Environmental Operations, Inc.
CLEARING THE WAY

June 28, 2019

RCRA 6/28/2019
583449

Mr. Bruce Morrison
Project Manager
U.S. Environmental Protection Agency, Region 7
ART Division / RCRA Corrective Action
11201 Renner Boulevard
Lenexa, Kansas 66219

RE: Annual Groundwater Monitoring Report - 2019
Former Solutia – John F. Queeny Plant
St. Louis, Missouri
EPA ID No. MOD 004 954 111

Dear Mr. Morrison:

This letter accompanies the delivery of the *Annual Groundwater Monitoring Report* for the Former Solutia John F. Queeny Plant to U.S Environmental Protection Agency (EPA). An electronic version is also provided.

Please let me know if you would like additional copies. I can be reached by phone at 314-480-4694, or via email at larryr@environmentalops.com.

Respectfully submitted,

Lawrence C. Rosen

Lawrence C. Rosen, R.G. / Project Manager
Environmental Operations, Inc.

Attachment: Annual Groundwater Monitoring Report - 2019 (Hard Copy and CD)

Copies: *Mr. Michael House/Solutia*
Mr. Rich Nussbaum/MDNR
Ms. Christine Kump-Mitchell/MDNR

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JUL 02 2019

Environmental Operations, Inc.
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Annual Groundwater Monitoring Report

Former Solutia Queeny Plant
St. Louis, Missouri

Prepared for:

SWH Investments II

Prepared by:

Environmental Operations, Inc.
1530 South 2nd Street
St. Louis, Missouri 63104

June 28, 2019

CERTIFICATION

Annual Baseline Groundwater Monitoring Report

State of Missouri Registered Professional Certification Page

I certify that I am a qualified geologist and groundwater scientist who has received a post graduate degree in the natural sciences, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and remediation of soil and groundwater. I further certify that this report was prepared by me or by a subordinate working under my direction.

Lawrence C. Rosen

Lawrence C. Rosen, R.G.

Environmental Operations, Inc.

Registration No.: RG0012

Date: 6-28-19

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List of Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APA	Acetanilides Production Area
AST	Above-ground storage tank
bgs	below ground surface
COC	Constituents of Concern
DNAPL	Dense Non-Aqueous Phase Liquids
EB	Equipment Blank
EOI	Environmental Operations, Inc.
FBCSA	Former Bulk Chemical Storage Area
IMWP	Interim Measures Work Plan
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MCL	Maximum Contaminant Level
MB	Method Blank
mg	Milligrams
MNA	Monitored Natural Attenuation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAPL	Non Aqueous Phase Liquid
PVC	Polyvinyl chloride
QA/QC	Quality Assurance / Quality Control
QC	Quality Control
RSL	USEPA Regional Screening Levels
RPD	Relative Percent Difference
Site	Former Solutia Queeny Plant
SWMU	Solid Waste Management Unit
TB	Trip Blank

USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

1 INTRODUCTION

1.1 Purpose

The Groundwater Monitor Plan, dated July 5, 2016, approved by United States Environmental Protection Agency – Region VII (USEPA) on July 19, 2017, was developed for continued evaluation of site-wide groundwater for the former FF Building Area and the former acetanilides production area (APA), and monitor groundwater discharging to the Mississippi River from the former bulk chemical storage area (FBCSA). The sampling program also monitors for plume stability. This program consists of the following elements: monitoring well installation and development; water level and non-aqueous phase liquid (NAPL) gauging, well inspections and maintenance and groundwater sampling; data management, evaluation and reporting. The EPA-approved Corrective Measures Implementation Plan presented the revised schedule for sampling, wells to be sampled, and compounds for analytical testing. It also included testing parameters to complement the monitored natural attenuation (MNA).

The annual report is a comprehensive report which includes evaluation, analysis, and recommendations with the summary of the validated laboratory analytical data and copies of the laboratory data. The report covers the annual sampling event (October 2018).

1.2 Location

The Former Solutia J.F. Queeny Plant (Queeny Plant or Site) located between Lesperance and Barton Streets and First and Second Streets in St Louis, Missouri. A single address often provided for the Queeny Plant is 200 Russell Street, St Louis, Missouri. Figure 1 is a general Site Location Map showing the Queeny Plant located in the western portion of the Cahokia, Illinois, U.S. Geological Survey (USGS) topographic quadrangle. SWH Investments II legally purchased the Queeny Plant and assumed the environmental obligations for the property effective June 13, 2008. Environmental Operations, Inc. (EOI), in affiliation with SWH Investments II, is providing services for the environmental obligations for the Queeny Plant in order to prepare the property for redevelopment for light industrial and commercial use.

2 BACKGROUND

2.1 Site Description

The Site occupies approximately 36 contiguous acres and is located in eastern St. Louis City approximately between First and Second Streets and Lesperance and Barton Streets; a separate parcel of approximately two acres (i.e., the FBSCA) lies south of the contiguous 36 acres at the northeast intersection of First and Victor Streets. The Site is located in the western portion of the Cahokia, Illinois, USGS topographic quadrangle (Figure 1). The plant is located on the west bank of the Mississippi River at River Mile 178.

The Site is located in an area that is zoned and developed for industrial and commercial uses and is expected to remain so for the foreseeable future. The site is proximate to a major transportation corridor provided by the Mississippi River, several interstate highways, and a large railroad center. Figure 2 is an aerial photograph (October 2018) that shows the Site in relation to the surrounding area. Areas surrounding the facility are used for industrial and commercial operations. Current access to the site is semi-restricted.

2.2 Site History

The Monsanto Chemical Works began site operations on six acres at its current location in 1901 with the chemical manufacturing of Saccharin. In 1933, Monsanto Chemical Works changed its name to Monsanto Chemical Company. The company underwent another re-naming in 1964 and became the Monsanto Company. Solutia Inc. was formed from a spin-off of the chemicals business of the Monsanto Company on September 1, 1997.

Since its inception, the Queeny plant manufactured over 200 products, using over 800 raw materials. The major products have included, but are not limited to, the following: process chemicals such as maleic anhydride, fumaric acid, toluene sulfonic acid, and paranitrophenetole; plasticizers such as phthlate esters and toluene sulfonamides; synthetic functional fluids such as Pydrauls™, Skydrols™, and coolanols; food and fine chemicals such as salicylic acid, aspirin, methyl salicylate, benzoic acid, and ethavan; and agricultural chemicals such as Lasso ™ (i.e., acetanilides or alachlor). The three areas which this work covers are briefly described below.

FF Building Area. The area associated with the FF Building that constitutes the solid waste management unit (SWMU) includes the footprint of the former building (an area of approximately 150 feet by 75 feet) and the surrounding area including a former underground storage tank (UST). The ground covering in this area is asphalt, and crushed and compacted stone. This area is currently not used and no buildings are located in the area.

Former Acetanilides Production Area. The APA produced acetanilides or alachlor also referred to as Lasso™, and it is located in the south-central portion of the Queeny Plant. The estimated size of this manufacturing block is 300 feet by 450 feet. This production area began operations in 1966, as a multi-product facility. The Lasso™ operations ceased production in 1991. The ground covering in this area consisted of buildings, asphalt, concrete foundations of former aboveground storage tanks, and railroad ballast near the railroad spur. As a function of

redevelopment, a portion of this area includes the recently constructed building for Faultless Linen.

Former Bulk Chemical Storage Area. The FBCSA approximates a parallelogram shaped parcel of land approximately 285 feet by 300 feet, or approximately 1.94 acres. It was purchased by Monsanto in 1968 from Clark Oil Company and included two 500,000 gallon aboveground storage tanks (ASTs) and two 300,000 gallon ASTs that were used by Clark for fuel storage. After the 1968 purchase, raw materials used at the Queeny Plant were unloaded from a barge terminal, located on the west bank of the Mississippi River, and pumped into these tanks for storage. Materials stored at the terminal by Monsanto and others included: petroleum products, alkyl benzenes, blends of alkyl benzenes (Purex A-220 and Canadian A-221), Santicizer 154 plasticizer (p-t-butylphenyl diphenyl phospate), monochlorobenzene, ortho-nitrochlorobenzene, sodium hydroxide, and potassium hydroxide. The use of this area was discontinued in 1987 and the tanks were removed. This area had at times been leased to other companies as open space storage.

The ground covering in this area is asphalt, crushed and compacted stone, and moderate volunteer vegetation. The SWMU is located outside of the main property and site security fence, but is enclosed by a locked security fence.

Current Site Status. On April 30, 2018, EPA executed the final decision document for the site, which accepted the Statement of Basis prepared by EPA, having gone through the public participation activities per Title 40, Code of Federal Regulations Part 124. The accepted remedy was monitored natural attenuation (MNA) and implementation of land use controls that require measures be taken to address potential vapor intrusion for future construction, prohibits residential development, and prohibits potable use of groundwater.

Redevelopment of the site commenced in 2017, with one parcel purchased by Faultless Linen. Construction, which included a vapor barrier and venting system, has been completed, and the business is operational. Another parcel on the west side of the site is still in negotiation for purchase.

3 SITE ACTIVITY

The 2016 Groundwater Monitoring Plan identified the need to install one well to augment the network in addition to collection of groundwater samples, and is supplemented by the Corrective Measures Implementation Plan. This section briefly describes well installation or abandonment activities and groundwater sample collection.

3.1 Monitor Well Closures

Since the last annual report, no groundwater monitoring wells have been closed. As the network is re-evaluated and historical monitoring wells never used for the Interim Measures Work Plan (IMWP) are identified, additional well closures are anticipated. It is anticipated that the replacement well for MW-19 will be installed in time for the next annual sampling round. The well will be on property owned by Faultless Linen.

3.2 Groundwater Sampling

Prior to each sampling round, groundwater level and NAPL measurements were obtained from the available existing network of monitoring wells and piezometers at the site. These data were used to develop a groundwater elevation contour map for the sampling event for the hydrostratigraphic zone of interest. Figure 3 has the groundwater contour map for the clay and silt unit for the sampling event.

Groundwater samples were collected using low-flow methodologies including a flow-through cell. The groundwater sampling proceeded from the least impacted wells to the most impacted in each of the areas. Equipment used for sampling that could contact groundwater was properly decontaminated before each use. Field instruments were calibrated prior to use in accordance with the manufacturer's specifications.

The monitoring wells were purged using a conventional groundwater pump, suitable for low flow applications (i.e., bladder pump [or equivalent]). Field documentation noted drawdown and pumping rate. Each monitoring well was purged until pH, specific conductance, and temperature stabilized over a minimum of three successive flow-through cell volumes. The field parameters were measured and recorded on monitoring well sampling sheets during purging.

After the relevant parameters stabilized, the flow-through cell was bypassed for sampling. Personnel conducting the groundwater sampling wore clean disposable protective gloves.

To verify field and laboratory procedures, quality assurance/quality control (QA/QC) samples consisting of duplicate samples and trip blanks were collected and submitted to the laboratory. QA/QC samples were collected at a frequency of 10% for duplicates. One trip blank (prepared by the lab) accompanied each cooler shipment containing samples for volatile organic compounds (VOC) analysis. One equipment blank was collected per sampling event.

A chain-of-custody documentation was completed by the field sampler and provided for each sample cooler. Sampling containers were packed in such a way as to help prevent breakage and

cross-contamination. Samples were shipped in coolers, each containing a chain-of-custody form(s) and ice packs to maintain inside temperature at approximately 4°C ± 2°C. Sample coolers were sealed between the lid and sides of the cooler with a custody seal prior to shipment. Samples were either picked up by Teklab or hand-delivered to their facility in Collinsville, Illinois.

3.3.1 October 2018 Event

The annual sampling event was initiated October 8, 2018. EOI met with Mr. Ahrens to access existing wells on his property that get sampled under this plan. Groundwater samples were collected on October 8-10, 2018. Field sampling forms are presented in Appendix A.

4 GEOLOGY AND GROUNDWATER FLOW

4.1 General Site Geology

The site area is considered to be part of the Mississippi River flood plain. A significant amount of development has occurred over the past 200 years and the associated filling activities have raised the ground surface elevation and extended it eastward. The stratigraphy beneath the site consists of four main units (from top down), fill, silty clay, sand, and limestone bedrock. A bedrock high beneath the central portion of the facility affected the configuration of some of these units, and also influences groundwater conditions. The fill and silty clay unit are present across the site. The sand unit is present beneath the silty clay in the northern and southern portions of the site, away from the bedrock high. The sand, where present, extends downward to bedrock. Bedrock occurs at depths varying from 10 feet to approximately 80 feet beneath the site. Limestone bedrock underlies the site to the depths explored.

The general grain-size of alluvial-colluvial deposits above the bedrock becomes coarser with depth, from clay to sand. Four stratigraphic units have been identified beneath the facility. The upper fill unit is typically 3 to 23 feet thick; and mainly consists of silty clay but also contains sand, gravel, cinders and other debris. The former Quarry Area is an exception to this in that the fill is in excess of 100 feet thick. Below the fill, across most of the site, is a relatively lower permeability fine-grained alluvial silt and clay unit with some areas of clayey silt and interbedded sand seams. The silty clay is absent in some areas across the site, predominately in the former Quarry Area where the overburden was removed during the quarrying of the underlying limestone. The silty clay is generally gray to olive gray and moist and extends to approximately 27 feet bgs. The sand seams are usually water saturated and generally appear to be physically and hydraulically isolated.

In the northern and southern portions of the site a sand unit underlies the silty clay and extends to bedrock. The sand unit consists mainly of fine to medium sand with some silt and coarse sand. This sand unit is generally water saturated through the entire thickness of the unit. The sand is absent in the central portion of the site where a bedrock high exists. On the bedrock high, the fill and silty clay directly overlies the bedrock (i.e., the central portion of the APA and the VV Building Area).

Underlying the sand (and fill and silty clay on the bedrock high) is the bedrock unit, which is represented by the St. Louis Limestone Formation. The limestone bedrock is described as finely to coarsely crystalline, fractured, and weathered. This unit contains chert, and interbedded layers of shale and clay. In some areas, the bedrock surface is weathered, ranging in thickness from 2 to 10 feet based on borings OBW-1 through OBW-3. In the area of the bedrock high, the shallowest depth to bedrock is less than 10 feet. Away from the bedrock high, the depth to bedrock is as much as 91 feet below ground surface (bgs). In the southeastern portion of the site, a former limestone quarry extended to over 100 feet bgs. The quarry has since been filled. The bedrock surface generally slopes to the east toward the Mississippi River.

A more detailed description of the geology of the four SWMUs is summarized as follows:

VV Building Area

- Fill and silty clay, 0 to 8 feet bgs
- Silt and/or sand, 8 to 9 feet bgs
- Bedrock varies from approximately 7 to 12 feet bgs

Former FF Building Area

- Fill and silty clay, 0 to 20 feet bgs
- Variable silts and sands, 20 to 31 feet bgs
- Bedrock varies from approximately 31 to 60 feet bgs

Former Acetanilides Production Area

- Fill and silty clay, 0 to 7 feet bgs
- Silty sand, 7 to 8 feet bgs
- Bedrock varies from approximately 8 to 12 feet bgs.

FBCSA

- Fill and silty clay, 0 to 22 feet bgs
- Silty sand, 22 to 36 feet bgs
- Sand, 36 to 79 feet bgs
- Bedrock approximately 79 feet bgs

4.2 Hydrogeology

On a large scale, groundwater flows characteristically from west to east in the site area toward the major groundwater discharge feature of the area, the Mississippi River. However, within the Former Queeny Plant, local groundwater flow is influenced by the bedrock high noted in the central portion of the site. Shallow groundwater in this area generally flows radially off the bedrock high and then east toward the river once it is off the bedrock high. The sand unit represents the major groundwater migration pathway due to its hydraulic properties (i.e., relatively thick and permeable). Groundwater in the bedrock unit appeared to generally flow east toward the Mississippi River. The primary pathways of flow within the bedrock are through secondary porosity features including fractures, joints, bedding planes, or solution cavities.

Groundwater at the site is encountered within three major water-bearing zones, as introduced previously. The uppermost zone is within the fill and silty clay that covers the entire site. The majority of the water in this zone is contained within the various sand lenses encountered in the silty clay; however, there are some zones of granular material in the fill that yield water. When separate, the units can only be contoured on a very local basis. This is due to characteristics such as the variable fill thickness and the silty clay unit being absent in certain areas and not containing water in certain areas.

Under the current EPA-approved groundwater monitoring plan, the hydrostratigraphic unit of interest is the fill and silty clay unit. The groundwater potentiometric surface map for that unit, using data collected in October 2018, is shown in Figure 3. Table 1 provides the groundwater gauging measurements from the sampling event.

Typical for the region, periods of both drought and excess rainfall conditions have occurred. The Mississippi River stage responds accordingly. Average responses in the shallow fill/silty clay wells are typically negligible to about a one foot drop in groundwater elevation during dry periods. Discussion of groundwater flow is presented in the following section.

4.3 Groundwater Flow

4.3.1 October 2018

The contoured potentiometric surface for the fill and silty clay unit indicated influence from the bedrock high in the central portion of the site. The obtained values depict a general flow to the north and northeast from the FF Area, and aspects of both an easterly flow and southeasterly flow from the APA Area. In the FBCSA, flow is south to southeasterly (Figure 3). At the very northern end of the monitored area, the data indicate a northerly flow.

5 ANALYTICAL DATA

The analytical data are summarized in the report tables. The tables are separated by area of the Site. For any given location, if two columns are shown for a given date, the second column represents a duplicate analysis. Graphical representations of the data are provided where sufficient data exist to produce a meaningful graph which permits visual observation of trends, if present. Therefore not every well has a graph, and the graphed constituents will vary. Breaks in the graphs represent no data for a given event. This may be the result of laboratory detection limits, no groundwater, or that a well was not accessible. Formal laboratory reports for the event are presented in Appendices B. Discussion of the results is presented in Section 6.

6 DATA EVALUATION

This section presents the groundwater results of the revised groundwater monitoring plan. The objective was to document existing site-wide groundwater conditions, evaluate potential impacts, and document MNA.

Groundwater analytical results were screened against published human health-based criteria referenced in the monitoring plan. This served as a means to focus attention on those analytes that are the primary contributors to site risk. Groundwater data were compared against maximum contaminant levels (MCLs), or USEPA Regional Screening Levels (RSL) values for tap water if MCLs were not available. Historically, comparisons were made against historic concentrations and existing concentration prior to remedial activities geared at reducing contaminant concentrations, with an alternate goal of 75% reduction as compared to concentrations present in the 2004-2005 time frame. Note that the summary table merely highlights results above MCLs, and do not reflect achievement of the 75% reduction. If data were lacking from that period, comparisons were made to either older data or data generated at the start of the baseline groundwater monitoring.

The results are presented by SWMU. Within each of these units, results are presented based on the apparent source areas and resultant impact areas. The laboratory analytical results for the groundwater samples collected during this investigation are summarized in the tables section by well, and where sufficient data exist, in graphs to more readily visualize changes. Breaks in the graphs represent no data for a given event. This may be the result of laboratory detection limits, no groundwater, or that a well was not accessible.

6.1 FF Area

Former leaking underground storage tank(s) associated with the former FF Building Area contributed to the observed groundwater detections. Groundwater impacts extend from the source area northeast or east toward the north property boundary, i.e., downgradient. The monitored wells in the fill/silty clay unit include MW-2B, MW-7B (30A), MW-17, MW-28A, MW-30A, MW-36A, MW-38A, MW-39A, and MW-40A.

The key analytes identified within this source area were the PCE degradation suite, chlorobenzene, and toluene. Constituents within the PCE degradation suite have been detected in the former FF Building Area. Historically, analytical results indicated the highest concentrations of PCE were detected in samples collected from wells within the source area. No DNAPL was observed in these wells during the sampling event. PCE and vinyl chloride were detected in samples from wells outside the source area, with vinyl chloride present in more downgradient wells than TCE and DCE. The presence of vinyl chloride at the downgradient edge of the impacted area supports the conclusion that biodegradation is occurring via reductive dechlorination. As expected when PCE, TCE, and DCE in a groundwater plume biodegrade, the lighter (molecular weight) and more mobile constituent, vinyl chloride, is found further from the source. In general, the concentrations are stable, declining, or showing no trend.

Data Trends

Background/upgradient wells are represented by MW-2B, and MW-39A. MW-2B had non-detections reported in the last three annual events, and no detection at or above MCLs since 2011. Typically MW-39A has non-detections, with random unrepeated detections of an analyte above MCLs.

Older downgradient wells are represented by MW-17, MW-28A, MW-30A, and MW-30A(7B). COCs concentrations were reported as non-detect in the most recent event for the respective wells, with the exception of chlorobenzene in MW-30A(7B), which was an order of magnitude below the MCL.

Downgradient monitoring wells MW-36A, MW-36B, MW-38A, and MW-38B were installed in March 2012, and MW-40A was installed in September 2016. The data for MW-40A is limited to five events, and indicated its location is on the fringe of the plume, with constituents typically either below lab reporting limits or MCLs.

The data from MW-36A and B and MW-38A and B indicated concentrations of COCs fluctuated, are generally within historic ranges, and that degradation was occurring.

MNA Parameters

As this event reintroduced monitoring for MNA parameters, no trends exist. As noted during the Interim Measures, evidence of biodegradation and dechlorination was documented. In general, the expectation will be for decreases in sulfate under both aerobic and anaerobic conditions, and an increase in the gases under anaerobic conditions. Iron may also decrease.

6.2 APA Area

This area is located above and on the southeastern side of the bedrock high. The associated groundwater impact follows the radial groundwater flow off of the bedrock high. The monitored wells in the fill/silty clay unit include MW-9, MW-13, MW-15, MW-23, GM-1, and GM-2. MW-19R has not been installed; however, it will be available for the next sampling event. GM-1 and GM-2 are considered source area wells; the rest are downgradient wells. The key analytes identified in this source area were chlorobenzene and alachlor. Some PVC well casings in the source area were tinted red, which, according to Solutia, was a dye that was mixed in the Lasso™ formulation. The concentrations of chlorobenzene and alachlor were located mainly within the source area; however, historically, some low-level detection extended downgradient to the north, east, and southwest.

Data Trends

The source area wells, GM-1 and GM-2, have shown significant reduction in historic detected concentrations of alachlor and chlorobenzene.

MW-9, MW-13, and MW-23 are downgradient wells located east of the APA. MW-9 has typically been non-detect or below goals for COCs. MW-13 has seen a significant drop in benzene and chlorobenzene to below MCLs since June 2012. Alachlor has fluctuated at low levels slightly above and below the MCL. In September 2017, there were no detections above MCLs. At MW-23, only chlorobenzene was detected at a concentration well below the MCLs.

MW-15 is located southwest of the APA. At MW-15, both alachlor and chlorobenzene have remained below MCLs since June 2012.

In general for the APA, the alachlor and chlorobenzene plume appears stable and remains primarily constrained to the source area, concentrated around wells GM-1 and GM-2, with an outlier at MW-19.

MNA Parameters

As noted above, this event reintroduced monitoring for MNA parameters, and no trends exist. During the Interim Measures, evidence of biodegradation and dechlorination was documented. In general, the expectation will be for decreases in sulfate under both aerobic and anaerobic conditions, and an increase in the gases under anaerobic conditions. Iron may also decrease.

6.3 FBCSA

The source area is bounded on the downgradient side to the east by Wharf Street, and Victor Street to the south. Monitored wells in the fill/silty clay include MW-24A, VW-1, and VW-2. The key analytes detected in this area were chlorobenzene and benzene. Intermittent, low concentrations of the PCE degradation suite constituents have been detected at this SWMU.

Data Trends

MW-24A detected COCs included benzene, ethylbenzene, toluene, xylenes, and chlorobenzene. The benzene and chlorobenzene concentrations have decreased 95% since 2011. VW-1 and VW-2, had results consistent with recent trends. VW-1 had benzene and chlorobenzene detected, with the latter above the MCL; however, concentrations were generally trending down. VW-2 had no detections above MCLs.

MNA Parameters

As noted above, this event reintroduced monitoring for MNA parameters; therefore no trends exist. During the Interim Measures, evidence of biodegradation and dechlorination was documented. In general, the expectation will be for decreases in sulfate under both aerobic and anaerobic conditions, and an increase in the gases under anaerobic conditions. Iron may also decrease.

6.4 Data Validation

6.4.1 October 2018 Sampling Event

Sample Collection and Shipment

A total of twenty-three groundwater samples were collected during the period of October 8, 9, and 10 and delivered to Teklab, Inc. for chemical analysis, as requested in the chain-of-custody forms provided with each of the three submittals. Additional samples included were: two duplicate groundwater samples, one equipment rinsate, and two trip blanks. The lab data package numbers for this sampling event include: 180100606, 18100709, and 18100822.

Teklab provided the analytical data for all chemical constituents as described further below, except for sulfate. Groundwater samples were delivered to Summit Environmental Technologies, Inc. for sulfate analyses.

Samples collected, date of sampling, lab data package numbers, and analytes are all presented on Table 1 in Appendix B.

Analytical Methods

Groundwater analytical methods for these data packages include the methods and analytes as presented below.

SW-846 5030 Method 8260B for VOCs, for the following analytes:

- 1,1,1-Trichloroethane
- 1,2-Dichloroethane
- Acetone
- Benzene
- Chlorobenzene
- Chloroform
- cis-1,2-Dichloroethene
- Ethylbenzene
- Methylene chloride
- Tetrachloroethene
- Toluene
- trans-1,2-Dichloroethene
- Trichloroethene
- Vinyl chloride
- Xylenes, Total

SW-846 3510C Method 8081D for chlorinated pesticides by gas chromatography/electron capture detector (GC/ECD), for the following analyte:

- Alachlor

SW-846 3005A Method 6010B for metals analysis by inductively coupled plasma (ICP), for the following analyte:

- Iron

EPA 600 Method 300.0 for anions by ion chromatography (IC), for the following analyte:

- Sulfate

RSKSOP-175 for permanent gases, including the following analytes:

- Ethane
- Ethene
- Methane

Analytical Reporting Limits

Reporting limits for all data packages were within project requirements. However, due to high concentrations of target and non-target analytes, as well as potential matrix interference in a few samples, analyses of some VOCs, alachlor, and sulfate required dilutions, as follows:

- all samples analyzed for sulfate required dilutions to a factor of 10
- methane in sample MW-7B and GM-1 required dilutions to a factor of 5
- methane in sample MW-10, MW-36A, and GM-1AD required dilutions to a factor of 10
- methane in samples MW-23, MW-24A, MW-28A, MW-30A, MW-40A, VW-1, and VW-2 required dilutions to a factor of 100
- chlorobenzene in sample MW-36A and VW-1 required dilutions to a factor of 10
- chlorobenzene in sample GM-1, GM-1AD, and GM-2 required dilutions to a factor of 100
- all VOC analytes in sample MW-38A and MW-24A required dilutions to a factor of 10
- all VOC analytes, except chlorobenzene, in sample GM-2 required dilutions to a factor of 20
- all VOC analytes, except chlorobenzene, in samples GM-1 and GM-1AD required dilutions to a factor of 50
- alachlor in sample GM-1, GM-1AD, and GM-2 required dilutions to a factor of 50000

Laboratory Data Packages

The laboratory analytical data packages were complete, including the Quality Control (QC) information. Chain-of-custody forms were included with each laboratory data package, double-signed, and dated. One issue regarding container labeling was noted for laboratory data package 18100822: there was a discrepancy between the time of collection noted on the chain-of-custody compared to the container label. The lab staff discussed this with the EOI project manager. This issue has no effect on data quality.

Sample Temperature and Preservation

Coolers were received by the laboratory within preservation and temperature requirements. Sufficient vials without headspace were received by the laboratory for VOC analyses.

Holding Times

All samples were analyzed by the laboratory within the appropriate, specified holding times.

Blanks

One equipment rinsate blank (EB), two trip blanks (TB), and multiple analytical method blanks (MBs) were analyzed for target analytes. All results for all types of blanks were reported as non-detect for target analytes, with the following exception noted below.

Equipment Rinsate Blank

The equipment blank collected on 10-10-2018 showed non-detects for all analytes with the exception of alachlor (1.19 µg/L) and sulfate (11.5 mg/L). The samples potentially impacted by the alachlor detection are GM-2, GM-1, and GM-1AD. Even though the impact from cross-contamination is likely to be very small, because the alachlor detections in these three samples range from 11,500 to 19,900 µg/L, they are all qualified as 'J', estimated, and all data are deemed to be useable.

The samples potentially impacted by the sulfate detection include MW-2B, GM-2, GM-1, GM-1AD, and VW-2. Because sulfate results in these five samples range from 22.8 to 121 mg/L, it is possible that the sulfate detection in the equipment blank has impacted these results. Hence, all sulfate results for these samples are qualified as 'J', estimated, and all data are deemed to be useable.

Field Duplicates

Two field duplicate samples were collected from the following wells and analyzed: MW-17 and GM-1. The duplicate samples are coded with the same sample ID and labeled as "AD" on the lab reports. The relative percent differences (RPDs) between the results of the two duplicate pairs were calculated, as shown on Table 2.

All duplicate pair results, for all analytes demonstrate RPDs less than the criteria of 20%.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All of the MS samples demonstrated % recovery (%R) results within acceptable quality criteria, except for one MS performed for alachlor. The result was reported lower than acceptance criteria. However, another MS was performed for alachlor and results were acceptable; hence, no qualifications are required and all data are deemed to be useable.

All MS/MSD pairs' relative percent differences (RPDs), as performed on samples within this lab package, were within the acceptable quality criteria. No qualifications are necessary and all data are deemed to be useable.

Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD)

All LCS sample results demonstrated % Rs for all analytes within acceptable quality criteria, except for one acetone result in one LCS sample. The %R was reported as 126.6%, as compared to the acceptance criteria of 123%. For all associated samples demonstrating detections, acetone results are qualified as 'J', estimated. This affects only the acetone result for sample VW-2 (15.9 J µg/L).

All LCSD samples demonstrated RPDs within acceptance criteria between their respective LCS samples.

All data are deemed to be useable based on LCS/LCSD results.

Data Packages

All data for samples collected and analyzed during this sampling event can be found on Table 3, segregated by lab package, with data qualifiers shown, as applicable.

6.5 Plume Stability in the Upper Aquifer

Plume stability is recognized as a means to demonstrate that a contaminant of concern is not actively migrating. Plume evaluation, at a minimum, should demonstrate that concentrations are showing no trend, and preferably a decreasing trend. Conducting routine groundwater monitoring as part of the selected remedy allows tracking and demonstrating groundwater quality improvement and plume stability over time.

Given concern regarding the plume associated with the former FF Area, existing data were used to evaluate key constituents regarding trends. The purpose of the evaluation was to assess if groundwater sample data continues to indicate a stable plume.

The analysis was performed on monitoring wells located down and side gradient of the FF Area SWMU that are currently part of the groundwater monitoring network for the Fill/Silty Clay unit of concern. The concentration trends for five COCs; chlorobenzene, toluene, tetrachloroethene, trichloroethene, and vinyl chloride were analyzed using Mann Kendall software (GSI Environmental Version 1.0 November 2012).

The Mann-Kendall trend analysis for each COC for the monitoring wells listed in the following discussion is provided in Appendix C, Tables 1 through 5. The specific groundwater monitoring well data table for this evaluation is presented in Table 2.

<u>Shallow Wells Screened in Fill/Silty Clay Unit</u>

MW-17

Well was recently added to the groundwater monitoring program and has been sampled five times since September 2016. No COC was detected October 2018; therefore a trend analysis did not seem relevant.

MW-28A

Chlorobenzene	No Trend. Not detected during last sampling event in October 2018.
Toluene	Stable. All non-detects for this constituent.
PCE	No Trend. The only detected concentration of 9.6 ug/l occurred in the September 2016 sampling event.
TCE	Stable. All non-detects for this constituent.
Vinyl Chloride	Stable. The only detection occurred in September 2012 and was below the MCL.

MW-30A

This well was recently added to the groundwater monitoring program and has been sampled four times since September 2016. The only COC detected was PCE at a concentration of 17.7 ug/l in September 2016, and non-detect since.

MW-30A/7B

Chlorobenzene	Stable. Exhibited concentration of 3.9 ug/l during last sampling event in October 2018, below the MCL of 100 ug/l.
Toluene	No Trend. All non-detects for this constituent.
PCE	No Trend. Only one event had a detection of this constituent in 2016.
TCE	No Trend. All non-detects for this constituent.
Vinyl Chloride	No Trend. All non-detects for this constituent.

MW-36A

Chlorobenzene	No Trend. Exhibited concentration of 293 ug/l during last sampling event in October 2018, a moderate rebound from the prior round.
Toluene	No Trend. All non-detects except for March 2017 at a concentration of 14 ug/l, well below MCL.
PCE	No Trend. Not detected since 2015.
TCE	No Trend. All non-detects for this constituent.

Vinyl Chloride	Probably Increasing. Was non-detect at detection concentration of 0.5 ug/l during last sampling event in October 2018, below the MCL. Detections over the last three years have been just above or just below the MCL. Also an indicator of dechlorination.

MW-38A

Chlorobenzene	Decreasing Trend. Exhibited a concentration of 29 ug/l during last sampling event in October 2018, which is below the MCL.
Toluene	Stable. Was non-detect at detection concentration of 10.0 ug/l during last sampling event in October 2018, below the MCL.
PCE	Decreasing Trend. Was non-detect at detection concentration of 8.7 ug/l during last sampling event in October 2018.
TCE	Decreasing Trend. Was non-detect at detection concentration of 10 ug/l in October 2018.
Vinyl Chloride	Stable. Exhibited concentration of 482 ug/l during last sampling event in October 2018. An order of magnitude lower than March 2018, and the lowest concentration since 2013; anticipate VC to potentially rise as PCE and TCE continue to degrade.

Based upon this analysis, the data indicate that the contaminant plume for these constituents is predominantly showing no trend or decreasing. In several instances, where no trend existed, the concentrations were often below MCLs. As PCE and TCE are present, increases in vinyl chloride demonstrates the ongoing active dechlorination and the effectiveness of the natural attenuation occurring.

7 CONCLUSIONS AND RECOMMENDATIONS

The groundwater network wells were sampled on an annual basis per the groundwater monitoring plan.

On the basis of the collected data, no significant changes in the concentrations of COCs were observed. In particular, the data support that the plume associated with the FF Area appears stable, and locally decreasing. Data from the APA and FBCSA indicate stable plumes.

The groundwater monitoring plan, developed, submitted, and approved to reflect the post closure monitoring of the selected remedy, provides the requisite data for plume evaluation and no revisions are necessary.

8 REPORT LIMITATIONS

This report has been prepared in accordance with normally accepted environmental engineering practices for groundwater monitoring and reporting. Conclusions presented in this report are EOI's interpretation and comprise a professional opinion based on this data. No other warranty, express or implied, is made regarding the information presented in this report. In the event that conclusions and recommendations, based on the data presented in this report, are made by others, such conclusions and recommendations are their responsibility.

EOI has exercised reasonable skill, care, and diligence in preparation of this report in accordance with generally accepted standards of good professional practice in effect at the time this report was prepared.

Conditions inferred to exist between sampling points might differ significantly from actual conditions. Changes in subsurface conditions can be influenced by many factors. These factors include but are not limited to: management of surrounding areas, off-site contaminant sources, seasonal rainfall fluctuations, changes in contaminant source area and composition, groundwater occurrence, and biodegradation. Over time, actual conditions revealed through sampling can vary due to natural occurrences and/or man-made interference on or near the site.

9 REFERENCES

US Environmental Protection Agency (USEPA). 2017. National Functional Guidelines for Organic Superfund Methods Data Review. OLEM 9355.0-136. EPA-540-R -2017-002. Office of Superfund Remediation and Technology Innovation (OSRTI), Washington, DC.

TABLE 1

SUMMARY OF SITE-WIDE WELL COMPLETION INFORMATION

TABLE 1
Monitoring Well and Piezometer Network Completion & Summary Water Levels

Monitoring Well Identification	Top of Casing Elevation (ft MSL)	Total Well Depth (ft btoc)	Bottom of Well Elevation (ft MSL)	Screened Interval (ft btoc)	Screened Interval Elevation (ft MSL)	Water Level August 2011 bTOC (ft)	Water Level August 2011 MSL (ft)	Water Level December 2011 bTOC (ft)	Water Level December 2011 MSL (ft)	Water Level March 2012 bTOC (ft)	Water Level March 2012 MSL (ft)	Water Level June 2012 bTOC (ft)	Water Level June 2012 MSL (ft)
Fill/Silty Clay Wells													
GM-1	425.16	13.37	411.79	(8.50-13.50)	(417.02-412.02)	10.10	415.06	11.80	413.36	9.40	415.76	10.21	414.95
GM-2	425.06	12.33	412.73	(6.75-11.75)	(418.83-413.83)	10.41	414.65	9.80	415.26	9.55	415.51	10.26	414.80
FBCSA-MW-5	417.49	19.46	398.03	(9.46-19.46)	(388.03-398.03)	11.27	406.22	10.63	406.86	10.08	407.41	10.30	407.19
HW-2	423.25	29.00	394.25	(14.00-29.00)	(409.25-394.25)	17.43	405.82	29.25	394.00	Not accessible	NA	Not accessible	NA
LPZ-2	422.95	22.09	400.86	(7.52-22.52)	(415.94-400.94)	Blocked Screen	NA	7.62	415.33	9.83	413.12	10.80	412.15
LPZ-4	423.62	22.00	401.62	(7.62-22.62)	(416.62-401.62)	9.54	414.08	4.99	418.63	11.59	412.03	11.02	412.60
LPZ-5	423.64	21.78	401.86	(11.78-21.78)	(391.86-401.86)	10.03	413.61	5.88	417.76	11.59	412.05	10.89	412.75
MW-2B	430.16	29.28	400.88	(17.16-27.16)	(413.64-403.64)	16.75	413.41	22.51	407.65	16.60	413.56	18.24	411.92
MW-3	424.85	30.47	394.38	(22.65-32.65)	(402.84-392.84)	12.24	412.61	20.90	403.95	12.51	412.34	13.45	411.40
MW-4	427.33	18.32	409.01	(9.51-19.51)	(417.88-407.88)	10.16	417.17	13.89	413.44	8.23	419.10	9.45	417.88
MW-5R	420.91	15.27	405.64	(6.14-16.14)	(419.88-409.88)	Not installed	Not installed	Not installed	Not installed	6.15	414.76	7.10	413.81
MW-7B(30A)	422.17	32.21	389.96	(23.00-33.00)	(399.17-389.17)	No access	No access	30.66	391.51	30.66	391.51	29.91	392.26
MW-9	425.84	41.53	384.31	(33.92-44.42)	(391.14-380.64)	16.88	408.96	21.62	404.22	22.83	403.01	21.27	404.57
MW-11A	425.86	74.30	351.56	(70.17-80.17)	(356.04-346.04)	14.14	411.72	22.96	402.90	14.49	411.37	15.28	410.58
MW-13	425.31	51.84	373.47	(9.99-49.99)	(415.94-375.94)	13.73	411.58	16.42	408.89	12.79	412.52	13.80	411.51
MW-15	426.05	17.97	408.08	(12.97-17.97)	(403.08-408.08)	14.71	411.34	14.21	411.84	13.16	412.89	13.75	412.30
MW-17	420.39	50.27	370.12	(12.25-52.25)	(408.14-368.14)	NM	NA	NM	NA	NM	NA	NM	NA
MW-19	423.53	15.34	408.19	(10.50-15.50)	(413.58-408.58)	11.00	412.53	13.01	410.52	9.59	413.94	10.92	412.61
MW-23	423.87	24.40	399.47	(15.25-25.25)	(409.74-399.740	11.41	NA	11.81	412.06	11.81	412.06	12.71	411.16
MW-24A	420.22	28.24	391.98	(18.45-28.45)	(402.35-392.35)	20.07	400.15	24.00	396.22	24.00	396.22	24.47	395.75
MW-25A	419.30	29.90	389.40	(20.76-30.76)	(399.14-389.14)	22.46	396.84	20.47	398.83	20.47	398.83	21.02	398.28
MW-28A	422.11	12.26	409.85	(7.6-12.6)	(415.04-410.04)	No access	No access	5.95	416.16	5.95	416.16	6.34	415.77
MW-30A	418.90	17.13	401.77	(8.16-18.16)	(410.74-400.74)	NM	NA	NM	NA	NM	NA	NM	NA
MW-32A	420.88	27.94	392.94	(17.96-27.96)	(392.92-402.92)	26.72	394.16	23.26	397.62	22.57	398.31	dry	NA
MW-33A	418.40	28.70	389.70	(18.72-28.72)	(389.68-399.68)	20.72	397.68	20.73	397.67	20.73	397.67	26.82	391.58
MW-36A	420.15	22.69	397.46	(12.69-22.69)	(387.46-397.46)	Not installed	Not installed	Not installed	Not installed	12.90	407.25	12.67	407.48
MW-38A	422.86	17.71	405.15	(7.71-17.71)	(395.69-405.69)	Not installed	Not installed	Not installed	Not installed	13.21	409.65	13.76	409.10
MW-39A	425.98	20.09	405.89	(10.11-20.11)	(405.87-415.87)	13.53	412.45	13.28	412.70	14.25	411.73	13.93	412.05
MW-40A	425.33	19.30	406.03	(9.30-19.30)	(406.03-416.03)	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed
REC-1	423.87	44.05	379.82	(20.00-40.00)	(401.58-380.58)	13.54	410.33	17.63	406.24	11.83	412.04	13.25	410.62
VW-1	418.50	16.04	402.46	(6.00-16.00)	(413.12-403.12)	9.33	409.17	9.61	408.89	9.02	409.48	9.89	408.61
VW-2	418.89	13.18	405.71	(6.00-16.00)	(413.17-403.17)	9.81	409.08	9.63	409.26	9.91	408.98	10.30	408.59

Notes:
1.) MSL=Mean Sea Level
2.) btoc= below top of casing
3.) The total depth of the wells was measured on June 16, 2000.
NA - no data available or recorded. Well may no longer be monitored.
NM - Not measured
No access a function of property owner
Not accessible function of gravel cover placed over top of well

TABLE 1
Monitoring Well and Piezometer Network Completion & Summary Water Levels

Monitoring Well Identification	Water Level September 2012 bTOC (ft)	MSL (ft)	Water Level February 2013 bTOC (ft)	MSL (ft)	Water Level April 2013 bTOC (ft)	MSL (ft)	Water Level July 2013 bTOC (ft)	MSL (ft)	Water Level October 2013 bTOC (ft)	MSL (ft)	Water Level February 2014 bTOC (ft)	MSL (ft)	Water Level April 2014 bTOC (ft)	MSL (ft)
Fill/Silty Clay Wells														
GM-1	10.00	415.16	9.83	415.33	9.90	415.26	No field form	No field form	10.75	414.41	10.80	414.36	9.27	415.89
GM-2	dry	NA	6.30	418.76	9.71	415.35	No field form	No field form	11.28	413.78	11.31	413.75	9.54	415.52
FBCSA-MW-5	11.92	405.57	11.83	405.66	9.54	407.95	No field form	No field form	12.23	405.26	13.74	403.75	10.62	406.87
HW-2	Not accessible	NA	Not accessible	NA	Not accessible	NA	No field form	No field form	Not accessible	NA	Not accessible	NA	Not accessible	NA
LPZ-2	10.37	412.58	10.38	412.57	8.80	414.15	No field form	No field form	dry	NA	NM	NA	5.97	416.98
LPZ-4	Not accessible	NA	Not accessible	NA	NM	NA	No field form	No field form	NM	NA	NM	NA	13.51	410.11
LPZ-5	12.19	411.45	11.63	412.01	11.23	412.41	No field form	No field form	8.10	415.54	dry	NA	12.70	410.94
MW-2B	18.66	411.50	NM	NA	NM	NA	No field form	No field form	19.75	410.41	20.22	409.94	17.89	412.27
MW-3	14.03	410.82	NM	NA	NM	NA	No field form	No field form	15.55	409.30	15.66	409.19	13.22	411.63
MW-4	9.60	417.73	9.45	417.88	9.16	418.17	No field form	No field form	11.63	415.70	11.72	415.61	8.98	418.35
MW-5R	6.31	414.60	NM	NA	5.60	415.31	No field form	No field form	6.87	414.04	7.01	413.90	6.48	414.43
MW-7B(30A)	29.91	392.26	29.91	392.26	dry	NA	No field form	No field form	dry	NA	dry	NA	31.01	391.16
MW-9	23.84	402.00	NM	NA	19.92	405.92	No field form	No field form	24.87	400.97	24.93	400.91	19.65	406.19
MW-11A	14.60	411.26	NM	NA	NM	NA	No field form	No field form	NM	NA	15.59	410.27	13.60	412.26
MW-13	13.82	411.49	NM	NA	12.60	412.71	No field form	No field form	15.02	410.29	14.96	410.35	12.94	412.37
MW-15	13.31	412.74	NM	NA	12.63	413.42	No field form	No field form	NM	NA	NM	NA	12.85	413.20
MW-17	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA
MW-19	10.64	412.89	9.72	413.81	10.13	413.40	No field form	No field form	11.57	411.96	12.33	411.20	9.88	413.65
MW-23	12.78	411.09	NM	NA	11.78	412.09	No field form	No field form	14.02	409.85	13.91	409.96	11.88	411.99
MW-24A	19.12	401.10	23.71	396.51	24.25	395.97	No field form	No field form	27.63	392.59	24.38	395.84	24.54	395.68
MW-25A	20.04	399.26	NM	NA	19.85	399.45	No field form	No field form	19.91	399.39	20.11	399.19	19.74	399.56
MW-28A	6.40	415.71	NM	NA	5.95	416.16	No field form	No field form	7.11	415.00	dry	NA	11.01	411.10
MW-30A	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA	NM	NA
MW-32A	dry	NA	NM	NA	dry	NA	No field form	No field form	dry	NA	dry	NA	24.77	396.11
MW-33A	27.62	390.78	NM	NA	dry	NA	No field form	No field form	dry	NA	27.82	390.58	26.72	391.68
MW-36A	14.66	405.49	13.52	406.63	12.78	407.37	No field form	No field form	14.89	405.26	14.99	405.16	13.90	406.25
MW-38A	14.86	408.00	12.62	410.24	13.55	409.31	No field form	No field form	15.92	406.94	dry	NA	13.71	409.15
MW-39A	15.68	410.30	NM	NA	NM	NA	No field form	No field form	14.95	411.03	17.01	408.97	14.69	411.29
MW-40A	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed	Not installed
REC-1	10.51	413.36	9.63	414.24	10.06	413.81	No field form	No field form	NM	NA	17.17	406.70	11.63	412.24
VW-1	9.85	408.65	9.09	409.41	8.71	409.79	No field form	No field form	10.23	408.27	13.30	405.20	9.08	409.42
VW-2	10.76	408.13	13.00	405.89	9.50	409.39	No field form	No field form	NM	NA	dry	NA	9.55	409.34

Notes:
1.) MSL=Mean Sea Level
2.) btoc= below top of casing
3.) The total depth of the wells was measured on June 16, 2000.
NA - no data available or recorded. Well may no longer be monitored.
NM - Not measured
No access a function of property owner
Not accessible function of gravel cover placed over top of well

TABLE 1
Monitoring Well and Piezometer Network Completion & Summary Water Levels

Monitoring Well Identification	Water Level July 2014 bTOC (ft)	MSL (ft)	Water Level May 2015 bTOC (ft)	MSL (ft)	Water Level September 2016 bTOC (ft)	MSL (ft)	Water Level March 2017 bTOC (ft)	MSL (ft)	Water Level September 2017 bTOC (ft)	MSL (ft)	Water Level March 2018 bTOC (ft)	MSL (ft)	Water Level October 2018 bTOC (ft)	MSL (ft)
Fill/Silty Clay Wells														
GM-1	9.45	415.71	9.46	415.70	Not accessible	NA	7.14	418.02	7.54	414.40	5.92	416.02	6.52	415.42
GM-2	9.48	415.58	9.60	415.46	9.35	415.71	10.00	415.06	11.61	414.60	9.66	416.55	10.68	415.53
FBCSA-MW-5	9.49	408.00	10.13	407.36	9.95	407.54	11.70	405.79	12.45	405.04	11.36	406.13	NA	NA
HW-2	Not accessible	NA	Not accessible	NA	Not accessible	NA	Not accessible	NA	Not accessible	NA	Not accessible	NA	NA	NA
LPZ-2	3.91	419.04	6.58	416.37	12.50	410.45	5.80	417.15	7.10	415.85	6.42	416.53	Closed	
LPZ-4	11.13	412.49	12.86	410.76	10.62	413.00	14.42	409.20	13.90	409.72	14.01	409.61	Closed	
LPZ-5	10.11	413.53	11.20	412.44	10.35	413.29	11.09	412.55	10.47	413.17	9.72	413.92	Closed	
MW-2B	16.03	414.13	17.04	413.12	14.09	416.07	17.59	412.57	18.45	411.71	17.52	412.64	16.08	414.08
MW-3	9.02	415.83	12.74	412.11	10.23	414.62	13.26	411.59	14.01	410.84	13.36	411.49	NA	NA
MW-4	9.63	417.70	9.57	417.76	NM	NA	9.57	417.76	Closed		Closed		Closed	
MW-5R	6.60	414.31	6.18	414.73	NM	NA	7.66	413.25	Closed		Closed		Closed	
MW-7B(30A)	18.35	403.82	29.57	392.60	18.86	403.31	29.57	392.60	34.05	388.12	30.09	392.08	20.58	401.59
MW-9	15.64	410.20	20.21	405.63	15.32	410.52	19.75	406.09	22.55	403.29	19.45	406.39	17.68	408.16
MW-11A	13.72	412.14	13.57	412.29	12.88	412.98	14.40	411.46	11.75	414.11	13.84	412.02	NA	NA
MW-13	13.50	411.81	13.03	412.28	11.00	414.31	13.92	411.39	14.17	411.14	13.34	411.97	13.24	412.07
MW-15	Not accessible	NA	12.84	413.21	12.21	413.84	12.84	413.21	11.75	414.30	Not accessible	NA	Not accessible	NA
MW-17	NM	NA	NM	NA	8.66	411.73	15.44	404.95	15.81	404.58	15.23	405.16	11.39	409.00
MW-19	10.36	413.17	10.18	413.35	8.59	414.94	10.33	413.20	11.00	412.53	Closed		Closed	
MW-23	12.00	411.87	12.39	411.48	11.30	412.57	13.04	410.83	13.32	410.55	12.49	411.38	12.24	411.63
MW-24A	18.57	401.65	24.56	395.66	19.42	400.80	23.61	396.61	24.45	395.77	24.64	395.58	19.79	400.43
MW-25A	15.29	404.01	19.20	400.10	15.29	404.01	19.02	400.28	20.30	399.00	20.99	398.31	NA	NA
MW-28A	5.69	416.42	6.06	416.05	4.11	418.00	7.61	414.50	6.81	415.30	5.99	416.12	5.61	416.50
MW-30A	NM	NA	NM	NA	8.29	410.61	10.80	408.10	10.50	408.40	10.34	408.56	9.26	409.64
MW-32A	17.39	403.49	26.07	394.81	18.95	401.93	26.81	394.07	27.97	392.91	Closed		Closed	
MW-33A	16.44	401.96	27.11	391.29	17.52	400.88	25.51	392.89	26.55	391.85	Closed		Closed	
MW-36A	8.75	411.40	11.11	409.04	9.64	410.51	12.60	407.55	10.75	409.40	12.84	407.31	8.22	411.93
MW-38A	10.85	412.01	13.11	409.75	10.00	412.86	13.01	409.85	14.08	408.78	13.30	409.56	11.21	411.65
MW-39A	9.63	416.35	10.17	415.81	8.58	417.40	9.28	416.70	14.08	411.90	9.23	416.75	9.46	416.52
MW-40A	Not installed	Not installed	Not installed	Not installed	10.54	414.79	15.16	410.17	14.71	410.62	15.60	409.73	12.64	412.69
REC-1	10.10	413.77	12.61	411.26	9.95	413.92	12.15	411.72	11.17	412.70	11.75	412.12	Closed	
VW-1	8.88	409.62	8.62	409.88	8.19	410.31	9.51	408.99	9.91	408.59	9.39	409.11	8.73	409.77
VW-2	9.49	409.40	9.62	409.27	8.28	410.61	NM	NA	NM	NA	9.82	409.07	9.23	409.66

Notes:
1.) MSL=Mean Sea Level
2.) btoc= below top of casing
3.) The total depth of the wells was measured on June 16, 2000.
NA - no data available or recorded. Well may no longer be monitored.
NM - Not measured
No access a function of property owner
Not accessible function of gravel cover placed over top of well

TABLE 2

Former FF Area Wells
Analytical Summary Tables

MW-2B
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			7/25/2000	9/2/2011	9/2/2011	12/29/2011	4/3/2012	4/3/2012	6/27/2012	9/27/2012	11/13/2012	5/21/2015	9/27/2016	9/21/2017	10/10/2018
1,1,1-Trichloroethane	71-55-6	200	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	-	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	16.6	<25.0	<10.0	<10.0
Benzene	71-43-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	-	40.6	11.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Chloroform	67-66-3	80	-	10.3	9.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	**220**	3.2	3.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	**18**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron															43.5
Ethane															<7.0
Ethane															<10.0
Methane															<4.0
Sulfate															11,700

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

MW-17
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			9/22/2016	3/22/2017	9/20/2017	3/20/2018	3/20/2018	10/8/2018	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	67-64-1	12000	<25.0	<25.0	<25.0	<10.0	<10.0	<10.0	<10.0
Benzene	71-43-2	5	<2.0	<2.0	<1.0	<1.0	<1.0	<0.5	<0.5
Chlorobenzene	108-90-7	100	<5.0	<5.0	1.3	<1.0	<1.0	<1.0	<1.0
Chloroform	67-66-3	80	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	<5.0	<5.0	<1.0	<1.0	<1.0	<0.5	<0.5
Toluene	108-88-3	100	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<5.0	<5.0	<3.0	<3.0	<3.0	<2.0	<2.0
Iron								14600	12400
Ethane								<7.0	<7.0
Ethene								<10.0	<10.0
Methane								5.5	6
Sulfate								141000	140000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-30A (7B)
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			4/2/2012	6/28/2012	dry 9-12	dry 2-13	dry 4-13	7/17/2013	7/17/2013	11/13/2013	4/29/2014	5/6/2015	9/28/2016	3/22/2017	3/22/2017	9/21/2017	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	<10.0	<10.0	dry	dry	dry	<10.0	<10.0	dry	<10.0	<10.0	<25.0	<25.0	<25.0	<10.0	<10.0
Benzene	71-43-2	5	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<2.0	<5.0	<5.0	<1.0	<1.0
Chlorobenzene	108-90-7	100	7.5	39.7	dry	dry	dry	16.6	17.2	dry	5.4	41.0	7.5	35.5	29.4	19.4	19.4
Chloroform	67-66-3	80	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	11.4	<5.0	<5.0	<1.0	<1.0
Toluene	108-88-3	100	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<1.0	<1.0	dry	dry	dry	<1.0	<1.0	dry	<1.0	<1.0	<2.0	<2.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<3.0	<3.0	dry	dry	dry	<3.0	<3.0	dry	<3.0	<3.0	<10.0	<5.0	<5.0	<3.0	<3.0
Iron																	70.8
Ethane																	<7.0
Ethene																	<10.0
Methane																	57.5
Sulfate																	216,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-30A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			9/28/2016	9/28/2016	9/21/2017	3/20/2018	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<5.0	<5.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<5.0	<5.0	<1.0	<1.0	<1.0
Acetone	67-64-1	12000	<25.0	<25.0	<10.0	<10.0	<10.0
Benzene	71-43-2	5	<2.0	<2.0	<1.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	<5.0	5.5	<1.0	<1.0	<1.0
Chloroform	67-66-3	80	<5.0	<5.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<5.0	<5.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<5.0	<5.0	<1.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<5.0	<5.0	<1.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	11.5	17.7	<1.0	<1.0	<0.5
Toluene	108-88-3	100	<5.0	<5.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<5.0	<5.0	<1.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<5.0	<5.0	<1.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<2.0	<2.0	<1.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<5.0	<5.0	<3.0	<3.0	<2.0
Iron							29800
Ethane							<7.0
Ethene							<10.0
Methane							564
Sulfate							96,200

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-36A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			4/3/2012	7/5/2012	10/1/2012	2/11/2013	4/10/2013	7/11/2013	11/6/2013	2/19/2014	4/29/2014
1,1,1-Trichloroethane	71-55-6	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	67-64-1	12000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Benzene	71-43-2	5	27.4	47.9	61	29.3	24.1	15	42.7	42.3	23.2
Chlorobenzene	108-90-7	100	19.1	200	343	273	186	126	323	258	237
Chloroform	67-66-3	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	4.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	7.3	<1.0	<1.0	<1.0	<1.0	<1.0	5.5	<1.0	<1.0
Toluene	108-88-3	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<1.0	<1.0	2.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Iron											
Ethane											
Ethene											
Methane											
Sulfate											

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-36A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			5/13/2015	9/26/2016	3/21/2017	9/25/2017	3/20/2018	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
Acetone	67-64-1	12000	<10.0	<5.0	<5.0	<10.0	<10.0	<10.0
Benzene	71-43-2	5	29.1	6.3	95.6	25.5	1.5	13.9
Chlorobenzene	108-90-7	100	240	75.8	2070	634	57.4	293
Chloroform	67-66-3	80	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<1.0	<5.0	2.6	<1.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	5.5	<5.0	<1.0	<1.0	<1.0	<0.5
Toluene	108-88-3	100	<1.0	<5.0	14	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<1.0	<5.0	1.8	<1.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	1.9	<2.0	6.7	2.2	2.2	<1.0
Xylene (Total)	1330-20-7	10000	<3.0	<5.0	<2.0	<3.0	<3.0	<2.0
Iron								6020
Ethane								<7.0
Ethene								<10.0
Methane								130
Sulfate								146,000

*Results and MCL reported in ug/L. If no MCL, Tap V
Results highlighted in gray exceed MCL, excluding eve
"<" indicates result below the reported detection limit

MW-38A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			4/3/2012	4/3/2012	7/5/2012	10/2/2012	2/13/2013	4/10/2013	7/11/2013	4/30/2014	5/13/2015	9/26/2016	3/21/2017	9/25/2017	3/20/2018	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<200	<200	<2000	<500	<100	<200	<5	<5	<50.0	<200	<100	<100	<50	<10
1,2-Dichloroethane	107-06-2	5	<200	<200	<2000	<500	<100	<200	<5	<5	<50.0	1520	<100	<100	<50	<10
Acetone	67-64-1	12000	<2000	<2000	<20000	<5000	<1000	<2000	<50	<50	<500	<1000	<500	<1000	<500	<100
Benzene	71-43-2	5	<200	<200	<2000	<500	<100	<200	<5	17.2	<50.0	<200	<100	<100	<50	<5
Chlorobenzene	108-90-7	100	1430	1290	3740	1250	532	1430	51.4	496	562	558	235	774	123	29
Chloroform	67-66-3	80	<200	<200	<2000	<500	<100	<200	<5	<5	<50.0	<200	<100	<100	<50	<10
cis-1,2-Dichloroethene	156-59-2	70	202000	216000	208000	151000	50100	95800	1920	66400	61000	19300	20400	26800	6780	1610
Ethylbenzene	100-41-4	700	524	427	<2000	532	115	<200	<5	254	281	266	<100	429	<50	<10
Methylene chloride	75-09-2	5	<200	<200	<2000	<500	<100	<200	<5	<5	<50.0	<200	<100	<100	94.5	<10
Tetrachloroethene	127-18-4	5	8950	7620	<2000	<500	1980	<200	528	636	73.0	<200	<100	<100	<50	8.7
Toluene	108-88-3	100	469	339	<2000	<500	110	<200	<5	185	233	252	231	466	<50	<10
trans-1,2-Dichloroethene	156-60-5	100	262	223	<2000	<500	<100	330	38.3	758	96.0	<200	<100	132	<50	<10
Trichloroethene	79-01-6	5	1960	1690	<2000	<500	1510	<200	150	343	103	126	147	<100	<50	<10
Vinyl chloride	75-01-4	2	18100	16200	22300	24900	3870	<200	373	8300	21300	39700	10400	48200	2640	482
Xylene (Total)	1330-20-7	10000	1700	1470	<6000	1770	<300	<600	<75	769	972	636	<200	1410	<150	<20

Iron		1090
Ethane		10.7
Ethene		76.5
Methane		17.2
Sulfate		131,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-39A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Date & Result	Date & Result
			9/2/2011	12/21/2011	4/3/2012	6/27/2012	6/27/2012	9/26/2012	9/26/2012	10/29/2013	5/14/2015	9/21/2016	9/26/2017	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0
Benzene	71-43-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	6.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.5	41.2	<1.0
Chloroform	67-66-3	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	**404**	<0.5
Toluene	108-88-3	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**378**	<1.0	<5.0	3.9	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<1.0	<1.0	<1.0	1.5	1.5	<1.0	<1.0	1.9	<1.0	<5.0	2.3	<1.0
Vinyl chloride	75-01-4	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron														419
Ethane														<7.0
Ethene														<10.0
Methane														4.2
Sulfate														70,600

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-40A
Former FF Building Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			9/26/2016	3/21/2017	9/25/2017	3/20/2018	10/8/2018
1,1,1-Trichloroethane	71-55-6	200	<5.0	<5.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<5.0	<5.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	<25.0	<25.0	<10.0	<10.0	<10.0
Benzene	71-43-2	5	<2.0	<2.0	<5.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	11.2	15.5	15.9	15.2	14.6
Chloroform	67-66-3	80	<5.0	<5.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<5.0	<5.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<5.0	<5.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<5.0	<5.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	<5.0	<5.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	<5.0	<5.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<5.0	<5.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<5.0	<5.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<2.0	2.2	<5.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<5.0	<5.0	<3.0	<3.0	<2.0
Iron							21,100
Ethane							<7.0
Ethene							<10.0
Methane							1110
Sulfate							40,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

TABLE 3

Former APA Wells
Analytical Summary Tables

GM-1
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			6/20/2000	9/1/2004	9/1/2011	12/19/2011	4/9/2012	6/26/2012	9/24/2012	2/4/2013	4/2/2013	7/9/2013	11/4/2013	4/22/2014	5/12/2015	9/27/2016	3/22/2017	9/26/2017	3/21/2018	3/21/2018	10/10/2018	10/10/2018
1,1,1-Trichloroethane	71-55-6	200	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
1,2-Dichloroethane	107-06-2	5	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Acetone	67-64-1	12000	-	-	<10000	<10000	<10000	<5000	<250	<1000	<2500	519	<1000	<1000	<500	<2500	<5000	<500	<500	<500	<500	<500
Alachlor	15972-60-8	2	130000	92000	170000	191000	115000	88700	132000	98300	109000	31600	154000	72900	70300	62700	88000	9490	4550	3560	17800	19900
Benzene	71-43-2	5	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Chlorobenzene	108-90-7	100	180000	120000	118000	98100	59100	106000	69000	81700	84100	68300	102000	51000	78900	128000	99100	19100	5850	5870	11900	11600
Chloroform	67-66-3	80	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
cis-1,2-Dichloroethene	156-59-2	70	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Ethylbenzene	100-41-4	700	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Methylene chloride	75-09-2	5	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	87.0	92.0	<50.0	<50.0
Tetrachloroethene	127-18-4	5	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Toluene	108-88-3	100	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
trans-1,2-Dichloroethene	156-60-5	100	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Trichloroethene	79-01-6	5	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Vinyl chloride	75-01-4	2	-	-	<1000	<1000	<1000	<500	<250	<100	<250	<50	<100	<100	<50.0	<500	<1000	<50.0	<50.0	<50.0	<50.0	<50.0
Xylene (Total)	1330-20-7	10000	-	-	<3000	<3000	<3000	<1500	<750	<300	<3000	<150	<300	<300	<150	<1000	<2000	<150	<150	<150	<100	<100
Iron																					1160	1160
Ethane																					<7.0	<7.0
Ethene																					<10.0	<10.0
Methane																					56.5	63.4
Sulfate																					24,800	22,800

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

GM-2
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			6/30/2000	8/30/2004	8/30/2004	9/1/2011	12/19/2011	4/10/2012	6/26/2012	9/24/2012	2/4/2013	4/2/2013	7/9/2013	11/4/2013	2/4/2014	4/22/2014	5/21/2015	9/22/2016	9/22/2016	3/21/2017	9/25/2017	9/25/2017	3/21/2018	10/10/2018
1,1,1-Trichloroethane	71-55-6	200	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
1,2-Dichloroethane	107-06-2	5	-	-	-	<1000	<1000	<1000	<500	inaccessible	28.6	<250	<50	<50	11.2	<50	<500	<500	<500	<250	<50	<50	<20	<20
Acetone	67-64-1	12000	-	-	-	<10000	<10000	<10000	<5000	inaccessible	186	<2500	519	813	478	503	<5000	<2500	<2500	<1250	<500	<500	<200	<200
Alachlor	15972-60-8	2	-	70000	-	120000	96400	77800	62900	inaccessible	140000	122000	41700	112000	105000	116000	84800	57500	55700	33300	35900	57800	451	11500
Benzene	71-43-2	5	-	-	-	<1000	<1000	<1000	<500	inaccessible	28	<250	<50	<50	<10	<50	<500	<500	<500	<100	<50	<50	<20	<10
Chlorobenzene	108-90-7	100	70000	82000	94000	44600	46700	32000	69400	inaccessible	85000	90500	75900	70400	19800	21100	37800	18600	27500	6990	10800	51100	584	6360
Chloroform	67-66-3	80	-	-	-	<1000	<1000	<1000	<500	inaccessible	1.4	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
cis-1,2-Dichloroethene	156-59-2	70	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
Ethylbenzene	100-41-4	700	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
Methylene chloride	75-09-2	5	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	50.0	<20
Tetrachloroethene	127-18-4	5	-	-	-	<1000	<1000	<1000	<500	inaccessible	13.3	<250	<50	<50	<10	<50	<500	<500	<500	<250	231	56.0	70.8	<20
Toluene	108-88-3	100	-	-	-	<1000	<1000	<1000	<500	inaccessible	182	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
trans-1,2-Dichloroethene	156-60-5	100	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
Trichloroethene	79-01-6	5	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
Vinyl chloride	75-01-4	2	-	-	-	<1000	<1000	<1000	<500	inaccessible	<1	<250	<50	<50	<10	<50	<500	<500	<500	<250	<50	<50	<20	<20
Xylene (Total)	1330-20-7	10000	-	-	-	<3000	<3000	<3000	<1500	inaccessible	<1500	<1500	<150	<150	<150	<150	<1500	<1000	<1000	<250	<150	<150	<60	<40
Iron																								5540
Ethane																								<7.0
Ethene																								<10.0
Methane																								26.9
Sulfate																								121,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

MW-9
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date &
			9/1/2011	12/19/2011	4/10/2012	6/26/2012	9/24/2012	4/9/2013	11/11/2013	4/23/2014	5/12/2015	9/22/2016	9/22/2017	10/9/2018
1,1,1-Trichloroethane	71-55-6	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<5.0	<10.0	<10.0
Alachlor	15972-60-8	2	0.20	1.63	0.17	<0.10	<0.10	<0.10	<0.10	**2.58**	1.30	**20.2**	<0.05	<0.05
Benzene	71-43-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	**148**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Chloroform	67-66-3	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	<1.0	<1.0	**42.8**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron														12,200
Ethane														<7.0
Ethene														<10.0
Methane														13.6
Sulfate														246,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-13
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			6/19/2000	6/19/2000	9/1/2011	12/20/2011	4/10/2012	6/26/2012	9/25/2012	4/2/2013	11/11/2013	4/23/2014	5/12/2015	5/12/2015	9/22/2016	9/22/2017	10/9/2018
1,1,1-Trichloroethane	71-55-6	200	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	-	-	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<25.0	<10.0	<10.0
Alachlor	15972-60-8	2	-	-	0.19	0.39	1.58	13.4	<0.1	0.86	<0.1	<0.1	12.3	6.92	2.19	0.08	<0.05
Benzene	71-43-2	5	720	780	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<1.0	<2.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	1400	1400	214	10.8	12.2	13.7	13.9	11.4	89.0	141	21.7	21.9	22.9	42.4	27.1
Chloroform	67-66-3	80	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron																	53,300
Ethane																	<7.0
Ethene																	<10.0
Methane																	93.3
Sulfate																	290,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit

MW-15
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			7/18/2000	9/1/2011	12/28/2011	12/28/2011	4/10/2012	6/27/2012	10/2/2012	4/17/2013	4/30/2014	5/19/2015	9/22/2016	9/20/2017	10/9/2018
1,1,1-Trichloroethane	71-55-6	200	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	-	<500	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<25.0	<25.0	<10.0
Alachlor	15972-60-8	2	-	2.83	1.29	1.15	30.7	<0.10	<0.10	<0.10	<0.10	<0.20	0.74	0.55	<0.05
Benzene	71-43-2	5	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<2.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	26	2840	1.4	1.3	<1.0	3.5	15.2	<1.0	75.1	40.4	13.4	1.5	8.0
Chloroform	67-66-3	80	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	14	<50	<1.0	<1.0	<1.0	4.5	7.1	5.9	12.0	7.2	<5.0	4.5	4.8
Ethylbenzene	100-41-4	700	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	-	<50	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	0.83	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	-	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	0.38	<50	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	0.93	<50	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	-	<150	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron															5390
Ethane															<7.0
Ethene															<10.0
Methane															35.9
Sulfate															35.9

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

TABLE 4

FBCSA Wells

Analytical Summary Tables

MW-23
Former Acetanilides Production Area (APA)

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			7/21/2000	9/1/2011	12/19/2011	4/10/2012	6/26/2012	9/25/2012	4/2/2013	11/11/2013	4/23/2014	5/12/2015	9/21/2016	9/22/2017	10/9/2018
1,1,1-Trichloroethane	71-55-6	200	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000	-	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	20.6	<25.0	<10.0	<10.0
Alachlor	15972-60-8	2	-	0.23	0.27	0.82	1.42	2.33	3.72	<0.1	0.78	1.52	<0.05	<0.05	0.06
Benzene	71-43-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Chlorobenzene	108-90-7	100	52	25.2	1.2	4.2	2.0	2.0	3.8	3.2	8.7	5.4	5.5	6.8	1.8
Chloroform	67-66-3	80	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<5.0	<3.0	<2.0
Iron															2700
Ethane															<7.0
Ethene															<10.0
Methane															958
Sulfate															<10,000

*Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

MW-24A
Former Bulk Chemical Storage Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			7/24/2000	4/28/2004	4/28/2004	8/23/2004	8/23/2004	11/19/2004	11/19/2004	1/7/2005	9/6/2011	12/20/2011	3/29/2012	7/9/2012	10/22/2012	2/5/2013	4/4/2013	7/16/2013	10.28/2013	2/17/2014	4/24/2014	5/18/2015	9/23/2016	3/22/2017	9/20/2017	3/21/2018	10/10/2018
1,1,1-Trichloroethane	71-55-6	200	-	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<10	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	21.7	<10.0
1,2-Dichloroethane	107-06-2	5	-	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<10	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
Acetone	67-64-1	12000	-	-	-	-	-	-	-	-	<5000	<200	<500	<500	<500	<50	<50	<100	<50	<100	<50	<500	<50.0	<100.0	<100.0	<100.0	<100.0
Benzene	71-43-2	5	83	11000	12000	8000	7000	9600	9800	9600	45900	6520	7140	6250	5480	6710	6440	7070	7480	6620	5620	4890	2930	1490	2070	2510	1730
Chlorobenzene	108-90-7	100	21	2700	2600	1600	1500	1800	1800	1700	41800	1310	1390	1120	1090	1470	904	1240	706	2520	1280	750	577	280	1550	1160	624
Chloroform	67-66-3	80	-	-	-	-	-	-	-	-	529	<20	<50	<50	41	<5	9.8	13.0	8.6	39.8	35.0	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
cis-1,2-Dichloroethene	156-59-2	70	46	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<5	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
Ethylbenzene	100-41-4	700	-	900	920	810	810	910	980	1000	<500	196	223	110	59.3	83	58.0	360.0	92.0	271	269	110	66.5	26.6	22.1	23.1	49.1
Methylene chloride	75-09-2	5	-	-	-	-	-	-	-	-	1550	<20	64.7	64.7	<10	<5	<5	<5	<5	<10	5	<50.0	<10.0	<20.0	<10.0	14.7	<10.0
Tetrachloroethene	127-18-4	5	-	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<5	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	65.3	<5.0
Toluene	108-88-3	100	0.85	140	140	120	120	140	140	140	<500	77.4	82.6	106	58.4	63.8	57.0	79.7	57.3	103	70.1	<50.0	43.0	<20.0	55.2	40.5	35.4
trans-1,2-Dichloroethene	156-60-5	100	-	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<5	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
Trichloroethene	79-01-6	5	2.5	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<5	<5	21.4	16.4	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
Vinyl chloride	75-01-4	2	-	-	-	-	-	-	-	-	<500	<20	<50	<50	<10	<5	<5	<5	<5	<10	<5	<50.0	<10.0	<20.0	<10.0	<10.0	<10.0
Xylene (Total)	1330-20-7	10000	14	3000	3000	2400	2400	2600	2800	2800	<1500	266	249	<150	83.5	122	109	624	155	480	483	<150	101	<40.0	59.4	68.0	98.7
Iron																											36,100
Ethane																											<7.0
Ethene																											<10.0
Methane																											1870
Sulfate																											<10,000

Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

VW-1
Former Bulk Chemical Storage Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			7/26/2000	7/26/2000	4/27/2004	8/23/2004	11/19/2004	1/7/2005	1/7/2005	9/22/2011	12/20/2011	3/29/2012	7/11/2012	9/27/2012	2/5/2013	3/28/2013	4/9/2013	7/11/2013	10/28/2013	2/17/2014	5/15/2015	9/23/2016	3/22/2017	9/20/2017	3/21/2018	10/10/2018
1,1,1-Trichloroethane	71-55-6	200	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	11.4	11.4	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Acetone	67-64-1	12000	-	-	-	-	-	-	-	<200	<50.0	<50.0	<50.0	11.4	<10.0	<10.0	<10.0	<10.0	61.3	<10.0	<500	<50.0	<50.0	<100.0	<100.0	<10.0
Benzene	71-43-2	5	15000	15000	380	210	200	310	-	<20.0	9.7	<5.0	<5.0	<1.0	3.5	4.4	3.3	303	3.6	2.1	<50.0	<10.0	<10.0	<10.0	<1.0	4.3
Chlorobenzene	108-90-7	100	4800	4500	2200	2100	1400	2100	1740	1740	434	588	618	586	921	947	968	1520	1120	720	1090	1260	638	1090	124	1110
Chloroform	67-66-3	80	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	1.8	1.6	3.7	2.1	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Ethylbenzene	100-41-4	700	8	6.4	-	-	3.6	4.4	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	2.3	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Methylene chloride	75-09-2	5	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	13.5	<0.5
Toluene	108-88-3	100	5.4	4.3	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	2.8	1	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
trans-1,2-Dichloroethene	156-60-5	100	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Trichloroethene	79-01-6	5	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Vinyl chloride	75-01-4	2	-	-	-	-	-	-	-	<20.0	<5.0	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<50.0	<10.0	<10.0	<10.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000	24	19	-	-	-	-	-	<60.0	<15.0	<15.0	<15.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<150	<20.0	<20.0	<30.0	<3.0	<2.0
Iron																										12,300
Ethane																										<7.0
Ethene																										<10.0
Methane																										1300
Sulfate																										<10,000

Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

VW-2
Former Bulk Chemical Storage Area

Constituent	CAS	MCL*	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result	Sample Date & Result
			8/1/2000	4/27/2004	8/20/2004	11/19/2004	1/11/2005	9/23/2011	12/20/2011	3/29/2012	7/2/2012	9/27/2012	2/5/2013	4/4/2013	4/4/2013	7/15/2013	4/24/2014	5/14/2015	9/23/2016	9/23/2016	9/20/2017	10/10/2018
1,1,1-Trichloroethane	71-55-6	200		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
1,2-Dichloroethane	107-06-2	5		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
Acetone	67-64-1	12000		-	-	-	-	12.7	<50.0	<50.0	<50.0	66	<10.0	<20.0	<10.0	<10.0	<10.0	<10.0	<25.0	<25.0	<10.0	15.9
Benzene	71-43-2	5	35	25	6	27	-	2.6	32.5	10	13.8	16.3	16.3	16.3	8.3	<1.0	1.6	<10.0	<2.0	<2.0	1.1	<0.5
Chlorobenzene	108-90-7	100	970	1300	1400	930	410	711	606	708	676	923	80.7	367	342	163	88.6	218	21.1	20.6	194	83
Chloroform	67-66-3	80		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
cis-1,2-Dichloroethene	156-59-2	70		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
Ethylbenzene	100-41-4	700		-	-	-	-	<1.0	<5.0	<5.0	<5.0	1.4	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
Methylene chloride	75-09-2	5		-	-	-	-	<1.0	<5.0	5.2	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	15.9	<5.0	<5.0	<1.0	<1.0
Tetrachloroethene	127-18-4	5		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<0.5
Toluene	108-88-3	100	1.9	-	-	-	-	<1.0	<5.0	<5.0	<5.0	1.6	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	1.4	1.3
trans-1,2-Dichloroethene	156-60-5	100		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
Trichloroethene	79-01-6	5	0.7	-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<5.0	<5.0	<1.0	<1.0
Vinyl chloride	75-01-4	2		-	-	-	-	<1.0	<5.0	<5.0	<5.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<10.0	<2.0	<2.0	<1.0	<1.0
Xylene (Total)	1330-20-7	10000		-	-	-	-	<3.0	<15.0	<15.0	<15.0	<3.0	<3.0	<6.0	<3.0	<3.0	<3.0	<30.0	<5.0	<5.0	<5.0	<2.0
Iron																						23,600
Ethane																						<7.0
Ethene																						<10.0
Methane																						1230
Sulfate																						81,700

Results and MCL reported in ug/L. If no MCL, Tap Water RSL is used
Results highlighted in gray exceed MCL, excluding events with detection limits above the MCL
"<" indicates result below the reported detection limit
"-" indicates no data

Table 5

Sample and Analytical Summary for Groundwater Collected October 2018
Post Closure Report - Data Validation Report
Solutia Site, St. Louis, Missouri

Sample ID	Date Sampled	Lab Sample ID	8260B VOCs	8081B Alachlor	6101B Iron	300.0 Sulfate	Permanent Gases
MW-17	10/8/2018	18100606-001	X		X	X	X
MW-17AD	10/8/2018	18100606-002	X		X	X	X
MW-7B	10/8/2018	18100606-003	X		X	X	X
MW-30A	10/8/2018	18100606-004	X		X	X	X
MW-40A	10/8/2018	18100606-005	X		X	X	X
MW-38A	10/8/2018	18100606-006	X		X	X	X
MW-36A	10/8/2018	18100606-007	X		X	X	X
MW-39A	10/8/2018	18100606-008	X		X	X	X
MW-28A	10/8/2018	18100606-009	X		X	X	X
Trip Blank	10/8/2018	18100606-010	X				
MW-15	10/9/2018	18100709-001	X	X	X	X	X
MW-9	10/9/2018	18100709-002	X	X	X	X	X
MW-23	10/9/2018	18100709-003	X	X	X	X	X
MW-13	10/9/2018	18100709-004	X	X	X	X	X
Trip Blank	10/9/2018	18100709-005	X				
MW-2B	10/10/2018	18100822-001	X		X	X	X
GM-2	10/10/2018	18100822-002	X	X	X	X	X
GM-1	10/10/2018	18100822-003	X	X	X	X	X
GM-1 AD	10/10/2018	18100822-004	X	X	X	X	X
VW-1	10/10/2018	18100822-005	X		X	X	X
VW-2	10/10/2018	18100822-006	X		X	X	X
MW-24A	10/10/2018	18100822-007	X		X	X	X
Equipment Blank	10/10/2018	18100822-008	X	X	X	X	X

8260C VOCs = SW-846 5030, 8260B; analytical method for volatile organic chemicals
6010B = SW-846 3005A, 6010B; analytical method for iron
300.0 = EPA600, 300.0; analytical method for sulfate
Permanent Gases = RSKSOP-175; analytical method for ethane, ethene, methane
AD = duplicate

Table 6

Field Duplicate Results - Relative Percent Differences
Post Closure Report - Data Validation Report
Soutia Site, St. Louis, Missouri

Analytes	MW-17 µg/L		MW-17AD mg/L		RPD %	GM-1 mg/L		GM-1AD mg/L		RPD %
VOCs										
1,1,1-Trichloroethane	<	1	<	1	nc	<	50	<	50	nc
1,2-Dichloroethane	<	1	<	1	nc	<	50	<	50	nc
Acetone	<	10	<	10	nc	<	500	<	500	nc
Benzene	<	0.5	<	0.5	nc	<	25	<	25	nc
Chlorobenzene	<	1	<	1	nc		11900		11600	2.6
Chloroform	<	1	<	1	nc	<	50	<	50	nc
cis-1,2-Dichloroethene	<	1	<	1	nc	<	50	<	50	nc
Ethylbenzene	<	1	<	1	nc	<	50	<	50	nc
Methylene chloride	<	1	<	1	nc	<	50	<	50	nc
Tetrachloroethene	<	0.5	<	0.5	nc	<	25	<	25	nc
Toluene	<	1	<	1	nc	<	50	<	50	nc
trans-1,2-Dichloroethene	<	1	<	1	nc	<	50	<	50	nc
Trichloroethene	<	1	<	1	nc	<	50	<	50	nc
Vinyl chloride	<	1	<	1	nc	<	50	<	50	nc
Xylenes, Total	<	2	<	2	nc	<	100	<	100	nc
Pesticide										
Alachlor		--		--			17800		19900	11.1
Permanent Gases										
Ethane	<	7	<	7	nc	<	7	<	7	nc
Ethene	<	10	<	10	nc	<	10	<	10	nc
Methane		5.5		6	8.7		56.5		63.4	11.5
Anion										
Sulfate		141		140	0.7		24.8		22.8	8.4
Metal										
Iron		14.6		12.4	16.3		1.16		1.16	0

Notes:
RPD = Relative Percent Difference, cannot be calculated for nondetects

$$= \frac{(X_1 - X_2) \times 100}{(X_1 + X_2) / 2}$$

nc = not calculated

Table 7

Groundwater Analytical Data - Samples Collected October 2018
Post Closure Report - Data Validation
Soslutia Site, St. Louis, Missouri

Chemical	Units	Lab Package	MW-17 (10818) 10/8/2018 9:30:00 AM	MW-17AD (10818) 10/8/2018 9:30:00 AM	MW-28A (10818) 10/8/2018 3:15:00 PM	MW-30A (10818) 10/8/2018 11:30:00 AM	MW-36A (10818) 10/8/2018 1:30:00 PM	MW-38A (10818) 10/8/2018 12:50:00 PM	MW-39A (10818) 10/8/2018 2:20:00 PM	MW-40A (10818) 10/8/2018 12:15:00 PM
1,1,1-Trichloroethane	µg/L	18100606:	< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
1,2-Dichloroethane	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
Acetone	µg/L		< 10	< 10	< 10	< 10	< 10	< 100	< 10	< 10
Benzene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	14	< 5	< 0.5	< 0.5
Chlorobenzene	µg/L		< 1	< 1	< 1	< 1	293	29	< 1	14.6
Chloroform	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
cis-1,2-Dichloroethene	µg/L		< 1	< 1	< 1	< 1	< 1	1610	< 1	< 1
Ethylbenzene	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
Methylene chloride	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
Tetrachloroethene	µg/L		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	8.7	< 0.5	< 0.5
Toluene	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
trans-1,2-Dichloroethene	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
Trichloroethene	µg/L		< 1	< 1	< 1	< 1	< 1	< 10	< 1	< 1
Vinyl chloride	µg/L		< 1	< 1	< 1	< 1	< 1	482	< 1	< 1
Xylenes, Total	µg/L		< 2	< 2	< 2	< 2	< 2	< 20	< 2	< 2
Alachlor	µg/L									
Ethane	µg/L		< 7	< 7	< 7	< 7	< 7	10.7	< 7	< 7
Ethene	µg/L		< 10	< 10	< 10	< 10	< 10	76.5	< 10	< 10
Methane	µg/L		5.5	6	741	564	130	17.2	4.2	1110
Iron	mg/L		14.6	12.4	11.1	29.8	6	1.09	0.419	21.1
Sulfate	mg/L		141	140	< 10	96.2	146	131	70.6	40

J = estimated concentration

Table 7

Groundwater Analytical Data - Samples Collected October 2018
Post Closure Report - Data Validation
Soslutia Site, St. Louis, Missouri

Chemical	Units	MW-7B (10818) 10/8/2018 10:45:00 AM	Trip Blank 10/8/2018 4:40:00 PM	Lab Package	MW-13 (10918) 10/9/2018 3:20:00 PM	MW-15 (10918) 10/9/2018 9:20:00 AM	MW-23 (10918) 10/9/2018 2:35:00 PM	MW-9 (10918) 10/9/2018 1:30:00 PM	Trip Blank 10/9/2018 4:20:00 PM	Lab Package	Equipment Blank 10/10/2018 2:40:00 PM
1,1,1-Trichloroethane	µg/L	< 1	< 1	18100709:	< 1	< 1	< 1	< 1	< 1	18100822:	< 1
1,2-Dichloroethane	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Acetone	µg/L	< 10	< 10		< 10	< 10	< 10	< 10	< 10		< 10
Benzene	µg/L	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 1		< 0.5
Chlorobenzene	µg/L	3.9	< 1		27	8	1.8	< 1	< 1		< 1
Chloroform	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
cis-1,2-Dichloroethene	µg/L	< 1	< 1		< 1	4.8	< 1	< 1	< 1		< 1
Ethylbenzene	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Methylene chloride	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Tetrachloroethene	µg/L	< 0.5	< 0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 1		< 0.5
Toluene	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
trans-1,2-Dichloroethene	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Trichloroethene	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Vinyl chloride	µg/L	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1
Xylenes, Total	µg/L	< 2	< 2		< 2	< 2	< 2	< 2	< 2		< 2
Alachlor	µg/L				< 0.1	< 0.05	0.060	< 0.1			1.19
Ethane	µg/L	< 7			< 7	< 7	< 7	< 7			< 7
Ethene	µg/L	< 10			< 10	< 10	< 10	< 10			< 10
Methane	µg/L	57.5			93	35.9	958	14			< 4
Iron	mg/L	0.0708			53	5.39	2.7	12			< 0.04
Sulfate	mg/L	216			290	17.3	< 10	246			11.5

J = estimated concentration

Table 7

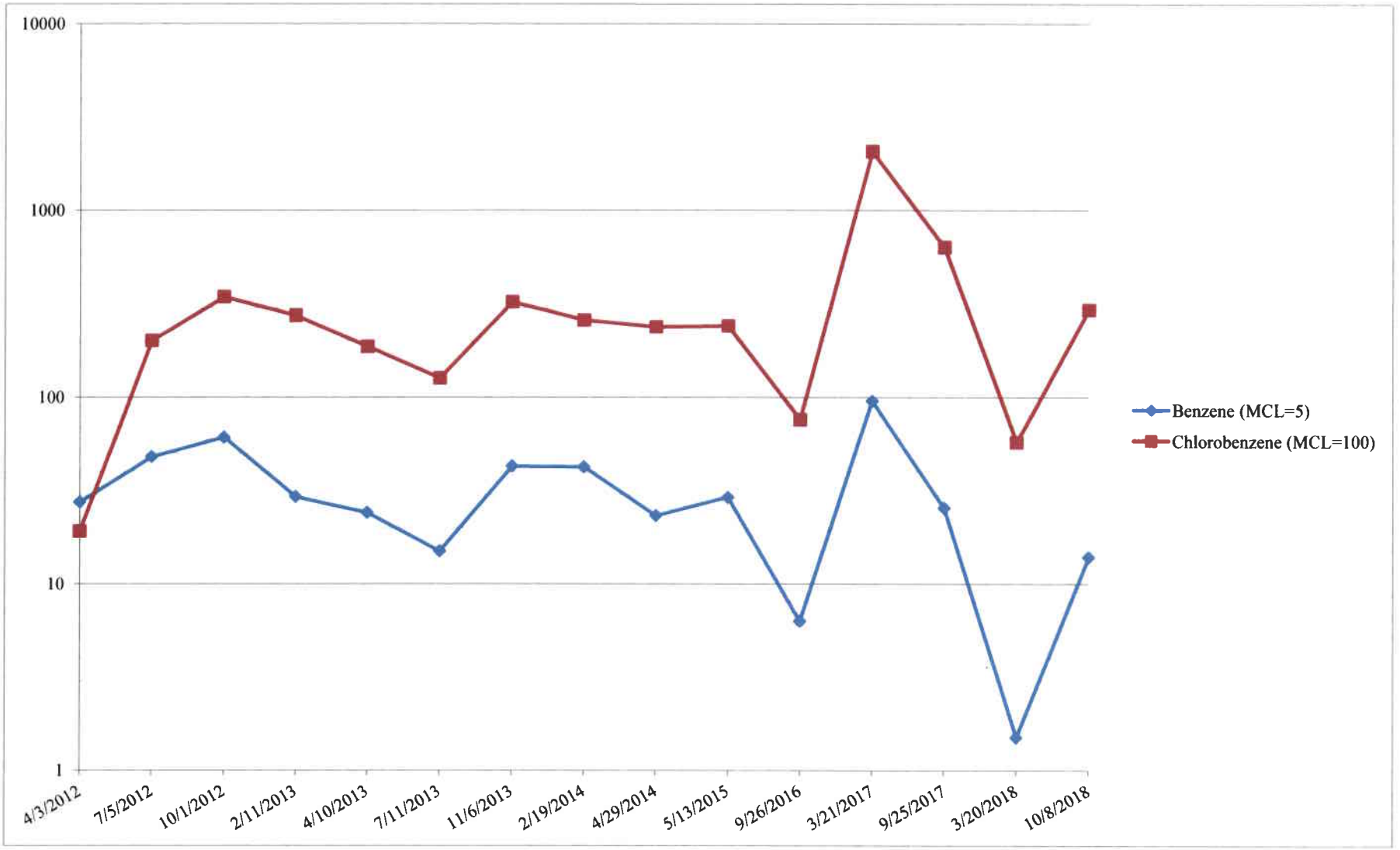
Groundwater Analytical Data - Samples Collected October 2018
Post Closure Report - Data Validation
Soslutia Site, St. Louis, Missouri

Chemical	Units	GM-1 (101018) 10/10/2018 11:20:00 AM	GM-1 AD (101018) 10/10/2018 11:20:00 AM	GM-2 (101018) 10/10/2018 10:05:00 AM	MW-24A (101018) 10/10/2018 2:10:00 PM	MW-2B (101018) 10/10/2018 9:15:00 AM	VW-1 (101018) 10/10/2018 1:20:00 PM	VW-2 (101018) 10/10/2018 12:30:00 PM
1,1,1-Trichloroethane	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
1,2-Dichloroethane	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Acetone	µg/L	< 500	< 500	< 200	< 100	< 10	< 10	15.9 J
Benzene	µg/L	< 25	< 25	< 10	1730	< 0.5	4.3	< 0.5
Chlorobenzene	µg/L	11900	11600	6360	624	< 1	1110	83
Chloroform	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
cis-1,2-Dichloroethene	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Ethylbenzene	µg/L	< 50	< 50	< 20	49.1	< 1	< 1	< 1
Methylene chloride	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Tetrachloroethene	µg/L	< 25	< 25	< 10	< 5	< 0.5	< 0.5	< 0.5
Toluene	µg/L	< 50	< 50	< 20	35.4	< 1	< 1	1.3
trans-1,2-Dichloroethene	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Trichloroethene	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Vinyl chloride	µg/L	< 50	< 50	< 20	< 10	< 1	< 1	< 1
Xylenes, Total	µg/L	< 100	< 100	< 40	98.7	< 2	< 2	< 2
Alachlor	µg/L	17800 J	19900 J	11500 J				
Ethane	µg/L	< 7	< 7	< 7	< 7	< 7	< 7	< 7
Ethene	µg/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Methane	µg/L	56.5	63.4	26.9	1870	< 4	1300	1230
Iron	mg/L	1.16	1.16	5.54	36.1	0.0435	12.3	23.6
Sulfate	mg/L	24.8 J	22.8 J	121 J	< 10	117 J	< 10	81.7 J

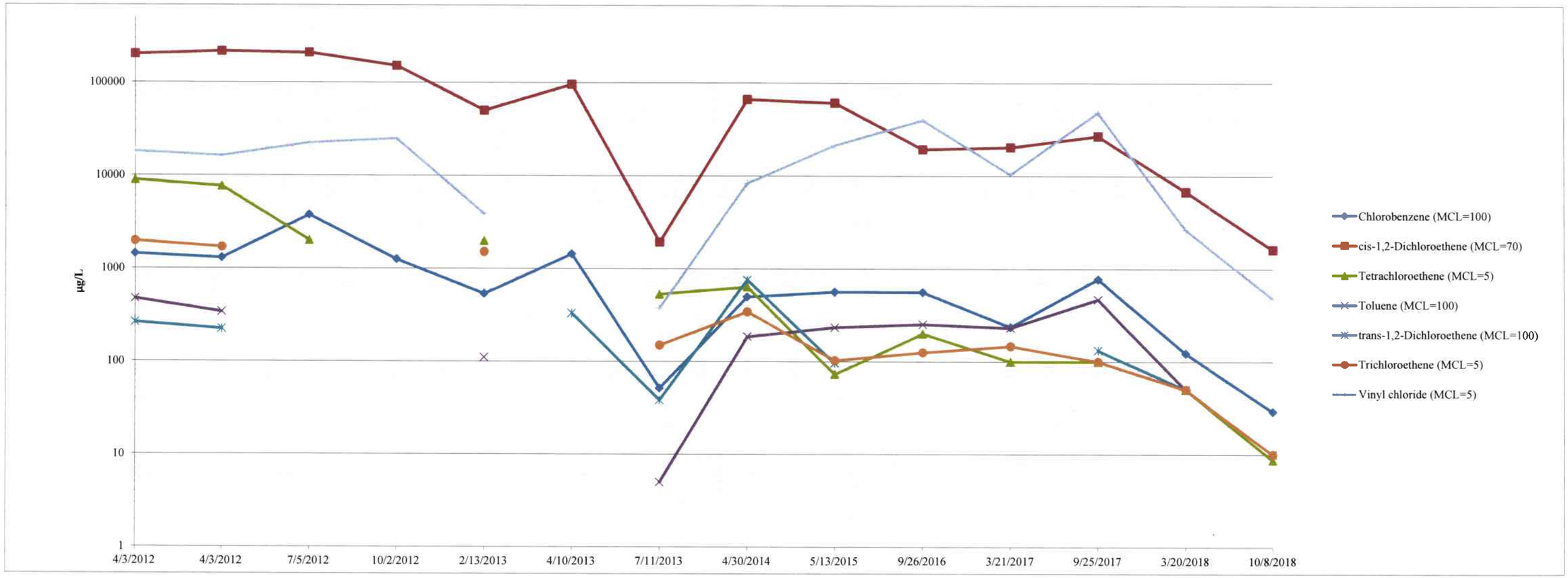
J = estimated concentration

FORMER FF AREA WELL GRAPHS

MW-36A
Former FF Building Area

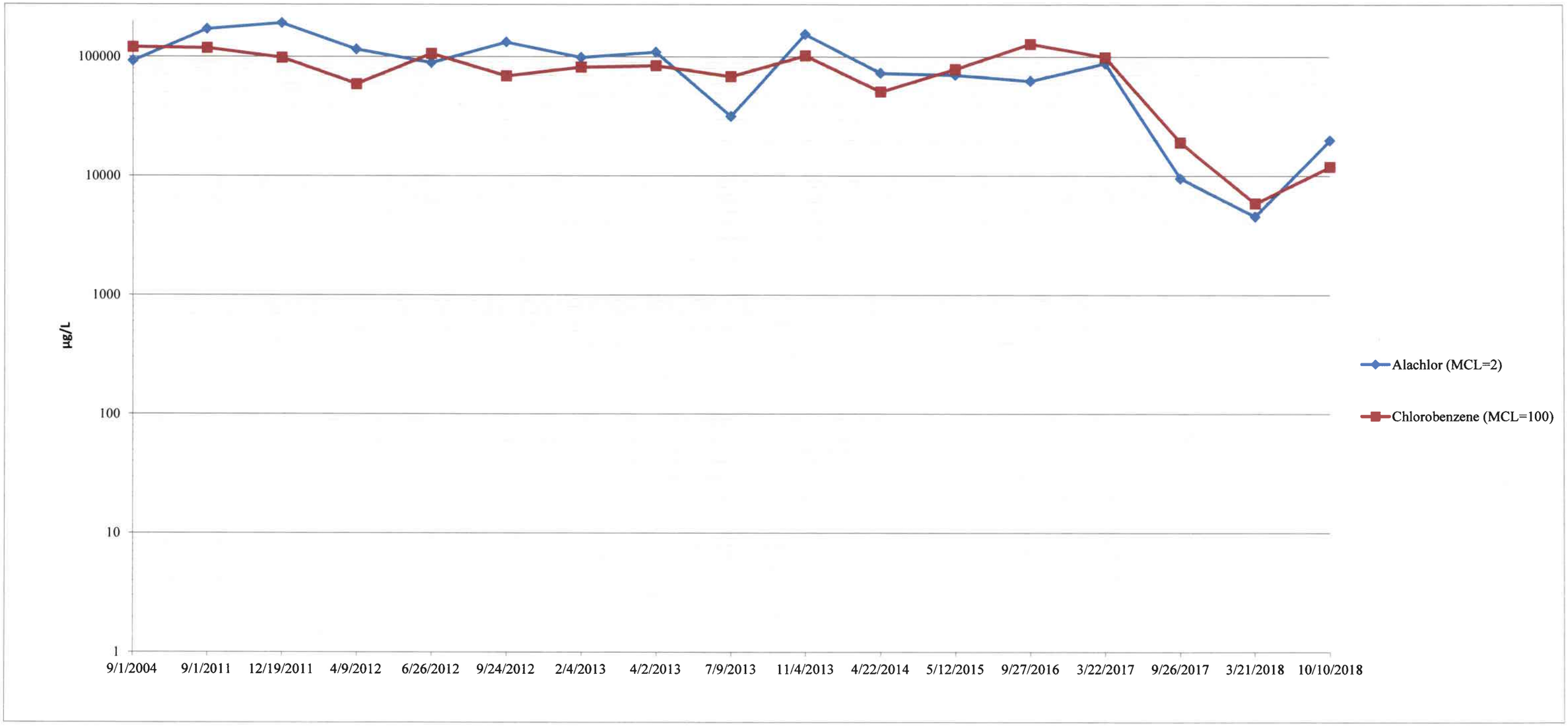


MW-38A
Former FF Building Area

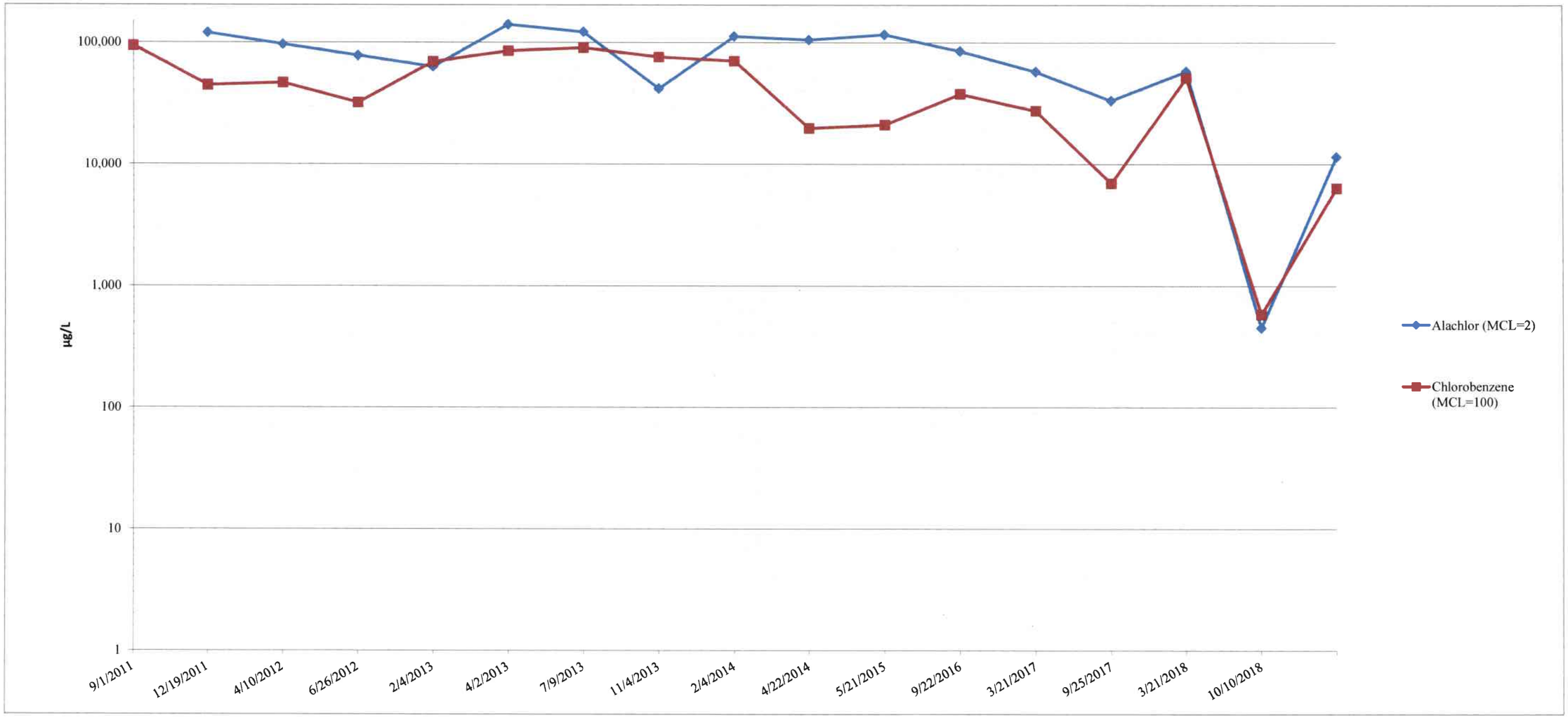


FORMER APA WELL GRAPHS

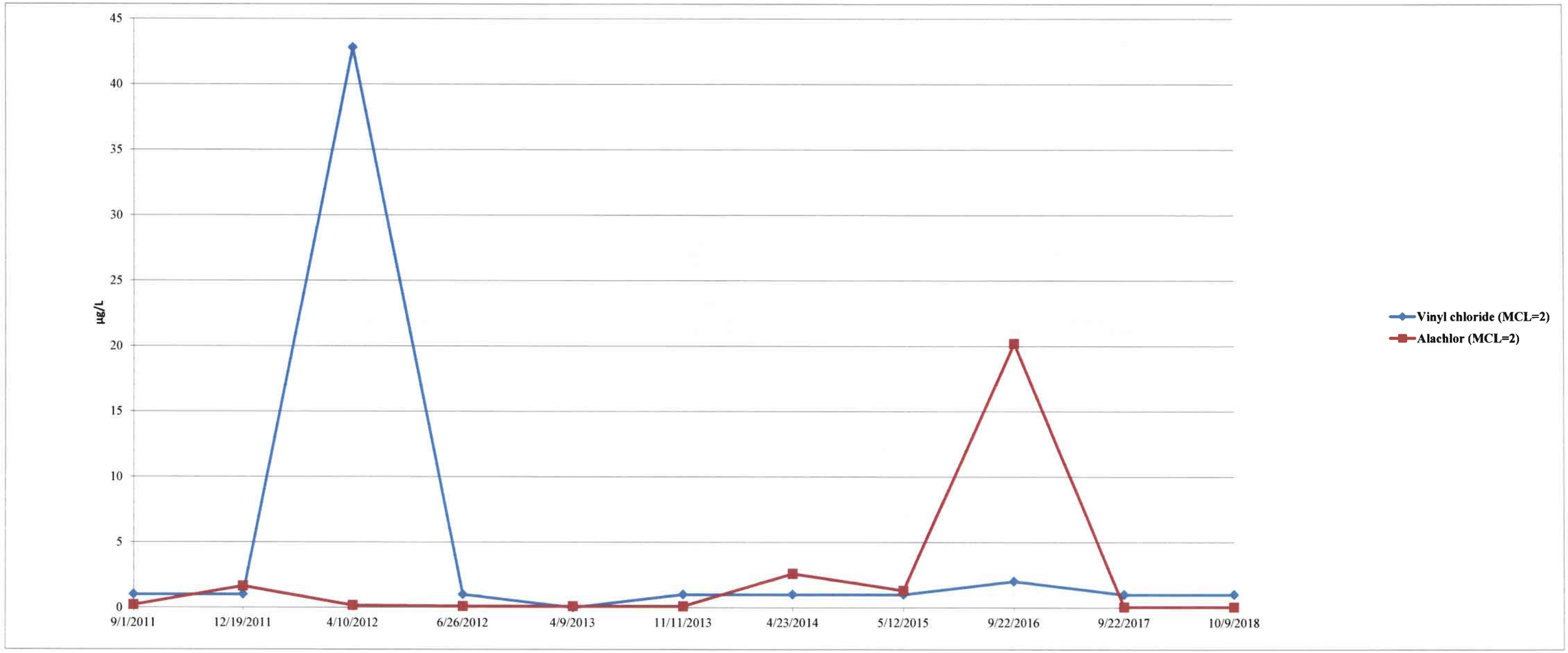
GM-1
Former Acetanilides Production Area (APA)



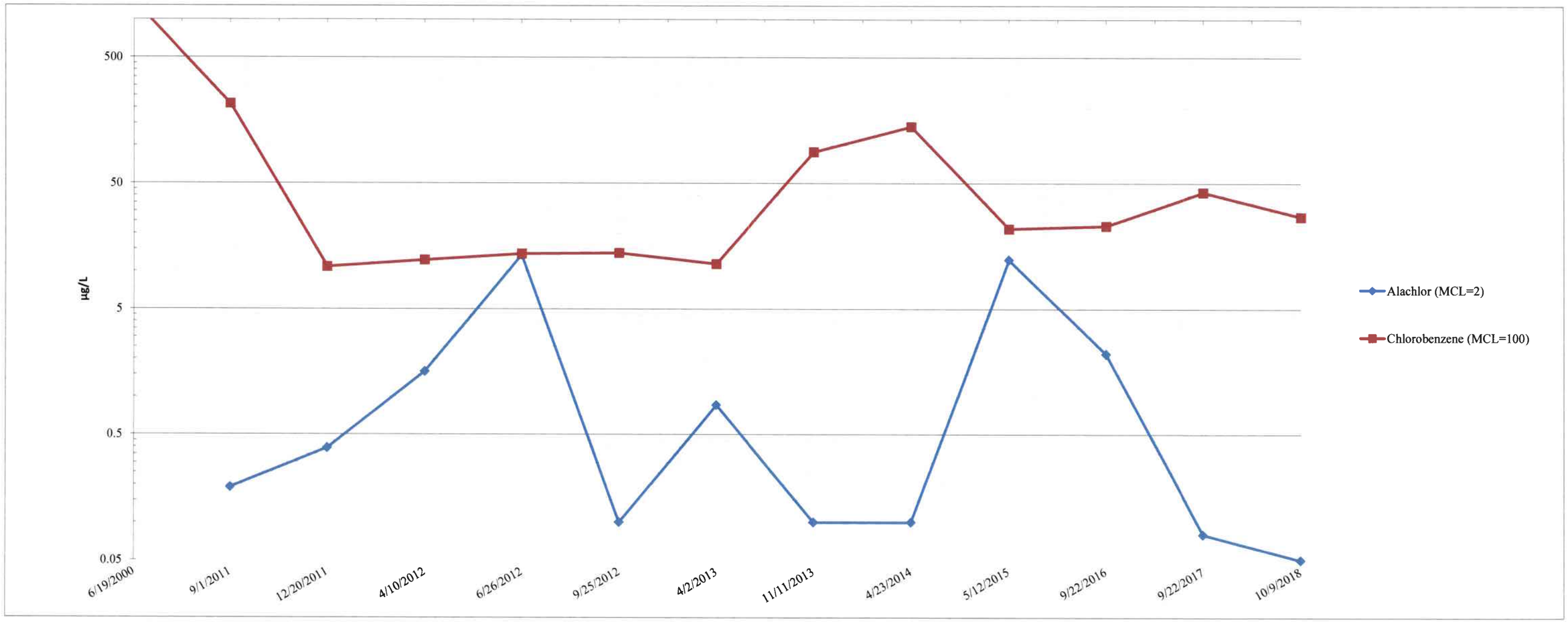
GM-2
Former Acetanilides Production Area (APA)



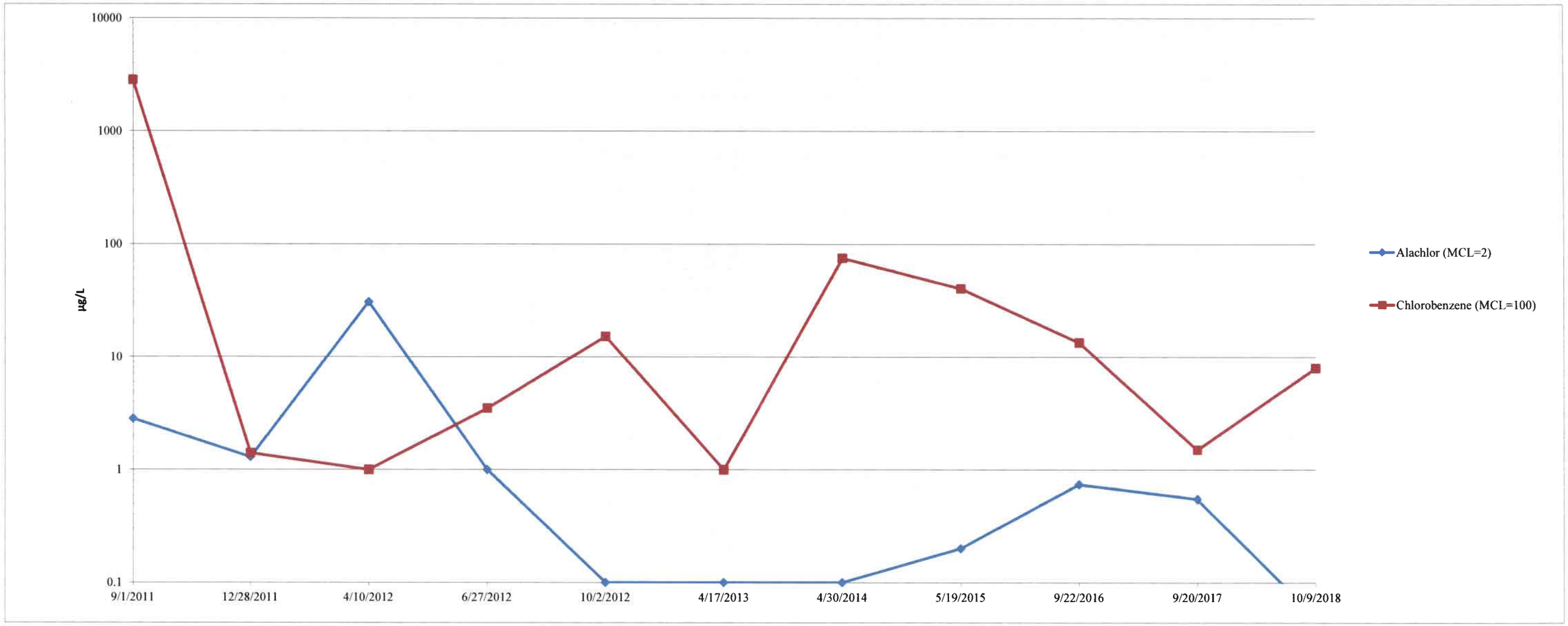
MW-9
Former Acetanilides Production Area (APA)



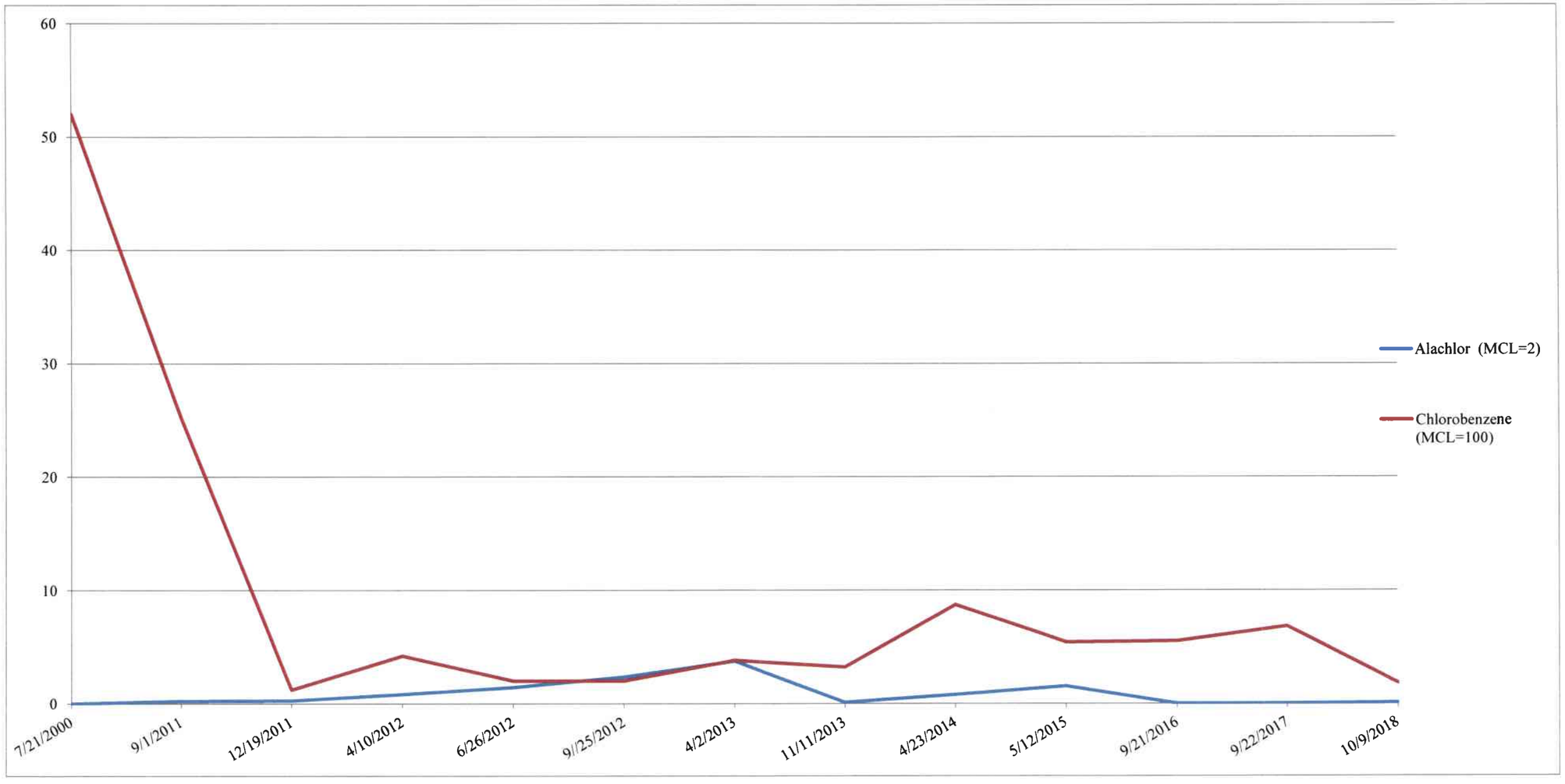
MW-13
Former Acetanilides Production Area (APA)



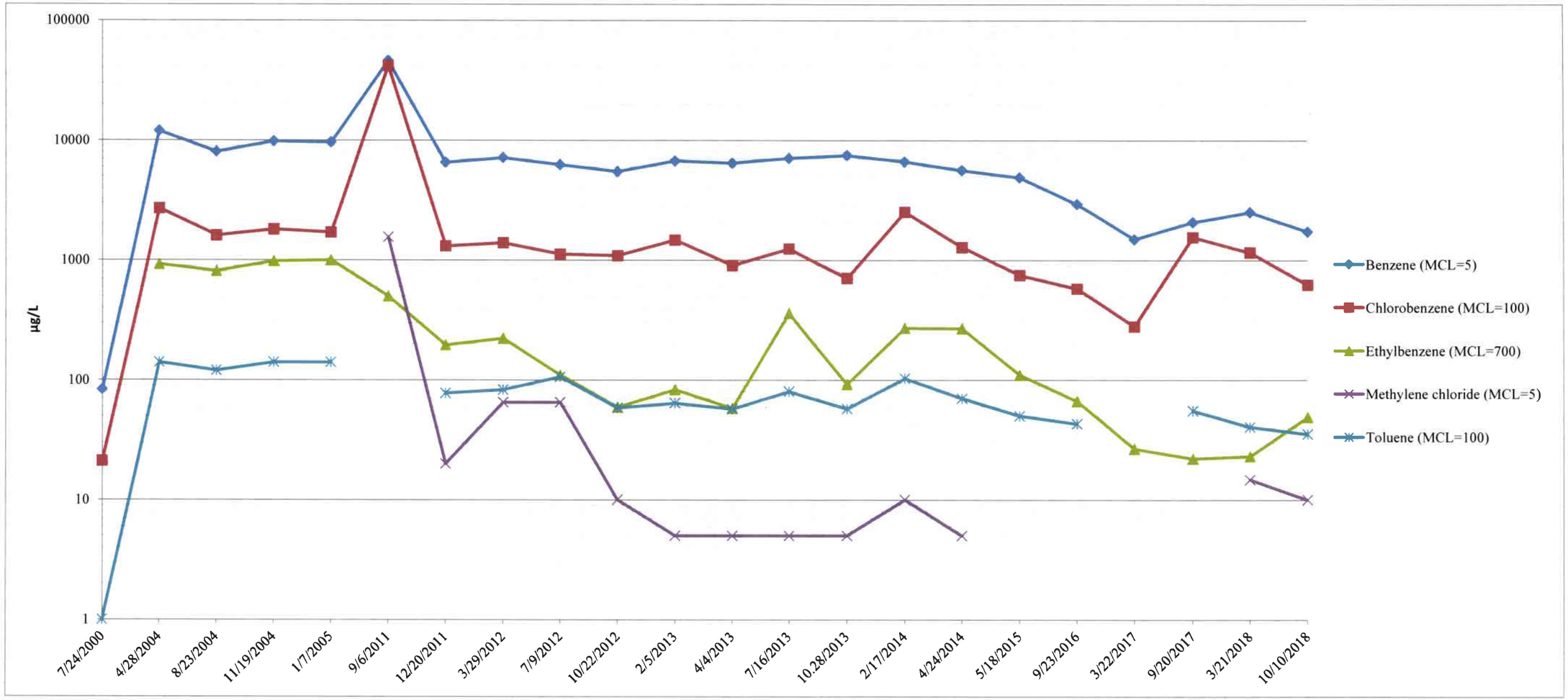
MW-15
Former Acetanilides Production Area (APA)



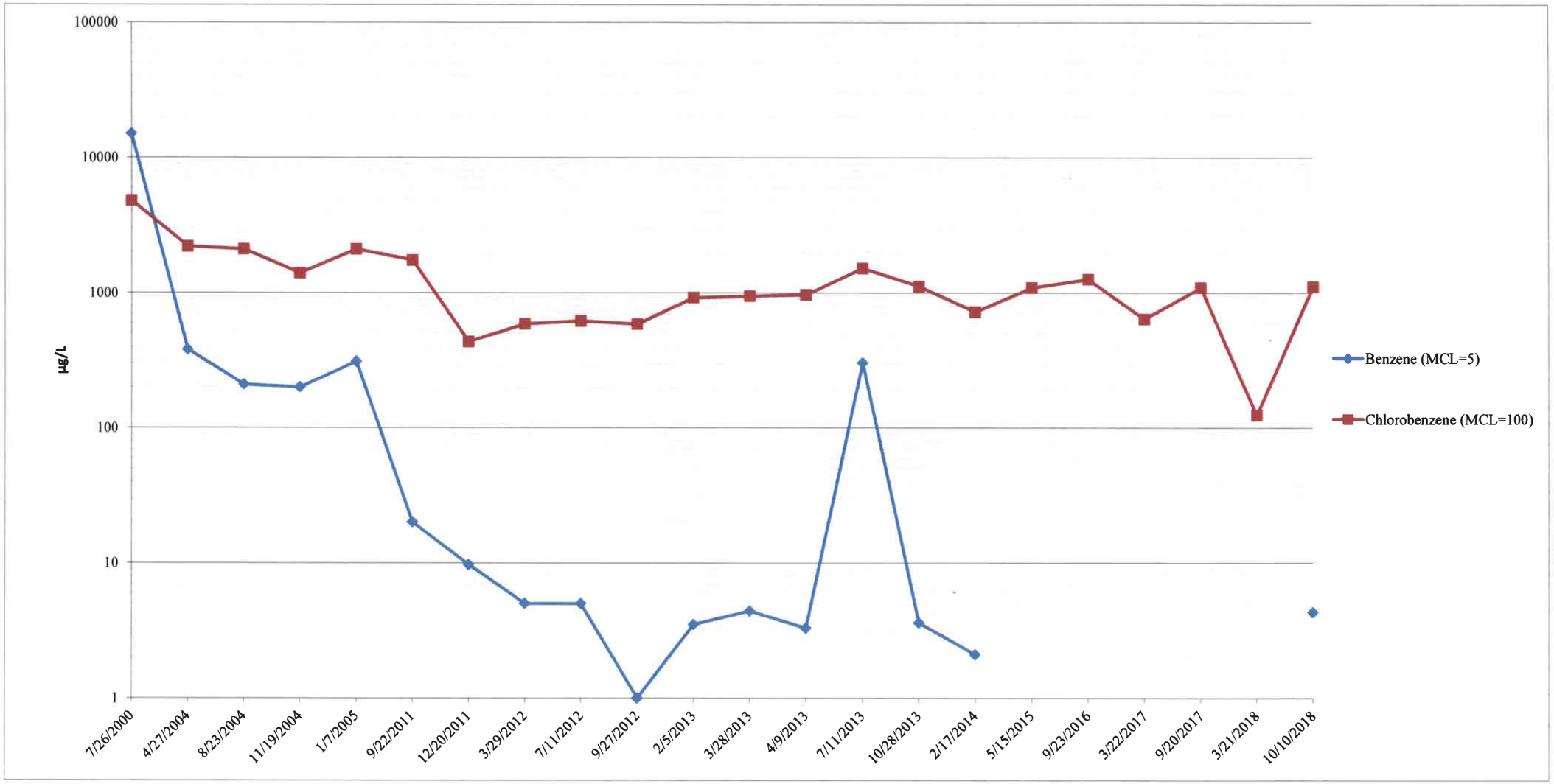
MW-23
Former Acetanilides Production Area (APA)



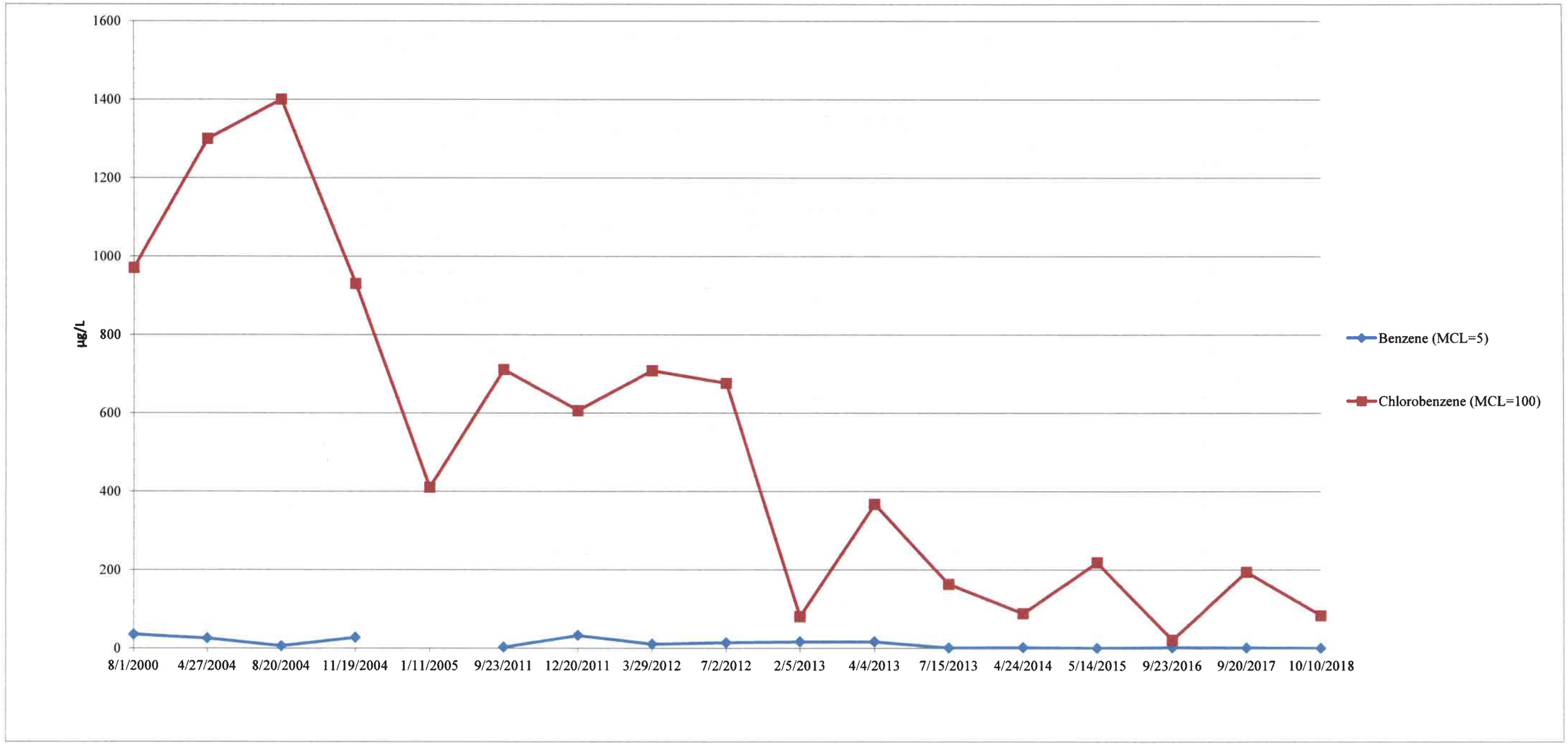
MW-24A
Former Bulk Chemical Storage Area



VW-1
Former Bulk Chemical Storage Area

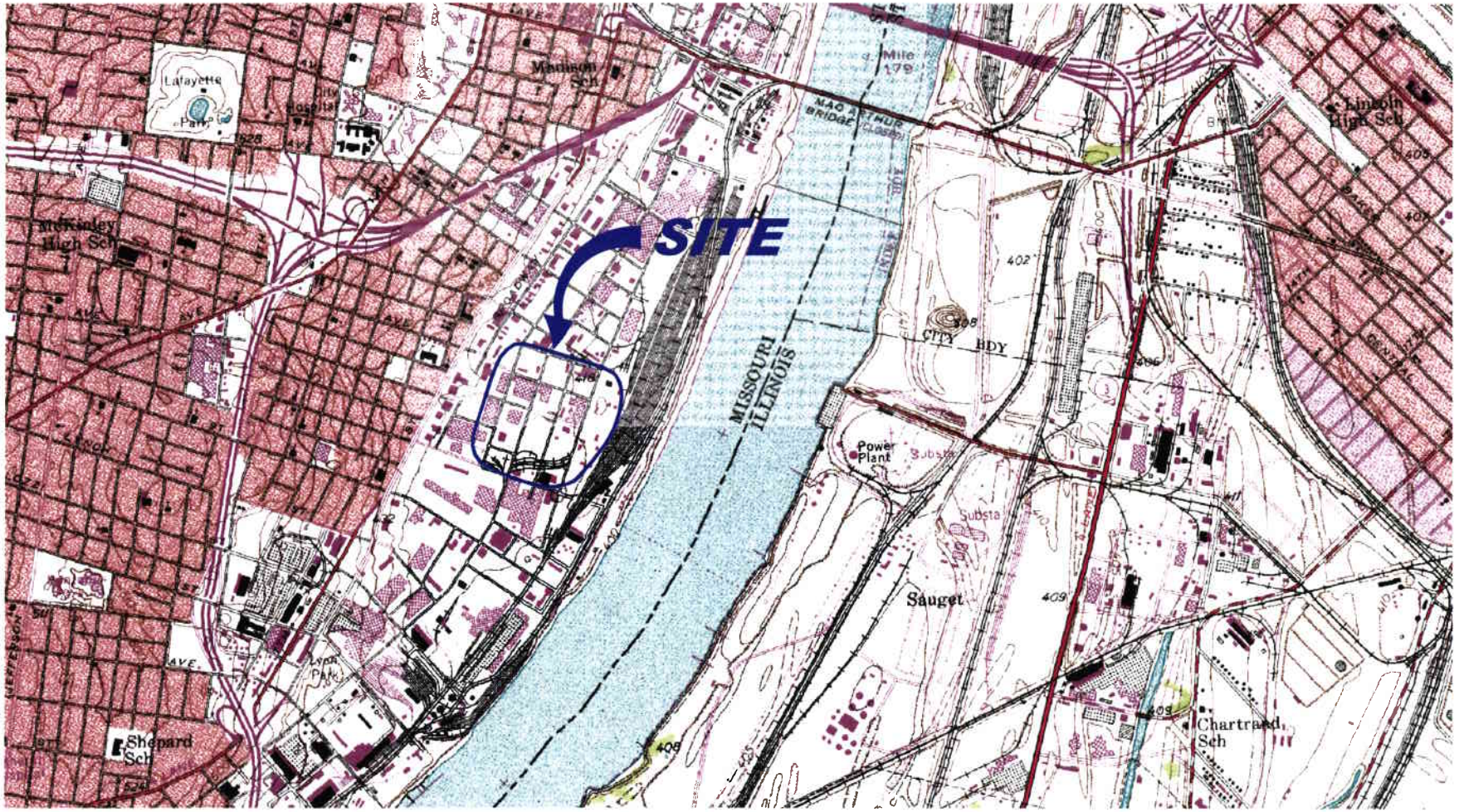


VW-2
Former Bulk Chemical Storage Area



FIGURES

Environmental Operations, Inc.



LEGEND

GENERAL LOCATION OF J.F. QUEENY PLANT

BASE MAP REFERENCE: MAP TAKEN FROM ELECTRONIC USGS DIGITAL RASTER GRAPHIC 7.5 MINUTE SERIES TOPOGRAPHIC MAP OF CAHOKIA, ILLINOIS, REVISED 1952.

N

0 2000

SCALE FEET

Site Location Map

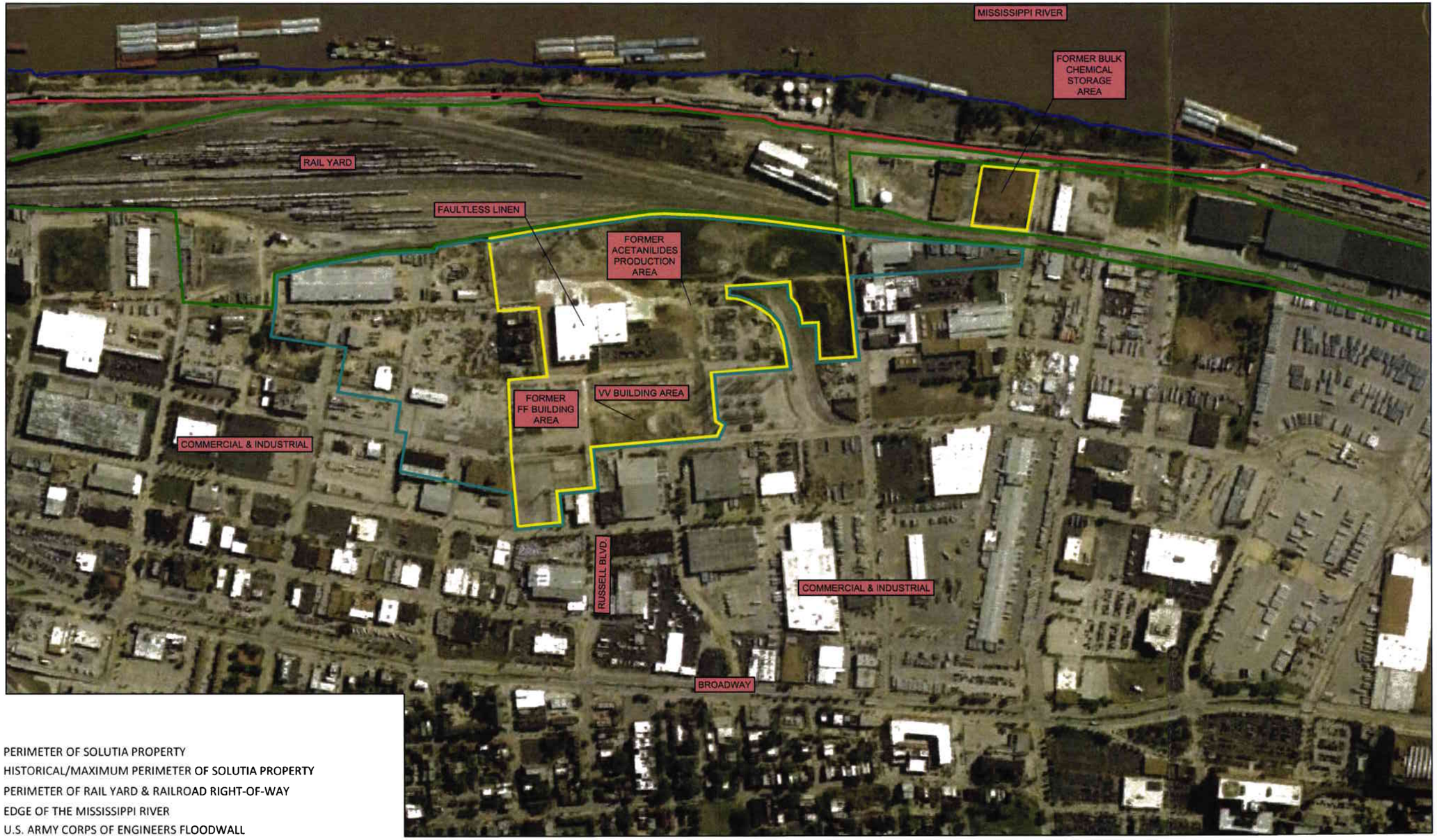
Former Solutia Queeny Plant

Saint Louis Missouri

Figure 1

marcus 7/31/2012 10:56 AM M:\3_Eng\295C solutia\Fig 01 site location map.dgn

Environmental Operations, Inc.



LEGEND

- PERIMETER OF SOLUTIA PROPERTY
- HISTORICAL/MAXIMUM PERIMETER OF SOLUTIA PROPERTY
- PERIMETER OF RAIL YARD & RAILROAD RIGHT-OF-WAY
- EDGE OF THE MISSISSIPPI RIVER
- U.S. ARMY CORPS OF ENGINEERS FLOODWALL

N

APPROXIMATE SCALE: 1IN. = 400FT

Note:

Illustration based on Google Earth Imagery dated 10.16.2018. This figure should only be used for general illustrative purposes and should not be used for any other purpose beyond the context of the report/letter.

Site Aerial Photograph

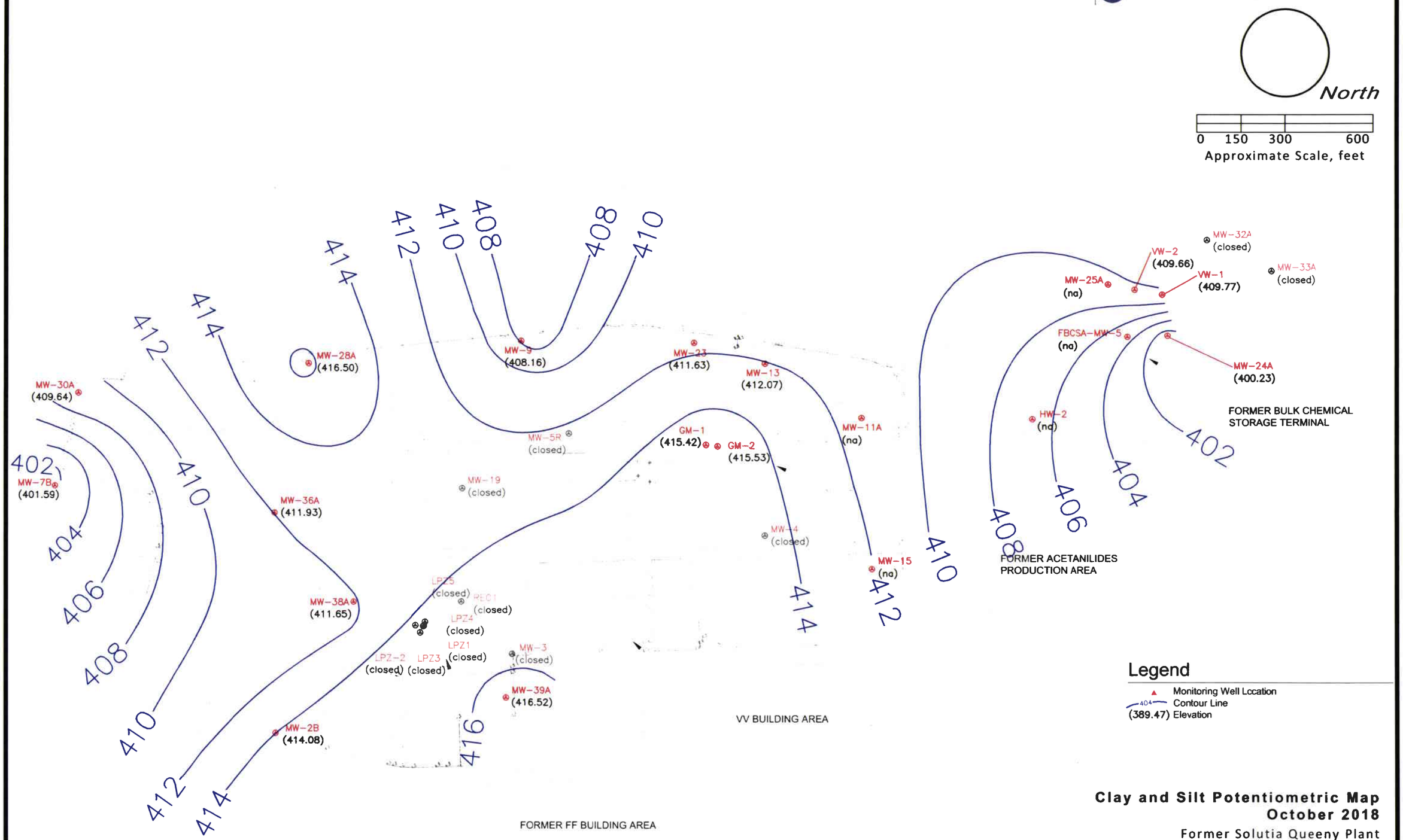
Former Solutia Queeny Plant
Saint Louis Missouri

Figure 2

M:\3_Eng dwg files\2950 solutia\2950R figures\2950 PCFig 02 Site Aerial Photograph.dwg, 5/30/2019 10:01:21 AM, CutePDF Writer

Project #2950.PC

Environmental Operations, Inc.



Clay and Silt Potentiometric Map
October 2018
Former Solutia Queeny Plant
Saint Louis, Missouri

Figure 3

APPENDIX A

Field Sampling Forms

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/8/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	

Well ID: MW-17 **Start Time:** 9:15 **End Time:** 10:10

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	11.44	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	14.65	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	WIND
Final Water Column Height (ft.):				73°, SUNNY,	SE 8
Well Diameter (in.):		Placement of Pump (ft.):	~10' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	(°C)	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
9:25	10.94	/	100	0.1	21.5	1.90	15.2	1.52	6.09	12.3	/
9:27	10.96	/	100	0.3	21.6	1.93	12.8	1.28	6.15	9.1	/
9:29	10.99	/	100	0.5	21.7	1.95	12.6	1.26	6.17	9.4	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear Sheen Other: LIGHT RED/BROWN **Turbidity:** None (Low) Medium High

Odor: Yes (No) Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE.

Sample Date/Time: 10/8/18 / 9:30

Signed/Sampler: KELSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/8/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	R

Well ID: MW-7B **Start Time:** 10:20 **End Time:** 11:00

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	19.93	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	19.95	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	WIND
Final Water Column Height (ft.):				78°, SUNNY,	SE 9
Well Diameter (in.):		Placement of Pump (ft.):	3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(n: S/cm)	(%)	(mg/L)		(mv)	(NTU)
10:35	19.43	/	100	0.1	18.5	1.69	7.0	0.70	6.55	104.9	/
10:37	19.67	/	100	0.3	18.2	1.70	6.3	0.63	6.55	101.2	/
10:39	19.91	/	100	0.5	18.2	1.70	6.3	0.63	6.55	99.9	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time :*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: Yes (No) Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	Yes	(No)	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: WELL IS IN A TIGHT CORNER BETWEEN FENCE AND TRAILER - HARD TO WORK EQUIPMENT IN.

NO OTHER ISSUES

Sample Date/Time: 10/8/18 / 10:45

Signed/Sampler: KACEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:** 10/8/18	
Project Manager:	Larry Rosen	**Project #:** 2950R	
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID: MW-30A	**Start Time:** 11:10	**End Time:** 11:45	

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	9.34	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	9.58	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				80°, SUNNY, WIND 5@8
Well Diameter (in.):		Placement of Pump (ft.):	3' FROM BOTTOM	

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	*(ft.)*	*(ft.)*	*(mL/m)*	*(Liters)*	*c*	*(m S/cm)*	*(%)*	*(mg/L)*		*(mv)*	*(NTU)*
11:20	9.25	/	100	0.1	22.5	1.55	14.2	1.42	6.53	-87.7	/
11:22	9.27	/	100	0.3	22.9	1.54	5.2	0.52	6.53	-98.6	
11:24	9.34	/	100	0.5	22.9	1.54	4.5	0.45	6.53	-101.1	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: PETROLEUM / ORGANIC DECOMP

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	Yes N/A	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/8/18 / 11:30

Signed/Sampler: [signature] / KELSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:** 10/8/18	
Project Manager:	Larry Rosen	**Project #:** 2950R	
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID: MW-40A	**Start Time:** 12:00	**End Time:** 12:30	

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	12.83	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	13.09	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				81°, PARTLY CLOUDY, WIND S@12
Well Diameter (in.):		Placement of Pump (ft.): 3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	*(ft.)*	*(ft.)*	*(mL/m)*	*(Liters)*	*c*	*(m S/cm)*	*(%)*	*(mg/L)*		*(mv)*	*(NTU)*
12:05	12.33	/	100	0.1	20.6	2.05	9.1	0.91	6.62	-101	/
12:07	12.49	/	100	0.3	20.7	2.05	8.0	0.80	6.62	-106.2	/
12:09	12.88	/	100	0.5	20.8	2.04	7.8	0.78	6.63	-107.9	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time :*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: PETROLEUM/DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes) N/A	No	Does the well have protective posts?	Yes N/A	No
Is the padlock functional?	Yes N/A	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/8/18 / 12:15

Signed/Sampler: [signature] / KELSEY THARP

Revised: 02/26/10

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date:	10/8/18
Project Manager:	Larry Rosen	Project #:	2950R
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	

Well ID: MW-38A Start Time: 12:40 End Time: 12:15

Initial Well Depth (ft.):		Initial Casing Volume (liters):		Casing Volume Multipliers
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Initial DTW (ft.)	11.07	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft
Final DTW (ft.)	12.57	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft
Initial Water Column Height (ft.):		BLADDER PUMP		Weather: PARTLY CLOUDY, WIND 84°, S @ 10
Final Water Column Height (ft.):				
Well Diameter (in.):		Placement of Pump (ft.): 3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
12:45	10.57	/	100	0.1	24.8	2.74	17.8	1.78	6.74	37.1	
12:47	10.79	/	100	0.3	24.7	2.82	16.9	1.69	6.64	40.2	
12:49	11.40	/	100	0.5	24.8	2.85	16.7	1.67	6.62	39.8	

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	Yes N/A	No	Does the well have protective posts?	Yes N/A	No
Is the padlock functional?	Yes N/A	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time:	10/8/18	12:50
Signed/Sampler:	[signature]	KERSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/8/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	

Well ID: MW-36A **Start Time:** 13:26 **End Time:** 14:00

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	8.22	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	9.57	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				84°, SUNNY, WIND SE/2	
Well Diameter (in.):		Placement of Pump (ft.):	3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
13:25	7.67	/	100	0.2	24.3	2.20	11.9	1.19	6.71	-52.1	/
13:27	7.99		100	0.4	24.0	2.48	8.6	0.86	6.69	-61.2	
13:29	8.45		100	0.6	23.9	2.51	8.4	0.84	6.69	-62.2	

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	Yes N/A	No	Does the well have protective posts?	Yes N/A	No
Is the padlock functional?	Yes N/A	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/8/18 / 13:30

Signed/Sampler: KELSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:** 10/8/18	
Project Manager:	Larry Rosen	**Project #:** 2950R	
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID: MW-39A	**Start Time:** 14:05	**End Time:** 14:40	

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	9.46	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	9.49	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				84°, SUNNY, WIND S@11
Well Diameter (in.):		Placement of Pump (ft.): 3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	*(ft.)*	*(ft.)*	*(mL/m)*	*(Liters)*	*c*	*(m S/cm)*	*(%)*	*(mg/L)*		*(mv)*	*(NTU)*
14:15	8.96	/	100	0.1	25.1	1.59	11.3	1.13	6.74	72.4	/
14:17	8.99	/	100	0.3	24.9	1.60	10.1	1.01	6.74	71.8	/
14:19	9.24	/	100	0.5	24.9	1.66	9.8	0.98	6.73	71.2	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time* :

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: Yes (No) Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	Yes	(No)
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/8/18 / 14:20

Signed/Sampler: [signature] / KOLSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date:	10/8/18
Project Manager:	Larry Rosen	Project #:	2950R
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	

Well ID: MW-28A Start Time: 15:05 End Time: 15:40

Initial Well Depth (ft.):		Initial Casing Volume (liters):		Casing Volume Multipliers	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	5.74	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	5.98	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				85°, SUNNY, WIND SE 9	
Well Diameter (in.):		Placement of Pump (ft.): ~6' FROM BOTTOM			

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
15:10	5.19	/	100	0.1	21.6	0.88	11.9	1.19	6.61	-63.0	/
15:12	5.38	/	100	0.3	21.6	0.88	6.5	0.65	6.62	-66.0	/
15:14	5.64	/	100	0.5	21.5	0.88	6.3	0.63	6.62	-66.8	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: (Clear) Sheen Other: Turbidity: None (Low) Medium High

Odor: (Yes) No Description: PETROLEUM / DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	Yes	(No)	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	Yes	(No)	Does the well have protective posts?	Yes	(No)
Is the padlock functional?	Yes N/A	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE.

Sample Date/Time: 10/8/18 / 15:15

Signed/Sampler: KERSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date:	10/9/1[illegible]
Project Manager:	Larry Rosen	Project #:	2950R
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	

Well ID: MW-23 **Start Time:** [illegible] **End Time:** 1520

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.):	12.34	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.):	12.34	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		Bladder Pump		Weather:	Partly Cloudy, Wind 85°, SE @ 11
Final Water Column Height (ft.):					
Well Diameter (in.):		Placement of Pump (ft.):	3' from Bottom		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
14:30	12.0-	/	100	0.1	18.7	1.14	17.1	1.9	7.36	-112.6	/
14:32	12.06	/	00	1.3	18.6	1.13	18.2	1.82	7.37	-123.7	/
14:34	2.11	/	00	[illegible]	18.6	1.13	17.9	1.79	7.40	-124.1	

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: Yes (No) Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: None

Sample Date/Time: 10/9/1[illegible] / 14:35

Signed/Sampler: [illegible] / Kelsey Tharp

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/9/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID:	MW-13	**Start Time:** 15:16	**End Time:** 15:20

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	13.27	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	13.34	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				82° PARTLY CLOUDY, WIND SE @ 9	
Well Diameter (in.):		Placement of Pump (ft.): 3' FROM BOTTOM			

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	(c)	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
15:15	12.77	/	100	.2	19.2	2.52	10.9	1.09	7.09	-140.6	/
15:17	12.74	/	100	0.4	19.5	2.53	9.3	0.93	7.10	-140.7	/
15:19	12.84	/	100	0.6	19.6	2.53	8.9	0.89	7.11	-139.9	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear Sheen Other: MURKY BLACK **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE.

Sample Date/Time: 10/9/18 / 15:20

Signed/Sampler: KELSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date:	10/10/12
Project Manager:	Larry Rosen	Project #:	2950R
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	
Well ID:	MW-28	Start Time: 8:30	End Time: 9:35

Initial Well Depth (ft.):		Initial Casing Volume (liters):		Casing Volume Multipliers	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	16.11	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	16.12	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		MINI BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				71°, CLOUDY, CALM	
Well Diameter (in.):		Placement of Pump (ft.):			

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
9:00	16.09	/	75		22.2	1.46	46.5	4.65	6.43	107.7	/
9:05	16.09	/	75		22.1	1.44	44.1	4.41	6.44	108.1	/
9:16	16.09		75		22.1	1.45	44.4	4.44	6.43	107.9	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear Sheen Other: **Turbidity:** None Low Medium High

Odor: Yes No Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration None

Disposal Method: Ground POTW Drum Other:

Well Inspection

Is the well easily accessible?	Yes	No	Is concrete pad intact?	Yes	No
Is the well clearly labeled?	Yes	No	Is the well properly capped and vented?	Yes	No
Is the protective casing in good condition?	Yes	No	Weep hole adequately draining well head?	Yes	No
Is PVC casing in good condition?	Yes	No	Does area around well appear clear?	Yes	No
Is padlock present and locked?	Yes	No	Does the well have protective posts?	Yes	No
Is the padlock functional?	Yes	No	Does the bladder pump work properly?	Yes	N/A No
Is the inner casing intact?	Yes	No	Is the well in overall good condition?	Yes	No
Any obstructions or kinks in well?	Yes	No	(Comment below as needed)		

Notes: NONE.

Sample Date/Time: 10/10/12 / 9:15

Signed/Sampler: KELSEY THART

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/9/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	

Well ID: MW-15 **Start Time:** 9:00 **End Time:** 9:45

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	13.46	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)		Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		Bladder Pump		Weather:	
Final Water Column Height (ft.):				74°, SUNNY, WIND SE@11	
Well Diameter (in.):		Placement of Pump (ft.):	3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
9:05	12.91	/	100	0.1	19.9	0.508	7.4	0.74	6.84	-72.5	/
9:10	13.04	/	100	0.5	19.8	0.515	7.7	0.77	6.73	-72.2	/
9:12	13.10	/	100	0.8	19.8	0.525	7.1	0.71	6.70	-73.0	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time :*

Color: Clear Sheen Other: **Turbidity:** None Low Medium High

Odor: Yes No Description: DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration None

Disposal Method: Ground POTW Drum Other:

Well Inspection

Is the well easily accessible?	Yes	No	Is concrete pad intact?	Yes	No
Is the well clearly labeled?	Yes	No	Is the well properly capped and vented?	Yes	No
Is the protective casing in good condition?	Yes	No	Weep hole adequately draining well head?	Yes	No
Is PVC casing in good condition?	Yes	No	Does area around well appear clear?	Yes	No
Is padlock present and locked?	Yes	No	Does the well have protective posts?	Yes	No
Is the padlock functional?	Yes	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	Yes	No	Is the well in overall good condition?	Yes	No
Any obstructions or kinks in well?	Yes	No	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/9/18 / 9:20

Signed/Sampler: KERRY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date: 10/10/18	
Project Manager:	Larry Rosen	Project #: 2950R	
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	
Well ID: GM-2		Start Time: 9:45	End Time: 11:00

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	10.85	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	DRY	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				72°, CLOUDY, WIND SE@8
Well Diameter (in.):		Placement of Pump (ft.): BOTTOM OF WELL		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
9:59	10.35	/	100	0.1	22.9	1.37	40.1	4.01	7.09	-47.0	/
10:01	10.69	/	100	0.3	22.7	1.37	39.[illegible]	3.92	7.11	-44.1	/
10:03	11.24	/	100	0.5	22.6	1.37	38.8	3.[illegible]	7.11	-43.5	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear Sheen Other: **Turbidity:** None Low Medium High

Odor: Yes No Description: PETROLEUM / CHEMICAL

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration: None

Disposal Method: Ground POTW Drum Other:

Well Inspection

Is the well easily accessible?	Yes	No	Is concrete pad intact?	Yes	No
Is the well clearly labeled?	Yes	No	Is the well properly capped and vented?	Yes	No
Is the protective casing in good condition?	Yes	No	Weep hole adequately draining well head?	Yes	No
Is PVC casing in good condition?	Yes	No	Does area around well appear clear?	Yes	No
Is padlock present and locked?	Yes	No	Does the well have protective posts?	Yes	No
Is the padlock functional?	Yes	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	Yes	No	Is the well in overall good condition?	Yes	No
Any obstructions or kinks in well?	Yes	No	(Comment below as needed)		

Notes:

~~WELL ONLY PRODUCED ENOUGH WATER TO FILL 100ml AND GAS 46 ml BOTTLES~~

Sample Date/Time: 10/10/18 / 10:05

Signed/Sampler: KEVIN THAPA

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:** 10/10/18	
Project Manager:	Larry Rosen	**Project #:** 2950R	
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID: CM-1	**Start Time:** 11:05	**End Time:** 12:29	

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	6.48	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	7.99	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				75, CLOUDY, WIND SE 12
Well Diameter (in.):		Placement of Pump (ft.): 2' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	*(ft.)*	*(ft.)*	*(mL/m)*	*(Liters)*	*c*	*(m S/cm)*	*(%)*	*(mg/L)*		*(mv)*	*(NTU)*
11:15	6.45	/	100	0.1	22.3	0.82			6.81	-78.3	/
11:17	6.59	/	100	0.3	22.5	0.77			6.86	-76.6	/
11:19	6.75	/	100	0.5	22.5	0.75			6.88	-75.9	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time :* CM-1 10 11:18

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: SYNTHETIC CHEMICAL

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	Yes	(No)	Is the well properly capped and vented?	Yes	(No)
Is the protective casing in good condition?	Yes N/A	No	Weep hole adequately draining well head?	Yes	(No)
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	Yes	(No)
Is padlock present and locked?	Yes	(No)	Does the well have protective posts?	Yes	(No)
Is the padlock functional?	Yes N/A	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	Yes	(No)
Any obstructions or kinks in well?	(Yes)	No	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/10/18 / 11:20

Signed/Sampler: KELSEY THARP

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	Date:	6/10/1[illegible]
Project Manager:	Larry Rosen	Project #:	2950R
Client Company:	SWH Investments II, LLC	Phase Task #:	
Site Address:	200 Russell, St. Louis, MO	Landfill Permit #:	
Well ID:	VW-2	Start Time: 12:26	End Time: 1304

Initial Well Depth (ft.):		Initial Casing Volume (liters):		Casing Volume Multipliers	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	9.26	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	10.79	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		Bladder Pump		Weather:	WND
Final Water Column Height (ft.):				74°, CLOUDY,	W@8
Well Diameter (in.):		Placement of Pump (ft.):	[illegible]		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
12:25	9.76	/	100	[illegible]	[illegible]	2.27	22.[illegible]	2.25	6.74	-93.4	/
12:27	9.59	/	100	0.3	22.9	2.27	22.1	2.21	6.75	-95.1	/
12:29	9.27	/	00	0.5	23.0	2.27	21.7	2.17	6.75	-96.0	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear (Slight) Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: Petroleum

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	(Yes) N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 6/10/10 / 12:30

Signed/Sampler: [illegible] / KELSEY THARP

Revised: 02/26/10

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/9/16
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID:	MW-9	**Start Time:** 13:15	**End Time:**

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.153 L/ft	
Initial DTW (ft.)	17.26	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	17.30	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				85° PARTLY CLOUDY WIND SE 10	
Well Diameter (in.):		Placement of Pump (ft.): 3' FROM BOTTOM			

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	(C)	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
13:25	18.76	/	100	0.1	18.4	1.58	11.8	1.18	6.82	-63.0	
13:27		/	100	0.3	18.3	1.57	10.9	1.09	6.80	-64.1	/
13:29			100	0.5	18.3	1.58	10.6	1.06	6.83	-64.9	

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time:*

Color: Clear Sheen Other: **Turbidity:** None Low Medium High

Odor: Yes No Description:

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration None

Disposal Method: Ground POTW Drum Other:

Well Inspection

Is the well easily accessible?	Yes	No	Is concrete pad intact?	Yes	No
Is the well clearly labeled?	Yes	No	Is the well properly capped and vented?	Yes	No
Is the protective casing in good condition?	Yes	No	Weep hole adequately draining well head?	Yes	No
Is PVC casing in good condition?	Yes	No	Does area around well appear clear?	Yes	No
Is padlock present and locked?	Yes	No	Does the well have protective posts?	Yes	No
Is the padlock functional?	Yes	No	Does the bladder pump work properly?	Yes	N/A No
Is the inner casing intact?	Yes	No	Is the well in overall good condition?	Yes	No
Any obstructions or kinks in well?	Yes	No	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/9/16 13:30

Signed/Sampler: KERRY THARP

Revised: 02/26/10

Environmental Operations, Inc

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/10/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	
Well ID:	VW-1	**Start Time:** 13:10	**End Time:** 13:50

				Casing Volume Multipliers
Initial Well Depth (ft.):		Initial Casing Volume (liters):		1" I.D. casing = 0.155 L/ft
Final Well Depth (ft.):		Final Casing Volume (liters):		2" I.D. casing = 0.617 L/ft
Initial DTW (ft.)	8.72	Volume to be removed (liters):		4" I.D. casing = 2.476 L/ft
Final DTW (ft.)	9.93	Method of Development/Purging:		
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:
Final Water Column Height (ft.):				75° CLOUDY, WIND WE10
Well Diameter (in.):		Placement of Pump (ft.):	1' FROM BOTTOM	

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	*(ft.)*	*(ft.)*	*(mL/m)*	*(Liters)*	*c*	*(m S/cm)*	*(%)*	*(mg/L)*		*(mv)*	*(NTU)*
13:15	8.72	/	100	0.2	20.1	1.68	20.1	2.01	6.90	-107.9	/
13:17	8.79	/	100	0.4	20.3	1.62	19.6	1.96	6.89	-109.1	/
13:19	9.01	/	100	0.6	20.5	1.67	19.4	1.94	6.87	-110.0	/

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time* :

Color: Clear Sheen Other: **Turbidity:** None Low Medium High

Odor: Yes No Description: PETROLEUM / DECOMPOSITION

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration None

Disposal Method: Ground POTW Drum Other:

Well Inspection

Is the well easily accessible?	Yes	No	Is concrete pad intact?	Yes	No
Is the well clearly labeled?	Yes	No	Is the well properly capped and vented?	Yes	No
Is the protective casing in good condition?	Yes	No	Weep hole adequately draining well head?	Yes	No
Is PVC casing in good condition?	Yes	No	Does area around well appear clear?	Yes	No
Is padlock present and locked?	Yes	No	Does the well have protective posts?	Yes	No
Is the padlock functional?	Yes	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	Yes	No	Is the well in overall good condition?	Yes	No
Any obstructions or kinks in well?	Yes	No	(Comment below as needed)		

Notes: NONE

Sample Date/Time: 10/10/18 / 13:20

Signed/Sampler: [signature] / KELSEY THARP

Revised: 02/26/10

Environmental Operations Inc

WELL DEVELOPMENT/PURGING & SAMPLING RECORD

Project Name:	Solutia	**Date:**	10/10/18
Project Manager:	Larry Rosen	**Project #:**	2950R
Client Company:	SWH Investments II, LLC	**Phase Task #:**	
Site Address:	200 Russell, St. Louis, MO	**Landfill Permit #:**	

Well ID: MW-24P **Start Time:** 13:55 **End Time:** 14:30

Initial Well Depth (ft.):		Initial Casing Volume (liters):		**Casing Volume Multipliers**	
Final Well Depth (ft.):		Final Casing Volume (liters):		1" I.D. casing = 0.155 L/ft	
Initial DTW (ft.)	19.00	Volume to be removed (liters):		2" I.D. casing = 0.617 L/ft	
Final DTW (ft.)	19.24	Method of Development/Purging:		4" I.D. casing = 2.476 L/ft	
Initial Water Column Height (ft.):		BLADDER PUMP		Weather:	
Final Water Column Height (ft.):				75, CLOUDY, WIND @ 12	
Well Diameter (in.):		Placement of Pump (ft.):	3' FROM BOTTOM		

Field Parameters

Time	Depth to Water	Depth to NAPL	Flow Rate	Total Volume	Temp	Conductivity	D.O.		pH	ORP	Turbidity
UNITS:	(ft.)	(ft.)	(mL/m)	(Liters)	c	(m S/cm)	(%)	(mg/L)		(mv)	(NTU)
14:05	19.30	/	100		19.6	1.57	12.3	1.23	6.76	-122.0	/
14:07	19.47	/	100		19.5	1.57	9.1	0.91	6.75	-124.9	
14:09	19.51	/	100		19.5	1.57	8.8	0.88	6.75	-126.7	

QA/QC Samples Collected: MS/MSD - *Sample ID/Time:* Duplicate - *Sample ID/Time* :

Color: (Clear) Sheen Other: **Turbidity:** None (Low) Medium High

Odor: (Yes) No Description: PETROLEUM

Filtration: 0.45u filter Prefiltration Jug Laboratory filtration (None)

Disposal Method: Ground POTW (Drum) Other:

Well Inspection

Is the well easily accessible?	(Yes)	No	Is concrete pad intact?	(Yes)	No
Is the well clearly labeled?	(Yes)	No	Is the well properly capped and vented?	(Yes)	No
Is the protective casing in good condition?	(Yes)	No	Weep hole adequately draining well head?	(Yes)	No
Is PVC casing in good condition?	(Yes)	No	Does area around well appear clear?	(Yes)	No
Is padlock present and locked?	(Yes)	No	Does the well have protective posts?	(Yes)	No
Is the padlock functional?	(Yes)	No	Does the bladder pump work properly?	Yes N/A	No
Is the inner casing intact?	(Yes)	No	Is the well in overall good condition?	(Yes)	No
Any obstructions or kinks in well?	Yes	(No)	(Comment below as needed)		

Notes: NONE.

Sample Date/Time: 10/10/18 / 14:10

Signed/Sampler: KELSEY THARP

Environmental Operations, Inc.

WELL OBSERVATION DATA

Project Name: SOLUTIA

Project Manager: LARRY ROSEN

Client Company: SWH INVESTMENTS

Site Address: 200 E. RUSSELL

Project No.: 2950 R

Phase.Task No.:

Date: 10/4/18

Depth Measurement Instrument Type: 65 ft Oil/Water Interface meter

Well or Piezometer	Date	Time	Depth to Water (feet from TOC)	Total Well Depth (feet from TOC)	Depth To Floating Product (feet from TOC)	Floating Product Thickness (feet)	Comments
MW-15	10/4/18		13.43	17.96			
MW-24A			19.79	28.21			
VW-1			8.73	16.13			
VW-2			9.23	12.45			
GM-1			6.52	10.62			
GM-2			10.68	13.90			
MW-23			12.24	24.70			
MW-39A			9.46	20.12			
MW-2B			16.08	29.33			
MW-[redacted]6A			8.22	21.85			
MW-46A			12.64	19.74			
MW-38A			11.21	17.13			
MW-28A			5.61	12.73			
MW-30A			9.26	17.20			
MW-7B			20.58	32.20			
MW-17			11.39	56.25			
MW-13			13.24	51.25			
MW-9			17.69	41.45			

YSI CALIBRATION DATA SHEET

		Date:	10/8/2018
Project Name:	Solutia	Project No.:	2950
Project Manager:	Larry Rosen	Phase Task No.:	R PC
Client Company:	SWH Investments		
Site Address:	200 Russell Blvd, St. Louis, MO		
Instrument Type	Water Quality Meter		
Instrument Make	YSI		
Model	Quattro Pro		
Serial Number			

Date		Time	Calibration Peformed By:	pH	conductivity	D.O.	ORP
10/8/1		7:30	KELSEY THART	4.0, 7.0 10.0	1.413	100.1	40
10/9/18		6:[illegible]	KELSEY THART	4.02. 7.01 10.00	1.413	99.8	[illegible]
10/10/18		7:16	KELSEY THART	4.00 7.00 10.02	1.413	100.2	240

Notes / Comments

Calibration conducted with standards of; pH 4, 7, and 10, conductivity standard of 1.413 µS/cm (1000 mS/cm), dissolved oxygen 100%, and oxidation reduction potential 100 mv.

Signature [signature] Date 10/10/18

Reviewer LCR Date 11/5/18

APPENDIX B

October 2018 Laboratory Analytical Reports

October 23, 2018

Larry Rosen
Environmental Operations, Inc.
1530 South Second Street, Suite 200
St. Louis, MO 63104
TEL: (314) 480-4694
FAX: (314) 436-2900

RE: Solutia 2950R

WorkOrder: 18100606

Dear Larry Rosen:

TEKLAB, INC received 10 samples on 10/8/2018 4:40:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com

Report Contents

Client: Environmental Operations, Inc.
Client Project: Solutia 2950R

Work Order: 18100606
Report Date: 23-Oct-2018

This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	4
Accreditations	5
Laboratory Results	6
Quality Control Results	16
Receiving Check List	29
Chain of Custody	Appended

Definitions

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Abbr Definition

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
C - RL shown is a Client Requested Quantitation Limit	E - Value above quantitation range
H - Holding times exceeded	I - Associated internal standard was outside method criteria
M - Manual Integration used to determine area response	ND - Not Detected at the Reporting Limit
R - RPD outside accepted recovery limits	S - Spike Recovery outside recovery limits
T - TIC(Tentatively identified compound)	X - Value exceeds Maximum Contaminant Level

Case Narrative

Client: Environmental Operations, Inc.

Work Order: 18100606

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

Cooler Receipt Temp: 14.62 °C

Sulfate analysis was performed by Summit Environmental Technologies, Inc. See attached report for QC data.

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Accreditations

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2019	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2019	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2019	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2019	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2019	Collinsville
Arkansas	ADEQ	88-0966		3/14/2019	Collinsville
Illinois	IDPH	17584		5/31/2019	Collinsville
Indiana	ISDH	C-IL-06		1/31/2019	Collinsville
Kentucky	KDEP	98006		12/31/2018	Collinsville
Kentucky	UST	0073		1/31/2019	Collinsville
Louisiana	LDPH	LA170027		12/31/2018	Collinsville
Missouri	MDNR	930		1/31/2019	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2019	Collinsville

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-001 **Client Sample ID:** MW-17 (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**14.6**	mg/L	1	10/09/2018 19:58	146497
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 15:03	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 15:03	R253381
Methane	*	4.0		**5.5**	µg/L	1	10/12/2018 15:03	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 10:36	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 10:36	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 10:36	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**97.0**	%REC	1	10/12/2018 10:36	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**97.8**	%REC	1	10/12/2018 10:36	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.3**	%REC	1	10/12/2018 10:36	146698
Surr: Toluene-d8	*	86.7-112		**97.5**	%REC	1	10/12/2018 10:36	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**141**	mg/L	10	10/18/2018 0:00	R253660

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-002 **Client Sample ID:** MW-17AD (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 9:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**12.4**	mg/L	1	10/09/2018 20:13	146497
Sample result for Fe exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 15:15	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 15:15	R253381
Methane	*	4.0		**6.0**	µg/L	1	10/12/2018 15:15	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:03	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:03	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 11:03	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.2**	%REC	1	10/12/2018 11:03	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**97.2**	%REC	1	10/12/2018 11:03	146698
Surr: Dibromofluoromethane	*	84.9-113		**98.1**	%REC	1	10/12/2018 11:03	146698
Surr: Toluene-d8	*	86.7-112		**97.1**	%REC	1	10/12/2018 11:03	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**140**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-003 **Client Sample ID:** MW-7B (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 10:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**0.0708**	mg/L	1	10/10/2018 12:10	146497
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 15:28	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 15:28	R253381
Methane	*	20.0		**57.5**	µg/L	5	10/12/2018 18:27	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:29	146698
Chlorobenzene	NELAP	1.0		**3.9**	µg/L	1	10/12/2018 11:29	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:29	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 11:29	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.6**	%REC	1	10/12/2018 11:29	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**95.7**	%REC	1	10/12/2018 11:29	146698
Surr: Dibromofluoromethane	*	84.9-113		**98.7**	%REC	1	10/12/2018 11:29	146698
Surr: Toluene-d8	*	86.7-112		**97.6**	%REC	1	10/12/2018 11:29	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**216**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-004 **Client Sample ID:** MW-30A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 11:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**29.8**	mg/L	1	10/09/2018 20:20	146497
Sample result for Fe exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 15:48	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 15:48	R253381
Methane	*	400		**564**	µg/L	100	10/12/2018 18:36	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:56	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 11:56	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 11:56	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.3**	%REC	1	10/12/2018 11:56	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**95.8**	%REC	1	10/12/2018 11:56	146698
Surr: Dibromofluoromethane	*	84.9-113		**98.6**	%REC	1	10/12/2018 11:56	146698
Surr: Toluene-d8	*	86.7-112		**96.3**	%REC	1	10/12/2018 11:56	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**96.2**	mg/L	10	10/18/2018 0:00	R253660

Teklab, Inc.
Environmental Laboratory

Laboratory Results

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Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-005 **Client Sample ID:** MW-40A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 12:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**21.1**	mg/L	1	10/09/2018 20:24	146497
Sample result for Fe exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 15:55	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 15:55	R253381
Methane	*	400		**1110**	µg/L	100	10/12/2018 18:44	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 12:22	146698
Chlorobenzene	NELAP	1.0		**14.6**	µg/L	1	10/12/2018 12:22	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 12:22	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 12:22	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.3**	%REC	1	10/12/2018 12:22	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.3**	%REC	1	10/12/2018 12:22	146698
Surr: Dibromofluoromethane	*	84.9-113		**99.2**	%REC	1	10/12/2018 12:22	146698
Surr: Toluene-d8	*	86.7-112		**97.0**	%REC	1	10/12/2018 12:22	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**40.0**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-006 **Client Sample ID:** MW-38A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 12:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**1.09**	mg/L	1	10/10/2018 12:13	146497
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**10.7**	µg/L	1	10/12/2018 16:01	R253381
Ethene	*	10.0		**76.5**	µg/L	1	10/12/2018 16:01	R253381
Methane	*	4.0		**17.2**	µg/L	1	10/12/2018 16:01	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
1,2-Dichloroethane	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Acetone	NELAP	100		**ND**	µg/L	10	10/12/2018 12:48	146698
Benzene	NELAP	5.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Chlorobenzene	NELAP	10.0		**29.0**	µg/L	10	10/12/2018 12:48	146698
Chloroform	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
cis-1,2-Dichloroethene	NELAP	10.0		**1610**	µg/L	10	10/12/2018 12:48	146698
Ethylbenzene	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Methylene chloride	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Tetrachloroethene	NELAP	5.0		**8.7**	µg/L	10	10/12/2018 12:48	146698
Toluene	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
trans-1,2-Dichloroethene	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Trichloroethene	NELAP	10.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Vinyl chloride	NELAP	10.0		**482**	µg/L	10	10/12/2018 12:48	146698
Xylenes, Total	NELAP	20.0		**ND**	µg/L	10	10/12/2018 12:48	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.2**	%REC	10	10/12/2018 12:48	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.7**	%REC	10	10/12/2018 12:48	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.6**	%REC	10	10/12/2018 12:48	146698
Surr: Toluene-d8	*	86.7-112		**96.1**	%REC	10	10/12/2018 12:48	146698
Elevated reporting limit due to high levels of target and/or non-target analytes.								
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**131**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-007 **Client Sample ID:** MW-36A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**6.02**	mg/L	1	10/09/2018 20:31	146497
Sample result for Fe exceeds 10 times the CCB. Data is reportable per the TNI Standard.								
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 17:55	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 17:55	R253381
Methane	*	40.0		**130**	µg/L	10	10/12/2018 18:53	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Benzene	NELAP	0.5		**13.9**	µg/L	1	10/12/2018 13:14	146698
Chlorobenzene	NELAP	10.0		**293**	µg/L	10	10/15/2018 17:05	146753
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 13:14	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 13:14	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.1**	%REC	1	10/12/2018 13:14	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.5**	%REC	1	10/12/2018 13:14	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.9**	%REC	1	10/12/2018 13:14	146698
Surr: Toluene-d8	*	86.7-112		**94.9**	%REC	1	10/12/2018 13:14	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**146**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-008 **Client Sample ID:** MW-39A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 14:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**0.419**	mg/L	1	10/10/2018 12:17	146497
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 18:04	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 18:04	R253381
Methane	*	4.0		**4.2**	µg/L	1	10/12/2018 18:04	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 13:41	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 13:41	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 13:41	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**100.4**	%REC	1	10/12/2018 13:41	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.7**	%REC	1	10/12/2018 13:41	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.3**	%REC	1	10/12/2018 13:41	146698
Surr: Toluene-d8	*	86.7-112		**96.9**	%REC	1	10/12/2018 13:41	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**70.6**	mg/L	10	10/18/2018 0:00	R253660

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Laboratory Results

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Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-009 **Client Sample ID:** MW-28A (10818)

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 15:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**11.1**	mg/L	1	10/10/2018 12:50	146542
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/12/2018 18:16	R253381
Ethene	*	10.0		**ND**	µg/L	1	10/12/2018 18:16	R253381
Methane	*	400		**741**	µg/L	100	10/12/2018 19:04	R253381
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:07	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:07	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 14:07	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.2**	%REC	1	10/12/2018 14:07	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.5**	%REC	1	10/12/2018 14:07	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.8**	%REC	1	10/12/2018 14:07	146698
Surr: Toluene-d8	*	86.7-112		**96.5**	%REC	1	10/12/2018 14:07	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**< 10.0**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100606-010 **Client Sample ID:** Trip Blank

Matrix: GROUNDWATER **Collection Date:** 10/08/2018 16:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Acetone	NELAP	10.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Benzene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 13:10	146649
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 13:10	146649
Toluene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/11/2018 13:10	146649
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**97.8**	%REC	1	10/11/2018 13:10	146649
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.4**	%REC	1	10/11/2018 13:10	146649
Surr: Dibromofluoromethane	*	84.9-113		**97.3**	%REC	1	10/11/2018 13:10	146649
Surr: Toluene-d8	*	86.7-112		**96.9**	%REC	1	10/11/2018 13:10	146649

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 146497 **SampType: MBLK** Units **mg/L**

SampID: MBLK-146497

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**< 0.0400**	0.02000	0	0	-100	100	10/09/2018

Batch 146497 **SampType: LCS** Units **mg/L**

SampID: LCS-146497

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**2.02**	2.000	0	100.9	85	115	10/09/2018

Batch 146542 **SampType: MBLK** Units **mg/L**

SampID: MBLK-146542

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**< 0.0400**	0.02000	0	0	-100	100	10/10/2018

Batch 146542 **SampType: LCS** Units **mg/L**

SampID: LCS-146542

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**1.97**	2.000	0	98.7	85	115	10/10/2018

Batch 146542 **SampType: MS** Units **mg/L**

SampID: 18100658-003CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**2.09**	2.000	0.02860	102.9	75	125	10/11/2018

Batch 146542 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100658-003CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Iron	0.0400		**1.95**	2.000	0.02860	95.9	2.086	6.89	10/11/2018

PERMANENT GASES (RSKSOP-175)

Batch R253381 **SampType: MBLK** Units **µg/L**

SampID: MBLK-101218

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**ND**						10/12/2018
Ethene	10.0		**ND**						10/12/2018
Methane	4.0		**ND**						10/12/2018

Batch R253381 **SampType: LCS** Units **µg/L**

SampID: LCS-101218

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**35.9**	100.0	0	35.9	25.5	132	10/12/2018
Ethene	10.0		**35.8**	100.0	0	35.8	23.6	132	10/12/2018
Methane	4.0		**36.3**	100.0	0	36.3	23.9	132	10/12/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

PERMANENT GASES (RSKSOP-175)

Batch R253381 **SampType:** LCSD Units µg/L RPD Limit 39.7

SampID: LCSD-101218

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethane	7.0		**42.2**	100.0	0	42.2	35.90	16.13	10/12/2018
Ethene	10.0		**42.0**	100.0	0	42.0	35.82	15.91	10/12/2018
Methane	4.0		**42.1**	100.0	0	42.1	36.31	14.67	10/12/2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType:** MBLK Units µg/L

SampID: MBLK-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/11/2018
1,2-Dichloroethane	2.0		**ND**						10/11/2018
Acetone	10.0		**ND**						10/11/2018
Benzene	0.5		**ND**						10/11/2018
Chlorobenzene	2.0		**ND**						10/11/2018
Chloroform	2.0		**ND**						10/11/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Ethylbenzene	2.0		**ND**						10/11/2018
Methylene chloride	10.0		**ND**						10/11/2018
Tetrachloroethene	0.5		**ND**						10/11/2018
Toluene	2.0		**ND**						10/11/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Trichloroethene	2.0		**ND**						10/11/2018
Vinyl chloride	2.0		**ND**						10/11/2018
Xylenes, Total	2.0		**ND**						10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.9	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**47.9**	50.00		95.7	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.6	84.9	113	10/11/2018
Surr: Toluene-d8			**48.4**	50.00		96.8	86.7	112	10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**46.4**	50.00	0	92.8	48.53	4.53	10/11/2018
1,2-Dichloroethane	2.0		**43.6**	50.00	0	87.2	45.86	5.03	10/11/2018
Acetone	10.0		**134**	125.0	0	107.2	138.6	3.36	10/11/2018
Benzene	0.5		**47.1**	50.00	0	94.2	49.45	4.89	10/11/2018
Chlorobenzene	2.0		**46.6**	50.00	0	93.1	48.38	3.86	10/11/2018
Chloroform	2.0		**47.5**	50.00	0	95.0	49.83	4.83	10/11/2018
cis-1,2-Dichloroethene	2.0		**47.4**	50.00	0	94.9	49.29	3.83	10/11/2018
Ethylbenzene	2.0		**47.1**	50.00	0	94.2	49.38	4.75	10/11/2018
Methylene chloride	10.0		**48.2**	50.00	0	96.4	50.51	4.66	10/11/2018
Tetrachloroethene	0.5		**46.2**	50.00	0	92.5	48.39	4.52	10/11/2018
Toluene	2.0		**46.0**	50.00	0	92.0	48.37	5.07	10/11/2018
trans-1,2-Dichloroethene	2.0		**47.9**	50.00	0	95.7	50.43	5.21	10/11/2018
Trichloroethene	2.0		**47.5**	50.00	0	95.1	49.80	4.66	10/11/2018
Vinyl chloride	2.0		**49.6**	50.00	0	99.1	49.11	0.93	10/11/2018
Xylenes, Total	2.0		**141**	150.0	0	93.9	147.0	4.24	10/11/2018
Surr: 1,2-Dichloroethane-d4			**48.4**	50.00		96.9			10/11/2018
Surr: 4-Bromofluorobenzene			**48.5**	50.00		97.0			10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.5			10/11/2018
Surr: Toluene-d8			**48.8**	50.00		97.6			10/11/2018

Batch 146649 **SampType:** LCS Units µg/L

SampID: LCS-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**48.5**	50.00	0	97.1	79.1	123	10/11/2018
1,2-Dichloroethane	2.0		**45.9**	50.00	0	91.7	76.9	117	10/11/2018
Acetone	10.0		**139**	125.0	0	110.8	47.5	123	10/11/2018
Benzene	0.5		**49.4**	50.00	0	98.9	75.8	121	10/11/2018
Chlorobenzene	2.0		**48.4**	50.00	0	96.8	82.1	113	10/11/2018
Chloroform	2.0		**49.8**	50.00	0	99.7	80.1	122	10/11/2018
cis-1,2-Dichloroethene	2.0		**49.3**	50.00	0	98.6	78.6	119	10/11/2018
Ethylbenzene	2.0		**49.4**	50.00	0	98.8	80.7	114	10/11/2018
Methylene chloride	10.0		**50.5**	50.00	0	101.0	76.2	119	10/11/2018
Tetrachloroethene	0.5		**48.4**	50.00	0	96.8	80.6	122	10/11/2018
Toluene	2.0		**48.4**	50.00	0	96.7	78.3	112	10/11/2018
trans-1,2-Dichloroethene	2.0		**50.4**	50.00	0	100.9	73.5	124	10/11/2018
Trichloroethene	2.0		**49.8**	50.00	0	99.6	74.3	125	10/11/2018
Vinyl chloride	2.0		**49.1**	50.00	0	98.2	55.8	135	10/11/2018
Xylenes, Total	2.0		**147**	150.0	0	98.0	80.2	113	10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.2**	50.00		98.4	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**48.6**	50.00		97.3	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**49.6**	50.00		99.1	84.9	113	10/11/2018
Surr: Toluene-d8			**49.2**	50.00		98.3	86.7	112	10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: MS** Units **mg/L**

SampID: 18100453-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.77**	5.000	0	95.4	71.5	116	10/11/2018
Benzene	0.050		**5.10**	5.000	0	102.0	81.5	113	10/11/2018
Chlorobenzene	0.200		**4.95**	5.000	0	99.0	81.8	111	10/11/2018
Chloroform	0.200		**5.18**	5.000	0	103.5	81	115	10/11/2018
Tetrachloroethene	0.050		**4.61**	5.000	0	92.1	61.7	114	10/11/2018
Trichloroethene	0.200		**5.14**	5.000	0	102.9	74.4	117	10/11/2018
Vinyl chloride	0.200		**4.74**	5.000	0	94.8	45.7	130	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.87**	5.000		97.4	74.7	129	10/11/2018
Surr: 4-Bromofluorobenzene			**4.80**	5.000		96.1	86	119	10/11/2018
Surr: Dibromofluoromethane			**4.89**	5.000		97.7	81.7	123	10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.3	84.3	114	10/11/2018

Batch 146649 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100453-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,2-Dichloroethane	0.200		**4.82**	5.000	0	96.4	4.768	1.11	10/11/2018
Benzene	0.050		**5.14**	5.000	0	102.7	5.098	0.74	10/11/2018
Chlorobenzene	0.200		**4.97**	5.000	0	99.5	4.950	0.48	10/11/2018
Chloroform	0.200		**5.25**	5.000	0	105.0	5.176	1.46	10/11/2018
Tetrachloroethene	0.050		**4.56**	5.000	0	91.2	4.607	1.07	10/11/2018
Trichloroethene	0.200		**5.17**	5.000	0	103.4	5.144	0.47	10/11/2018
Vinyl chloride	0.200		**4.83**	5.000	0	96.7	4.740	1.96	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.94**	5.000		98.8			10/11/2018
Surr: 4-Bromofluorobenzene			**4.77**	5.000		95.4			10/11/2018
Surr: Dibromofluoromethane			**4.91**	5.000		98.2			10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.1			10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146698 **SampType:** MBLK Units µg/L

SampID: MBLK-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/12/2018
1,2-Dichloroethane	2.0		**ND**						10/12/2018
Acetone	10.0		**ND**						10/12/2018
Benzene	0.5		**ND**						10/12/2018
Chlorobenzene	2.0		**ND**						10/12/2018
Chloroform	2.0		**ND**						10/12/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/12/2018
Ethylbenzene	2.0		**ND**						10/12/2018
Methylene chloride	10.0		**ND**						10/12/2018
Tetrachloroethene	0.5		**ND**						10/12/2018
Toluene	2.0		**ND**						10/12/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/12/2018
Trichloroethene	2.0		**ND**						10/12/2018
Vinyl chloride	2.0		**ND**						10/12/2018
Xylenes, Total	2.0		**ND**						10/12/2018
Surr: 1,2-Dichloroethane-d4			**49.0**	50.00		98.1	79.6	118	10/12/2018
Surr: 4-Bromofluorobenzene			**47.8**	50.00		95.6	83.9	115	10/12/2018
Surr: Dibromofluoromethane			**48.7**	50.00		97.4	84.9	113	10/12/2018
Surr: Toluene-d8			**48.6**	50.00		97.2	86.7	112	10/12/2018

Batch 146698 **SampType:** LCSD Units µg/L RPD Limit **40**

SampID: LCSD-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.4**	50.00	0	90.8	44.95	1.02	10/12/2018
1,2-Dichloroethane	2.0		**43.6**	50.00	0	87.3	43.00	1.48	10/12/2018
Acetone	10.0		**126**	125.0	0	100.8	123.9	1.72	10/12/2018
Benzene	0.5		**46.7**	50.00	0	93.4	45.86	1.84	10/12/2018
Chlorobenzene	2.0		**45.7**	50.00	0	91.3	45.38	0.64	10/12/2018
Chloroform	2.0		**47.2**	50.00	0	94.5	46.45	1.71	10/12/2018
cis-1,2-Dichloroethene	2.0		**46.2**	50.00	0	92.4	45.70	1.09	10/12/2018
Ethylbenzene	2.0		**45.9**	50.00	0	91.8	46.16	0.56	10/12/2018
Methylene chloride	10.0		**47.4**	50.00	0	94.8	46.94	0.98	10/12/2018
Tetrachloroethene	0.5		**44.6**	50.00	0	89.2	44.99	0.87	10/12/2018
Toluene	2.0		**45.1**	50.00	0	90.2	44.88	0.44	10/12/2018
trans-1,2-Dichloroethene	2.0		**46.4**	50.00	0	92.8	46.10	0.63	10/12/2018
Trichloroethene	2.0		**46.9**	50.00	0	93.7	46.37	1.07	10/12/2018
Vinyl chloride	2.0		**47.8**	50.00	0	95.7	47.58	0.52	10/12/2018
Xylenes, Total	2.0		**138**	150.0	0	92.2	137.6	0.51	10/12/2018
Surr: 1,2-Dichloroethane-d4			**48.7**	50.00		97.3			10/12/2018
Surr: 4-Bromofluorobenzene			**48.4**	50.00		96.9			10/12/2018
Surr: Dibromofluoromethane			**49.4**	50.00		98.9			10/12/2018
Surr: Toluene-d8			**48.8**	50.00		97.6			10/12/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146698 **SampType: LCS** Units µg/L

SampID: LCS-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.0**	50.00	0	89.9	79.1	123	10/12/2018
1,2-Dichloroethane	2.0		**43.0**	50.00	0	86.0	76.9	117	10/12/2018
Acetone	10.0		**124**	125.0	0	99.1	47.5	123	10/12/2018
Benzene	0.5		**45.9**	50.00	0	91.7	75.8	121	10/12/2018
Chlorobenzene	2.0		**45.4**	50.00	0	90.8	82.1	113	10/12/2018
Chloroform	2.0		**46.4**	50.00	0	92.9	80.1	122	10/12/2018
cis-1,2-Dichloroethene	2.0		**45.7**	50.00	0	91.4	78.6	119	10/12/2018
Ethylbenzene	2.0		**46.2**	50.00	0	92.3	80.7	114	10/12/2018
Methylene chloride	10.0		**46.9**	50.00	0	93.9	76.2	119	10/12/2018
Tetrachloroethene	0.5		**45.0**	50.00	0	90.0	80.6	122	10/12/2018
Toluene	2.0		**44.9**	50.00	0	89.8	78.3	112	10/12/2018
trans-1,2-Dichloroethene	2.0		**46.1**	50.00	0	92.2	73.5	124	10/12/2018
Trichloroethene	2.0		**46.4**	50.00	0	92.7	74.3	125	10/12/2018
Vinyl chloride	2.0		**47.6**	50.00	0	95.2	55.8	135	10/12/2018
Xylenes, Total	2.0		**138**	150.0	0	91.7	80.2	113	10/12/2018
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.5	79.6	118	10/12/2018
Surr: 4-Bromofluorobenzene			**48.3**	50.00		96.6	83.9	115	10/12/2018
Surr: Dibromofluoromethane			**49.1**	50.00		98.2	84.9	113	10/12/2018
Surr: Toluene-d8			**48.8**	50.00		97.6	86.7	112	10/12/2018

Batch 146753 **SampType: MBLK** Units µg/L

SampID: MBLK-N181015A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/15/2018
1,2-Dichloroethane	2.0		**ND**						10/15/2018
Acetone	10.0		**ND**						10/15/2018
Benzene	0.5		**ND**						10/15/2018
Chlorobenzene	2.0		**ND**						10/15/2018
Chloroform	2.0		**ND**						10/15/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/15/2018
Ethylbenzene	2.0		**ND**						10/15/2018
Methylene chloride	10.0		**ND**						10/15/2018
Tetrachloroethene	0.5		**ND**						10/15/2018
Toluene	2.0		**ND**						10/15/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/15/2018
Trichloroethene	2.0		**ND**						10/15/2018
Vinyl chloride	2.0		**ND**						10/15/2018
Xylenes, Total	2.0		**ND**						10/15/2018
Surr: 1,2-Dichloroethane-d4			**49.8**	50.00		99.7	79.6	118	10/15/2018
Surr: 4-Bromofluorobenzene			**51.8**	50.00		103.6	83.9	115	10/15/2018
Surr: Dibromofluoromethane			**48.9**	50.00		97.9	84.9	113	10/15/2018
Surr: Toluene-d8			**52.6**	50.00		105.3	86.7	112	10/15/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146753 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-N181015A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**48.0**	50.00	0	96.0	47.01	2.10	10/15/2018
1,2-Dichloroethane	2.0		**47.2**	50.00	0	94.5	47.88	1.32	10/15/2018
Acetone	10.0		**118**	125.0	0	94.3	116.8	0.90	10/15/2018
Benzene	0.5		**48.1**	50.00	0	96.2	47.25	1.80	10/15/2018
Chlorobenzene	2.0		**49.2**	50.00	0	98.4	49.97	1.59	10/15/2018
Chloroform	2.0		**47.8**	50.00	0	95.7	46.65	2.50	10/15/2018
cis-1,2-Dichloroethene	2.0		**49.8**	50.00	0	99.7	47.85	4.09	10/15/2018
Ethylbenzene	2.0		**50.6**	50.00	0	101.2	48.76	3.74	10/15/2018
Methylene chloride	10.0		**49.0**	50.00	0	98.0	48.99	0.00	10/15/2018
Tetrachloroethene	0.5		**48.9**	50.00	0	97.8	47.42	3.07	10/15/2018
Toluene	2.0		**50.0**	50.00	0	100.0	50.35	0.68	10/15/2018
trans-1,2-Dichloroethene	2.0		**48.5**	50.00	0	96.9	48.36	0.23	10/15/2018
Trichloroethene	2.0		**46.6**	50.00	0	93.2	45.50	2.43	10/15/2018
Vinyl chloride	2.0		**46.5**	50.00	0	93.1	44.99	3.37	10/15/2018
Xylenes, Total	2.0		**149**	150.0	0	99.5	147.5	1.19	10/15/2018
Surr: 1,2-Dichloroethane-d4			**50.3**	50.00		100.6			10/15/2018
Surr: 4-Bromofluorobenzene			**50.7**	50.00		101.4			10/15/2018
Surr: Dibromofluoromethane			**49.5**	50.00		99.0			10/15/2018
Surr: Toluene-d8			**50.6**	50.00		101.3			10/15/2018

Batch 146753 **SampType:** LCS Units µg/L

SampID: LCS-N181015A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**47.0**	50.00	0	94.0	79.1	123	10/15/2018
1,2-Dichloroethane	2.0		**47.9**	50.00	0	95.8	76.9	117	10/15/2018
Acetone	10.0		**117**	125.0	0	93.5	47.5	123	10/15/2018
Benzene	0.5		**47.2**	50.00	0	94.5	75.8	121	10/15/2018
Chlorobenzene	2.0		**50.0**	50.00	0	99.9	82.1	113	10/15/2018
Chloroform	2.0		**46.6**	50.00	0	93.3	80.1	122	10/15/2018
cis-1,2-Dichloroethene	2.0		**47.8**	50.00	0	95.7	78.6	119	10/15/2018
Ethylbenzene	2.0		**48.8**	50.00	0	97.5	80.7	114	10/15/2018
Methylene chloride	10.0		**49.0**	50.00	0	98.0	76.2	119	10/15/2018
Tetrachloroethene	0.5		**47.4**	50.00	0	94.8	80.6	122	10/15/2018
Toluene	2.0		**50.4**	50.00	0	100.7	78.3	112	10/15/2018
trans-1,2-Dichloroethene	2.0		**48.4**	50.00	0	96.7	73.5	124	10/15/2018
Trichloroethene	2.0		**45.5**	50.00	0	91.0	74.3	125	10/15/2018
Vinyl chloride	2.0		**45.0**	50.00	0	90.0	55.8	135	10/15/2018
Xylenes, Total	2.0		**147**	150.0	0	98.3	80.2	113	10/15/2018
Surr: 1,2-Dichloroethane-d4			**50.3**	50.00		100.5	79.6	118	10/15/2018
Surr: 4-Bromofluorobenzene			**50.5**	50.00		101.1	83.9	115	10/15/2018
Surr: Dibromofluoromethane			**48.9**	50.00		97.7	84.9	113	10/15/2018
Surr: Toluene-d8			**50.9**	50.00		101.7	86.7	112	10/15/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146753 **SampType: LCSGD** Units **%REC** RPD Limit **0**

SampID: LCSGD-N181015A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**50.4**	50.00		100.9			10/15/2018
Surr: 4-Bromofluorobenzene			**48.5**	50.00		97.0			10/15/2018
Surr: Dibromofluoromethane			**49.4**	50.00		98.9			10/15/2018
Surr: Toluene-d8			**49.4**	50.00		98.7			10/15/2018

Batch 146753 **SampType: LCSG** Units **%REC**

SampID: LCSG-N181015A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: 1,2-Dichloroethane-d4			**50.1**	50.00		100.2	79.6	118	10/15/2018
Surr: 4-Bromofluorobenzene			**49.4**	50.00		98.9	83.9	115	10/15/2018
Surr: Dibromofluoromethane			**49.9**	50.00		99.7	84.9	113	10/15/2018
Surr: Toluene-d8			**50.6**	50.00		101.1	86.7	112	10/15/2018

Batch 146753 **SampType: MS** Units **mg/L**

SampID: 18100697-003AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.66**	5.000	0	93.2	71.5	116	10/15/2018
Benzene	0.050		**4.69**	5.000	0.01900	93.4	81.5	113	10/15/2018
Chlorobenzene	0.200		**5.30**	5.000	0.1180	103.7	81.8	111	10/15/2018
Chloroform	0.200		**4.93**	5.000	0	98.6	81	115	10/15/2018
Tetrachloroethene	0.050		**4.89**	5.000	0	97.8	61.7	114	10/15/2018
Trichloroethene	0.200		**4.73**	5.000	0	94.5	74.4	117	10/15/2018
Vinyl chloride	0.200		**4.14**	5.000	0	82.9	45.7	130	10/15/2018
Surr: 1,2-Dichloroethane-d4			**4.93**	5.000		98.6	74.7	129	10/15/2018
Surr: 4-Bromofluorobenzene			**5.22**	5.000		104.4	86	119	10/15/2018
Surr: Dibromofluoromethane			**5.05**	5.000		101.0	81.7	123	10/15/2018
Surr: Toluene-d8			**5.14**	5.000		102.8	84.3	114	10/15/2018

Batch 146753 **SampType: MS** Units **mg/L**

SampID: 18100729-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.81**	5.000	0	96.2	71.5	116	10/15/2018
Benzene	0.050		**4.79**	5.000	0	95.8	81.5	113	10/15/2018
Chlorobenzene	0.200		**5.33**	5.000	0	106.7	81.8	111	10/15/2018
Chloroform	0.200		**5.04**	5.000	0	100.7	81	115	10/15/2018
Tetrachloroethene	0.050		**5.05**	5.000	0	101.0	61.7	114	10/15/2018
Trichloroethene	0.200		**5.04**	5.000	0	100.8	74.4	117	10/15/2018
Vinyl chloride	0.200		**4.15**	5.000	0	83.0	45.7	130	10/15/2018
Surr: 1,2-Dichloroethane-d4			**4.99**	5.000		99.9	74.7	129	10/15/2018
Surr: 4-Bromofluorobenzene			**4.75**	5.000		95.0	86	119	10/15/2018
Surr: Dibromofluoromethane			**5.10**	5.000		102.0	81.7	123	10/15/2018
Surr: Toluene-d8			**4.93**	5.000		98.6	84.3	114	10/15/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146753 **SampType: MS** Units **µg/L**

SampID: 18100784-008CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	20.0		**516**	500.0	0	103.1	52	162	10/15/2018
1,2-Dichloroethane	20.0		**479**	500.0	0	95.8	49	155	10/15/2018
Acetone	100		**3340**	1250	2019	105.4	40	160	10/15/2018
Benzene	5.0		**485**	500.0	0	97.0	37	151	10/15/2018
Chlorobenzene	20.0		**510**	500.0	0	102.1	37	160	10/15/2018
Chloroform	20.0		**499**	500.0	0	99.8	51	138	10/15/2018
cis-1,2-Dichloroethene	20.0		**504**	500.0	0	100.9	40	160	10/15/2018
Ethylbenzene	20.0		**526**	500.0	0	105.3	37	162	10/15/2018
Methylene chloride	20.0		**505**	500.0	0	101.1	1	221	10/15/2018
Tetrachloroethene	5.0		**518**	500.0	0	103.7	64	148	10/15/2018
Toluene	20.0		**530**	500.0	1.200	105.8	47	150	10/15/2018
trans-1,2-Dichloroethene	20.0		**509**	500.0	0	101.9	54	156	10/15/2018
Trichloroethene	20.0		**493**	500.0	0	98.5	70	157	10/15/2018
Vinyl chloride	20.0		**458**	500.0	0	91.7	1	251	10/15/2018
Xylenes, Total	20.0		**1580**	1500	0	105.1	40	160	10/15/2018
Surr: 1,2-Dichloroethane-d4			**487**	500.0		97.4	74.7	129	10/15/2018
Surr: 4-Bromofluorobenzene			**514**	500.0		102.8	86	119	10/15/2018
Surr: Dibromofluoromethane			**485**	500.0		97.1	81.7	123	10/15/2018
Surr: Toluene-d8			**500**	500.0		99.9	84.3	114	10/15/2018

Batch 146753 **SampType: MSD** Units **µg/L** RPD Limit **36**

SampID: 18100784-008CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	20.0		**490**	500.0	0	98.0	515.7	5.15	10/15/2018
1,2-Dichloroethane	20.0		**470**	500.0	0	94.0	479.1	1.88	10/15/2018
Acetone	100		**3240**	1250	2019	97.3	3336	3.06	10/15/2018
Benzene	5.0		**482**	500.0	0	96.3	485.1	0.74	10/15/2018
Chlorobenzene	20.0		**512**	500.0	0	102.3	510.3	0.25	10/15/2018
Chloroform	20.0		**495**	500.0	0	99.0	499.2	0.84	10/15/2018
cis-1,2-Dichloroethene	20.0		**486**	500.0	0	97.3	504.3	3.63	10/15/2018
Ethylbenzene	20.0		**521**	500.0	0	104.1	526.5	1.11	10/15/2018
Methylene chloride	20.0		**498**	500.0	0	99.6	505.3	1.44	10/15/2018
Tetrachloroethene	5.0		**519**	500.0	0	103.8	518.3	0.17	10/15/2018
Toluene	20.0		**535**	500.0	1.200	106.7	530.2	0.88	10/15/2018
trans-1,2-Dichloroethene	20.0		**490**	500.0	0	97.9	509.3	3.94	10/15/2018
Trichloroethene	20.0		**480**	500.0	0	95.9	492.7	2.72	10/15/2018
Vinyl chloride	20.0		**445**	500.0	0	89.0	458.5	2.99	10/15/2018
Xylenes, Total	20.0		**1540**	1500	0	102.7	1576	2.26	10/15/2018
Surr: 1,2-Dichloroethane-d4			**495**	500.0		99.1			10/15/2018
Surr: 4-Bromofluorobenzene			**513**	500.0		102.6			10/15/2018
Surr: Dibromofluoromethane			**493**	500.0		98.5			10/15/2018
Surr: Toluene-d8			**528**	500.0		105.7			10/15/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146753 **SampType: MS** Units **mg/L**

SampID: 18100801-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.87**	5.000	0	97.5	71.5	116	10/15/2018
Benzene	0.050		**4.62**	5.000	0	92.3	81.5	113	10/15/2018
Chlorobenzene	0.200		**5.42**	5.000	0	108.5	81.8	111	10/15/2018
Chloroform	0.200		**4.94**	5.000	0	98.7	81	115	10/15/2018
Tetrachloroethene	0.050		**5.14**	5.000	0	102.9	61.7	114	10/15/2018
Trichloroethene	0.200		**4.84**	5.000	0	96.9	74.4	117	10/15/2018
Vinyl chloride	0.200		**3.93**	5.000	0	78.5	45.7	130	10/15/2018
Surr: 1,2-Dichloroethane-d4			**4.83**	5.000		96.6	74.7	129	10/15/2018
Surr: 4-Bromofluorobenzene			**5.05**	5.000		101.1	86	119	10/15/2018
Surr: Dibromofluoromethane			**4.96**	5.000		99.3	81.7	123	10/15/2018
Surr: Toluene-d8			**4.96**	5.000		99.2	84.3	114	10/15/2018

Batch 146753 **SampType: MS** Units **mg/L**

SampID: 18100802-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**5.02**	5.000	0	100.4	71.5	116	10/16/2018
Benzene	0.050		**4.75**	5.000	0.01100	94.8	81.5	113	10/16/2018
Chlorobenzene	0.200		**5.23**	5.000	0	104.6	81.8	111	10/16/2018
Chloroform	0.200		**5.10**	5.000	0	102.0	81	115	10/16/2018
Tetrachloroethene	0.050		**5.22**	5.000	0	104.5	61.7	114	10/16/2018
Trichloroethene	0.200		**4.91**	5.000	0	98.2	74.4	117	10/16/2018
Vinyl chloride	0.200		**4.10**	5.000	0	82.1	45.7	130	10/16/2018
Surr: 1,2-Dichloroethane-d4			**5.08**	5.000		101.6	74.7	129	10/16/2018
Surr: 4-Bromofluorobenzene			**4.88**	5.000		97.7	86	119	10/16/2018
Surr: Dibromofluoromethane			**5.19**	5.000		103.9	81.7	123	10/16/2018
Surr: Toluene-d8			**4.76**	5.000		95.3	84.3	114	10/16/2018

Batch 146753 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100802-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,2-Dichloroethane	0.200		**4.71**	5.000	0	94.2	5.022	6.37	10/16/2018
Benzene	0.050		**4.68**	5.000	0.01100	93.5	4.750	1.38	10/16/2018
Chlorobenzene	0.200		**5.10**	5.000	0	102.1	5.231	2.46	10/16/2018
Chloroform	0.200		**5.03**	5.000	0	100.5	5.100	1.46	10/16/2018
Tetrachloroethene	0.050		**5.14**	5.000	0	102.8	5.223	1.62	10/16/2018
Trichloroethene	0.200		**4.94**	5.000	0	98.7	4.910	0.55	10/16/2018
Vinyl chloride	0.200		**3.96**	5.000	0	79.2	4.104	3.60	10/16/2018
Surr: 1,2-Dichloroethane-d4			**5.05**	5.000		101.0			10/16/2018
Surr: 4-Bromofluorobenzene			**4.82**	5.000		96.5			10/16/2018
Surr: Dibromofluoromethane			**5.02**	5.000		100.4			10/16/2018
Surr: Toluene-d8			**5.03**	5.000		100.6			10/16/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType:** MBLK Units µg/L

SampID: MBLK-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		ND						10/19/2018
1,2-Dichloroethane	2.0		ND						10/19/2018
Acetone	10.0		ND						10/19/2018
Benzene	0.5		ND						10/19/2018
Chlorobenzene	2.0		ND						10/19/2018
Chloroform	2.0		ND						10/19/2018
cis-1,2-Dichloroethene	2.0		ND						10/19/2018
Ethylbenzene	2.0		ND						10/19/2018
Methylene chloride	10.0		ND						10/19/2018
Tetrachloroethene	0.5		ND						10/19/2018
Toluene	2.0		ND						10/19/2018
trans-1,2-Dichloroethene	2.0		ND						10/19/2018
Trichloroethene	2.0		ND						10/19/2018
Vinyl chloride	2.0		ND						10/19/2018
Xylenes, Total	2.0		ND						10/19/2018
Surr: 1,2-Dichloroethane-d4			47.6	50.00		95.2	79.6	118	10/19/2018
Surr: 4-Bromofluorobenzene			48.8	50.00		97.5	83.9	115	10/19/2018
Surr: Dibromofluoromethane			48.2	50.00		96.5	84.9	113	10/19/2018
Surr: Toluene-d8			48.2	50.00		96.4	86.7	112	10/19/2018

Batch 146940 **SampType:** LCSD Units µg/L RPD Limit 40

SampID: LCSD-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		44.2	50.00	0	88.4	45.67	3.27	10/19/2018
1,2-Dichloroethane	2.0		44.1	50.00	0	88.2	44.61	1.17	10/19/2018
Acetone	10.0		131	125.0	0	104.8	135.6	3.44	10/19/2018
Benzene	0.5		48.5	50.00	0	96.9	50.42	3.96	10/19/2018
Chlorobenzene	2.0		45.5	50.00	0	91.0	47.08	3.44	10/19/2018
Chloroform	2.0		47.8	50.00	0	95.6	48.80	2.07	10/19/2018
cis-1,2-Dichloroethene	2.0		47.9	50.00	0	95.8	48.61	1.45	10/19/2018
Ethylbenzene	2.0		45.9	50.00	0	91.7	47.61	3.72	10/19/2018
Methylene chloride	10.0		50.0	50.00	0	100.0	50.90	1.76	10/19/2018
Tetrachloroethene	0.5		43.6	50.00	0	87.1	45.16	3.58	10/19/2018
Toluene	2.0		45.2	50.00	0	90.3	46.91	3.78	10/19/2018
trans-1,2-Dichloroethene	2.0		48.2	50.00	0	96.3	50.13	4.03	10/19/2018
Trichloroethene	2.0		47.6	50.00	0	95.1	49.04	3.06	10/19/2018
Vinyl chloride	2.0		47.5	50.00	0	95.0	48.46	2.02	10/19/2018
Xylenes, Total	2.0		137	150.0	0	91.6	143.0	3.92	10/19/2018
Surr: 1,2-Dichloroethane-d4			46.8	50.00		93.6			10/19/2018
Surr: 4-Bromofluorobenzene			49.2	50.00		98.5			10/19/2018
Surr: Dibromofluoromethane			48.5	50.00		97.0			10/19/2018
Surr: Toluene-d8			48.0	50.00		96.0			10/19/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType:** LCS Units µg/L

SampID: LCS-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.7**	50.00	0	91.3	79.1	123	10/19/2018
1,2-Dichloroethane	2.0		**44.6**	50.00	0	89.2	76.9	117	10/19/2018
Acetone	10.0		**136**	125.0	0	108.5	47.5	123	10/19/2018
Benzene	0.5		**50.4**	50.00	0	100.8	75.8	121	10/19/2018
Chlorobenzene	2.0		**47.1**	50.00	0	94.2	82.1	113	10/19/2018
Chloroform	2.0		**48.8**	50.00	0	97.6	80.1	122	10/19/2018
cis-1,2-Dichloroethene	2.0		**48.6**	50.00	0	97.2	78.6	119	10/19/2018
Ethylbenzene	2.0		**47.6**	50.00	0	95.2	80.7	114	10/19/2018
Methylene chloride	10.0		**50.9**	50.00	0	101.8	76.2	119	10/19/2018
Tetrachloroethene	0.5		**45.2**	50.00	0	90.3	80.6	122	10/19/2018
Toluene	2.0		**46.9**	50.00	0	93.8	78.3	112	10/19/2018
trans-1,2-Dichloroethene	2.0		**50.1**	50.00	0	100.3	73.5	124	10/19/2018
Trichloroethene	2.0		**49.0**	50.00	0	98.1	74.3	125	10/19/2018
Vinyl chloride	2.0		**48.5**	50.00	0	96.9	55.8	135	10/19/2018
Xylenes, Total	2.0		**143**	150.0	0	95.3	80.2	113	10/19/2018
Surr: 1,2-Dichloroethane-d4			**46.5**	50.00		93.0	79.6	118	10/19/2018
Surr: 4-Bromofluorobenzene			**49.5**	50.00		98.9	83.9	115	10/19/2018
Surr: Dibromofluoromethane			**48.0**	50.00		95.9	84.9	113	10/19/2018
Surr: Toluene-d8			**48.4**	50.00		96.7	86.7	112	10/19/2018

Batch 146940 **SampType:** MS Units µg/L

SampID: 18101306-002HMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**52.4**	50.00	0	104.9	52	162	10/19/2018
1,2-Dichloroethane	2.0		**47.0**	50.00	0	93.9	49	155	10/19/2018
Acetone	10.0		**214**	125.0	107.8	84.7	40	160	10/19/2018
Benzene	0.5		**55.6**	50.00	0	111.2	37	151	10/19/2018
Chlorobenzene	2.0		**50.7**	50.00	0	101.5	37	160	10/19/2018
Chloroform	2.0		**54.4**	50.00	0.5600	107.6	51	138	10/19/2018
cis-1,2-Dichloroethene	2.0		**54.6**	50.00	0	109.2	40	160	10/19/2018
Ethylbenzene	2.0		**52.6**	50.00	0.4400	104.3	37	162	10/19/2018
Methylene chloride	2.0		**55.6**	50.00	0	111.2	1	221	10/19/2018
Tetrachloroethene	0.5		**52.5**	50.00	0.5100	103.9	64	148	10/19/2018
Toluene	2.0		**55.7**	50.00	4.260	103.0	47	150	10/19/2018
trans-1,2-Dichloroethene	2.0		**55.6**	50.00	0	111.3	54	156	10/19/2018
Trichloroethene	2.0		**55.7**	50.00	0	111.3	70	157	10/19/2018
Vinyl chloride	2.0		**61.2**	50.00	0	122.3	1	251	10/19/2018
Xylenes, Total	2.0		**156**	150.0	2.280	102.8	40	160	10/19/2018
Surr: 1,2-Dichloroethane-d4			**46.2**	50.00		92.4	74.7	129	10/19/2018
Surr: 4-Bromofluorobenzene			**49.0**	50.00		98.1	86	119	10/19/2018
Surr: Dibromofluoromethane			**48.6**	50.00		97.2	81.7	123	10/19/2018
Surr: Toluene-d8			**48.2**	50.00		96.4	84.3	114	10/19/2018

Client: Environmental Operations, Inc. **Work Order:** 18100606

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType:** MS Units µg/L

SampID: 18101306-004HMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**52.0**	50.00	0	104.1	52	162	10/19/2018
1,2-Dichloroethane	2.0		**47.6**	50.00	0	95.2	49	155	10/19/2018
Acetone	10.0		**129**	125.0	0	103.4	40	160	10/19/2018
Benzene	0.5		**55.8**	50.00	0	111.5	37	151	10/19/2018
Chlorobenzene	2.0		**50.7**	50.00	0	101.5	37	160	10/19/2018
Chloroform	2.0		**54.9**	50.00	1.330	107.2	51	138	10/19/2018
cis-1,2-Dichloroethene	2.0		**53.8**	50.00	0	107.6	40	160	10/19/2018
Ethylbenzene	2.0		**51.9**	50.00	0	103.8	37	162	10/19/2018
Methylene chloride	2.0		**55.4**	50.00	0	110.9	1	221	10/19/2018
Tetrachloroethene	0.5		**50.8**	50.00	0	101.5	64	148	10/19/2018
Toluene	2.0		**51.3**	50.00	0	102.6	47	150	10/19/2018
trans-1,2-Dichloroethene	2.0		**55.9**	50.00	0	111.8	54	156	10/19/2018
Trichloroethene	2.0		**54.5**	50.00	0	109.0	70	157	10/19/2018
Vinyl chloride	2.0		**53.4**	50.00	0	106.8	1	251	10/19/2018
Xylenes, Total	2.0		**155**	150.0	0	103.2	40	160	10/19/2018
Surr: 1,2-Dichloroethane-d4			**47.0**	50.00		94.0	74.7	129	10/19/2018
Surr: 4-Bromofluorobenzene			**48.8**	50.00		97.6	86	119	10/19/2018
Surr: Dibromofluoromethane			**48.6**	50.00		97.3	81.7	123	10/19/2018
Surr: Toluene-d8			**47.8**	50.00		95.7	84.3	114	10/19/2018

Batch 146940 **SampType:** MSD Units µg/L RPD Limit **36**

SampID: 18101306-004HMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**54.3**	50.00	0	108.5	52.03	4.20	10/19/2018
1,2-Dichloroethane	2.0		**50.0**	50.00	0	100.1	47.60	5.02	10/19/2018
Acetone	10.0		**128**	125.0	0	102.2	129.2	1.14	10/19/2018
Benzene	0.5		**57.8**	50.00	0	115.7	55.75	3.70	10/19/2018
Chlorobenzene	2.0		**52.6**	50.00	0	105.2	50.74	3.62	10/19/2018
Chloroform	2.0		**57.0**	50.00	1.330	111.4	54.94	3.73	10/19/2018
cis-1,2-Dichloroethene	2.0		**56.1**	50.00	0	112.1	53.82	4.10	10/19/2018
Ethylbenzene	2.0		**53.8**	50.00	0	107.7	51.89	3.67	10/19/2018
Methylene chloride	2.0		**57.9**	50.00	0	115.9	55.43	4.43	10/19/2018
Tetrachloroethene	0.5		**53.4**	50.00	0	106.8	50.77	5.07	10/19/2018
Toluene	2.0		**53.4**	50.00	0	106.9	51.31	4.05	10/19/2018
trans-1,2-Dichloroethene	2.0		**57.9**	50.00	0	115.9	55.91	3.57	10/19/2018
Trichloroethene	2.0		**57.3**	50.00	0	114.6	54.49	5.06	10/19/2018
Vinyl chloride	2.0		**59.8**	50.00	0	119.6	53.42	11.25	10/19/2018
Xylenes, Total	2.0		**161**	150.0	0	107.3	154.8	3.91	10/19/2018
Surr: 1,2-Dichloroethane-d4			**47.5**	50.00		95.0			10/19/2018
Surr: 4-Bromofluorobenzene			**48.9**	50.00		97.7			10/19/2018
Surr: Dibromofluoromethane			**49.1**	50.00		98.2			10/19/2018
Surr: Toluene-d8			**47.7**	50.00		95.4			10/19/2018

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Environmental Operations, Inc.
Client Project: Solutia 2950R

Work Order: 18100606
Report Date: 23-Oct-2018

Carrier: Robert Andrews

Received By: AMD

Completed by: Amber Dilallo
On: 08-Oct-2018

Reviewed by: Shelly A Hennessy
On: 08-Oct-2018

Pages to follow: Chain of custody 1 Extra pages included 20

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C **14.62**
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☐	No ☑		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		
When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.				
Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

Trip Blank collection date and time will be reported as the received date and time (end of trip). - SHennessy - 10/8/2018 5:26:45 PM

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 1810C60C

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Environmental Operations, Inc.
Address: 1530 South Second Street, Suite 200
City / State / Zip St. Louis, MO 63104
Contact: Larry Rosen **Phone:** (314) 480-4694
E-Mail: LarryR@Environmentalops.com **Fax:**

Samples on: [X] ICE [ ] BLUE ICE [ ] NO ICE 14.62 °C
Preserved in: [ ] LAB [X] FIELD
Lab Notes GM 10/9/18 - Ø HS

FOR LAB USE ONLY

Are these samples known to be involved in litigation? If yes, a surcharge will apply [ ] Yes [X] No
Are these samples known to be hazardous? [ ] Yes [X] No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. [X] Yes [ ] No

Client Comments:
VOC 8260 Select List: Requires lowest possible Reporting Limit (RL) with multiple diluitions.
Permanent Gases RSK 175: Ethane, Ethene, Methane.
Subcontract Sulfate Method IC 300 to Summit Environmental Technologies, Inc.Cuyahoga Falls, OH.

Project Name/Number Solutia 2950R

Sample Collector's Name KELSEY THARP

Results Requested [X] Standard [ ] 1-2 Day (100% Surcharge) [ ] Other [ ] 3 Day (50% Surcharge)

Billing Instructions 2950R

Lab Use Only	Sample Identification	Date/Time Sampled	# and Type of Containers: UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	MATRIX: Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	INDICATE ANALYSIS REQUESTED: Alachlor 8081	Iron SW 846 6010	Permanent Gases RSK 175	Sulfate by IC 300	VOC 8260 Select List	VOC 8260 Trip Blank
1810C60C 001	MW-17 (10818)	10/8/18 9:30	1	1			5									X		X	X	X	X	
002	MW-17 AD (10818)	9:30	1	1			5									X		X	X	X	X	
003	MW-7B (10818)	10:45	1	1			5									X		X	X	X	X	
004	MW-30A (10818)	11:30	1	1			5									X		X	X	X	X	
005	MW-40A (10818)	12:15	1	1			5									X		X	X	X	X	
006	MW-38A (10818)	12:50	1	1			5									X		X	X	X	X	
007	MW-36A (10818)	13:30	1	1			5									X		X	X	X	X	
008	MW-39A (10818)	14:20	1	1			5									X		X	X	X	X	
009	MW-28A (10818)	15:15	1	1			5									X		X	X	X	X	
010	TRIP BLANK	LAB					2				X											X

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/8/18 16:10	[signature]	10/8/18 16:10
[signature]	10/8/18 16:40	[signature]	10/8/18 16:40

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 46645

GM 10/9/18

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

October 18, 2018

Mike Austin
TEKLAB Inc,
5445 Horseshoe lake Road
Collinsville, IL 62234
TEL: 618 344 1004
FAX: 618 344 1005

RE: 18100606

Dear Mike Austin:

Order No.: 18100757

Summit Environmental Technologies, Inc. received 9 sample(s) on 10/11/2018 for the analyses presented in the following report.

Jennifer Woolf
Project Manager
3310 Win St.
Cuyahoga Falls, Ohio 44223

Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0108, Delaware, Florida NELAC E87688, Georgia E87688, Idaho OH00923, Illinois 200061, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Louisiana 04061, Maryland 339, Minnesota 409711, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, North Dakota R-201, Oklahoma 9940, Oregon OH200001, Rhode Island LA000317, South Carolina 92016001, Texas T104704466-11-5, Utah OH009232011-1, Virginia VELAP 9456, Washington C891

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: **18100757**
Date: **10/18/2018**

CLIENT: TEKLAB Inc,
Project: 18100606

WorkOrder Narrative:
18100757: This report in its entirety consists of the following documents: Cover Letter, Case Narrative, Analytical Results, QC Summary Report, Applicable Accreditation Information, Chain-of-Custody, Cooler Receipt Form, and other applicable forms as necessary. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report. State Certificates and Scopes of Accreditation are attached as applicable. Results provided in this report for any parameter not listed on the Scope of Accreditation should be considered "not certified."

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

This report is believed to meet all of the requirements of the accrediting agency, where applicable. Any comments or problems with the analytical events associated with this report are noted below.

Summit Environmental Technologies, In
3310 Win S
Cuyahoga Falls, Ohio 4422
TEL: (330) 253-8211 FAX: (330) 253-448
Website: http://www.settek.co

Qualifiers and Acronyms

WO#: **18100757**
Date: **10/18/2018**

These commonly used Qualifiers and Acronyms may or may not be present in this report.

Qualifiers

U	The compound was analyzed for but was not detected.
J	The reported value is greater than the Method Detection Limit but less than the Reporting Limit.
H	The hold time for sample preparation and/or analysis was exceeded. Not 47CFR32 compliant.
D	The result is reported from a dilution.
E	The result exceeded the linear range of the calibration or is estimated due to interference.
MC	The result is below the Minimum Compound Limit.
*****	The result exceeds the Regulatory Limit or Maximum Contamination Limit.
m	Manual integration was used to determine the area response.
d	Manual integration in which peak was deleted
N	The result is presumptive based on a Mass Spectral library search assuming a 1:1 response.
P	The second column confirmation exceeded 25% difference.
C	The result has been confirmed by GC/MS.
X	The result was not confirmed when GC/MS Analysis was performed.
B/MB+	The analyte was detected in the associated blank.
G	The ICB or CCB contained reportable amounts of analyte.
QC-/+	The CCV recovery failed low (-) or high (+).
R/QDR	The RPD was outside of accepted recovery limits.
QL-/+	The LCS or LCSD recovery failed low (-) or high (+).
QLR	The LCS/LCSD RPD was outside of accepted recovery limits.
QM-/+	The MS or MSD recovery failed low (-) or high (+).
QMR	The MS/MSD RPD was outside of accepted recovery limits.
QV-/+	The ICV recovery failed low (-) or high (+).
S	The spike result was outside of accepted recovery limits.
W	Samples were received outside temperature limits (0° – 6° C). Not 47CSR32 compliant for W.V.
Z	Deviation; A deviation from the method was performed; Please refer to the Case Narrative for additional information

Acronyms

ND	Not Detected	**RL**	Reporting Limit
QC	Quality Control	**MDL**	Method Detection Limit
MB	Method Blank	**LOD**	Level of Detection
LCS	Laboratory Control Sample	**LOQ**	Level of Quantitation
LCSD	Laboratory Control Sample Duplicate	**PQL**	Practical Quantitation Limit
QCS	Quality Control Sample	**CRQL**	Contract Required Quantitation Limit
DUP	Duplicate	**PL**	Permit Limit
MS	Matrix Spike	**RegLvl**	Regulatory Limit
MSD	Matrix Spike Duplicate	**MCL**	Maximum Contamination Limit
RPD	Relative Percent Different	**MinCL**	Minimum Compound Limit
ICV	Initial Calibration Verification	**RA**	Reanalysis
ICB	Initial Calibration Blank	**RE**	Reextraction
CCV	Continuing Calibration Verification	**TIC**	Tentatively Identified Compound
CCB	Continuing Calibration Blank	**RT**	Retention Time
RLC	Reporting Limit Check	**CF**	Calibration Factor
DF	Dilution Factor	**RF**	Response Factor

This list of Qualifiers and Acronyms reflects the most commonly utilized Qualifiers and Acronyms for reporting. Please refer to the Analytical Notes in the Case Narrative for any Qualifiers or Acronyms that do not appear in this list or for additional information regarding the use of these Qualifiers on reported data.

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Workorder Sample Summary

WO#: **18100757**
18-Oct-18

CLIENT: TEKLAB Inc,
Project: 18100606

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
18100757-001	18100606-001		10/8/2018 9:30:00 AM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-002	18100606-002		10/8/2018 9:30:00 AM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-003	18100606-003		10/8/2018 10:45:00 AM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-004	18100606-004		10/8/2018 11:30:00 AM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-005	18100606-005		10/8/2018 12:15:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-006	18100606-006		10/8/2018 12:50:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-007	18100606-007		10/8/2018 1:30:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-008	18100606-008		10/8/2018 2:20:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100757-009	18100606-009		10/8/2018 3:15:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water

Summit Environmental Technologies, Inc.
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DATES REPORT

WO#: **18100757**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100606

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
18100757-001A	18100606-001	10/8/2018 9:30:00 AM	Non-Potable Water	Anions by IC (EPA 300 0)			0/18/2018 12:22:00 AM
18100757-002A	18100606-002			Anions by IC (EPA 300 0)			0/18/2018 12:48:00 AM
18100757-003A	18100606-003	10/8/2018 10:45:00 AM		Anions by IC (EPA 300 0)			10/18/2018 1:13:00 AM
18100757-004A	18100606-004	10/8/2018 11:30:00 AM		Anions by IC (EPA 300 0)			10/18/2018 1:38:00 AM
18100757-005A	18100606-005	10/8/2018 12:15:00 PM		Anions by IC (EPA 300 0)			10/18/2018 2:04:00 AM
18100757-006A	18100606-006	10/8/2018 12:50:00 PM		Anions by IC (EPA 300 0)			10/18/2018 5:27:00 AM
18100757-007A	18100606-007	10/8/2018 1:30:00 PM		Anions by IC (EPA 300 0)			10/18/2018 5:52:00 AM
18100757-008A	18100606-008	10/8/2018 2:20:00 PM		Anions by IC (EPA 300 0)			10/18/2018 6:18:00 AM
18100757-009A	18100606-009	10/8/2018 3:15:00 PM		Anions by IC (EPA 300 0)			10/18/2018 6:43:00 AM

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-001A
Project: 18100606
Client Sample ID 18100606-001

Tag Number:
Collection Date: 10/8/2018 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	141	10.0		mg/L	10	10/18/2018 12:22:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-002A
Project: 18100606
Client Sample ID 18100606-002

Tag Number:
Collection Date: 10/8/2018 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	140	10.0		mg/L	10	10/18/2018 12:48:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit.	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-003A
Project: 18100606
Client Sample ID 18100606-003

Tag Number:
Collection Date: 10/8/2018 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	216	10.0		mg/L	10	10/18/2018 1:13:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-004A
Project: 18100606
Client Sample ID 18100606-004

Tag Number:
Collection Date: 10/8/2018 11:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	96.2	10.0		mg/L	10	10/18/2018 1:38:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Tag Number:
Matrix: NON-POTABLE WATER
Collection Date: 10/8/2018 12:15:00 PM
Lab ID: 18100757-005A
Project: 18100606
Client Sample ID 18100606-005

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	40.0	10.0		mg/L	10	10/18/2018 2:04:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-006A
Project: 18100606
Client Sample ID 18100606-006

Tag Number:
Collection Date: 10/8/2018 12:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	131	10.0		mg/L	10	10/18/2018 5:27:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-007A
Project: 18100606
Client Sample ID 18100606-007

Tag Number:
Collection Date: 10/8/2018 1:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	146	10.0		mg/L	10	10/18/2018 5:52:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-008A
Project: 18100606
Client Sample ID 18100606-008

Tag Number:
Collection Date: 10/8/2018 2:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	70.6	10.0		mg/L	10	10/18/2018 6:18:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit.	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100757**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100757-009A
Project: 18100606
Client Sample ID 18100606-009

Tag Number:
Collection Date: 10/8/2018 3:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	ND	10.0		mg/L	10	10/18/2018 6:43:00 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Accreditation Program Analytes Report

WO#: **18100757**
18-Oct-18

Client: TEKLAB Inc,
State: IL
Project: 18100606
Program Name: Illinois EPA

Sample ID	Matrix	Test Name	Analyte	Status
18100757-001A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-002A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-003A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-004A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-005A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-006A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-007A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-008A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A
18100757-009A	Non-Potable Water	Anions by IC (EPA 300.0)	Sulfate	A

Version #2

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100757**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100606
BatchID: **R90082**

Sample ID **MBLK** SampType: **MBLK** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **PBW** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.00		0	0						

Sample ID **STD 0.1** SampType: **RLC** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.00	0.1000	0	0	50	150				S

Sample ID **LCS** SampType: **LCS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSW** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	19.0	1.00	20.00	0	95.2	90	110				

Sample ID **LCSD** SampType: **LCSD** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSS02** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	19.0	1.00	20.00	0	95.2	90	110	0	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit.	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100757**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100606 **BatchID:** **R90082**

Sample ID **LCSD** SampType: **LCSD** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSS02** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **18100757-005ADUP** SampType: **DUP** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **18100606-005** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39.6	10.0		0	0			40.00	1.01	30	

Sample ID **18100757-005AMS** SampType: **MS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **18100606-005** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	240	10.0	200.0	40.00	100	80	120				

Sample ID **18100778-002ADUP** SampType: **DUP** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782119**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	143	10.0		0	0			144.1	0.766	30	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit.	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100757**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100606

BatchID: **R90082**

Sample ID **18100778-002AMS** SampType: **MS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	355	10.0	200.0	144.1	106	80	120				

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit.	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Pg ___ of ___

TEKLAB, INC. Chain of Custody

5445 Horseshoe Lake Road, Collinsville, IL 62234 Phone (618) 344-1004 Fax (618) 344-1005

Are the samples chilled? YES ☑ NO ☐ With: ☑ Ice ☐ Blue Ice Preserved in: ☐ Lab ☐ Field

Cooler Temp: ____ Sampler: Client QC Level: 2

Teklab Inc
5445 Horseshoe Lake Road
Collinsville, IL 62234

Comments: **Please issue reports and invoices via email only**
Please analyze for Sulfate by IC 300 on your standard turn around time.
Batch QC is required for all analyses requested.

Project#: 18100606

Contact: Michael Austin Email: maustin@teklabinc.com
Requested Due Date: Standard Billing/PO: 26995 Phone: 618-344-1004 ext 16

PLEASE NOTE:

NELAP accreditation is required on the requested analytes and must be documented as such on the final report. If your laboratory does not currently hold a NELAP accreditation for the requested method and/or analytes, please contact Teklab immediately. If your laboratory loses accreditation or is suspended for any analyte/method during the life of the contract, you must contact Teklab immediately.

18100757 001 009

Lab Use	Sample ID	Sample Date/Time	Preservative	Matrix	Sulfate by IC 300
	18100606-001	10/8/18 9:30	Unpres	Groundwater	✓
	18100606-002	10/8/18 9:30	Unpres	Groundwater	✓
	18100606-003	10/8/18 10:45	Unpres	Groundwater	✓
	18100606-004	10/8/18 11:30	Unpres	Groundwater	✓
	18100606-005	10/8/18 12:15	Unpres	Groundwater	✓
	18100606-006	10/8/18 12:50	Unpres	Groundwater	✓
	18100606-007	10/8/18 13:30	Unpres	Groundwater	✓
	18100606-008	10/8/18 14:20	Unpres	Groundwater	✓
	18100606-009	10/8/18 15:15	Unpres	Groundwater	✓
			Unpres	Drinking Water	
			Unpres	Drinking Water	

CSL

*Relinquished By	Date/Time	Received By	Date/Time
[illegible] FedEx	10/9/18 1700	[illegible]	10-11-18 1015 Fed Ex cooler 1.2°

Teklab maintains a strict policy of client confidentiality and as such does not provide client/sampler information without proper authorization, and proprietary rights. Teklab, Inc. protects clients' confidential information as directed by local, state or federal laws. (Teklab QAM Section 9.1, TNI V1 M2 Section 4.1.5 c)

SubCocRevA 3/2/2018

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Sample Log-In Check List

Client Name: **TEK-IL-62234-A** Work Order Number: **18100757** RcptNo: **1**

Logged by:	**Nick Cleer**	**10/11/2018 10:15:00 AM**	Nick R Cleer
Completed By:	**Christopher Livengood**	**10/11/2018 10:08:17 PM**	Christopher Livingood
Reviewed By:	**Jennifer Woolf**	**10/12/2018 10:45:59 AM**	Jennifer Woolf

Chain of Custody

1.	Were seals intact?	Yes ☑	No ☐	Not Present ☐
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	FedEx		

Log In

4.	Coolers are present?	Yes ☑	No ☐	NA ☐
5.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
7.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
8.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9.	Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
10.	Was preservative added to bottles?	Yes ☐	No ☐	NA ☑
11.	Is the headspace in the VOA vials less than 1/4 inch or 6 mm?	Yes ☐	No ☐	NA No VOA Vials ☑
12.	Were any sample containers received broken?	Yes ☐	No ☑	
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
14.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15.	Is it clear what analyses were requested?	Yes ☑	No ☐	
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Not Present			

October 23, 2018

Larry Rosen
Environmental Operations, Inc.
1530 South Second Street, Suite 200
St. Louis, MO 63104
TEL: (314) 480-4694
FAX: (314) 436-2900

RE: Solutia 2950R

WorkOrder: 18100709

Dear Larry Rosen:

TEKLAB, INC received 5 samples on 10/9/2018 4:20:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com

Report Contents

Client: Environmental Operations, Inc.

Work Order: 18100709

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
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Accreditations	5
Laboratory Results	6
Quality Control Results	11
Receiving Check List	17
Chain of Custody	Appended

Definitions

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# -	Unknown hydrocarbon	B -	Analyte detected in associated Method Blank
C -	RL shown is a Client Requested Quantitation Limit	E -	Value above quantitation range
H -	Holding times exceeded	I -	Associated internal standard was outside method criteria
M -	Manual Integration used to determine area response	ND -	Not Detected at the Reporting Limit
R -	RPD outside accepted recovery limits	S -	Spike Recovery outside recovery limits
T -	TIC(Tentatively identified compound)	X -	Value exceeds Maximum Contaminant Level

Case Narrative

Client: Environmental Operations, Inc.

Work Order: 18100709

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

Cooler Receipt Temp: 11.82 °C

Sulfate analysis was performed by Summit Environmental Technologies, Inc. See attached report for QC data.

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email EHurley@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515
Phone (630) 324-6855
Fax
Email arenner@teklabinc.com

Accreditations

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2019	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2019	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2019	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2019	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2019	Collinsville
Arkansas	ADEQ	88-0966		3/14/2019	Collinsville
Illinois	IDPH	17584		5/31/2019	Collinsville
Indiana	ISDH	C-IL-06		1/31/2019	Collinsville
Kentucky	KDEP	98006		12/31/2018	Collinsville
Kentucky	UST	0073		1/31/2019	Collinsville
Louisiana	LDPH	LA170027		12/31/2018	Collinsville
Missouri	MDNR	930		1/31/2019	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2019	Collinsville

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100709-001 **Client Sample ID:** MW-15 (10918)

Matrix: GROUNDWATER **Collection Date:** 10/09/2018 9:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**5.39**	mg/L	1	10/10/2018 20:37	146542
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/15/2018 10:45	R253390
Ethene	*	10.0		**ND**	µg/L	1	10/15/2018 10:45	R253390
Methane	*	4.0		**35.9**	µg/L	1	10/15/2018 10:45	R253390
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	0.05		**ND**	µg/L	1	10/10/2018 17:08	146544
Surr: Decachlorobiphenyl	*	5.54-150		**71.0**	%REC	1	10/10/2018 17:08	146544
Surr: Tetrachloro-m-xylene	*	13-129		**81.9**	%REC	1	10/10/2018 17:08	146544
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:33	146698
Chlorobenzene	NELAP	1.0		**8.0**	µg/L	1	10/12/2018 14:33	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
cis-1,2-Dichloroethene	NELAP	1.0		**4.8**	µg/L	1	10/12/2018 14:33	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:33	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 14:33	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.0**	%REC	1	10/12/2018 14:33	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.5**	%REC	1	10/12/2018 14:33	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.4**	%REC	1	10/12/2018 14:33	146698
Surr: Toluene-d8	*	86.7-112		**96.4**	%REC	1	10/12/2018 14:33	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**17.3**	mg/L	10	10/17/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100709-002 **Client Sample ID:** MW-9 (10918)

Matrix: GROUNDWATER **Collection Date:** 10/09/2018 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**12.2**	mg/L	1	10/10/2018 20:41	146542
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/15/2018 10:57	R253390
Ethene	*	10.0		**ND**	µg/L	1	10/15/2018 10:57	R253390
Methane	*	4.0		**13.6**	µg/L	1	10/15/2018 10:57	R253390
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	0.05		**ND**	µg/L	1	10/10/2018 17:22	146544
Surr: Decachlorobiphenyl	*	5.54-150		**84.9**	%REC	1	10/10/2018 17:22	146544
Surr: Tetrachloro-m-xylene	*	13-129		**90.7**	%REC	1	10/10/2018 17:22	146544
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:59	146698
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 14:59	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 14:59	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.3**	%REC	1	10/12/2018 14:59	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**97.3**	%REC	1	10/12/2018 14:59	146698
Surr: Dibromofluoromethane	*	84.9-113		**97.8**	%REC	1	10/12/2018 14:59	146698
Surr: Toluene-d8	*	86.7-112		**97.8**	%REC	1	10/12/2018 14:59	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**246**	mg/L	10	10/17/2018 0:00	R253660

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100709-003 **Client Sample ID:** MW-23 (10918)

Matrix: GROUNDWATER **Collection Date:** 10/09/2018 14:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**2.70**	mg/L	1	10/10/2018 20:45	146542
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/15/2018 11:09	R253390
Ethene	*	10.0		**ND**	µg/L	1	10/15/2018 11:09	R253390
Methane	*	400		**958**	µg/L	100	10/15/2018 11:32	R253390
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	0.05		**0.06**	µg/L	1	10/11/2018 12:19	146544
Surr: Decachlorobiphenyl	*	5.54-150		**72.9**	%REC	1	10/10/2018 17:35	146544
Surr: Tetrachloro-m-xylene	*	13-129		**83.4**	%REC	1	10/10/2018 17:35	146544
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 15:26	146698
Chlorobenzene	NELAP	1.0		**1.8**	µg/L	1	10/12/2018 15:26	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 15:26	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 15:26	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.3**	%REC	1	10/12/2018 15:26	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.3**	%REC	1	10/12/2018 15:26	146698
Surr: Dibromofluoromethane	*	84.9-113		**98.2**	%REC	1	10/12/2018 15:26	146698
Surr: Toluene-d8	*	86.7-112		**97.2**	%REC	1	10/12/2018 15:26	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**< 10.0**	mg/L	10	10/17/2018 0:00	R253660

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100709-004 **Client Sample ID:** MW-13 (10918)

Matrix: GROUNDWATER **Collection Date:** 10/09/2018 15:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**53.3**	mg/L	1	10/10/2018 20:48	146542
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/15/2018 11:21	R253390
Ethene	*	10.0		**ND**	µg/L	1	10/15/2018 11:21	R253390
Methane	*	40.0		**93.3**	µg/L	10	10/15/2018 11:49	R253390
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	0.05		**ND**	µg/L	1	10/10/2018 17:49	146544
Surr: Decachlorobiphenyl	*	5.54-150		**56.7**	%REC	1	10/10/2018 17:49	146544
Surr: Tetrachloro-m-xylene	*	13-129		**68.4**	%REC	1	10/10/2018 17:49	146544
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Acetone	NELAP	10.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Benzene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 15:52	146698
Chlorobenzene	NELAP	1.0		**27.1**	µg/L	1	10/12/2018 15:52	146698
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/12/2018 15:52	146698
Toluene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/12/2018 15:52	146698
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.9**	%REC	1	10/12/2018 15:52	146698
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.4**	%REC	1	10/12/2018 15:52	146698
Surr: Dibromofluoromethane	*	84.9-113		**99.2**	%REC	1	10/12/2018 15:52	146698
Surr: Toluene-d8	*	86.7-112		**95.9**	%REC	1	10/12/2018 15:52	146698
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**290**	mg/L	10	10/17/2018 0:00	R253660

Client: Environmental Operations, Inc.
Work Order: 18100709
Client Project: Solutia 2950R
Report Date: 23-Oct-2018
Lab ID: 18100709-005
Client Sample ID: Trip Blank
Matrix: TRIP BLANK
Collection Date: 10/09/2018 16:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Acetone	NELAP	10.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Benzene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 14:28	146649
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 14:28	146649
Toluene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/11/2018 14:28	146649
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**99.6**	%REC	1	10/11/2018 14:28	146649
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.6**	%REC	1	10/11/2018 14:28	146649
Surr: Dibromofluoromethane	*	84.9-113		**97.9**	%REC	1	10/11/2018 14:28	146649
Surr: Toluene-d8	*	86.7-112		**96.8**	%REC	1	10/11/2018 14:28	146649

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 146542 **SampType: MBLK** Units **mg/L**

SampID: MBLK-146542

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**< 0.0400**	0.02000	0	0	-100	100	10/10/2018

Batch 146542 **SampType: LCS** Units **mg/L**

SampID: LCS-146542

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**1.97**	2.000	0	98.7	85	115	10/10/2018

Batch 146542 **SampType: MS** Units **mg/L**

SampID: 18100658-003CMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**2.09**	2.000	0.02860	102.9	75	125	10/11/2018

Batch 146542 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100658-003CMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Iron	0.0400		**1.95**	2.000	0.02860	95.9	2.086	6.89	10/11/2018

PERMANENT GASES (RSKSOP-175)

Batch R253390 **SampType: MBLK** Units **µg/L**

SampID: MBLK-101518

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**ND**						10/15/2018
Ethene	10.0		**ND**						10/15/2018
Methane	4.0		**ND**						10/15/2018

Batch R253390 **SampType: LCS** Units **µg/L**

SampID: LCS-101518

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**36.3**	100.0	0	36.3	25.5	132	10/15/2018
Ethene	10.0		**37.7**	100.0	0	37.7	23.6	132	10/15/2018
Methane	4.0		**35.7**	100.0	0	35.7	23.9	132	10/15/2018

Batch R253390 **SampType: LCSD** Units **µg/L** RPD Limit **39.7**

SampID: LCSD-101518

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethane	7.0		**41.0**	100.0	0	41.0	36.30	12.21	10/15/2018
Ethene	10.0		**42.8**	100.0	0	42.8	37.74	12.66	10/15/2018
Methane	4.0		**40.1**	100.0	0	40.1	35.68	11.62	10/15/2018

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD

Batch 146544 **SampType: MBLK** Units µg/L

SampID: MBLK-146544

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Alachlor	0.05		**ND**						10/10/2018
Surr: Decachlorobiphenyl			**0.12**	0.2500		46.3	11.3	138	10/10/2018
Surr: Tetrachloro-m-xylene			**0.17**	0.2500		69.2	13	114	10/10/2018

Batch 146544 **SampType: LCS** Units µg/L

SampID: LCSPST-146544

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Alachlor	0.05		**0.24**	0.2500	0	97.8	47.4	125	10/10/2018
Surr: Decachlorobiphenyl			**0.21**	0.2500		85.5	9.42	147	10/10/2018
Surr: Tetrachloro-m-xylene			**0.22**	0.2500		88.4	13	114	10/10/2018

Batch 146544 **SampType: LCSD** Units µg/L RPD Limit **30**

SampID: LCSPSTD-146544

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Alachlor	0.05		**0.22**	0.2500	0	89.6	0.2446	8.75	10/10/2018
Surr: Decachlorobiphenyl			**0.18**	0.2500		70.8			10/10/2018
Surr: Tetrachloro-m-xylene			**0.20**	0.2500		79.8			10/10/2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: MBLK** Units µg/L

SampID: MBLK-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/11/2018
1,2-Dichloroethane	2.0		**ND**						10/11/2018
Acetone	10.0		**ND**						10/11/2018
Benzene	0.5		**ND**						10/11/2018
Chlorobenzene	2.0		**ND**						10/11/2018
Chloroform	2.0		**ND**						10/11/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Ethylbenzene	2.0		**ND**						10/11/2018
Methylene chloride	10.0		**ND**						10/11/2018
Tetrachloroethene	0.5		**ND**						10/11/2018
Toluene	2.0		**ND**						10/11/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Trichloroethene	2.0		**ND**						10/11/2018
Vinyl chloride	2.0		**ND**						10/11/2018
Xylenes, Total	2.0		**ND**						10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.9	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**47.9**	50.00		95.7	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.6	84.9	113	10/11/2018
Surr: Toluene-d8			**48.4**	50.00		96.8	86.7	112	10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: LCSD** Units µg/L RPD Limit **40**

SampID: LCSD-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**46.4**	50.00	0	92.8	48.53	4.53	10/11/2018
1,2-Dichloroethane	2.0		**43.6**	50.00	0	87.2	45.86	5.03	10/11/2018
Acetone	10.0		**134**	125.0	0	107.2	138.6	3.36	10/11/2018
Benzene	0.5		**47.1**	50.00	0	94.2	49.45	4.89	10/11/2018
Chlorobenzene	2.0		**46.6**	50.00	0	93.1	48.38	3.86	10/11/2018
Chloroform	2.0		**47.5**	50.00	0	95.0	49.83	4.83	10/11/2018
cis-1,2-Dichloroethene	2.0		**47.4**	50.00	0	94.9	49.29	3.83	10/11/2018
Ethylbenzene	2.0		**47.1**	50.00	0	94.2	49.38	4.75	10/11/2018
Methylene chloride	10.0		**48.2**	50.00	0	96.4	50.51	4.66	10/11/2018
Tetrachloroethene	0.5		**46.2**	50.00	0	92.5	48.39	4.52	10/11/2018
Toluene	2.0		**46.0**	50.00	0	92.0	48.37	5.07	10/11/2018
trans-1,2-Dichloroethene	2.0		**47.9**	50.00	0	95.7	50.43	5.21	10/11/2018
Trichloroethene	2.0		**47.5**	50.00	0	95.1	49.80	4.66	10/11/2018
Vinyl chloride	2.0		**49.6**	50.00	0	99.1	49.11	0.93	10/11/2018
Xylenes, Total	2.0		**141**	150.0	0	93.9	147.0	4.24	10/11/2018
Surr: 1,2-Dichloroethane-d4			**48.4**	50.00		96.9			10/11/2018
Surr: 4-Bromofluorobenzene			**48.5**	50.00		97.0			10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.5			10/11/2018
Surr: Toluene-d8			**48.8**	50.00		97.6			10/11/2018

Batch 146649 **SampType: LCS** Units µg/L

SampID: LCS-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**48.5**	50.00	0	97.1	79.1	123	10/11/2018
1,2-Dichloroethane	2.0		**45.9**	50.00	0	91.7	76.9	117	10/11/2018
Acetone	10.0		**139**	125.0	0	110.8	47.5	123	10/11/2018
Benzene	0.5		**49.4**	50.00	0	98.9	75.8	121	10/11/2018
Chlorobenzene	2.0		**48.4**	50.00	0	96.8	82.1	113	10/11/2018
Chloroform	2.0		**49.8**	50.00	0	99.7	80.1	122	10/11/2018
cis-1,2-Dichloroethene	2.0		**49.3**	50.00	0	98.6	78.6	119	10/11/2018
Ethylbenzene	2.0		**49.4**	50.00	0	98.8	80.7	114	10/11/2018
Methylene chloride	10.0		**50.5**	50.00	0	101.0	76.2	119	10/11/2018
Tetrachloroethene	0.5		**48.4**	50.00	0	96.8	80.6	122	10/11/2018
Toluene	2.0		**48.4**	50.00	0	96.7	78.3	112	10/11/2018
trans-1,2-Dichloroethene	2.0		**50.4**	50.00	0	100.9	73.5	124	10/11/2018
Trichloroethene	2.0		**49.8**	50.00	0	99.6	74.3	125	10/11/2018
Vinyl chloride	2.0		**49.1**	50.00	0	98.2	55.8	135	10/11/2018
Xylenes, Total	2.0		**147**	150.0	0	98.0	80.2	113	10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.2**	50.00		98.4	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**48.6**	50.00		97.3	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**49.6**	50.00		99.1	84.9	113	10/11/2018
Surr: Toluene-d8			**49.2**	50.00		98.3	86.7	112	10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType:** MS Units **mg/L**

SampID: 18100453-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.77**	5.000	0	95.4	71.5	116	10/11/2018
Benzene	0.050		**5.10**	5.000	0	102.0	81.5	113	10/11/2018
Chlorobenzene	0.200		**4.95**	5.000	0	99.0	81.8	111	10/11/2018
Chloroform	0.200		**5.18**	5.000	0	103.5	81	115	10/11/2018
Tetrachloroethene	0.050		**4.61**	5.000	0	92.1	61.7	114	10/11/2018
Trichloroethene	0.200		**5.14**	5.000	0	102.9	74.4	117	10/11/2018
Vinyl chloride	0.200		**4.74**	5.000	0	94.8	45.7	130	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.87**	5.000		97.4	74.7	129	10/11/2018
Surr: 4-Bromofluorobenzene			**4.80**	5.000		96.1	86	119	10/11/2018
Surr: Dibromofluoromethane			**4.89**	5.000		97.7	81.7	123	10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.3	84.3	114	10/11/2018

Batch 146649 **SampType:** MSD Units **mg/L** RPD Limit **20**

SampID: 18100453-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,2-Dichloroethane	0.200		**4.82**	5.000	0	96.4	4.768	1.11	10/11/2018
Benzene	0.050		**5.14**	5.000	0	102.7	5.098	0.74	10/11/2018
Chlorobenzene	0.200		**4.97**	5.000	0	99.5	4.950	0.48	10/11/2018
Chloroform	0.200		**5.25**	5.000	0	105.0	5.176	1.46	10/11/2018
Tetrachloroethene	0.050		**4.56**	5.000	0	91.2	4.607	1.07	10/11/2018
Trichloroethene	0.200		**5.17**	5.000	0	103.4	5.144	0.47	10/11/2018
Vinyl chloride	0.200		**4.83**	5.000	0	96.7	4.740	1.96	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.94**	5.000		98.8			10/11/2018
Surr: 4-Bromofluorobenzene			**4.77**	5.000		95.4			10/11/2018
Surr: Dibromofluoromethane			**4.91**	5.000		98.2			10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.1			10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146698 **SampType: MBLK** Units µg/L

SampID: MBLK-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/12/2018
1,2-Dichloroethane	2.0		**ND**						10/12/2018
Acetone	10.0		**ND**						10/12/2018
Benzene	0.5		**ND**						10/12/2018
Chlorobenzene	2.0		**ND**						10/12/2018
Chloroform	2.0		**ND**						10/12/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/12/2018
Ethylbenzene	2.0		**ND**						10/12/2018
Methylene chloride	10.0		**ND**						10/12/2018
Tetrachloroethene	0.5		**ND**						10/12/2018
Toluene	2.0		**ND**						10/12/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/12/2018
Trichloroethene	2.0		**ND**						10/12/2018
Vinyl chloride	2.0		**ND**						10/12/2018
Xylenes, Total	2.0		**ND**						10/12/2018
Surr: 1,2-Dichloroethane-d4			**49.0**	50.00		98.1	79.6	118	10/12/2018
Surr: 4-Bromofluorobenzene			**47.8**	50.00		95.6	83.9	115	10/12/2018
Surr: Dibromofluoromethane			**48.7**	50.00		97.4	84.9	113	10/12/2018
Surr: Toluene-d8			**48.6**	50.00		97.2	86.7	112	10/12/2018

Batch 146698 **SampType: LCSD** Units µg/L RPD Limit **40**

SampID: LCSD-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.4**	50.00	0	90.8	44.95	1.02	10/12/2018
1,2-Dichloroethane	2.0		**43.6**	50.00	0	87.3	43.00	1.48	10/12/2018
Acetone	10.0		**126**	125.0	0	100.8	123.9	1.72	10/12/2018
Benzene	0.5		**46.7**	50.00	0	93.4	45.86	1.84	10/12/2018
Chlorobenzene	2.0		**45.7**	50.00	0	91.3	45.38	0.64	10/12/2018
Chloroform	2.0		**47.2**	50.00	0	94.5	46.45	1.71	10/12/2018
cis-1,2-Dichloroethene	2.0		**46.2**	50.00	0	92.4	45.70	1.09	10/12/2018
Ethylbenzene	2.0		**45.9**	50.00	0	91.8	46.16	0.56	10/12/2018
Methylene chloride	10.0		**47.4**	50.00	0	94.8	46.94	0.98	10/12/2018
Tetrachloroethene	0.5		**44.6**	50.00	0	89.2	44.99	0.87	10/12/2018
Toluene	2.0		**45.1**	50.00	0	90.2	44.88	0.44	10/12/2018
trans-1,2-Dichloroethene	2.0		**46.4**	50.00	0	92.8	46.10	0.63	10/12/2018
Trichloroethene	2.0		**46.9**	50.00	0	93.7	46.37	1.07	10/12/2018
Vinyl chloride	2.0		**47.8**	50.00	0	95.7	47.58	0.52	10/12/2018
Xylenes, Total	2.0		**138**	150.0	0	92.2	137.6	0.51	10/12/2018
Surr: 1,2-Dichloroethane-d4			**48.7**	50.00		97.3			10/12/2018
Surr: 4-Bromofluorobenzene			**48.4**	50.00		96.9			10/12/2018
Surr: Dibromofluoromethane			**49.4**	50.00		98.9			10/12/2018
Surr: Toluene-d8			**48.8**	50.00		97.6			10/12/2018

Client: Environmental Operations, Inc. **Work Order:** 18100709

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146698 **SampType:** LCS Units µg/L

SampID: LCS-R181012A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.0**	50.00	0	89.9	79.1	123	10/12/2018
1,2-Dichloroethane	2.0		**43.0**	50.00	0	86.0	76.9	117	10/12/2018
Acetone	10.0		**124**	125.0	0	99.1	47.5	123	10/12/2018
Benzene	0.5		**45.9**	50.00	0	91.7	75.8	121	10/12/2018
Chlorobenzene	2.0		**45.4**	50.00	0	90.8	82.1	113	10/12/2018
Chloroform	2.0		**46.4**	50.00	0	92.9	80.1	122	10/12/2018
cis-1,2-Dichloroethene	2.0		**45.7**	50.00	0	91.4	78.6	119	10/12/2018
Ethylbenzene	2.0		**46.2**	50.00	0	92.3	80.7	114	10/12/2018
Methylene chloride	10.0		**46.9**	50.00	0	93.9	76.2	119	10/12/2018
Tetrachloroethene	0.5		**45.0**	50.00	0	90.0	80.6	122	10/12/2018
Toluene	2.0		**44.9**	50.00	0	89.8	78.3	112	10/12/2018
trans-1,2-Dichloroethene	2.0		**46.1**	50.00	0	92.2	73.5	124	10/12/2018
Trichloroethene	2.0		**46.4**	50.00	0	92.7	74.3	125	10/12/2018
Vinyl chloride	2.0		**47.6**	50.00	0	95.2	55.8	135	10/12/2018
Xylenes, Total	2.0		**138**	150.0	0	91.7	80.2	113	10/12/2018
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.5	79.6	118	10/12/2018
Surr: 4-Bromofluorobenzene			**48.3**	50.00		96.6	83.9	115	10/12/2018
Surr: Dibromofluoromethane			**49.1**	50.00		98.2	84.9	113	10/12/2018
Surr: Toluene-d8			**48.8**	50.00		97.6	86.7	112	10/12/2018

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Environmental Operations, Inc.
Client Project: Solutia 2950R

Work Order: 18100709
Report Date: 23-Oct-2018

Carrier: Robert Andrews

Received By: AMD

Completed by: Amber Dilallo
On: 09-Oct-2018

Reviewed by: Marvin L. Darling II
On: 09-Oct-2018

Pages to follow: Chain of custody 1 Extra pages included 15

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 11.82
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 18100709

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: Environmental Operations, Inc.
Address: 1530 South Second Street, Suite 200
City / State / Zip St. Louis, MO 63104
Contact: Larry Rosen **Phone:** (314) 480-4694
E-Mail: LarryR@Environmentalops.com **Fax:**

Samples on: ☑ ICE ☐ BLUE ICE ☐ NO ICE 11.82 °C
Preserved in: ☐ LAB ☒ FIELD
FOR LAB USE ONLY
Lab Notes GM 10/9/18 - GHS GM 10/9/18

Are these samples known to be involved in litigation? If yes, a surcharge will apply ☐ Yes ☑ No
Are these samples known to be hazardous? ☐ Yes ☑ No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. ☑ Yes ☐ No

Client Comments:
VOC 8260 Select List: Requires lowest possible Reporting Limit (RL) with multiple diluitions.
Permanent Gases RSK 175: Ethane, Ethene, Methane.
Subcontract Sulfate Method IC 300 to Summit Environmental Technologies, Inc.Cuyahoga Falls, OH.

Project Name/Number Solutia 2950R

Sample Collector's Name KELSEY THARP

Results Requested ☑ Standard ☐ 1-2 Day (100% Surcharge) ☐ Other ☐ 3 Day (50% Surcharge)

Billing Instructions 2950 R

Lab Use Only	Sample Identification	Date/Time Sampled	UNPRES	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	OTHER	Aqueous	Drinking Water	Soil	Sludge	Special Waste	Groundwater	Alachlor 8081	Iron SW 846 6010	Permanent Gases RSK 175	Sulfate by IC 300	VOC 8260 Select List	VOC 8260 Trip Blank
18100709-001	MW-15 (10918)	10/9/18 9:20	2	1			5									X	X	X	X	X	X	
002	MW-9 (10918)	13:30	2	1			5									X	X	X	X	X	X	
003	MW-23 (10918)	14:35	2	1			5									X	X	X	X	X	X	
004	MW-13 (10918)	15:20	2	1			5									X	X	X	X	X	X	
005	Trip Blank																					

Relinquished By	Date/Time	Received By	Date/Time
[signature]	10/9/18 16:00	[signature]	10/9/18 16:00
[signature]	10/9/18 16:20	[signature]	10/9/18 1620

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions.

BottleOrder: 46645

GM 10/11/18

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

October 18, 2018

Mike Austin
TEKLAB Inc,
5445 Horseshoe lake Road
Collinsville, IL 62234
TEL: 618 344 1004
FAX: 618 344 1005

RE: 18100709

Dear Mike Austin:

Order No.: 18100756

Summit Environmental Technologies, Inc. received 4 sample(s) on 10/11/2018 for the analyses presented in the following report.

Jennifer Woolf
Project Manager
3310 Win St.
Cuyahoga Falls, Ohio 44223

Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0108, Delaware, Florida NELAC E87688, Georgia E87688, Idaho OH00923, Illinois 200061, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Louisiana 04061, Maryland 339, Minnesota 409711, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, North Dakota R-201, Oklahoma 9940, Oregon OH200001, Rhode Island LA000317, South Carolina 92016001, Texas T104704466-11-5, Utah OH009232011-1, Virginia VELAP 9456, Washington C891

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Case Narrative

WO#: **18100756**
Date: **10/18/2018**

CLIENT: TEKLAB Inc,
Project: 18100709

WorkOrder Narrative:
18100756: This report in its entirety consists of the following documents: Cover Letter, Case Narrative, Analytical Results, QC Summary Report, Applicable Accreditation Information, Chain-of-Custody, Cooler Receipt Form, and other applicable forms as necessary. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report. State Certificates and Scopes of Accreditation are attached as applicable. Results provided in this report for any parameter not listed on the Scope of Accreditation should be considered "not certified."

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

This report is believed to meet all of the requirements of the accrediting agency, where applicable. Any comments or problems with the analytical events associated with this report are noted below.

Summit Environmental Technologies, In
3310 Win S
Cuyahoga Falls, Ohio 4422
TEL: (330) 253-8211 FAX: (330) 253-448
Website: http://www.settek.co

Qualifiers and Acronyms

WO#: **18100756**
Date: **10/18/2018**

These commonly used Qualifiers and Acronyms may or may not be present in this report.

Qualifiers

U	The compound was analyzed for but was not detected.
J	The reported value is greater than the Method Detection Limit but less than the Reporting Limit.
H	The hold time for sample preparation and/or analysis was exceeded. Not 47CFR32 compliant.
D	The result is reported from a dilution.
E	The result exceeded the linear range of the calibration or is estimated due to interference.
MC	The result is below the Minimum Compound Limit.
*****	The result exceeds the Regulatory Limit or Maximum Contamination Limit.
m	Manual integration was used to determine the area response.
d	Manual integration in which peak was deleted
N	The result is presumptive based on a Mass Spectral library search assuming a 1:1 response.
P	The second column confirmation exceeded 25% difference.
C	The result has been confirmed by GC/MS.
X	The result was not confirmed when GC/MS Analysis was performed.
B/MB+	The analyte was detected in the associated blank.
G	The ICB or CCB contained reportable amounts of analyte.
QC-/+	The CCV recovery failed low (-) or high (+).
R/QDR	The RPD was outside of accepted recovery limits.
QL-/+	The LCS or LCSD recovery failed low (-) or high (+).
QLR	The LCS/LCSD RPD was outside of accepted recovery limits.
QM-/+	The MS or MSD recovery failed low (-) or high (+).
QMR	The MS/MSD RPD was outside of accepted recovery limits.
QV-/+	The ICV recovery failed low (-) or high (+).
S	The spike result was outside of accepted recovery limits.
W	Samples were received outside temperature limits (0° – 6° C). Not 47CSR32 compliant for W.V.
Z	Deviation; A deviation from the method was performed; Please refer to the Case Narrative for additional information

Acronyms

ND	Not Detected	**RL**	Reporting Limit
QC	Quality Control	**MDL**	Method Detection Limit
MB	Method Blank	**LOD**	Level of Detection
LCS	Laboratory Control Sample	**LOQ**	Level of Quantitation
LCSD	Laboratory Control Sample Duplicate	**PQL**	Practical Quantitation Limit
QCS	Quality Control Sample	**CRQL**	Contract Required Quantitation Limit
DUP	Duplicate	**PL**	Permit Limit
MS	Matrix Spike	**RegLvl**	Regulatory Limit
MSD	Matrix Spike Duplicate	**MCL**	Maximum Contamination Limit
RPD	Relative Percent Different	**MinCL**	Minimum Compound Limit
ICV	Initial Calibration Verification	**RA**	Reanalysis
ICB	Initial Calibration Blank	**RE**	Reextraction
CCV	Continuing Calibration Verification	**TIC**	Tentatively Identified Compound
CCB	Continuing Calibration Blank	**RT**	Retention Time
RLC	Reporting Limit Check	**CF**	Calibration Factor
DF	Dilution Factor	**RF**	Response Factor

This list of Qualifiers and Acronyms reflects the most commonly utilized Qualifiers and Acronyms for reporting. Please refer to the Analytical Notes in the Case Narrative for any Qualifiers or Acronyms that do not appear in this list or for additional information regarding the use of these Qualifiers on reported data.

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Workorder Sample Summary

WO#: **18100756**
18-Oct-18

CLIENT: TEKLAB Inc,
Project: 18100709

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
18100756-001	18100709-001		10/9/2018 9:20:00 AM	10/11/2018 10:15:00 AM	Non-Potable Water
18100756-002	18100709-002		10/9/2018 1:30:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100756-003	18100709-003		10/9/2018 2:35:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water
18100756-004	18100709-004		10/9/2018 3:20:00 PM	10/11/2018 10:15:00 AM	Non-Potable Water

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

DATES REPORT

WO#: **18100756**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100709

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Leachate Date	Prep Date	Analysis Date
18100756-001A	18100709-001	10/9/2018 9:20:00 AM	Non-Potable Water	Anions by IC (EPA 300.0)			10/17/2018 10:40:00 PM
18100756-002A	18100709-002	10/9/2018 1:30:00 PM		Anions by IC (EPA 300.0)			10/17/2018 11:06:00 PM
18100756-003A	18100709-003	10/9/2018 2:35:00 PM		Anions by IC (EPA 300.0)			10/17/2018 11:31:00 PM
18100756-004A	18100709-004	10/9/2018 3:20:00 PM		Anions by IC (EPA 300.0)			10/17/2018 11:57:00 PM

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100756**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100756-001A
Project: 18100709
Client Sample ID 18100709-001

Tag Number:
Collection Date: 10/9/2018 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	17.3	10.0		mg/L	10	10/17/2018 10:40:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100756**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100756-002A
Project: 18100709
Client Sample ID 18100709-002

Tag Number:
Collection Date: 10/9/2018 1:30:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	246	10.0		mg/L	10	10/17/2018 11:06:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100756**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100756-003A
Project: 18100709
Client Sample ID 18100709-003

Tag Number:
Collection Date: 10/9/2018 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	ND	10.0		mg/L	10	10/17/2018 11:31:00 PM

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
	MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
	ND	Not Detected	O	RSD is greater than RSDlimit
	P	Second column confirmation exceeds	PL	Permit Limit
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Analytical Report

(base report)

WO#: **18100756**

Date Reported: **10/18/2018**

CLIENT: TEKLAB Inc,
Matrix: NON-POTABLE WATER
Lab ID: 18100756-004A
Project: 18100709
Client Sample ID 18100709-004

Tag Number:
Collection Date: 10/9/2018 3:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
ANIONS BY IC				**E300.0**		Analyst: **JDG**
ANIONS BY IC (EPA 300.0)						
Sulfate	290	10.0		mg/L	10	10/17/2018 11:57:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
MC	Value is below Minimum Compound Limit	N	Tentatively identified compounds
ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Accreditation Program Analytes Report

WO#: **18100756**
18-Oct-18

Client: TEKLAB Inc,
State: IL
Project: 18100709
Program Name: Illinois EPA

Sample ID	Matrix	Test Name	Analyte	Status
18100756-001A	Non-Potable Water	Anions by IC (EPA 300 0)	Sulfate	A
18100756-002A	Non-Potable Water	Anions by IC (EPA 300 0)	Sulfate	A
18100756-003A	Non-Potable Water	Anions by IC (EPA 300 0)	Sulfate	A
18100756-004A	Non-Potable Water	Anions by IC (EPA 300 0)	Sulfate	A

Version #2

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100756**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100709

BatchID: **R90082**

Sample ID **MBLK** SampType: **MBLK** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **PBW** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782045**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.00		0	0						

Sample ID **STD 0.1** SampType: **RLC** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	1.00	0.1000	0	0	50	150				S

Sample ID **LCS** SampType: **LCS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSW** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782051**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	19.0	1.00	20.00	0	95.2	90	110				

Sample ID **LCSD** SampType: **LCSD** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSS02** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	19.0	1.00	20.00	0	95.2	90	110	0	0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit.	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Summit Environmental Technologies, Inc.
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Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100756**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100709
BatchID: **R90082**

Sample ID **LCSD** SampType: **LCSD** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **LCSS02** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/17/2018** SeqNo: **1782052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **18100757-005ADUP** SampType: **DUP** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	39.6	10.0		0	0			40.00	1.01	30	

Sample ID **18100757-005AMS** SampType: **MS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	240	10.0	200.0	40.00	100	80	120				

Sample ID **18100778-002ADUP** SampType: **DUP** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782119**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	143	10.0		0	0			144.1	0.766	30	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit.	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

QC SUMMARY REPORT

WO#: **18100756**
18-Oct-18

Client: TEKLAB Inc,
Project: 18100709

BatchID: **R90082**

Sample ID **18100778-002AMS** SampType: **MS** TestCode: **Anions_NPW** Units: **mg/L** Prep Date: RunNo: **90082**
Client ID: **BatchQC** Batch ID: **R90082** TestNo: **E300.0** Analysis Date: **10/18/2018** SeqNo: **1782121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	355	10.0	200.0	**144.1**	106	80	120				

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	M	Manual Integration used to determine
MC	Value is below Minimum Compound Limit	ND	Not Detected	O	RSD is greater than RSDlimit
P	Second column confirmation exceeds	PL	Permit Limit	R	RPD outside accepted recovery limits

Original

Pg ___ of ___

TEKLAB, INC. Chain of Custody

5445 Horseshoe Lake Road, Collinsville, IL 62234 Phone (618) 344-1004 Fax (618) 344-1005

Are the samples chilled? YES ☑ NO ☐ With: ☑ Ice ☐ Blue Ice Preserved in: ☐ Lab ☐ Field

Teklab Inc
5445 Horseshoe Lake Road
Collinsville, IL 62234

Cooler Temp: ____ Sampler: Client QC Level: 2

Comments: **Please issue reports and invoices via email only**
Please analyze for Sulfate by IC 300 on your **standard** turn around time.
Batch QC is required for **all analyses requested**.

Project#: 18100709

Contact: Michael Austin Email: maustin@teklabinc.com
Requested Due Date: Standard Billing/PO: 27020 Phone: 618-344-1004 ext 16

PLEASE NOTE:

NELAP accreditation is required on the requested analytes and must be documented as such on the final report. If your laboratory does not currently hold a NELAP accreditation for the requested method and/or analytes, please contact Teklab immediately. If your laboratory loses accreditation or is suspended for any analyte/method during the life of the contract, you must contact Teklab immediately.

Lab Use	Sample ID	Sample Date/Time	Preservative	Matrix	Sulfate by IC 300		pH									
	18100709-001	10/9/18 9:20	Unpres	Groundwater	✓		6									
	18100709-002	10/9/18 13:30	Unpres	Groundwater	✓		6									
	18100709-003	10/9/18 14:35	Unpres	Groundwater	✓		6									
	18100709-004	10/9/18 15:20	Unpres	Groundwater	✓		6									
			Unpres	Drinking Water												
			Unpres	Drinking Water												
			Unpres	Drinking Water												
18100756	-	001	Unpres	Drinking Water												
		004	Unpres	Drinking Water												
		CSL	Unpres	Drinking Water												
			Unpres	Drinking Water												

*Relinquished By	Date/Time	Received By	Date/Time
[illegible] FedEx	10/10/18 1700	[illegible]	10-11-18 1015
			Fed Ex, cooler 1.2°

Teklab maintains a strict policy of client confidentiality and as such does not provide client/sampler information without proper authorization, and proprietary rights. Teklab, Inc. protects clients confidential information as directed by local, state or federal laws. (Teklab QAM Section 9.1, TNI V1 M2 Section 4.1.5 c)

SubCocRevA
3/2/2016

Summit Environmental Technologies, Inc.
3310 Win St.
Cuyahoga Falls, Ohio 44223
TEL: (330) 253-8211 FAX: (330) 253-4489
Website: http://www.settek.com

Sample Log-In Check List

Client Name: **TEK-IL-62234-A** Work Order Number: **18100756** RcptNo: **1**

Logged by:	**Nick Cleer**	**10/11/2018 10:15:00 AM**	Nick R Cleer
Completed By:	**Christopher Livengood**	**10/11/2018 9:59:31 PM**	Christopher Livingood
Reviewed By:	**Jennifer Woolf**	**10/12/2018 10:49:48 AM**	Jennifer Woolf

Chain of Custody

1.	Were seals intact?	Yes ☑	No ☐	Not Present ☐
2.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3.	How was the sample delivered?	FedEx		

Log In

4.	Coolers are present?	Yes ☑	No ☐	NA ☐
5.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
7.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
8.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9.	Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
10.	Was preservative added to bottles?	Yes ☐	No ☐	NA ☑
11.	Is the headspace in the VOA vials less than 1/4 inch or 6 mm?	Yes ☐	No ☐	NA No VOA Vials ☑
12.	Were any sample containers received broken?	Yes ☐	No ☑	
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
14.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15.	Is it clear what analyses were requested?	Yes ☑	No ☐	
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

Special Handling (if applicable)

17.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

18. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.2	Good	Not Present			

October 23, 2018

Larry Rosen
Environmental Operations, Inc.
1530 South Second Street, Suite 200
St. Louis, MO 63104
TEL: (314) 480-4694
FAX: (314) 436-2900

RE: Solutia 2950R

WorkOrder: 18100822

Dear Larry Rosen:

TEKLAB, INC received 8 samples on 10/10/2018 4:50:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Michael L. Austin
Project Manager
(618)344-1004 ex 16
MAustin@teklabinc.com

Report Contents

Client: Environmental Operations, Inc.

Work Order: 18100822

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

This reporting package includes the following:

Cover Letter	1
Report Contents	2
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Accreditations	5
Laboratory Results	6
Quality Control Results	14
Receiving Check List	29
Chain of Custody	Appended

Definitions

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Abbr	Definition
*	Analytes on report marked with an asterisk are not NELAP accredited
CCV	Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.
CRQL	A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.
DF	Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.
DNI	Did not ignite
DUP	Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.
ICV	Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.
IDPH	IL Dept. of Public Health
LCS	Laboratory control sample is a sample matrix, free from the analytes of interest,spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.
LCSD	Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MBLK	Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.
MDL	"The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."
MS	Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).
MSD	Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).
MW	Molecular weight
ND	Not Detected at the Reporting Limit
NELAP	NELAP Accredited
PQL	Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.
RL	The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.
RPD	Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).
SPK	The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.
Surr	Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.
TIC	Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"
TNTC	Too numerous to count (> 200 CFU)

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
C - RL shown is a Client Requested Quantitation Limit	E - Value above quantitation range
H - Holding times exceeded	I - Associated internal standard was outside method criteria
M - Manual Integration used to determine area response	ND - Not Detected at the Reporting Limit
R - RPD outside accepted recovery limits	S - Spike Recovery outside recovery limits
T - TIC(Tentatively identified compound)	X - Value exceeds Maximum Contaminant Level

Case Narrative

Client: Environmental Operations, Inc.

Client Project: Solutia 2950R

Work Order: 18100822

Report Date: 23-Oct-2018

Cooler Receipt Temp: 13.42 °C

Sulfate analysis was performed by Summit Environmental Technologies, Inc. See attached report for QC data.

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425
Phone (618) 344-1004
Fax (618) 344-1005
Email jhriley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415
Phone (217) 698-1004
Fax (217) 698-1005
Email KKlostermann@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214
Phone (913) 541-1998
Fax (913) 541-1998
Email jhriley@teklabinc.com

Collinsville Air

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Accreditations

Client: Environmental Operations, Inc.

Work Order: 18100822

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2019	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2019	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2019	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2019	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2019	Collinsville
Arkansas	ADEQ	88-0966		3/14/2019	Collinsville
Illinois	IDPH	17584		5/31/2019	Collinsville
Indiana	ISDH	C-IL-06		1/31/2019	Collinsville
Kentucky	KDEP	98006		12/31/2018	Collinsville
Kentucky	UST	0073		1/31/2019	Collinsville
Louisiana	LDPH	LA170027		12/31/2018	Collinsville
Missouri	MDNR	930		1/31/2019	Collinsville
Missouri	MDNR	00930		5/31/2019	Collinsville
Tennessee	TDEC	04905		1/31/2019	Collinsville

Teklab, Inc.
Environmental Laboratory

Laboratory Results

http://www.teklabinc.com/

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-001 **Client Sample ID:** MW-2B (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 9:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**0.0435**	mg/L	1	10/11/2018 17:20	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 10:47	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 10:47	R253508
Methane	*	4.0		**ND**	µg/L	1	10/17/2018 10:47	R253508
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Acetone	NELAP	10.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Benzene	NELAP	0.5		**ND**	µg/L	1	10/16/2018 11:19	146766
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/16/2018 11:19	146766
Toluene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/16/2018 11:19	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**100.2**	%REC	1	10/16/2018 11:19	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**103.7**	%REC	1	10/16/2018 11:19	146766
Surr: Dibromofluoromethane	*	84.9-113		**100.0**	%REC	1	10/16/2018 11:19	146766
Surr: Toluene-d8	*	86.7-112		**101.7**	%REC	1	10/16/2018 11:19	146766
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**117**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-002 **Client Sample ID:** GM-2 (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 10:05

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**5.54**	mg/L	1	10/11/2018 17:23	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 11:00	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 11:00	R253508
Methane	*	4.0		**26.9**	µg/L	1	10/17/2018 11:00	R253508
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	2500		**11500**	µg/L	50000	10/15/2018 11:00	146626
Surr: Decachlorobiphenyl	*	5.54-150		**13.6**	%REC	1	10/11/2018 21:58	146626
Surr: Tetrachloro-m-xylene	*	13-129		**33.2**	%REC	1	10/11/2018 21:58	146626
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
1,2-Dichloroethane	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Acetone	NELAP	200		**ND**	µg/L	20	10/16/2018 11:46	146766
Benzene	NELAP	10.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Chlorobenzene	NELAP	100		**6360**	µg/L	100	10/16/2018 23:26	146808
Chloroform	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
cis-1,2-Dichloroethene	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Ethylbenzene	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Methylene chloride	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Tetrachloroethene	NELAP	10.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Toluene	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
trans-1,2-Dichloroethene	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Trichloroethene	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Vinyl chloride	NELAP	20.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Xylenes, Total	NELAP	40.0		**ND**	µg/L	20	10/16/2018 11:46	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**106.5**	%REC	20	10/16/2018 11:46	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**100.3**	%REC	20	10/16/2018 11:46	146766
Surr: Dibromofluoromethane	*	84.9-113		**102.2**	%REC	20	10/16/2018 11:46	146766
Surr: Toluene-d8	*	86.7-112		**104.5**	%REC	20	10/16/2018 11:46	146766
Elevated reporting limit due to high levels of target and/or non-target analytes.								
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**121**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-003 **Client Sample ID:** GM-1 (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 11:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**1.16**	mg/L	1	10/11/2018 17:27	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 11:12	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 11:12	R253508
Methane	*	20.0		**56.5**	µg/L	5	10/17/2018 13:20	R253508
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	2500		**17800**	µg/L	50000	10/15/2018 11:13	146626
Surr: Decachlorobiphenyl	*	5.54-150		**29.4**	%REC	1	10/11/2018 22:11	146626
Surr: Tetrachloro-m-xylene	*	13-129		**46.3**	%REC	1	10/11/2018 22:11	146626
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
1,2-Dichloroethane	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Acetone	NELAP	500		**ND**	µg/L	50	10/16/2018 12:14	146766
Benzene	NELAP	25.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Chlorobenzene	NELAP	100		**11900**	µg/L	100	10/16/2018 23:53	146808
Chloroform	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
cis-1,2-Dichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Ethylbenzene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Methylene chloride	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Tetrachloroethene	NELAP	25.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Toluene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
trans-1,2-Dichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Trichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Vinyl chloride	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:14	146766
Xylenes, Total	NELAP	100		**ND**	µg/L	50	10/16/2018 12:14	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**101.7**	%REC	50	10/16/2018 12:14	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**100.5**	%REC	50	10/16/2018 12:14	146766
Surr: Dibromofluoromethane	*	84.9-113		**100.2**	%REC	50	10/16/2018 12:14	146766
Surr: Toluene-d8	*	86.7-112		**104.5**	%REC	50	10/16/2018 12:14	146766
Elevated reporting limit due to high levels of target and/or non-target analytes								
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**24.8**	mg/L	10	10/18/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-004 **Client Sample ID:** GM-1 AD (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 11:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**1.16**	mg/L	1	10/11/2018 17:31	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 11:25	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 11:25	R253508
Methane	*	40.0		**63.4**	µg/L	10	10/17/2018 13:32	R253508
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	2500		**19900**	µg/L	50000	10/15/2018 11:27	146626
Surr: Decachlorobiphenyl	*	5.54-150		**29.5**	%REC	1	10/11/2018 22:25	146626
Surr: Tetrachloro-m-xylene	*	13-129		**43.4**	%REC	1	10/11/2018 22:25	146626
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
1,2-Dichloroethane	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Acetone	NELAP	500		**ND**	µg/L	50	10/16/2018 12:40	146766
Benzene	NELAP	25.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Chlorobenzene	NELAP	100		**11600**	µg/L	100	10/17/2018 0:20	146808
Chloroform	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
cis-1,2-Dichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Ethylbenzene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Methylene chloride	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Tetrachloroethene	NELAP	25.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Toluene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
trans-1,2-Dichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Trichloroethene	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Vinyl chloride	NELAP	50.0		**ND**	µg/L	50	10/16/2018 12:40	146766
Xylenes, Total	NELAP	100		**ND**	µg/L	50	10/16/2018 12:40	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**103.9**	%REC	50	10/16/2018 12:40	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**100.2**	%REC	50	10/16/2018 12:40	146766
Surr: Dibromofluoromethane	*	84.9-113		**101.3**	%REC	50	10/16/2018 12:40	146766
Surr: Toluene-d8	*	86.7-112		**102.1**	%REC	50	10/16/2018 12:40	146766
Elevated reporting limit due to high levels of target and/or non-target analytes.								
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**22.8**	mg/L	10	10/19/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-005 **Client Sample ID:** VW-1 (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 13:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**12.3**	mg/L	1	10/11/2018 17:34	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 11:42	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 11:42	R253508
Methane	*	400		**1300**	µg/L	100	10/17/2018 13:46	R253508
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Acetone	NELAP	10.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Benzene	NELAP	0.5		**4.3**	µg/L	1	10/16/2018 13:07	146766
Chlorobenzene	NELAP	10.0		**1110**	µg/L	10	10/17/2018 0:47	146808
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/16/2018 13:07	146766
Toluene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/16/2018 13:07	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**100.0**	%REC	1	10/16/2018 13:07	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**103.0**	%REC	1	10/16/2018 13:07	146766
Surr: Dibromofluoromethane	*	84.9-113		**99.1**	%REC	1	10/16/2018 13:07	146766
Surr: Toluene-d8	*	86.7-112		**109.0**	%REC	1	10/16/2018 13:07	146766
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**< 10.0**	mg/L	10	10/19/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-006 **Client Sample ID:** VW-2 (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**23.6**	mg/L	1	10/11/2018 17:38	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 12:28	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 12:28	R253508
Methane	*	400		**1230**	µg/L	100	10/17/2018 13:58	R253508
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Acetone	NELAP	10.0		**15.9**	µg/L	1	10/16/2018 13:34	146766
Benzene	NELAP	0.5		**ND**	µg/L	1	10/16/2018 13:34	146766
Chlorobenzene	NELAP	1.0		**83.0**	µg/L	1	10/16/2018 13:34	146766
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/16/2018 13:34	146766
Toluene	NELAP	1.0		**1.3**	µg/L	1	10/16/2018 13:34	146766
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/16/2018 13:34	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**101.1**	%REC	1	10/16/2018 13:34	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**96.7**	%REC	1	10/16/2018 13:34	146766
Surr: Dibromofluoromethane	*	84.9-113		**100.1**	%REC	1	10/16/2018 13:34	146766
Surr: Toluene-d8	*	86.7-112		**102.9**	%REC	1	10/16/2018 13:34	146766
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**81.7**	mg/L	10	10/19/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-007 **Client Sample ID:** MW-24A (101018)

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 14:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**36.1**	mg/L	1	10/11/2018 17:42	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 12:40	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 12:40	R253508
Methane	*	400		**1870**	µg/L	100	10/17/2018 14:12	R253508
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
1,2-Dichloroethane	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Acetone	NELAP	100		**ND**	µg/L	10	10/16/2018 14:01	146766
Benzene	NELAP	5.0		**1730**	µg/L	10	10/16/2018 14:01	146766
Chlorobenzene	NELAP	10.0		**624**	µg/L	10	10/16/2018 14:01	146766
Chloroform	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
cis-1,2-Dichloroethene	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Ethylbenzene	NELAP	10.0		**49.1**	µg/L	10	10/16/2018 14:01	146766
Methylene chloride	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Tetrachloroethene	NELAP	5.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Toluene	NELAP	10.0		**35.4**	µg/L	10	10/16/2018 14:01	146766
trans-1,2-Dichloroethene	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Trichloroethene	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Vinyl chloride	NELAP	10.0		**ND**	µg/L	10	10/16/2018 14:01	146766
Xylenes, Total	NELAP	20.0		**98.7**	µg/L	10	10/16/2018 14:01	146766
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.7**	%REC	10	10/16/2018 14:01	146766
Surr: 4-Bromofluorobenzene	*	83.9-115		**103.2**	%REC	10	10/16/2018 14:01	146766
Surr: Dibromofluoromethane	*	84.9-113		**101.0**	%REC	10	10/16/2018 14:01	146766
Surr: Toluene-d8	*	86.7-112		**102.7**	%REC	10	10/16/2018 14:01	146766
Elevated reporting limit due to high levels of target and/or non-target analytes.								
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**< 10.0**	mg/L	10	10/19/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

Lab ID: 18100822-008 **Client Sample ID:** Equipment Blank

Matrix: GROUNDWATER **Collection Date:** 10/10/2018 14:40

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 3005A, 6010B, METALS BY ICP (TOTAL)								
Iron	NELAP	0.0400		**< 0.0400**	mg/L	1	10/11/2018 17:45	146592
PERMANENT GASES (RSKSOP-175)								
Ethane	*	7.0		**ND**	µg/L	1	10/17/2018 12:54	R253508
Ethene	*	10.0		**ND**	µg/L	1	10/17/2018 12:54	R253508
Methane	*	4.0		**ND**	µg/L	1	10/17/2018 12:54	R253508
SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD								
Alachlor	NELAP	0.05		**1.19**	µg/L	1	10/15/2018 11:40	146626
Surr: Decachlorobiphenyl	*	5.54-150		**60.6**	%REC	1	10/11/2018 22:38	146626
Surr: Tetrachloro-m-xylene	*	13-129		**79.1**	%REC	1	10/11/2018 22:38	146626
SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS								
1,1,1-Trichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
1,2-Dichloroethane	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Acetone	NELAP	10.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Benzene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 14:55	146649
Chlorobenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Chloroform	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
cis-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Ethylbenzene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Methylene chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Tetrachloroethene	NELAP	0.5		**ND**	µg/L	1	10/11/2018 14:55	146649
Toluene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
trans-1,2-Dichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Trichloroethene	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Vinyl chloride	NELAP	1.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Xylenes, Total	NELAP	2.0		**ND**	µg/L	1	10/11/2018 14:55	146649
Surr: 1,2-Dichloroethane-d4	*	79.6-118		**98.3**	%REC	1	10/11/2018 14:55	146649
Surr: 4-Bromofluorobenzene	*	83.9-115		**97.9**	%REC	1	10/11/2018 14:55	146649
Surr: Dibromofluoromethane	*	84.9-113		**98.0**	%REC	1	10/11/2018 14:55	146649
Surr: Toluene-d8	*	86.7-112		**97.7**	%REC	1	10/11/2018 14:55	146649
EPA600 300.0, ANIONS BY ION CHROMATOGRAPHY								
Sulfate	*	10.0		**11.5**	mg/L	10	10/19/2018 0:00	R253660

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 3005A, 6010B, METALS BY ICP (TOTAL)

Batch 146592 **SampType: MBLK** Units **mg/L**

SampID: MBLK-146592

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**< 0.0400**	0.02000	0	0	-100	100	10/11/2018

Batch 146592 **SampType: LCS** Units **mg/L**

SampID: LCS-146592

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**2.08**	2.000	0	104.0	85	115	10/11/2018

Batch 146592 **SampType: MS** Units **mg/L**

SampID: 18100747-005AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Iron	0.0400		**2.24**	2.000	0.1631	103.9	75	125	10/11/2018

Batch 146592 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100747-005AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Iron	0.0400		**2.24**	2.000	0.1631	104.0	2.242	0.04	10/11/2018

PERMANENT GASES (RSKSOP-175)

Batch R253508 **SampType: MBLK** Units **µg/L**

SampID: MBLK-101718

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**ND**						10/17/2018
Ethene	10.0		**ND**						10/17/2018
Methane	4.0		**ND**						10/17/2018

Batch R253508 **SampType: LCS** Units **µg/L**

SampID: LCS-101718

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethane	7.0		**40.7**	100.0	0	40.7	25.5	132	10/17/2018
Ethene	10.0		**42.1**	100.0	0	42.1	23.6	132	10/17/2018
Methane	4.0		**39.8**	100.0	0	39.8	23.9	132	10/17/2018

Batch R253508 **SampType: LCSD** Units **µg/L** RPD Limit **39.7**

SampID: LCSD-101718

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethane	7.0		**46.0**	100.0	0	46.0	40.74	12.11	10/17/2018
Ethene	10.0		**47.6**	100.0	0	47.6	42.08	12.35	10/17/2018
Methane	4.0		**44.4**	100.0	0	44.4	39.77	10.98	10/17/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 3510C, 8081B, CHLORINATED PESTICIDES BY GC/ECD

Batch 146626 **SampType: MBLK** Units **µg/L**

SampID: MBLK-146626

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Alachlor	0.05		**ND**						10/11/2018
Surr: Decachlorobiphenyl			**0.11**	0.2500		42.8	11.3	138	10/11/2018
Surr: Tetrachloro-m-xylene			**0.17**	0.2500		68.3	13	114	10/11/2018

Batch 146626 **SampType: LCS** Units **µg/L**

SampID: LCSPST-146626

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Alachlor	0.05		**0.22**	0.2500	0	86.1	47.4	125	10/11/2018
Surr: Decachlorobiphenyl			**0.10**	0.2500		41.3	9.42	147	10/11/2018
Surr: Tetrachloro-m-xylene			**0.18**	0.2500		73.6	13	114	10/11/2018

Batch 146626 **SampType: LCSD** Units **µg/L** RPD Limit **30**

SampID: LCSPSTD-146626

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Alachlor	0.05		**0.21**	0.2500	0	84.7	0.2153	1.63	10/11/2018
Surr: Decachlorobiphenyl			**0.10**	0.2500		41.6			10/11/2018
Surr: Tetrachloro-m-xylene			**0.18**	0.2500		73.6			10/11/2018

Batch 146626 **SampType: MS** Units **%REC**

SampID: 18100697-003AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: Decachlorobiphenyl		S	**0**	0.00250(		0	10	148	10/11/2018
Surr: Tetrachloro-m-xylene		S	**0**	0.00250(		0	20.9	124	10/11/2018

Batch 146626 **SampType: MS** Units **%REC**

SampID: 18100806-004AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Surr: Decachlorobiphenyl			**0.00111**	0.00250(		44.3	10	148	10/11/2018
Surr: Tetrachloro-m-xylene			**0.00174**	0.00250(		69.5	20.9	124	10/11/2018

Batch 146626 **SampType: MSD** Units **%REC** RPD Limit **30**

SampID: 18100806-004AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Surr: Decachlorobiphenyl			**0.00111**	0.00250(		44.6			10/11/2018
Surr: Tetrachloro-m-xylene			**0.00167**	0.00250(		66.7			10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: MBLK** Units **µg/L**

SampID: MBLK-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/11/2018
1,2-Dichloroethane	2.0		**ND**						10/11/2018
Acetone	10.0		**ND**						10/11/2018
Benzene	0.5		**ND**						10/11/2018
Chlorobenzene	2.0		**ND**						10/11/2018
Chloroform	2.0		**ND**						10/11/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Ethylbenzene	2.0		**ND**						10/11/2018
Methylene chloride	10.0		**ND**						10/11/2018
Tetrachloroethene	0.5		**ND**						10/11/2018
Toluene	2.0		**ND**						10/11/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/11/2018
Trichloroethene	2.0		**ND**						10/11/2018
Vinyl chloride	2.0		**ND**						10/11/2018
Xylenes, Total	2.0		**ND**						10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.9	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**47.9**	50.00		95.7	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.6	84.9	113	10/11/2018
Surr: Toluene-d8			**48.4**	50.00		96.8	86.7	112	10/11/2018

Batch 146649 **SampType: LCSD** Units **µg/L** RPD Limit **40**

SampID: LCSD-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**46.4**	50.00	0	92.8	48.53	4.53	10/11/2018
1,2-Dichloroethane	2.0		**43.6**	50.00	0	87.2	45.86	5.03	10/11/2018
Acetone	10.0		**134**	125.0	0	107.2	138.6	3.36	10/11/2018
Benzene	0.5		**47.1**	50.00	0	94.2	49.45	4.89	10/11/2018
Chlorobenzene	2.0		**46.6**	50.00	0	93.1	48.38	3.86	10/11/2018
Chloroform	2.0		**47.5**	50.00	0	95.0	49.83	4.83	10/11/2018
cis-1,2-Dichloroethene	2.0		**47.4**	50.00	0	94.9	49.29	3.83	10/11/2018
Ethylbenzene	2.0		**47.1**	50.00	0	94.2	49.38	4.75	10/11/2018
Methylene chloride	10.0		**48.2**	50.00	0	96.4	50.51	4.66	10/11/2018
Tetrachloroethene	0.5		**46.2**	50.00	0	92.5	48.39	4.52	10/11/2018
Toluene	2.0		**46.0**	50.00	0	92.0	48.37	5.07	10/11/2018
trans-1,2-Dichloroethene	2.0		**47.9**	50.00	0	95.7	50.43	5.21	10/11/2018
Trichloroethene	2.0		**47.5**	50.00	0	95.1	49.80	4.66	10/11/2018
Vinyl chloride	2.0		**49.6**	50.00	0	99.1	49.11	0.93	10/11/2018
Xylenes, Total	2.0		**141**	150.0	0	93.9	147.0	4.24	10/11/2018
Surr: 1,2-Dichloroethane-d4			**48.4**	50.00		96.9			10/11/2018
Surr: 4-Bromofluorobenzene			**48.5**	50.00		97.0			10/11/2018
Surr: Dibromofluoromethane			**48.8**	50.00		97.5			10/11/2018
Surr: Toluene-d8			**48.8**	50.00		97.6			10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: LCS** Units **µg/L**

SampID: LCS-R181011A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**48.5**	50.00	0	97.1	79.1	123	10/11/2018
1,2-Dichloroethane	2.0		**45.9**	50.00	0	91.7	76.9	117	10/11/2018
Acetone	10.0		**139**	125.0	0	110.8	47.5	123	10/11/2018
Benzene	0.5		**49.4**	50.00	0	98.9	75.8	121	10/11/2018
Chlorobenzene	2.0		**48.4**	50.00	0	96.8	82.1	113	10/11/2018
Chloroform	2.0		**49.8**	50.00	0	99.7	80.1	122	10/11/2018
cis-1,2-Dichloroethene	2.0		**49.3**	50.00	0	98.6	78.6	119	10/11/2018
Ethylbenzene	2.0		**49.4**	50.00	0	98.8	80.7	114	10/11/2018
Methylene chloride	10.0		**50.5**	50.00	0	101.0	76.2	119	10/11/2018
Tetrachloroethene	0.5		**48.4**	50.00	0	96.8	80.6	122	10/11/2018
Toluene	2.0		**48.4**	50.00	0	96.7	78.3	112	10/11/2018
trans-1,2-Dichloroethene	2.0		**50.4**	50.00	0	100.9	73.5	124	10/11/2018
Trichloroethene	2.0		**49.8**	50.00	0	99.6	74.3	125	10/11/2018
Vinyl chloride	2.0		**49.1**	50.00	0	98.2	55.8	135	10/11/2018
Xylenes, Total	2.0		**147**	150.0	0	98.0	80.2	113	10/11/2018
Surr: 1,2-Dichloroethane-d4			**49.2**	50.00		98.4	79.6	118	10/11/2018
Surr: 4-Bromofluorobenzene			**48.6**	50.00		97.3	83.9	115	10/11/2018
Surr: Dibromofluoromethane			**49.6**	50.00		99.1	84.9	113	10/11/2018
Surr: Toluene-d8			**49.2**	50.00		98.3	86.7	112	10/11/2018

Batch 146649 **SampType: MS** Units **mg/L**

SampID: 18100453-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.77**	5.000	0	95.4	71.5	116	10/11/2018
Benzene	0.050		**5.10**	5.000	0	102.0	81.5	113	10/11/2018
Chlorobenzene	0.200		**4.95**	5.000	0	99.0	81.8	111	10/11/2018
Chloroform	0.200		**5.18**	5.000	0	103.5	81	115	10/11/2018
Tetrachloroethene	0.050		**4.61**	5.000	0	92.1	61.7	114	10/11/2018
Trichloroethene	0.200		**5.14**	5.000	0	102.9	74.4	117	10/11/2018
Vinyl chloride	0.200		**4.74**	5.000	0	94.8	45.7	130	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.87**	5.000		97.4	74.7	129	10/11/2018
Surr: 4-Bromofluorobenzene			**4.80**	5.000		96.1	86	119	10/11/2018
Surr: Dibromofluoromethane			**4.89**	5.000		97.7	81.7	123	10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.3	84.3	114	10/11/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146649 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100453-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,2-Dichloroethane	0.200		**4.82**	5.000	0	96.4	4.768	1.11	10/11/2018
Benzene	0.050		**5.14**	5.000	0	102.7	5.098	0.74	10/11/2018
Chlorobenzene	0.200		**4.97**	5.000	0	99.5	4.950	0.48	10/11/2018
Chloroform	0.200		**5.25**	5.000	0	105.0	5.176	1.46	10/11/2018
Tetrachloroethene	0.050		**4.56**	5.000	0	91.2	4.607	1.07	10/11/2018
Trichloroethene	0.200		**5.17**	5.000	0	103.4	5.144	0.47	10/11/2018
Vinyl chloride	0.200		**4.83**	5.000	0	96.7	4.740	1.96	10/11/2018
Surr: 1,2-Dichloroethane-d4			**4.94**	5.000		98.8			10/11/2018
Surr: 4-Bromofluorobenzene			**4.77**	5.000		95.4			10/11/2018
Surr: Dibromofluoromethane			**4.91**	5.000		98.2			10/11/2018
Surr: Toluene-d8			**4.86**	5.000		97.1			10/11/2018

Batch 146766 **SampType: MBLK** Units **µg/L**

SampID: MBLK-N181016A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/16/2018
1,2-Dichloroethane	2.0		**ND**						10/16/2018
Acetone	10.0		**ND**						10/16/2018
Benzene	0.5		**ND**						10/16/2018
Chlorobenzene	2.0		**ND**						10/16/2018
Chloroform	2.0		**ND**						10/16/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/16/2018
Ethylbenzene	2.0		**ND**						10/16/2018
Methylene chloride	10.0		**ND**						10/16/2018
Tetrachloroethene	0.5		**ND**						10/16/2018
Toluene	2.0		**ND**						10/16/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/16/2018
Trichloroethene	2.0		**ND**						10/16/2018
Vinyl chloride	2.0		**ND**						10/16/2018
Xylenes, Total	2.0		**ND**						10/16/2018
Surr: 1,2-Dichloroethane-d4			**50.5**	50.00		100.9	79.6	118	10/16/2018
Surr: 4-Bromofluorobenzene			**51.4**	50.00		102.8	83.9	115	10/16/2018
Surr: Dibromofluoromethane			**49.6**	50.00		99.2	84.9	113	10/16/2018
Surr: Toluene-d8			**49.4**	50.00		98.9	86.7	112	10/16/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146766 **SampType: LCSD** Units **µg/L** RPD Limit **40**

SampID: LCSD-N181016A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**47.0**	50.00	0	94.1	50.59	7.29	10/16/2018
1,2-Dichloroethane	2.0		**46.4**	50.00	0	92.8	48.83	5.06	10/16/2018
Acetone	10.0		**119**	125.0	0	94.9	120.6	1.70	10/16/2018
Benzene	0.5		**45.4**	50.00	0	90.8	47.85	5.30	10/16/2018
Chlorobenzene	2.0		**49.0**	50.00	0	97.9	51.46	4.96	10/16/2018
Chloroform	2.0		**47.8**	50.00	0	95.5	49.39	3.38	10/16/2018
cis-1,2-Dichloroethene	2.0		**46.6**	50.00	0	93.2	49.28	5.63	10/16/2018
Ethylbenzene	2.0		**50.3**	50.00	0	100.5	53.21	5.68	10/16/2018
Methylene chloride	10.0		**46.8**	50.00	0	93.6	50.44	7.49	10/16/2018
Tetrachloroethene	0.5		**49.1**	50.00	0	98.2	52.65	7.00	10/16/2018
Toluene	2.0		**50.0**	50.00	0	100.0	52.25	4.42	10/16/2018
trans-1,2-Dichloroethene	2.0		**47.4**	50.00	0	94.8	49.56	4.41	10/16/2018
Trichloroethene	2.0		**46.1**	50.00	0	92.3	48.30	4.57	10/16/2018
Vinyl chloride	2.0		**42.6**	50.00	0	85.3	44.82	4.99	10/16/2018
Xylenes, Total	2.0		**148**	150.0	0	98.3	161.0	8.72	10/16/2018
Surr: 1,2-Dichloroethane-d4			**48.7**	50.00		97.4			10/16/2018
Surr: 4-Bromofluorobenzene			**48.6**	50.00		97.3			10/16/2018
Surr: Dibromofluoromethane			**49.4**	50.00		98.8			10/16/2018
Surr: Toluene-d8			**51.7**	50.00		103.3			10/16/2018

Batch 146766 **SampType: LCS** Units **µg/L**

SampID: LCS-N181016A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**50.6**	50.00	0	101.2	79.1	123	10/16/2018
1,2-Dichloroethane	2.0		**48.8**	50.00	0	97.7	76.9	117	10/16/2018
Acetone	10.0		**121**	125.0	0	96.5	47.5	123	10/16/2018
Benzene	0.5		**47.8**	50.00	0	95.7	75.8	121	10/16/2018
Chlorobenzene	2.0		**51.5**	50.00	0	102.9	82.1	113	10/16/2018
Chloroform	2.0		**49.4**	50.00	0	98.8	80.1	122	10/16/2018
cis-1,2-Dichloroethene	2.0		**49.3**	50.00	0	98.6	78.6	119	10/16/2018
Ethylbenzene	2.0		**53.2**	50.00	0	106.4	80.7	114	10/16/2018
Methylene chloride	10.0		**50.4**	50.00	0	100.9	76.2	119	10/16/2018
Tetrachloroethene	0.5		**52.6**	50.00	0	105.3	80.6	122	10/16/2018
Toluene	2.0		**52.2**	50.00	0	104.5	78.3	112	10/16/2018
trans-1,2-Dichloroethene	2.0		**49.6**	50.00	0	99.1	73.5	124	10/16/2018
Trichloroethene	2.0		**48.3**	50.00	0	96.6	74.3	125	10/16/2018
Vinyl chloride	2.0		**44.8**	50.00	0	89.6	55.8	135	10/16/2018
Xylenes, Total	2.0		**161**	150.0	0	107.3	80.2	113	10/16/2018
Surr: 1,2-Dichloroethane-d4			**49.4**	50.00		98.8	79.6	118	10/16/2018
Surr: 4-Bromofluorobenzene			**49.7**	50.00		99.5	83.9	115	10/16/2018
Surr: Dibromofluoromethane			**49.4**	50.00		98.9	84.9	113	10/16/2018
Surr: Toluene-d8			**51.6**	50.00		103.1	86.7	112	10/16/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146766 **SampType: MS** Units **µg/L**

SampID: 18100809-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	100		**2460**	2500	0	98.6	52	162	10/16/2018
1,2-Dichloroethane	100		**2340**	2500	0	93.7	49	155	10/16/2018
Acetone	500		**5900**	6250	0	94.3	40	160	10/16/2018
Benzene	25.0		**2320**	2500	0	92.9	37	151	10/16/2018
Chlorobenzene	100		**2440**	2500	0	97.5	37	160	10/16/2018
Chloroform	100		**2420**	2500	0	96.9	51	138	10/16/2018
cis-1,2-Dichloroethene	100		**2310**	2500	0	92.3	40	160	10/16/2018
Ethylbenzene	100		**2440**	2500	0	97.6	37	162	10/16/2018
Methylene chloride	100		**2380**	2500	0	95.2	1	221	10/16/2018
Tetrachloroethene	25.0		**2390**	2500	0	95.8	64	148	10/16/2018
Toluene	100		**2400**	2500	0	95.8	47	150	10/16/2018
trans-1,2-Dichloroethene	100		**2370**	2500	0	94.7	54	156	10/16/2018
Trichloroethene	100		**2350**	2500	0	93.9	70	157	10/16/2018
Vinyl chloride	100		**2140**	2500	0	85.5	1	251	10/16/2018
Xylenes, Total	100		**7230**	7500	0	96.4	40	160	10/16/2018
Surr: 1,2-Dichloroethane-d4			**2520**	2500		100.7	74.7	129	10/16/2018
Surr: 4-Bromofluorobenzene			**2410**	2500		96.4	86	119	10/16/2018
Surr: Dibromofluoromethane			**2540**	2500		101.4	81.7	123	10/16/2018
Surr: Toluene-d8			**2460**	2500		98.4	84.3	114	10/16/2018

Batch 146766 **SampType: MSD** Units **µg/L** RPD Limit **36**

SampID: 18100809-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	100		**2630**	2500	0	105.2	2464	6.52	10/16/2018
1,2-Dichloroethane	100		**2490**	2500	0	99.7	2342	6.27	10/16/2018
Acetone	500		**5870**	6250	0	93.9	5896	0.45	10/16/2018
Benzene	25.0		**2490**	2500	0	99.4	2324	6.76	10/16/2018
Chlorobenzene	100		**2600**	2500	0	104.1	2438	6.55	10/16/2018
Chloroform	100		**2600**	2500	0	104.0	2423	7.07	10/16/2018
cis-1,2-Dichloroethene	100		**2480**	2500	0	99.1	2308	7.04	10/16/2018
Ethylbenzene	100		**2660**	2500	0	106.3	2441	8.47	10/16/2018
Methylene chloride	100		**2580**	2500	0	103.2	2380	8.05	10/16/2018
Tetrachloroethene	25.0		**2610**	2500	0	104.5	2394	8.69	10/16/2018
Toluene	100		**2580**	2500	0	103.0	2395	7.24	10/16/2018
trans-1,2-Dichloroethene	100		**2590**	2500	0	103.5	2368	8.86	10/16/2018
Trichloroethene	100		**2530**	2500	0	101.1	2346	7.39	10/16/2018
Vinyl chloride	100		**2380**	2500	0	95.2	2136	10.74	10/16/2018
Xylenes, Total	100		**7960**	7500	0	106.2	7226	9.72	10/16/2018
Surr: 1,2-Dichloroethane-d4			**2500**	2500		100.1			10/16/2018
Surr: 4-Bromofluorobenzene			**2530**	2500		101.3			10/16/2018
Surr: Dibromofluoromethane			**2510**	2500		100.4			10/16/2018
Surr: Toluene-d8			**2530**	2500		101.2			10/16/2018

Client: Environmental Operations, Inc.

Work Order: 18100822

Client Project: Solutia 2950R

Report Date: 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146766 **SampType: MS** Units **µg/L**

SampID: 18100822-007DMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	5.0		**2180**	500.0	1729	90.3	62.5	121	10/16/2018
Chlorobenzene	20.0		**1130**	500.0	624.3	101.0	78.6	114	10/16/2018
Ethylbenzene	20.0		**608**	500.0	49.10	111.8	74.4	130	10/16/2018
Toluene	20.0		**540**	500.0	35.40	100.8	69.5	118	10/16/2018
Trichloroethene	20.0		**483**	500.0	0	96.6	69.4	117	10/16/2018
Xylenes, Total	20.0		**1180**	1000	98.70	108.2	71.1	125	10/16/2018
Surr: 1,2-Dichloroethane-d4			**486**	500.0		97.1	74.7	129	10/16/2018
Surr: 4-Bromofluorobenzene			**508**	500.0		101.7	86	119	10/16/2018
Surr: Dibromofluoromethane			**489**	500.0		97.9	81.7	123	10/16/2018
Surr: Toluene-d8			**505**	500.0		101.1	84.3	114	10/16/2018

Batch 146766 **SampType: MSD** Units **µg/L** RPD Limit **20**

SampID: 18100822-007DMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	5.0		**2170**	500.0	1729	87.9	2180	0.55	10/16/2018
Chlorobenzene	20.0		**1080**	500.0	624.3	91.9	1129	4.14	10/16/2018
Ethylbenzene	20.0		**556**	500.0	49.10	101.3	608.0	9.02	10/16/2018
Toluene	20.0		**509**	500.0	35.40	94.8	539.6	5.80	10/16/2018
Trichloroethene	20.0		**471**	500.0	0	94.3	482.9	2.43	10/16/2018
Xylenes, Total	20.0		**1110**	1000	98.70	101.5	1180	5.82	10/16/2018
Surr: 1,2-Dichloroethane-d4			**488**	500.0		97.5			10/16/2018
Surr: 4-Bromofluorobenzene			**519**	500.0		103.8			10/16/2018
Surr: Dibromofluoromethane			**494**	500.0		98.8			10/16/2018
Surr: Toluene-d8			**498**	500.0		99.7			10/16/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146808 **SampType: MBLK** Units µg/L

SampID: MBLK-R181016A-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/16/2018
1,2-Dichloroethane	2.0		**ND**						10/16/2018
Acetone	10.0		**ND**						10/16/2018
Benzene	0.5		**ND**						10/16/2018
Chlorobenzene	2.0		**ND**						10/16/2018
Chloroform	2.0		**ND**						10/16/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/16/2018
Ethylbenzene	2.0		**ND**						10/16/2018
Methylene chloride	10.0		**ND**						10/16/2018
Tetrachloroethene	0.5		**ND**						10/16/2018
Toluene	2.0		**ND**						10/16/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/16/2018
Trichloroethene	2.0		**ND**						10/16/2018
Vinyl chloride	2.0		**ND**						10/16/2018
Xylenes, Total	2.0		**ND**						10/16/2018
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.3	79.6	118	10/16/2018
Surr: 4-Bromofluorobenzene			**47.3**	50.00		94.6	83.9	115	10/16/2018
Surr: Dibromofluoromethane			**48.9**	50.00		97.8	84.9	113	10/16/2018
Surr: Toluene-d8			**48.1**	50.00		96.2	86.7	112	10/16/2018

Batch 146808 **SampType: LCSD** Units µg/L RPD Limit **40**

SampID: LCSD-R181016A-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**49.4**	50.00	0	98.8	52.08	5.28	10/16/2018
1,2-Dichloroethane	2.0		**47.6**	50.00	0	95.3	49.51	3.87	10/16/2018
Acetone	10.0		**147**	125.0	0	117.8	158.3	7.22	10/16/2018
Benzene	0.5		**51.8**	50.00	0	103.5	54.87	5.85	10/16/2018
Chlorobenzene	2.0		**49.7**	50.00	0	99.4	51.80	4.14	10/16/2018
Chloroform	2.0		**51.7**	50.00	0	103.5	54.42	5.05	10/16/2018
cis-1,2-Dichloroethene	2.0		**49.7**	50.00	0	99.4	52.58	5.59	10/16/2018
Ethylbenzene	2.0		**49.7**	50.00	0	99.4	52.23	4.92	10/16/2018
Methylene chloride	10.0		**52.6**	50.00	0	105.2	55.43	5.20	10/16/2018
Tetrachloroethene	0.5		**48.7**	50.00	0	97.4	51.45	5.45	10/16/2018
Toluene	2.0		**49.1**	50.00	0	98.2	51.81	5.35	10/16/2018
trans-1,2-Dichloroethene	2.0		**51.0**	50.00	0	102.0	54.37	6.36	10/16/2018
Trichloroethene	2.0		**51.4**	50.00	0	102.9	54.35	5.52	10/16/2018
Vinyl chloride	2.0		**54.9**	50.00	0	109.8	56.83	3.45	10/16/2018
Xylenes, Total	2.0		**149**	150.0	0	99.6	157.1	5.07	10/16/2018
Surr: 1,2-Dichloroethane-d4			**48.2**	50.00		96.4			10/16/2018
Surr: 4-Bromofluorobenzene			**48.2**	50.00		96.3			10/16/2018
Surr: Dibromofluoromethane			**49.8**	50.00		99.7			10/16/2018
Surr: Toluene-d8			**48.2**	50.00		96.4			10/16/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146808 **SampType: LCS** Units µg/L

SampID: LCS-R181016A-2

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**52.1**	50.00	0	104.2	79.1	123	10/16/2018
1,2-Dichloroethane	2.0		**49.5**	50.00	0	99.0	76.9	117	10/16/2018
Acetone	10.0	S	**158**	125.0	0	126.6	47.5	123	10/16/2018
Benzene	0.5		**54.9**	50.00	0	109.7	75.8	121	10/16/2018
Chlorobenzene	2.0		**51.8**	50.00	0	103.6	82.1	113	10/16/2018
Chloroform	2.0		**54.4**	50.00	0	108.8	80.1	122	10/16/2018
cis-1,2-Dichloroethene	2.0		**52.6**	50.00	0	105.2	78.6	119	10/16/2018
Ethylbenzene	2.0		**52.2**	50.00	0	104.5	80.7	114	10/16/2018
Methylene chloride	10.0		**55.4**	50.00	0	110.9	76.2	119	10/16/2018
Tetrachloroethene	0.5		**51.4**	50.00	0	102.9	80.6	122	10/16/2018
Toluene	2.0		**51.8**	50.00	0	103.6	78.3	112	10/16/2018
trans-1,2-Dichloroethene	2.0		**54.4**	50.00	0	108.7	73.5	124	10/16/2018
Trichloroethene	2.0		**54.4**	50.00	0	108.7	74.3	125	10/16/2018
Vinyl chloride	2.0		**56.8**	50.00	0	113.7	55.8	135	10/16/2018
Xylenes, Total	2.0		**157**	150.0	0	104.7	80.2	113	10/16/2018
Surr: 1,2-Dichloroethane-d4			**48.1**	50.00		96.3	79.6	118	10/16/2018
Surr: 4-Bromofluorobenzene			**48.4**	50.00		96.7	83.9	115	10/16/2018
Surr: Dibromofluoromethane			**50.0**	50.00		99.9	84.9	113	10/16/2018
Surr: Toluene-d8			**48.5**	50.00		97.1	86.7	112	10/16/2018

Batch 146808 **SampType: MS** Units µg/L

SampID: 18100867-001BMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Benzene	125		**14400**	12500	475.0	111.4	62.5	121	10/17/2018
Chlorobenzene	500		**13000**	12500	0	103.7	78.6	114	10/17/2018
Ethylbenzene	500		**13800**	12500	400.0	107.4	74.4	130	10/17/2018
Toluene	500		**13100**	12500	522.5	100.8	69.5	118	10/17/2018
Trichloroethene	500		**14000**	12500	0	111.8	69.4	117	10/17/2018
Xylenes, Total	500		**26700**	25000	520.0	104.8	71.1	125	10/17/2018
Surr: 1,2-Dichloroethane-d4			**12100**	12500		96.8	74.7	129	10/17/2018
Surr: 4-Bromofluorobenzene			**12000**	12500		96.4	86	119	10/17/2018
Surr: Dibromofluoromethane			**12200**	12500		97.4	81.7	123	10/17/2018
Surr: Toluene-d8			**11900**	12500		95.3	84.3	114	10/17/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146808 **SampType: MSD** Units **µg/L** RPD Limit **20**

SampID: 18100867-001BMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Benzene	125		**12200**	12500	475.0	93.8	14400	16.52	10/17/2018
Chlorobenzene	500		**11000**	12500	0	88.3	12960	16.00	10/17/2018
Ethylbenzene	500		**11800**	12500	400.0	91.3	13820	15.66	10/17/2018
Toluene	500		**11300**	12500	522.5	86.1	13120	15.08	10/17/2018
Trichloroethene	500		**11700**	12500	0	93.6	13970	17.72	10/17/2018
Xylenes, Total	500		**22900**	25000	520.0	89.7	26710	15.16	10/17/2018
Surr: 1,2-Dichloroethane-d4			**12200**	12500		97.7			10/17/2018
Surr: 4-Bromofluorobenzene			**11900**	12500		94.9			10/17/2018
Surr: Dibromofluoromethane			**12100**	12500		97.0			10/17/2018
Surr: Toluene-d8			**12000**	12500		95.9			10/17/2018

Batch 146808 **SampType: MS** Units **mg/L**

SampID: 18100929-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**5.07**	5.000	0	101.4	71.5	116	10/17/2018
Benzene	0.050		**5.53**	5.000	0.01400	110.2	81.5	113	10/17/2018
Chlorobenzene	0.200		**5.48**	5.000	0	109.6	81.8	111	10/17/2018
Chloroform	0.200		**5.54**	5.000	0	110.9	81	115	10/17/2018
Tetrachloroethene	0.050		**5.06**	5.000	0	101.3	61.7	114	10/17/2018
Trichloroethene	0.200		**5.49**	5.000	0	109.8	74.4	117	10/17/2018
Vinyl chloride	0.200		**5.11**	5.000	0	102.1	45.7	130	10/17/2018
Surr: 1,2-Dichloroethane-d4			**4.85**	5.000		96.9	74.7	129	10/17/2018
Surr: 4-Bromofluorobenzene			**4.81**	5.000		96.1	86	119	10/17/2018
Surr: Dibromofluoromethane			**4.92**	5.000		98.4	81.7	123	10/17/2018
Surr: Toluene-d8			**4.82**	5.000		96.4	84.3	114	10/17/2018

Batch 146808 **SampType: MS** Units **mg/L**

SampID: 18100960-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.52**	5.000	0	90.5	71.5	116	10/17/2018
Benzene	0.050		**4.87**	5.000	0	97.4	81.5	113	10/17/2018
Chlorobenzene	0.200		**4.74**	5.000	0	94.9	81.8	111	10/17/2018
Chloroform	0.200		**4.89**	5.000	0	97.8	81	115	10/17/2018
Tetrachloroethene	0.050		**4.42**	5.000	0	88.5	61.7	114	10/17/2018
Trichloroethene	0.200		**4.84**	5.000	0	96.9	74.4	117	10/17/2018
Vinyl chloride	0.200		**4.62**	5.000	0	92.4	45.7	130	10/17/2018
Surr: 1,2-Dichloroethane-d4			**4.80**	5.000		95.9	74.7	129	10/17/2018
Surr: 4-Bromofluorobenzene			**4.78**	5.000		95.7	86	119	10/17/2018
Surr: Dibromofluoromethane			**4.89**	5.000		97.8	81.7	123	10/17/2018
Surr: Toluene-d8			**4.80**	5.000		96.0	84.3	114	10/17/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146808 **SampType: MSD** Units **mg/L** RPD Limit **20**

SampID: 18100960-001AMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,2-Dichloroethane	0.200		**4.77**	5.000	0	95.4	4.523	5.32	10/17/2018
Benzene	0.050		**5.23**	5.000	0	104.6	4.870	7.11	10/17/2018
Chlorobenzene	0.200		**5.04**	5.000	0	100.7	4.744	5.95	10/17/2018
Chloroform	0.200		**5.24**	5.000	0	104.9	4.891	6.95	10/17/2018
Tetrachloroethene	0.050		**4.72**	5.000	0	94.3	4.425	6.35	10/17/2018
Trichloroethene	0.200		**5.24**	5.000	0	104.9	4.845	7.91	10/17/2018
Vinyl chloride	0.200		**5.08**	5.000	0	101.7	4.618	9.63	10/17/2018
Surr: 1,2-Dichloroethane-d4			**4.86**	5.000		97.1			10/17/2018
Surr: 4-Bromofluorobenzene			**4.81**	5.000		96.1			10/17/2018
Surr: Dibromofluoromethane			**4.91**	5.000		98.2			10/17/2018
Surr: Toluene-d8			**4.80**	5.000		96.1			10/17/2018

Batch 146808 **SampType: MS** Units **mg/L**

SampID: 18100973-001AMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,2-Dichloroethane	0.200		**4.64**	5.000	0	92.8	71.5	116	10/17/2018
Benzene	0.050		**5.09**	5.000	0	101.7	81.5	113	10/17/2018
Chlorobenzene	0.200		**4.96**	5.000	0.01100	99.0	81.8	111	10/17/2018
Chloroform	0.200		**5.10**	5.000	0	102.1	81	115	10/17/2018
Tetrachloroethene	0.050		**4.63**	5.000	0	92.5	61.7	114	10/17/2018
Trichloroethene	0.200		**5.06**	5.000	0	101.2	74.4	117	10/17/2018
Vinyl chloride	0.200		**4.88**	5.000	0	97.7	45.7	130	10/17/2018
Surr: 1,2-Dichloroethane-d4			**4.81**	5.000		96.2	74.7	129	10/17/2018
Surr: 4-Bromofluorobenzene			**4.81**	5.000		96.1	86	119	10/17/2018
Surr: Dibromofluoromethane			**4.91**	5.000		98.2	81.7	123	10/17/2018
Surr: Toluene-d8			**4.78**	5.000		95.5	84.3	114	10/17/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType:** MBLK Units µg/L

SampID: MBLK-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**ND**						10/19/2018
1,2-Dichloroethane	2.0		**ND**						10/19/2018
Acetone	10.0		**ND**						10/19/2018
Benzene	0.5		**ND**						10/19/2018
Chlorobenzene	2.0		**ND**						10/19/2018
Chloroform	2.0		**ND**						10/19/2018
cis-1,2-Dichloroethene	2.0		**ND**						10/19/2018
Ethylbenzene	2.0		**ND**						10/19/2018
Methylene chloride	10.0		**ND**						10/19/2018
Tetrachloroethene	0.5		**ND**						10/19/2018
Toluene	2.0		**ND**						10/19/2018
trans-1,2-Dichloroethene	2.0		**ND**						10/19/2018
Trichloroethene	2.0		**ND**						10/19/2018
Vinyl chloride	2.0		**ND**						10/19/2018
Xylenes, Total	2.0		**ND**						10/19/2018
Surr: 1,2-Dichloroethane-d4			**47.6**	50.00		95.2	79.6	118	10/19/2018
Surr: 4-Bromofluorobenzene			**48.8**	50.00		97.5	83.9	115	10/19/2018
Surr: Dibromofluoromethane			**48.2**	50.00		96.5	84.9	113	10/19/2018
Surr: Toluene-d8			**48.2**	50.00		96.4	86.7	112	10/19/2018

Batch 146940 **SampType:** LCSD Units µg/L RPD Limit **40**

SampID: LCSD-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**44.2**	50.00	0	88.4	45.67	3.27	10/19/2018
1,2-Dichloroethane	2.0		**44.1**	50.00	0	88.2	44.61	1.17	10/19/2018
Acetone	10.0		**131**	125.0	0	104.8	135.6	3.44	10/19/2018
Benzene	0.5		**48.5**	50.00	0	96.9	50.42	3.96	10/19/2018
Chlorobenzene	2.0		**45.5**	50.00	0	91.0	47.08	3.44	10/19/2018
Chloroform	2.0		**47.8**	50.00	0	95.6	48.80	2.07	10/19/2018
cis-1,2-Dichloroethene	2.0		**47.9**	50.00	0	95.8	48.61	1.45	10/19/2018
Ethylbenzene	2.0		**45.9**	50.00	0	91.7	47.61	3.72	10/19/2018
Methylene chloride	10.0		**50.0**	50.00	0	100.0	50.90	1.76	10/19/2018
Tetrachloroethene	0.5		**43.6**	50.00	0	87.1	45.16	3.58	10/19/2018
Toluene	2.0		**45.2**	50.00	0	90.3	46.91	3.78	10/19/2018
trans-1,2-Dichloroethene	2.0		**48.2**	50.00	0	96.3	50.13	4.03	10/19/2018
Trichloroethene	2.0		**47.6**	50.00	0	95.1	49.04	3.06	10/19/2018
Vinyl chloride	2.0		**47.5**	50.00	0	95.0	48.46	2.02	10/19/2018
Xylenes, Total	2.0		**137**	150.0	0	91.6	143.0	3.92	10/19/2018
Surr: 1,2-Dichloroethane-d4			**46.8**	50.00		93.6			10/19/2018
Surr: 4-Bromofluorobenzene			**49.2**	50.00		98.5			10/19/2018
Surr: Dibromofluoromethane			**48.5**	50.00		97.0			10/19/2018
Surr: Toluene-d8			**48.0**	50.00		96.0			10/19/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType: LCS** Units µg/L

SampID: LCS-R181019A-1

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**45.7**	50.00	0	91.3	79.1	123	10/19/2018
1,2-Dichloroethane	2.0		**44.6**	50.00	0	89.2	76.9	117	10/19/2018
Acetone	10.0		**136**	125.0	0	108.5	47.5	123	10/19/2018
Benzene	0.5		**50.4**	50.00	0	100.8	75.8	121	10/19/2018
Chlorobenzene	2.0		**47.1**	50.00	0	94.2	82.1	113	10/19/2018
Chloroform	2.0		**48.8**	50.00	0	97.6	80.1	122	10/19/2018
cis-1,2-Dichloroethene	2.0		**48.6**	50.00	0	97.2	78.6	119	10/19/2018
Ethylbenzene	2.0		**47.6**	50.00	0	95.2	80.7	114	10/19/2018
Methylene chloride	10.0		**50.9**	50.00	0	101.8	76.2	119	10/19/2018
Tetrachloroethene	0.5		**45.2**	50.00	0	90.3	80.6	122	10/19/2018
Toluene	2.0		**46.9**	50.00	0	93.8	78.3	112	10/19/2018
trans-1,2-Dichloroethene	2.0		**50.1**	50.00	0	100.3	73.5	124	10/19/2018
Trichloroethene	2.0		**49.0**	50.00	0	98.1	74.3	125	10/19/2018
Vinyl chloride	2.0		**48.5**	50.00	0	96.9	55.8	135	10/19/2018
Xylenes, Total	2.0		**143**	150.0	0	95.3	80.2	113	10/19/2018
Surr: 1,2-Dichloroethane-d4			**46.5**	50.00		93.0	79.6	118	10/19/2018
Surr: 4-Bromofluorobenzene			**49.5**	50.00		98.9	83.9	115	10/19/2018
Surr: Dibromofluoromethane			**48.0**	50.00		95.9	84.9	113	10/19/2018
Surr: Toluene-d8			**48.4**	50.00		96.7	86.7	112	10/19/2018

Batch 146940 **SampType: MS** Units µg/L

SampID: 18101306-002HMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**52.4**	50.00	0	104.9	52	162	10/19/2018
1,2-Dichloroethane	2.0		**47.0**	50.00	0	93.9	49	155	10/19/2018
Acetone	10.0		**214**	125.0	107.8	84.7	40	160	10/19/2018
Benzene	0.5		**55.6**	50.00	0	111.2	37	151	10/19/2018
Chlorobenzene	2.0		**50.7**	50.00	0	101.5	37	160	10/19/2018
Chloroform	2.0		**54.4**	50.00	0.5600	107.6	51	138	10/19/2018
cis-1,2-Dichloroethene	2.0		**54.6**	50.00	0	109.2	40	160	10/19/2018
Ethylbenzene	2.0		**52.6**	50.00	0.4400	104.3	37	162	10/19/2018
Methylene chloride	2.0		**55.6**	50.00	0	111.2	1	221	10/19/2018
Tetrachloroethene	0.5		**52.5**	50.00	0.5100	103.9	64	148	10/19/2018
Toluene	2.0		**55.7**	50.00	4.260	103.0	47	150	10/19/2018
trans-1,2-Dichloroethene	2.0		**55.6**	50.00	0	111.3	54	156	10/19/2018
Trichloroethene	2.0		**55.7**	50.00	0	111.3	70	157	10/19/2018
Vinyl chloride	2.0		**61.2**	50.00	0	122.3	1	251	10/19/2018
Xylenes, Total	2.0		**156**	150.0	2.280	102.8	40	160	10/19/2018
Surr: 1,2-Dichloroethane-d4			**46.2**	50.00		92.4	74.7	129	10/19/2018
Surr: 4-Bromofluorobenzene			**49.0**	50.00		98.1	86	119	10/19/2018
Surr: Dibromofluoromethane			**48.6**	50.00		97.2	81.7	123	10/19/2018
Surr: Toluene-d8			**48.2**	50.00		96.4	84.3	114	10/19/2018

Client: Environmental Operations, Inc. **Work Order:** 18100822

Client Project: Solutia 2950R **Report Date:** 23-Oct-2018

SW-846 5030, 8260B, VOLATILE ORGANIC COMPOUNDS BY GC/MS

Batch 146940 **SampType: MS** Units µg/L

SampID: 18101306-004HMS

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
1,1,1-Trichloroethane	2.0		**52.0**	50.00	0	104.1	52	162	10/19/2018
1,2-Dichloroethane	2.0		**47.6**	50.00	0	95.2	49	155	10/19/2018
Acetone	10.0		**129**	125.0	0	103.4	40	160	10/19/2018
Benzene	0.5		**55.8**	50.00	0	111.5	37	151	10/19/2018
Chlorobenzene	2.0		**50.7**	50.00	0	101.5	37	160	10/19/2018
Chloroform	2.0		**54.9**	50.00	1.330	107.2	51	138	10/19/2018
cis-1,2-Dichloroethene	2.0		**53.8**	50.00	0	107.6	40	160	10/19/2018
Ethylbenzene	2.0		**51.9**	50.00	0	103.8	37	162	10/19/2018
Methylene chloride	2.0		**55.4**	50.00	0	110.9	1	221	10/19/2018
Tetrachloroethene	0.5		**50.8**	50.00	0	101.5	64	148	10/19/2018
Toluene	2.0		**51.3**	50.00	0	102.6	47	150	10/19/2018
trans-1,2-Dichloroethene	2.0		**55.9**	50.00	0	111.8	54	156	10/19/2018
Trichloroethene	2.0		**54.5**	50.00	0	109.0	70	157	10/19/2018
Vinyl chloride	2.0		**53.4**	50.00	0	106.8	1	251	10/19/2018
Xylenes, Total	2.0		**155**	150.0	0	103.2	40	160	10/19/2018
Surr: 1,2-Dichloroethane-d4			**47.0**	50.00		94.0	74.7	129	10/19/2018
Surr: 4-Bromofluorobenzene			**48.8**	50.00		97.6	86	119	10/19/2018
Surr: Dibromofluoromethane			**48.6**	50.00		97.3	81.7	123	10/19/2018
Surr: Toluene-d8			**47.8**	50.00		95.7	84.3	114	10/19/2018

Batch 146940 **SampType: MSD** Units µg/L RPD Limit **36**

SampID: 18101306-004HMSD

Analyses	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
1,1,1-Trichloroethane	2.0		**54.3**	50.00	0	108.5	52.03	4.20	10/19/2018
1,2-Dichloroethane	2.0		**50.0**	50.00	0	100.1	47.60	5.02	10/19/2018
Acetone	10.0		**128**	125.0	0	102.2	129.2	1.14	10/19/2018
Benzene	0.5		**57.8**	50.00	0	115.7	55.75	3.70	10/19/2018
Chlorobenzene	2.0		**52.6**	50.00	0	105.2	50.74	3.62	10/19/2018
Chloroform	2.0		**57.0**	50.00	1.330	111.4	54.94	3.73	10/19/2018
cis-1,2-Dichloroethene	2.0		**56.1**	50.00	0	112.1	53.82	4.10	10/19/2018
Ethylbenzene	2.0		**53.8**	50.00	0	107.7	51.89	3.67	10/19/2018
Methylene chloride	2.0		**57.9**	50.00	0	115.9	55.43	4.43	10/19/2018
Tetrachloroethene	0.5		**53.4**	50.00	0	106.8	50.77	5.07	10/19/2018
Toluene	2.0		**53.4**	50.00	0	106.9	51.31	4.05	10/19/2018
trans-1,2-Dichloroethene	2.0		**57.9**	50.00	0	115.9	55.91	3.57	10/19/2018
Trichloroethene	2.0		**57.3**	50.00	0	114.6	54.49	5.06	10/19/2018
Vinyl chloride	2.0		**59.8**	50.00	0	119.6	53.42	11.25	10/19/2018
Xylenes, Total	2.0		**161**	150.0	0	107.3	154.8	3.91	10/19/2018
Surr: 1,2-Dichloroethane-d4			**47.5**	50.00		95.0			10/19/2018
Surr: 4-Bromofluorobenzene			**48.9**	50.00		97.7			10/19/2018
Surr: Dibromofluoromethane			**49.1**	50.00		98.2			10/19/2018
Surr: Toluene-d8			**47.7**	50.00		95.4			10/19/2018

Teklab, Inc.
Environmental Laboratory

Receiving Check List

http://www.teklabinc.com/

Client: Environmental Operations, Inc.
Client Project: Solutia 2950R

Work Order: 18100822
Report Date: 23-Oct-2018

Carrier: Kelsey Tharp

Received By: BV

Completed by: Elizabeth A. Hurley
On: 10-Oct-2018

Reviewed by: Michael L. Austin
On: 10-Oct-2018

Pages to follow: Chain of custody 1 Extra pages included 0

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	Temp °C 13.42
Type of thermal preservation?	None ☐	Ice ☑	Blue Ice ☐	Dry Ice ☐
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☐	No ☑		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Reported field parameters measured:	Field ☐	Lab ☐	NA ☑	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐		
When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.				
Water – at least one vial per sample has zero headspace?	Yes ☑	No ☐	No VOA vials ☐	
Water - TOX containers have zero headspace?	Yes ☐	No ☐	No TOX containers ☑	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐	
NPDES/CWA TCN interferences checked/treated in the field?	Yes ☐	No ☐	NA ☑	

Any No responses must be detailed below or on the COC.

Six MW-24A (101018) containers are labeled as collected at 14:20 rather than 14:10. Larry Rosen as notified of this error via work order summary. - BSJ/ehurley - 10/10/2018 5:30:34 PM

Print PDF

CHAIN OF CUSTODY

Pg 1 of 1 Workorder # 18100822

TEKLAB INC, 5445 Horseshoe Lake Road, Collinsville, IL 62234 Phone (618) 344-1004 Fax (618) 344-1005

Client: Environmental Operations, Inc.
Address: 1530 South Second Street, Suite 200
City/State/Zip: St. Louis, MO 63104
Contact: Larry Rosen Phone:
Email: larryr@environmentalops.com Fax:

Samples on: [X] ICE [ ] BLUE ICE [ ] NO ICE 13.42 °C
Preserved in: [ ] LAB [X] FIELD FOR LAB USE ONLY
LAB NOTES: 0 Headspace 10/10/18 BJS

Are these samples known to be involved in litigation? If yes, a surcharge will apply: [ ] Yes [✓] No
Are these samples known to be hazardous? [ ] Yes [✓] No
Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section: [✓] Yes [ ] No

Client Comments:
VOC 8260 Select list: requires lowest possible reporting limit w/ multiple dilutions.
Permanent Gases RSK 175: Ethane, Ethene, Methane.
Subcontract Sulfate Method IC 300 to Summit Environmental Technologies

PROJECT NAME/NUMBER
Solutia 2950R

SAMPLE COLLECTOR'S NAME
Kelsey Tharp

RESULTS REQUESTED
[✓] Standard [ ] 1-2 Day (100% Surcharge)
[ ] Other _____ [ ] 3 Day (50% Surcharge)

BILLING INSTRUCTIONS
2950R

Lab Use Only	Sample ID	Date/Time Sampled	Matrix	UNP	HNO3	NaOH	H2SO4	HCL	MeOH	NaHSO4	TSP	Other	Alachlor 8081	Iron SW 846 6010	RSK 175	Sulfate IC 300	VOC 8260 Select
18100822-001	MW-2B (101018)	10/10/18 9:15	Groundwater	1	1			5						X	X	X	X
002	GM-2 (101018)	10:05	Groundwater	2	1			5					X	X	X	X	X
003	GM-1 (101018)	11:20	Groundwater	2	1			5					X	X	X	X	X
004	GM-1 AD (101018)	11:20	Groundwater	2	1			5					X	X	X	X	X
005	VW-1 (101018)	13:20	Groundwater	1	1			5						X	X	X	X
006	VW-2 (101018)	12:30	Groundwater	1	1			5						X	X	X	X
007	MW-24A (101018)	14:10	Groundwater	1	1			5						X	X	X	X
008	EQUIPMENT BLANK	14:40	Aqueous	2	1			5					X	X	X	X	X
			Aqueous														
			Aqueous														
			Aqueous														

Relinquished By	Date/Time	Received By	Date/Time
	10/10/18 16:50	[signature]	10/10/18 16:50

*The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client. See www.teklabinc.com for terms and conditions

BSJ/EAH 10/12/18

APPENDIX C

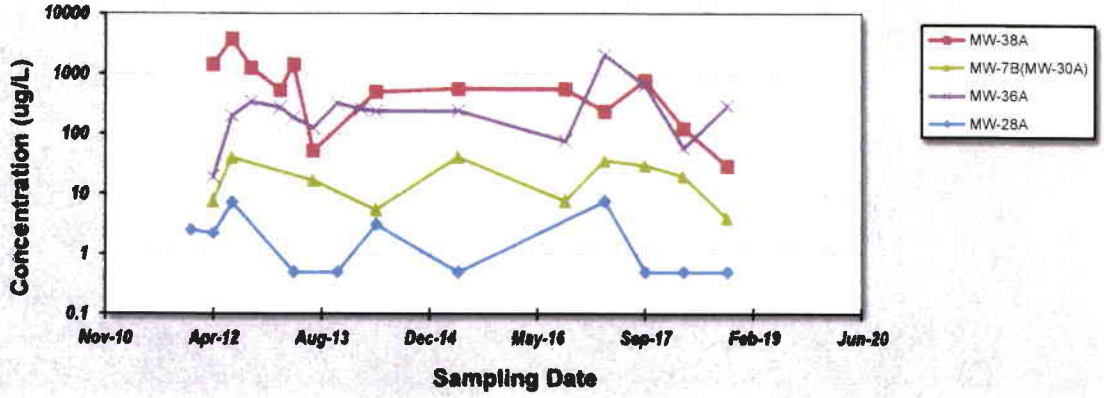
Plume Stability Groundwater Trend Tables

Table 1 (Appendix C)
Mann-Kendall Plume Stability for Fill/Silty Clay Wells in FF Area
Chlorobenzene

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/19/19	**Job ID:**	2950PC
Facility Name:	Solutia	**Constituent:**	Chlorobenzene Shallow
Conducted By:	Lawrence Rosen	**Concentration Units:**	ug/L

Sampling Point ID:			MW-38A	MW-7B(MW-30A)	MW-36A	MW-28A		
Sampling Event	**Sampling Date**	**CHLOROBENZENE SHALLOW CONCENTRATION (ug/L)**						
1	12/20/11					2.5		
2	4/3/12		1430	7.5	19.1	2.2		
3	6/28/12		3740	39.7	200	7.2		
4	9/26/12		1250		343			
5	2/7/13		532		273			
6	4/11/13		1430		186	0.5		
7	7/11/13		51.4	16.6	126			
8	10/30/13				323	0.5		
9	2/19/14				258			
10	4/28/14		496	5.4	237	3.1		
11	7/7/14							
12	5/11/15		562	41	240	0.5		
13	9/20/16		558	7.5	75.8			
14	3/21/17		235	35.5	2070	7.5		
15	9/25/17		774	29.4	634	0.5		
16	3/21/18		123	19.4	57.4	0.5		
17	10/8/18		29	3.9	293	0.5		
18								
19								
20								
Coefficient of Variation:			1.15	0.72	1.40	1.15		
Mann-Kendall Statistic (S):			-41	-6	13	-14		
Confidence Factor:			99.4%	66.8%	72.1%	84.0%		
Concentration Trend:			Decreasing	Stable	No Trend	No Trend		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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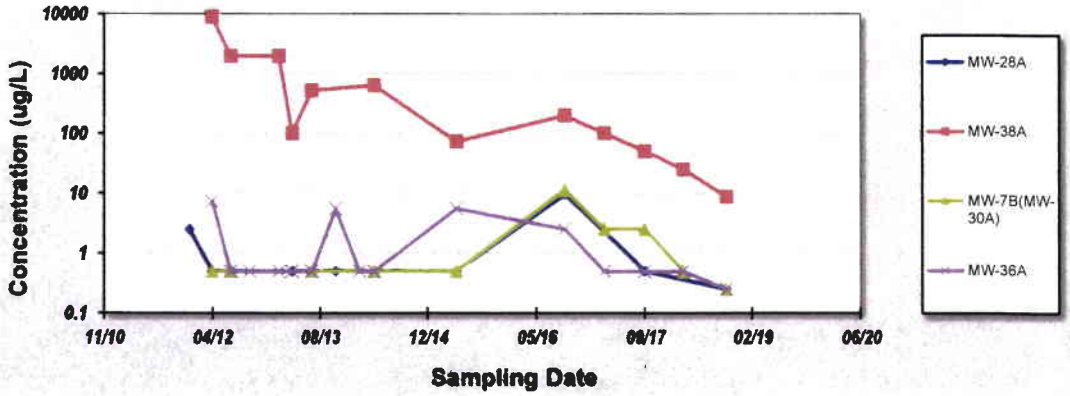
Table 2 (Appendix C)
Mann-Kendall Plume Stability for Fill/Silty Clay Wells in FF Area
Tetrachloroethene

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/19/2019	Job ID:	2950PC
Facility Name:	Solutia	Constituent:	Tetrachloroethene Shallow
Conducted By:	Lawrence Rosen	Concentration Units:	ug/L

Sampling Point ID:			MW-38A	MW-7B(MW-30A	MW-36A	MW-28A		
Sampling Event	Sampling Date	TETRACHLOROETHENE SHALLOW CONCENTRATION (ug/L)						
1	12/20/11					2.5		
2	4/3/12		8950	0.5	7.3	0.5		
3	6/28/12		2000	0.5	0.5	0.5		
4	9/26/12				0.5			
5	2/7/13		1980		0.5			
6	4/11/13		100		0.5	0.5		
7	7/11/13		528	0.5	0.5			
8	10/30/13				5.5	0.5		
9	2/19/14				0.5			
10	4/28/14		636	0.5	0.5	0.5		
11	7/7/14							
12	5/11/15		73	0.5	5.5	0.5		
13	9/20/16		200	11.4	2.5	9.6		
14	3/21/17		100	2.5	0.5			
15	9/25/17		50	2.5	0.5	0.5		
16	3/21/18		25	0.5	0.5			
17	10/8/18		8.7	0.25	0.25	0.25		
18								
19								
20								
Coefficient of Variation:			2.08	1.74	1.35	1.82		
Mann-Kendall Statistic (S):			-53	1	-21	-10		
Confidence Factor:			>99.9%	50.0%	83.6%	78.4%		
Concentration Trend:			Decreasing	No Trend	No Trend	No Trend		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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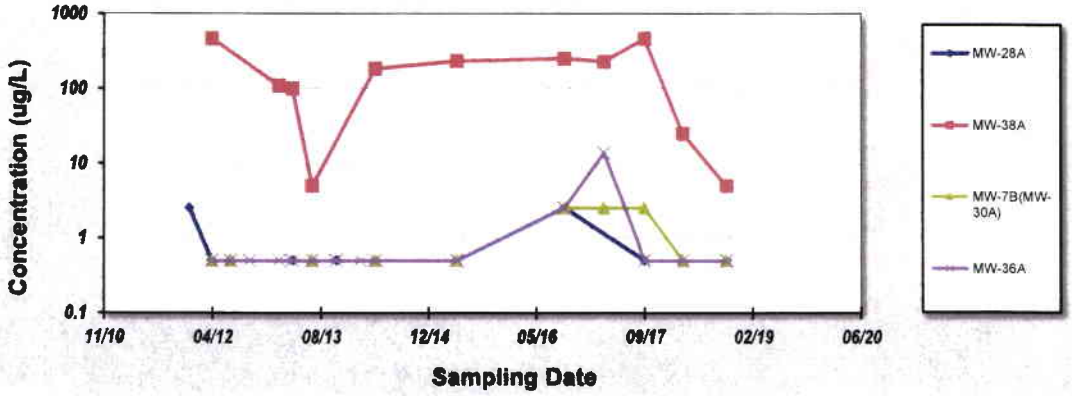
Table 3 (Appendix C)
Mann-Kendall Plume Stability for Fill/Silty Clay Wells in FF Area
Toluene

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/19/2019	Job ID:	2950PC
Facility Name:	Solutia	Constituent:	Toluene Shallow
Conducted By:	Lawrence Rosen	Concentration Units:	ug/L

Sampling Event	Sampling Date		MW-38A	MW-7B(MW-30A	MW-36A	MW-28A		
		TOLUENE SHALLOW CONCENTRATION (ug/L)						
1	12/20/11					2.5		
2	4/3/12		469	0.5	0.5	0.5		
3	6/28/12			0.5	0.5	0.5		
4	9/26/12				0.5			
5	2/7/13		110		0.5			
6	4/11/13		100		0.5	0.5		
7	7/11/13		5	0.5	0.5			
8	10/30/13				0.5	0.5		
9	2/19/14				0.5			
10	4/28/14		185	0.5	0.5	0.5		
11	7/7/14							
12	5/11/15		233	0.5	0.5	0.5		
13	9/20/16		252	2.5	2.5	2.5		
14	3/21/17		231	2.5	14			
15	9/25/17		466	2.5	0.5	0.5		
16	3/21/18		25	0.5	0.5			
17	10/8/18		5.0	0.5	0.5	0.5		
18								
19								
20								
Coefficient of Variation:			0.87	0.88	2.27	0.94		
Mann-Kendall Statistic (S):			-6	9	15	-4		
Confidence Factor:			64.8%	75.8%	75.2%	60.3%		
Concentration Trend:			Stable	No Trend	No Trend	Stable		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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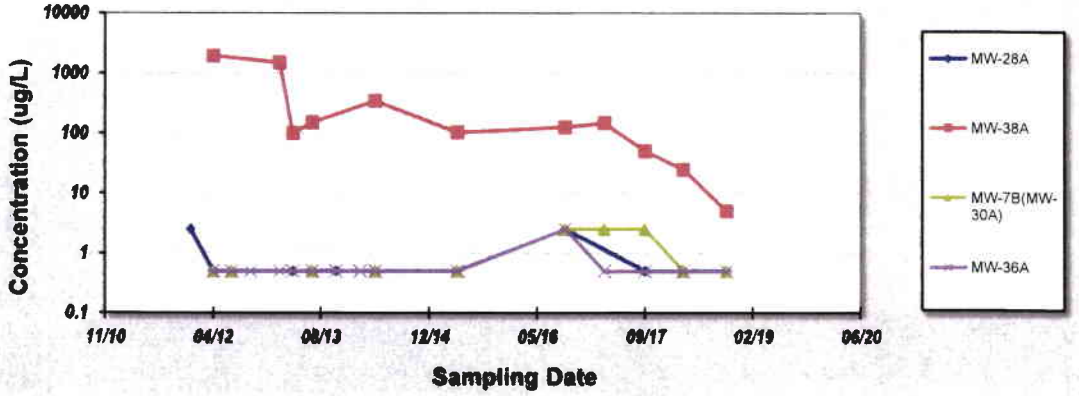
Table 4 (Appendix C)
Mann-Kendall Plume Stability for Fill/Silty Clay Wells in FF Area
Trichloroethene

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/12/19	Job ID:	2950PC
Facility Name:	Solutia	Constituent:	Trichloroethene Shallow
Conducted By:	Lawrence Rosen	Concentration Units:	ug/L

Sampling Point ID:			MW-38A	MW-7B(MW-30A)	MW-36A	MW-28A		
Sampling Event	Sampling Date	TRICHLOROETHENE SHALLOW CONCENTRATION (ug/L)						
1	12/20/11					2.5		
2	4/3/12		1960	0.5	0.5	0.5		
3	6/28/12			0.5	0.5	0.5		
4	9/26/12				0.5			
5	2/7/13		1510		0.5			
6	4/11/13		100		0.5	0.5		
7	7/11/13		150	0.5	0.5			
8	10/30/13				0.5	0.5		
9	2/19/14				0.5			
10	4/28/14		343	0.5	0.5	0.5		
11	7/7/14							
12	5/11/15		103	0.5	0.5	0.5		
13	9/20/16		126	2.5	2.5	2.5		
14	3/21/17		147	2.5	0.5			
15	9/25/17		50	2.5	0.5	0.5		
16	3/21/18		25	0.5	0.5			
17	10/8/18		5.0	0.5	0.5	0.5		
18								
19								
20								
Coefficient of Variation:			1.63	0.88	0.82	0.94		
Mann-Kendall Statistic (S):			-37	9	6	-4		
Confidence Factor:			99.8%	75.8%	59.6%	60.3%		
Concentration Trend:			Decreasing	No Trend	No Trend	Stable		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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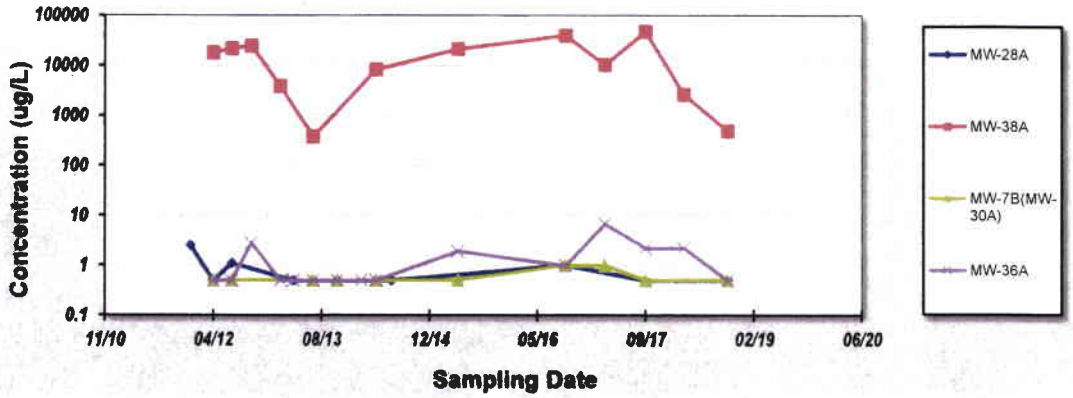
Table 5 (Appendix C)
Mann-Kendall Plume Stability for Fill/Silty Clay Wells in FF Area
Vinyl Chloride

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/12/2019	Job ID:	2950PC
Facility Name:	Solutia	Constituent:	Vinyl Chloride Shallow
Conducted By:	Lawrence Rosen	Concentration Units:	ug/L

Sampling Point ID:			MW-38A	MW-7B(MW-30A	MW-36A	MW-28A		
Sampling Event	Sampling Date	VINYL CHLORIDE SHALLOW CONCENTRATION (ug/L)						
1	12/20/11					2.5		
2	4/3/12		18100	0.5	0.5	0.5		
3	6/28/12		22300	0.5	0.5	1.1		
4	9/26/12		24900		2.8			
5	2/7/13		3870		0.5			
6	4/11/13				0.5	0.5		
7	7/11/13		373	0.5	0.5			
8	10/30/13			0.5	0.5	0.5		
9	2/19/14				0.5			
10	4/28/14		8300	0.5	0.5	0.5		
11	7/7/14					0.5		
12	5/11/15		21300	0.5	1.9			
13	9/20/16		39700	1.0	1.0	1.0		
14	3/21/17		10400	1.0	6.7			
15	9/25/17		48200	0.5	2.2	0.5		
16	3/20/18		2640		2.2			
17	10/8/18		482	0.5	0.5	0.5		
18								
19								
20								
Coefficient of Variation:			0.93	0.35	1.18	0.79		
Mann-Kendall Statistic (S):			-6	8	30	-12		
Confidence Factor:			63.1%	72.9%	92.3%	83.2%		
Concentration Trend:			Stable	No Trend	Prob. Increasing	Stable		



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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