as used in the SLERA Tier 4 evaluation.

d. Insufficient detections were observed to calculate a UCL for cadmium. The maximum detected value is used here instead of the UCL.

BCF: bioconcentration factor
Cf: concentration in fish (mg/kg)
Cw: concentration in surface water (mg/L)
PAHs were not included here because of rapid metabolism in fish. (See Text)
LMWPAH: low molecular weight polycyclic aromatic hydrocarbon
mg/kg: milligram(s) per kilogram bodyweight
ww: wet weight

Table 3-3: Indiana Harbor Ship Canal Comparison of RBCs for Fish Consumption with Modeled Fish Tissue Concentrations for Bioaccumulative Constituents*

							Step 6: RBC for Fish Tissue Compared to Estimated Tissue Level Based on UCL of 11 Wells[d]				Step 7: RBC for Fish Tissue Compared to Estimated Tissue Level Based on UCL of 9 Wells[e]				
									Exceeds RBC				Exceeds RBC		
Group	Compound[a]	RBCs[b]		Frequency of Detection[c]			Mean	95 UCL[d, f]	Mean	95 UCL	Mean	95 UCL[e]	Mean	95 UCL	Units
Metal	Arsenic	0.00468	ca	22	/	24	10	16	**Yes**	**Yes**	0.0011	0.0015	No	No	mg/kg ww
Metal	Cadmium	2.61	nc	3	/	24	0.005	0.021	No	No	--	--	--	--	mg/kg ww
Metal	Chromium	3910	nc	22	/	24	1.0	1.7	No	No	--	--	--	--	mg/kg ww
Metal	Copper	104	nc	24	/	24	2.0	5.2	No	No	--	--	--	--	mg/kg ww
Metal	Lead	NA	NA	15	/	24	0.08	0.13	NA	NA	--	--	--	--	mg/kg ww
Metal	Nickel	52.1	nc	23	/	24	0.6	0.8	No	No	--	--	--	--	mg/kg ww
Metal	Selenium	13	nc	24	/	24	0.06	0.09	No	No	--	--	--	--	mg/kg ww
Metal	Zinc	782	nc	24	/	24	10.4	13.9	No	No	--	--	--	--	mg/kg ww

*: Bioaccumulative as determined by Table 4-2 in EPA-823-R-00-001 (2000) "Bioaccumulation testing and interpretation for the purpose of sediment quality assessment." PAHs not included here due to rapid metabolism (See Text)

a. Arsenic as inorganic arsenic, cadmium value for diet used, chromium as chromium III insoluble salts, lead as lead and compounds, nickel soluble salts, zinc and compounds.

b. RBC - Risk based concentration for consumption of fish based on 32 g/day calculated using USEPA RSL calculator (see text).

c. Detection limits for undetected arsenic samples were 0.00015 mg/L.

d. Surface water concentration is estimated as 95%UCL concentration in wells most proximate to the breach in the sheet piling and wells used to define the benzene plume (MW-803S, MW-808S, MW-808D, MW-809S, MW-809M, MW-809D, MW-810S, MW-817S, MW-826S, MW-826M, MW-827S)

e. Tier 3 surface water concentration for arsenic is estimated based on groundwater concentrations in the following nine wells (i.e., MW-803S, MW-808S, MW-809S, MW-809M, MW-810S, MW-817S, MW-826M, MW-826S, and MW-827S) to result in a UCL of 0.018 mg/l, which is adjusted here using a site-specific dilution factor of 3,250, as described in SLERA Attachment 3 and as used in the SLERA Tier 4 evaluation.

f. Insufficient detections were observed to calculate a UCL for cadmium. The maximum detected value is used here instead of the UCL.

Table 3-4

Further Consideration of Slag-Fill/Soil Sample Lab Results Above DQOs

Sample Name	Depth (feet bgs)	Zone	Hydrogeologic Unit	Analyte	CAS Number	Units	Result	RL	MDL	Data Quality Objectives - Industrial			Exceeds 2009 IDEM Direct Contact?	IDEM 2018 Com/Ind Direct Contact	Exceeds 2018 IDEM Direct Contact?
										IDEM Direct Contact[A]	IDEM Migration to GW	IDEM Default Closure			
MW-828S (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW-828S (2-4)	2-4	WT	Slag-fill	No Exceedances									--	--	--
MW-828S (8-12)	8-12	B	Slag-fill	Benzene	71-43-2	mg/kg	180	48	8.1		0.35	0.35	>2 ft	>2 ft	--
				Toluene	108-88-3	mg/kg	380	48	7.4		96	96	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	2.4	0.5	0.12			1.5	>2 ft	>2 ft	--
MW-829S (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW-829S (3-4)	3-4	WT	Slag-fill	No Exceedances									--	--	--
MW-829S (14-16)	14-16	B	Slag-fill	No Exceedances									--	--	--
MW-830S (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3.6	0.24	0.057	1.5		1.5	**Yes**	21	No
MW-830S (2-4)	2-4	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.2	0.85	0.058		5.8	5.8	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	3.1	0.25	0.058			1.5	>2 ft	>2 ft	--
MW-830S (10-12)	10-12	B	Slag-fill	Benzene	71-43-2	mg/kg	5.6	0.22	0.038		0.35	0.35	>2 ft	>2 ft	--
MW-831S (0-2)	0-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	7.6	1.0	0.068		5.8	5.8	NSV	30	No
				Lead	7439-92-1	mg/kg	290	1.0	0.0024		230	230	NSV	800	No
				Benzo(a)anthracene	56-55-3	mg/kg	55	2.5	0.56	15		15	**Yes**	210	No
				Benzo(a)pyrene	50-32-8	mg/kg	46	2.5	0.58	1.5	16	1.5	**Yes**	21	**Yes**
				Benzo(b)fluoranthene	205-99-2	mg/kg	71	2.5	0.68	15		15	**Yes**	210	No
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	12	0.25	0.08	1.5		1.5	**Yes**	21	No
				Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	22	2.5	0.47	15		15	**Yes**	210	No
MW-831S (4-6)	4-6	WT	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	1.9	0.25	0.058			1.5	>2 ft	>2 ft	--
MW-831S (14-16)	14-16	B	Slag-fill	Benzene	71-43-2	mg/kg	8.1	0.23	0.039		0.35	0.35	>2 ft	>2 ft	--
MW-832D (0-2)	0-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	5.9	0.94	0.064		5.8	5.8	NSV	30	No
				Benzo(a)pyrene	50-32-8	mg/kg	5.7	0.25	0.058	1.5		1.5	**Yes**	21	No
MW-832D (4-6)	4-6	WT	Slag-fill	No Exceedances									--	--	--
MW-832D (38-40)	38-40	B	Slag-fill	Benzene	71-43-2	mg/kg	220	37	6.2		0.35	0.35	>2 ft	>2 ft	--
MW-833S (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3.3	0.24	0.057	1.5		1.5	**Yes**	21	No
MW 833S (4-6)	4-6	WT	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	3	0.25	0.057			1.5	>2 ft	>2 ft	--
MW 833S (14-16)	14-16	B	Slag-fill	Arsenic	7440-38-2	mg/kg	9.2	1.0	0.068		5.8	5.8	>2 ft	>2 ft	--
MW 834D (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4.8	0.25	0.058	1.5		1.5	**Yes**	21	No
MW 834D (2-4)	2-4	WT	Slag-fill	No Exceedances									--	--	--
MW 834D (37-39)	37-39	B	Slag-fill	No Exceedances									--	--	--
MW 835D (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW 835D (2-4)	2-4	WT	Slag-fill	No Exceedances									--	--	--
MW 835D (36-38)	36-38	B	Slag-fill	No Exceedances									--	--	--
MW 836S (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW 837S (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW-838S (0-2)	0-2	S	Slag-fill	Benzo(a)anthracene	56-55-3	mg/kg	19	0.25	0.056	15		15	**Yes**	210	No
				Benzo(a)pyrene	50-32-8	mg/kg	15	0.25	0.058	1.5		1.5	**Yes**	21	No
				Benzo(b)fluoranthene	205-99-2	mg/kg	21	0.25	0.068	15		15	**Yes**	210	No
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	3	0.25	0.08	1.5		1.5	**Yes**	21	No
MW-838S (2-4)	2-4	WT	Slag-fill	Benzene	71-43-2	mg/kg	5.9	0.32	0.054		0.35	0.35	>2 ft	>2 ft	--
MW-838S (14-16)	14-16	B	Slag-fill	Benzene	71-43-2	mg/kg	31	2.2	0.38		0.35	0.35	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	9.5	0.25	0.057			1.5	>2 ft	>2 ft	--
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	1.8	0.25	0.079			1.5	>2 ft	>2 ft	--
MW-839S (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
MW-839S (2-4)	2-4	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.1	0.97	0.066		5.8	5.8	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	5	0.49	0.11			1.5	>2 ft	>2 ft	--
MW-839S (10-12)	10-12	B	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4	0.5	0.12			1.5	>2 ft	>2 ft	--

Table 3-4

Further Consideration of Slag-Fill/Soil Sample Lab Results Above DQOs

Sample Name	Depth (feet bgs)	Zone	Hydrogeologic Unit	Analyte	CAS Number	Units	Result	RL	MDL	Data Quality Objectives - Industrial			Exceeds 2009 IDEM Direct Contact?	IDEM 2018 Com/Ind Direct Contact	Exceeds 2018 IDEM Direct Contact?
										IDEM Direct Contact[A]	IDEM Migration to GW	IDEM Default Closure			
SB 884 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 884 (6-8)	6-8	WT	Slag-fill	No Exceedances									--	--	--
SB 885 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 886 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 887 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 888 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 889 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 890 (0-2)	0-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4.7	0.25	0.057	1.5		1.5	**Yes**	21	No
SB 891 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 892 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 892 (8-10)	8-10	WT	Slag-fill	No Exceedances									--	--	--
SB 893 (0-2)	0-2	S	Slag-fill	No Exceedances									--	--	--
SB 893 (6-8)	6-8	WT	Slag-fill	No Exceedances									--	--	--
MW-803M (1-2)	1-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	2.0	0.054	0.0077	1.5		1.5	**Yes**	21	No
MW-803M (8-9)	8-9	WT	Slag-fill	No Exceedances									--	--	--
MW-809M (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
MW-809M (8-9)	8-9	WT	Slag-fill	Benzene	71-43-2	mg/kg	59	6.3	1.5		0.35	0.35	>2 ft	>2 ft	--
MW-822D (1-2)	1-2	S	Slag-fill	Benzo(a)anthracene	56-55-3	mg/kg	72	0.56	0.083	15		15	**Yes**	210	No
				Benzo(a)pyrene	50-32-8	mg/kg	71	0.56	0.076	1.5	16	1.5	**Yes**	21	**Yes**
				Benzo(b)fluoranthene	205-99-2	mg/kg	100	2.8	0.37	15		15	**Yes**	210	No
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	13	2.8	0.4	1.5		1.5	**Yes**	21	No
				Indeno (1,2,3-c,d) pyrene	193-39-5	mg/kg	44	2.8	0.61	15		15	**Yes**	210	No
MW-822D (4-5)	4-5	WT	Slag-fill	Benzo(a)anthracene	56-55-3	mg/kg	21	0.54	0.073			15	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	19	0.54	0.077		16	1.5	>2 ft	>2 ft	--
				Benzo(b)fluoranthene	205-99-2	mg/kg	26	0.54	0.12			15	>2 ft	>2 ft	--
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	3.5	0.11	0.016			1.5	>2 ft	>2 ft	--
38.5)	37.5-38.5	B	Slag-fill	No Exceedances									--	--	--
MW-823D (1-2)	1-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	4.3	0.11	0.015	1.5		1.5	**Yes**	21	No
MW-823D (4.5-5.5)	4.5-5.5	WT	Slag-fill	No Exceedances									--	--	--
MW-823D (40-41)	40-41	B	Slag-fill	Benzene	71-43-2	mg/kg	15	0.63	0.15		0.35	0.35	>2 ft	>2 ft	--
MW-824D (1-2)	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	6.8	0.6	0.00019		5.8	5.8	NSV	30	No
MW-824D (1-2) Dup	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	9	0.57	0.00018		5.8	5.8	NSV	30	No
MW-824D (38.5-39.5)	38.5-39.5	B	Slag-fill	Benzene	71-43-2	mg/kg	30	3.2	0.78		0.35	0.35	>2 ft	>2 ft	--
MW-825S (1-2)	1-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	2.6	0.11	0.015	1.5		1.5	**Yes**	21	No
MW-826M (1-2)	1-2	S	Slag-fill	Benzo(a)pyrene	50-32-8	mg/kg	13	0.55	0.078	1.5		1.5	**Yes**	21	No
				Benzo(b)fluoranthene	205-99-2	mg/kg	16	0.55	0.12	15		15	**Yes**	210	No
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	1.8	0.55	0.081	1.5		1.5	**Yes**	21	No
MW-826S (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
MW-827S (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
MW-827S (10-11)	10-11	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	7.3	0.51	0.00016		5.8	5.8	>2 ft	>2 ft	--
SB-871 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-871 (5-6)	5-6	WT	Slag-fill	No Exceedances									--	--	--
SB-872 (1-2)	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	9.5	0.58	0.00019		5.8	5.8	NSV	30	No
SB-872 (5.5-6.5)	5.5-6.5	WT	Slag-fill	No Exceedances									--	--	--
SB-872 (7-8)	7-8	WT	Slag-fill	No Exceedances									--	--	--
SB-873 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-874 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--

Table 3-4

Further Consideration of Slag-Fill/Soil Sample Lab Results Above DQOs

Sample Name	Depth (feet bgs)	Zone	Hydrogeologic Unit	Analyte	CAS Number	Units	Result	RL	MDL	Data Quality Objectives - Industrial			Exceeds 2009 IDEM Direct Contact?	IDEM 2018 Com/Ind Direct Contact	Exceeds 2018 IDEM Direct Contact?
										IDEM Direct Contact[A]	IDEM Migration to GW	IDEM Default Closure			
SB-874 (6-7)	6-7	WT	Slag-fill	No Exceedances									--	--	--
SB-875 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-875 (1-2) Dup	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-875 (6.5-7.5)	6.5-7.5	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.1	0.5	0.00016		5.8	5.8	>2 ft	>2 ft	--
				Benzene	71-43-2	mg/kg	5.3	0.48	0.12		0.35	0.35	>2 ft	>2 ft	--
SB-876 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-876 (6-7)	6-7	WT	Slag-fill	Benzene	71-43-2	mg/kg	3.3	0.48	0.11		0.35	0.35	>2 ft	>2 ft	--
SB-876 (6-7) Dup	6-7	WT	Slag-fill	Benzene	71-43-2	mg/kg	1.3	0.36	0.086		0.35	0.35	>2 ft	>2 ft	--
SB-876 (9-10)	9-10	WT	Slag-fill	Benzene	71-43-2	mg/kg	57	4.2	1.0		0.35	0.35	>2 ft	>2 ft	--
				Toluene	108-88-3	mg/kg	2300	420	59		96	96	>2 ft	>2 ft	--
SB-877 (1-2)	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	9.3	0.56	0.00018		5.8	5.8	NSV	30	No
SB-877 (8-9)	8-9	WT	Slag-fill	No Exceedances									--	--	--
SB-878 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-878 (8-9)	8-9	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	9.8	0.5	0.00016		5.8	5.8	>2 ft	>2 ft	--
SB-879 (1-2)	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	7.9	0.56	0.00018		5.8	5.8	NSV	30	No
SB-879 (7-8)	7-8	WT	Slag-fill	No Exceedances									--	--	--
SB-880 (1-2)	1-2	S	Slag-fill	Benzene	71-43-2	mg/kg	16	0.43	0.1	14	0.35	0.35	**Yes**	51	No
				Benzo(a)pyrene	50-32-8	mg/kg	11	0.56	0.08	1.5		1.5	**Yes**	21	No
				Dibenzo(a,h)anthracene	53-70-3	mg/kg	2.4	0.56	0.083	1.5		1.5	**Yes**	21	No
SB-880 (5-6)	5-6	WT	Slag-fill	Benzene	71-43-2	mg/kg	26	4.2	1.0		0.35	0.35	>2 ft	>2 ft	--
				Benzo(a)pyrene	50-32-8	mg/kg	6	0.55	0.078			1.5	>2 ft	>2 ft	--
SB-880 (7-8)	7-8	WT	Slag-fill	Benzene	71-43-2	mg/kg	16	2.7	0.65		0.35	0.35	>2 ft	>2 ft	--
SB-881 (1-2)	1-2	S	Slag-fill	Total Cyanides	57-12-5	mg/kg	11	0.27	0.055		9.6	9.6	NSV	150	No
				Benzo(a)pyrene	50-32-8	mg/kg	6.1	0.55	0.079	1.5		1.5	**Yes**	21	No
SB-881 (4.5-5.5)	4.5-5.5	WT	Slag-fill	No Exceedances									--	--	--
SB-881 (7-8)	7-8	WT	Slag-fill	Benzene	71-43-2	mg/kg	5.5	0.26	0.064		0.35	0.35	>2 ft	>2 ft	--
SB-882 (1-2)	1-2	S	Slag-fill	Arsenic	7440-38-2	mg/kg	6.5	0.59	0.00019		5.8	5.8	NSV	30	No
SB-882 (4-5)	4-5	WT	Slag-fill	No Exceedances									--	--	--
SB-883 (1-2)	1-2	S	Slag-fill	No Exceedances									--	--	--
SB-883 (4.5-5.5)	4.5-5.5	WT	Slag-fill	Arsenic	7440-38-2	mg/kg	6.8	0.57	0.00018		5.8	5.8	>2 ft	>2 ft	--

Notes:

Only Exceedances of Data Quality Objectives are Displayed

bgs = below ground surface

S = Top two feet

WT = Two-foot interval above the water table

B = Bottom two feet

RL = Reporting limit

MDL = Method detection limit

NSV: No screening value

A - Criterion applies to near surface (0-2 ft) samples

mg/kg = milligrams per kilogram

Slag-Fill/Soil samples obtained July 2017

No exceedances of IDEM Construction Worker DQOs were identified

APPENDIX J

RESIDUAL LNAPL SATURATION TEST REPORTS

5730 Centralcrest St. • Houston, TX 77092
Telephone (713) 316-1800 • Fax (877) 225-9953

November 28, 2017

Mark Mejac
Project Manager
Ramboll Environ
175 N. Corporate Dr. Suite 160
Brookfield, WI 53045

Re: PTS File No: 47369
Project Name: Arceiomittal Former Coke Plant
Project Number: 21-32151N

Dear Mr. Mejac:

Please find enclosed report for Physical Properties analyses conducted upon samples received from your #21-32151N project. All analyses were performed by applicable ASTM, EPA, or API methodologies. The samples are currently in storage and will be retained for thirty days past completion of testing at no charge. Please note that the samples will be disposed of at that time. You may contact me regarding storage, disposal, or return of the samples

PTS Laboratories appreciates the opportunity to be of service. If you have any questions or require additional information, please contact myself or Emeka Anazodo at (713) 316-1800.

Sincerely,
PTS Laboratories, Inc.

Rick Schweizer

Rick Schweizer
Laboratory Supervisor

Encl.

PTS Laboratories

Project Name: Arceiormittal-Former Coke Plant
Project Number: 21-32151N

PTS File No: 47369
Client: Ramboll Environ

TEST PROGRAM - 20171024

CORE ID	Depth ft.	Core Recovery ft.	Residual Saturation by Water Drive						Comments
			Vert. 1.5"						
Date Received: 20170906									
IW-3, 8-10	**8-10**	**1.25**	**X**						2.5" diameter acetate sleeve
IW-4, 6-8	**6-8**	**1.29**	**X**						2.5" diameter acetate sleeve
EW-1, 6-8	**6-8**	**1.10**	**X**						2.5" diameter acetate sleeve
IW-5, 6-8	**6-8**	**1.29**							2.5" diameter acetate sleeve
TOTALS:		**5**	**3**						

Laboratory Test Program Notes
Contaminant identification:
Standard TAT for basic analysis is 10-15 business days.
Residual Saturation by Water Drive: Sample driven to residual saturation by water/NAPL displacement. Residual saturations by Dean-Stark extraction, total porosity, bulk and grain density.

PTS Laboratories

PTS File No: 47369
Client: Ramboll Environ
Report Date: 11/28/17

ENDPOINT SATURATION WATER DRIVE TEST: INITIAL AND RESIDUAL SATURATIONS

Project Name: Arceiormittal-Former Coke Plant
Project No: 21-32151N

			METHODS:	API RP 40		API RP 40	API RP 40, DEAN-STARK			
							PORE FLUID SATURATIONS (3), % Pv			
				DENSITY		TOTAL	Initial Fluid Saturations		After Waterflood Test	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENTATION (1)	ANALYSIS DATE	DRY BULK, g/cc	GRAIN, g/cc	POROSITY (2), %Vb	WATER (Swi) SATURATION	NAPL (Soi) SATURATION	WATER (Srw) SATURATION	NAPL (Sor) SATURATION
IW-3, 8-10	8.35	H	20171109	1.56	2.68	41.7	73.7	8.3	74.3	8.3
NOTE: Light brown sheen on water surface; 10.0 pore volumes of water injected. Produced water cloudy with strong hydrocarbon odor.										
IW-4, 6-8	6.35	H	20171109	1.66	2.67	37.8	59.5	14.0	59.5	14.0
NOTE: No visible LNAPL produced; 11.3 pore volumes of water injected. Produced water light yellow with strong hydrocarbon odor.										
EW-1, 6-8	6.35	H	20171109	1.70	2.71	37.1	59.0	8.6	59.0	8.6
NOTE: No visible LNAPL produced; 11.7 pore volumes of water injected. Produced water clear with strong hydrocarbon odor.										

(1) Sample Orientation: H = horizontal; V = vertical; R = remold

(2) Total Porosity = all interconnected pore channels.

(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc, NAPL = 0.8600 g/cc.

Water drives conducted at 25 psi confining pressure and 70°F. Laboratory fresh water (tap) used as injection fluid.

Swi = Initial Water Saturation as received prior to waterflooding, Soi = Initial NAPL Saturation as received prior to waterflooding.

Srw = Residual Water Saturation after waterflooding, Sor = Residual NAPL Saturation after waterflooding.

Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

47369 Page 1 of

[redacted]

PTS Laboratories, Inc
5730 Centralcrest ST
Houston, TX 77092
(713) 316 1800

CHAIN OF CUSTODY

(Please Print Clearly)	
Company Name:	Ramboll Environ
Branch/Location:	Brookfield, WI
Project Contact:	Mark Medac
Phone:	262 901 0127
Project Number:	21-32151N
Project Name:	Arcelormittal - Former Coke plant
Project State:	Indiana
Sampled By (Print):	David Marken
Sampled By (Sign):	
PO #:	
Regulatory Program:	

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

Quote #:	
Mail To Contact:	
Mail To Company:	
Mail To Address:	
Invoice To Contact:	Mark Medac
Invoice To Company:	Ramboll Environ
Invoice To Address:	175 N. Corporate Dr #160 Brookfield, WI 53045
Invoice To Phone:	262 901 0127

FILTERED? (YES/NO) Y/N: N
PRESERVATION (CODE)* Pick Letter: A

Data Package Options (billable)
- ☐ EPA Level III
- ☐ EPA Level IV

MS/MSD
- ☐ On your sample (billable)
- ☐ NOT needed on your sample

Matrix Codes
A = Air, B = Biota, C = Charcoal, O = Oil, S = Soil, SI = Sludge, W = Water, DW = Drinking Water, GW = Ground Water, SW = Surface Water, WW = Waste Water, WP = Wipe

PACE LAB #	CLIENT FIELD ID	COLLECTION DATE	COLLECTION TIME	MATRIX	Analyses Requested: Residual Saturation by Water	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)	Profile #
✓	IW3, ~~6-8'~~ 8-10'	8/29/17	0815	Soil	X			
✓	IW4, 6-8'	8/29/17	1415	Soil	X			
✓	EW-1, 6-8'	9/1/17	1042	Soil	X			
✓	IW-5, 6-8'	8/30/17	1142	Soil	HOLD			

D Mark

Rush Turnaround Time Requested - Prelims (Rush TAT subject to approval/surcharge) Date Needed:	Relinquished By:	Date/Time:	Received By:	Date/Time:	PACE Project No.
	David Mark	9/5/17 1030	Fedex	9/5/17	
Transmit Prelim Rush Results by (complete what you want):					
Email #1:					Receipt Temp = -34.6 °C
Email #2:					Sample Receipt pH OK / Adjusted
Telephone:					Cooler Custody Seal Present / Not Present Intact / Not Intact
Fax:					
Samples on HOLD are subject to special pricing and release of liability					

Version 6.0 06/14/06

C019a(27Jun2006)

ORIGINAL

APPENDIX K
SOIL OXIDANT DEMAND TEST REPORTS

ReSolution Partners, LLC

September 8, 2017

Mark M. Mejac, PG
Senior Managing Consultant
Ramboll Environ
175 North Corporate Drive, Suite 160
Brookfield, WI 53045

Subject: Persulfate Total Oxidant Demand (TOD) Testing Report for the Former Coke Plant, East Chicago, IN Project.

Dear Mark:

ReSolution Partners, LLC (ReSolution) is pleased to provide Ramboll Environ Total Oxidant Demand (TOD) testing for the Former Coke Plant project.

OBJECTIVE

The objective of the TOD study is to determine the amount of persulfate (in the form of sodium persulfate) required to oxidize natural and anthropogenic sources of organic compounds in site soil. Alkaline activation was indicated for this project by the project team.

BACKGROUND

The constituents of interest (COI) for this project include PAHs and PVOCs. The soil samples contained free product, oily petroleum. The samples were received on ice in straight-sided clear glass jars. The samples were quickly and lightly homogenized to obtain consistent results for potential replicates and minimize any volatile loss that may contribute to the TOD. The sample received, description, and comments are shown in Table 1.

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ReSolution Partners, LLC

Table 1.
Samples Received for TOD Testing

Sample Name	Sample Date	Sample Matrix	Sample Comments
IW-3, 8-10'	8/29/2017	Soil	Silty Sand (SM), sub-angular to rounded gravel, wood pieces, non-plastic, very dark greyish brown 2.5Y3/2, strong petroleum odor, wet.
IW-4, 6-8'	8/29/2017	Soil	Silty Sand (SM), sub-rounded to rounded gravel, wood pieces, non-plastic, olive brown 2.5Y4/3, strong petroleum odor, wet.
IW-5, 6-8'	8/30/2017	Soil	Silty Sand with Gravel (SM), rounded gravel, non-plastic, black 10YR2/1, strong petroleum odor, wet.

METHODOLOGY

Testing conformed with procedures comparable to those discussed by Haselow et. al 2003 and in PeroxyChem's (formerly FMC) Persulfate Technical bulletin. The tests used a soil to liquid ratio of 30 g soil to 50 mL liquid. The liquid used for the testing included deionized water. Each sample was set up with the following a series of persulfate dosages: 0 (blank), 2, 15 and 100 g/kg.

Alkaline activation was performed using sodium hydroxide. An alkaline demand titration was performed to determine the amount of sodium hydroxide needed to achieve a pH of greater than 10.5 for effective alkaline activation.

Each soil sample was treated with a quantity of sodium hydroxide to buffer the natural sample acidity plus the stoichiometric neutralization of the persulfate with an extra 20% to provide a consistently high pH.

Each sample was reacted in a closed container with a range of persulfate concentrations at ambient temperature for 7 days. During the reaction period, the sample containers were occasionally agitated to expose solid particle surfaces to the persulfate. As necessary, the samples were centrifuged or filtered to assist in the colorimetric titration process. Residual persulfate was determined in an aliquot of the sample supernatant by

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back titration of a standard ferrous ammonium sulfate (FAS) solution using a standard potassium permanganate solution.

Analysis of residual persulfate in samples with large excesses of the persulfate can show a positive bias for the TOD because the series of complex post-activated persulfate products. The sample with the least amount of residual persulfate is likely to have the least positive bias. Therefore, the result for the dosage having the lowest positive test for persulfate is reported for TOD for each soil sample.

RESULTS

The samples were set up with persulfate dosages on September 1, 2017. The titrations were performed on September 8, 2017. The TOD from the lowest positive result for persulfate is reported in Table 2.

Table 2.
Sodium Persulfate TOD (7 day) Results Using Alkaline Activation

Sample	Initial Persulfate Dosage g/kg	Initial Sodium Hydroxide Dosage g/kg	Final pH	TOD g/kg
IW-3, 8-10'	16.2	21.7	12.00	13.1
IW-4, 6-8'	99.4	142	8.17	87.8
IW-5, 6-8'	100	155	7.08	95.7

Please contact me with any questions at kbaker@resolutionpartnersllc.net or 608-669-6949.

Sincerely,

Kevin Baker

Kevin Baker
Laboratory Manager

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