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May 15, 2023

SCANNED

Ms. Kim Kuhn
Bureau of Land and Waste Management
SC Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

RECEIVED

MAY 17 2023

RE: Pilot Study Work Plan
Shakespeare Composite Structures Site, Newberry, South Carolina
SCDHEC VCC Number 14-6271-RP

SITE ASSESSMENT,
REMEDICATION, &
REVITALIZATION

Dear Ms. Kuhn:

On behalf of Signify North America Corporation (Signify), please find enclosed the Pilot Study (PS) Report for the Shakespeare Composite Structures Site (the Site) located in Newberry, South Carolina. The PS Report contains a summary of the PS baseline groundwater sampling event, the chemical oxidant and carbon substrate injections, the 15 months of performance groundwater monitoring, and study conclusions. The following recommendations and next step actions are also offered at the end of the report:

- Signify requests that the PS results be accepted by SCDHEC.
- Both ISCO and ISERD should be retained as potential treatment technologies and for remedial alternative development in the FS.
- Data contained in the Sitewide Groundwater Monitoring Report (still in progress at the time this PS Report is being submitted), for monitoring conducted in 2022, will also be used during FS development.
- We plan to initiate the feasibility study (FS) as soon as possible.
- Due to an unexpected increase in the trichloroethene (TCE) concentration (to greater than 3 mg/L) in the final PS monitoring event (December 2022) groundwater sample from monitoring well MW-31, it is recommended that a limited additional assessment of groundwater quality, including installation of up to six additional monitoring wells, be performed in the vicinity of monitoring this well. A work plan and monitoring well request will be submitted to SCDHEC within the next week.

If you have questions regarding this PS Report, please feel free to contact me, or Dave Oliphant of AECOM at 864-380-6950, at your convenience.

Sincerely,

AECOM Technical Services, Inc.

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cc: Mr. Emil Filc – Signify North America Corporation
Mr. Dave Oliphant – AECOM

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Pilot Study Report Shakespeare Composite Structures Site

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SITE ASSESSMENT,
REMEDICATION, &
REVITALIZATION

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Signify North America Corporation

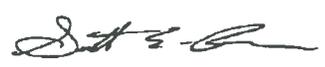
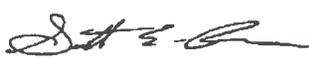
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Pilot Study Report

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List of Acronyms

ABC®-Olé	Anaerobic Biochem® Olé
ABC®+Olé	Anaerobic Biochem Plus® Olé
AECOM	AECOM Technical Services, Inc.
bgs	below ground surface
BSTS	bench-scale treatability study
cells/mL	cells per milliliter
cis-1,2-DCE	cis-1,2-dichloroethene
CVOCs	chlorinated volatile organic compounds
<i>DHB</i>	<i>Dehalobacter spp.</i>
<i>DHC</i>	<i>Dehalococcoides</i>
DO	dissolved oxygen
DOT	Department of Transportation
DPT	direct push technology
ERD	enhanced reductive dechlorination
EVO	emulsified vegetable oil
FS	feasibility study
ft	feet or foot
ft/ft	feet per foot
ft/day	feet per day
ft/yr	feet per year
g/kg	grams per kilogram
gpm	gallons per minute
IDW	investigation derived waste
ISB	in situ bioremediation
ISERD	in situ enhanced reductive dechlorination
ISCR	in situ chemical reduction
ISCO	in situ chemical oxidation
KMnO ₄	potassium permanganate
MCL	maximum contaminant level
mg/L	milligrams per liter
µg/L	micrograms per liter
ml	milliliter

List of Acronyms (cont'd.)

msl	mean sea level
mV	millivolt
ORP	oxidation reduction potential
Pace	Pace Analytical Services
PENAC	Philips Electronics North America Corporation
PS	Pilot Study
PSUS	Pilot Study Update Summary
PSWP	Pilot Study Work Plan
psig	pounds per square inch gauge
PVC	polyvinyl chloride
Redox Tech	Redox Tech, LLC
RemOx®S	RemOx®S ISCO reagent
RI	remedial investigation
ROI	radius of influence
RP-VCC	responsible party-voluntary cleanup contract
SC	specific conductance
SCDHEC	South Carolina Department of Health and Environmental Control
Signify	Signify North America, Inc.
SiREM	SiREM Laboratories
SPDWS	State Primary Drinking Water Standards
S.U.	standard units (for pH)
SVOC	semivolatile organic compound
TCE	trichloroethene
TCL-VOC	target compound list-volatile organic compound
TDS	total dissolved solids
TOC	total organic carbon
TOD	total oxidant demand
UIC	underground injection control
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VCC	voluntary cleanup contract
VOCs	volatile organic compounds
ZVI	zero valent iron

Section 1. Introduction

The Shakespeare Composite Structures Site (the "Site"), located in Newberry, South Carolina, is participating in a voluntary cleanup program with the South Carolina Department of Health and Environmental Control (SCDHEC). Signify North America Corporation (Signify) is currently listed as responsible party under voluntary cleanup contract (RP-VCC) number RP-VCC-14-6271-RP. As part of the RP-VCC process, the Site has undergone a Remedial Investigation (RI), which was completed in November 2018. The RI efforts resulted in the delineation of a plume of dissolved phase chlorinated volatile organic compounds (CVOCs) in Site groundwater. Based on the results of the RI, it is anticipated that an active groundwater treatment remedy will be required for at least a portion of Site groundwater.

Signify has conducted several activities that have provided information to be incorporated into a Feasibility Study (FS) for potential remedial alternatives to treat CVOC-impacted groundwater. Previously completed activities include a bench-scale treatability study (BSTS) that was conducted between September 2019 and January 2020. A BSTS Report was generated following the conclusion of the BSTS. That report contained a summary of the results of the laboratory-based evaluation of multiple in situ remediation options and also contained recommendations for the performance of a field-scale pilot study.

Based on the results of the BSTS, Signify and AECOM Technical Services, Inc. (AECOM) implemented a Pilot Study (PS) designed to evaluate multiple groundwater remediation technologies at the former Shakespeare Composite Structures site (Site). The PS included a field evaluation of in-situ chemical oxidation (ISCO) and in-situ enhanced reductive dechlorination (ISERD) treatment technologies for groundwater at specific locations on the Site. The PS addressed CVOCs in shallow and intermediate zone groundwater where the highest concentrations of CVOCs had been detected during previous Site investigations. CVOC impact in bedrock groundwater exists but at much lower concentrations and therefore was not addressed by this pilot study.

This pilot study report includes brief discussions of the site setting, previous investigations, the FS work plan, and BSTS activities in this Section 1. In Section 2, the field-scale pilot study location, design, and implementation are addressed. In Section 3, pilot study results are summarized. Conclusions, recommendations, and next step actions are presented in Section 4.

1.1 Facility and Site Setting

The Site is located on US Highway 76, approximately 1 mile northwest of Newberry, South Carolina (**Figure 1-1**). The Site is centered on the Valmont Composite Structures facility (the Facility, formerly known as Shakespeare Composite Structures) (**Figure 1-2**). The facility was originally opened to produce fiberglass products, and it has continued to be used for this manufacturing process. Operations at the facility include the design and manufacture of large fiberglass utility poles and cross arms and a variety of other fiberglass outdoor products such as posts, signs, sheet piling, and signposts. Manufacturing is conducted inside two separate buildings – the Main Building and the Pole Winder Building.

In addition to the Facility property, the Site includes several surrounding properties (**Figure 1-2**). General land use surrounding the facility consists of agricultural, residential, undeveloped, and commercial/light industrial properties.

Topography of the Site is generally flat or gently sloping. Land surface elevations generally decrease to the southwest, west, and north moving away from the Facility property. Surface elevations range from approximately 562 feet (ft) mean sea level (msl) on the east side of the Facility to less than 520 ft msl along an unnamed intermittent stream located to the north of the Facility.

A more detailed description of the facility's operation, surrounding property usage, and site topographic setting information is included in the RI Report (**AECOM, 2018**).

1.2 Previous Investigations

Several phases of investigative efforts have been performed at the Site, including multiple assessments prior to execution of the VCC. The pre-VCC investigative efforts that were conducted include:

- Phase II Environmental Site Assessment – Collection of initial soil and groundwater samples from the Shakespeare facility (February through April 2014);
- Site Investigation – Collection of additional soil and groundwater samples from the Shakespeare facility along with several groundwater samples from surrounding private parcels (May through August 2014); and
- Expanded Investigation - Collection of additional shallow groundwater samples and evaluation of shallow bedrock for impacted groundwater on surrounding properties (August through September 2014).

An RP-VCC between the SCDHEC and Philips Electronics North America Corporation (PENAC) was executed in September 2014. Once this VCC was executed, additional investigative efforts were performed as part of the RI process. PENAC is the former name of Signify.

The RI was implemented in two phases, beginning in 2014 after execution of the VCC. The RI was conducted to further evaluate the vertical and/or horizontal extent of previously identified CVOCs in soil and groundwater; assess additional potential areas of interest for secondary sources of VOCs that could be contributing to soil and/or groundwater impacts; evaluate potential vapor intrusion pathways; determine risk to potential human and ecological receptors; and provide additional data needed to develop a remedial strategy for the Site.

RI efforts determined that the source areas for CVOCs present in groundwater originated from historical operational practices that impacted groundwater beneath the western portions of the Main and Pole Winder Buildings located on the Facility property. CVOCs subsequently migrated both horizontally and vertically within groundwater away from the identified source areas and impacted multiple aquifer depth intervals (shallow, intermediate, and bedrock) beyond the Facility property.

In general, the water table at the Site is encountered in the fine sands and silts and clays of the residuum. Groundwater is encountered at depths ranging from approximately two ft below ground surface (bgs) near the northern end of the Site and on the Dickert property to as deep as approximately 18 ft bgs on the former Shakespeare Composite Structures facility. Groundwater beneath the Site is mainly encountered under unconfined conditions.

As a result, the direction of groundwater flow beneath this Site, particularly in the shallow (water table) zone follows the local topography, with flow components to the west and northwest. CVOCs have migrated within the water

table and saprolite zones primarily through natural dispersion. Vertical migration downgradient of the source areas within the saprolite and into underlying granitic bedrock was influenced primarily by numerous privately-operated water supply wells located to the west and southwest of the Facility. Groundwater elevation and flow maps for the shallow, intermediate, and bedrock zones from the most recent comprehensive groundwater elevation measurement conducted in February 2022 are provided as **Figures 1-3 , 1-4, and 1-5**, respectively.

Based on the groundwater elevations determined during the most recent measurement event (February 2022), the average horizontal hydraulic gradients for the shallow and intermediate zones were determined to be 0.016 feet per foot (ft/ft) to the west-northwest and 0.015 ft/ft to the west-northwest, respectively. A downward gradient between the shallow and intermediate zones generally was observed across the Site during the February 2022 event, with some locations where an upward gradient was indicated. During Phase II of the RI, hydraulic conductivity tests (slug tests) were conducted on select shallow and intermediate zone monitoring wells. The results of the slug tests indicated an average hydraulic conductivity of 0.80 feet per day (ft/day) and 0.72 ft/day for the shallow and intermediate zone, respectively. Based on an assumed effective porosity of 0.25 and the use of the February 2022 depth to water data, the calculated ground velocity for the shallow groundwater zone is approximately 0.051 ft/day or 18.9 feet per year (ft/yr). Using an assumed effective porosity of 0.3, the calculated ground velocity for the intermediate groundwater zone is approximately 0.036 ft/day or 13.4 ft/yr.

The RI defined the extent of CVOC-impacted groundwater at multiple aquifer depth intervals. Analytical results were screened against United States Environmental Protection Agency (USEPA) maximum contaminant levels (MCLs) and the South Carolina Department of Health and Environmental Control's – State Primary Drinking Water Standards-(SPDWS) to identify compounds of interest in groundwater beneath the Site. Concentrations of trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) exceeded their respective MCLs/SPDWSs in several groundwater samples collected from the Site. Of these, TCE was the most frequently detected chemical in groundwater samples collected at the Site. The elevated concentrations of CVOCs are most widespread in shallow zone groundwater (upper portion of the water table aquifer). TCE and cis-1,2-DCE also exceeded their respective MCLs in one or more samples collected in the intermediate (saprolite) zone.

Because TCE was detected most frequently and at the highest concentrations in Site groundwater, the results for this chemical constituent have been used to represent the extent of impact in the shallow and intermediate groundwater zones. **Figures 1-6 , 1-7, and 1-8** depict the extent of TCE in shallow zone, intermediate zone, and bedrock groundwater beneath the Site based on analytical results from the last site-wide monitoring event completed in February/March 2022.

A more detailed discussion of the results of the investigative efforts conducted at the Site to date is included in the RI Report (AECOM, 2018). The RI Report for the Site was submitted to the SCDHEC in November 2018 and subsequently approved by the Department in written correspondence dated February 4, 2019.

1.3 Feasibility Study Work Plan

Following approval of the RI Report, SCDHEC requested that Signify develop an FS Work Plan for the Site. The purpose of the FS Work Plan was to outline the proposed information that would be included in the Site FS. The cover letter for the FS Work Plan also proposed that a BSTS and subsequent pilot study should be completed prior to development of the FS. The FS Work Plan was submitted to SCDHEC on May 15, 2019 (AECOM, 2019). SCDHEC approved the FS Work Plan in correspondenc dated June 4, 2019.

In their June 4, 2019 approval letter, SCDHEC requested that Signify submit a BSTS Work Plan by July 31, 2019. The BSTS Work Plan was approved by SCDHEC on August 23, 2019. The BSTS was subsequently implemented in September 2019.

1.4 Bench Scale Treatability Study

In order to develop a more definitive remediation plan for Site groundwater, and prior to developing the FS for the Site, two potential in-situ technologies for groundwater were evaluated. The two potential remedies evaluated in the BSTS as possible treatment options for Site-related CVOCs consisted of ISCO and ISERD (AECOM, 2020). Both ISCO and ISERD are active groundwater remedial approaches that can degrade CVOCs via chemical oxidation or via biological reductive dechlorination. In this case, reductive dechlorination via in-situ bioremediation (ISB), was enhanced by including in situ chemical reduction (ISCR), which is an abiotic process, thus the term ISERD is used.

On September 19, 2019, soil was collected from an area between monitoring wells MW-10 and MW-10I, and groundwater was collected from MW-10 and MW-10I. This area and the two monitoring wells are located just north of the Facility property on the Dickert property (**Figures 1-6 and 1-7**). Soil and groundwater samples were shipped to Redox Tech, LLC (Redox Tech) in Cary, North Carolina for ISCO total oxidant demand (TOD) testing. Soil and groundwater samples were also submitted to SiREM Laboratories (SiREM) in Ontario, Canada for bench-scale evaluation of the various ERD treatments.

The TOD evaluation was conducted to determine if native Site groundwater and saturated aquifer material would be amenable to ISCO treatment. Aquifer materials targeted for ISCO treatment that contain high natural organic carbon, high naturally reduced inorganic minerals such as iron, and elevated CVOC concentrations require higher concentrations of oxidant to effectively treat the targeted contaminants. TOD values determined in the four microcosms used for ISCO testing indicated a limited oxidant demand exerted by Site groundwater and saturated soil. TOD values for the microcosms ranged from less than 0.3 grams per kilogram (g/kg) to 2.8 g/kg, which falls within the typical range for saprolitic soils found in the Piedmont region of South Carolina. Based on these results and a subsequent discussion with Redox Tech, a TOD value of 1 to 2 g/kg was considered adequate for ISCO design purposes. Because the Site TOD value is low, these results indicated that ISCO may be a suitable remedial option to treat CVOC-impacted Site groundwater.

The BSTS for ERD evaluated the effectiveness of multiple treatment amendments for CVOC-impacted Site media including EDS-ER™ (an emulsified vegetable oil [EVO]), which promotes ISB via reductive dechlorination, MicroEVO™ (a sulfidated zero valent iron [ZVI]), which promotes abiotic ISCR, and KB- 1® Plus (a chlorinated solvent bioaugmentation microbial culture). One of the EDS-ER™ amended treatment microcosms and one of the MicroEVO™ ISCR amended treatment microcosms were also buffered using sodium bicarbonate to maintain the pH within the optimal range (i.e., 6 to 8 standard units [S.U.]) for reductive dechlorination to occur.

Based on the results of the BSTS, it was determined that the microcosm with buffered EVO that was amended approximately 40 days after initiation of testing with KB- 1® Plus was able to completely degrade the TCE in Site groundwater. The microcosms containing sulfidated ZVI saw an immediate decrease in TCE to approximately half of its initial concentration; however, bioaugmentation was required to promote further reduction in the concentration of TCE. VC remained in this sulfidated ZVI microcosm at the conclusion of the BSTS in January 2020. It was subsequently surmised that sulfidation of the ZVI likely interfered with the complete reduction of TCE to ethene, and that non-sulfidated ZVI would likely be more effective.

Based on the results of the BSTS, both ISCO and ISERD (using a combination of ISB and ISCR) were determined to be potentially applicable remediation technologies that could be used to address CVOC contamination in Site groundwater. A field-based pilot study was recommended as the next logical step in order to evaluate effectiveness, implementability, and cost associated with full-scale implementation of one or both technologies.

In their approval letter, SCDHEC reviewed and concurred with the BSTS results and recommendation for the completion of a pilot study at the Site. SCDHEC requested that Signify submit a Pilot Study Work Plan (PSWP) by August 15, 2020. Signify subsequently requested an extension to complete the PSWP. A due date extension to October 2, 2020 was approved by SCDHEC on August 24, 2020. The PSWP was submitted to SCDHEC on October 1, 2020. SCDHEC approved the PSWP on October 16, 2020.

Section 2. Pilot Study Location, Design, and Implementation

The following subsections describe the pilot study location, design, and implementation procedures.

2.1 Pilot Study Locations

Because both ISCO and ISERD were determined through the BSTS to be potentially applicable treatment technologies for CVOCs in Site groundwater, the pilot study consisted of separate pilot study areas so both technologies could be evaluated in the field. Based on the 2017 CVOC concentrations detected in shallow and intermediate zone groundwater, two areas were identified for the pilot study. One pilot study area was located within the eastern end of the Main Building near monitoring well TMW-31 and was used to conduct the ISCO pilot study. The ERD pilot study area was located north of the Pole Winder Building across the railroad tracks on the Dickert Property. The locations of the PS areas are shown on **Figures 2-1 2-2, and 2-3**.

The objective of the proposed ISCO pilot study was to decrease the TCE concentration in the shallow groundwater zone within this area using a strong chemical oxidant. **Section 2.2** describes the injection design and the amendment that was used to achieve the ISCO pilot study objective. The amendment was injected through temporary well points using direct-push technology (DPT) to treat the targeted shallow groundwater. Flow direction in shallow zone groundwater near TMW-31 is to the west-northwest (**Figure 1-3**). Site monitoring well specifications are provided in **Table 2-1**.

Figure 2-1 shows the ISCO pilot study area and the DPT injection locations. It should be noted that a source area located in the western end of the Main Building was initially identified for the ISCO pilot study; however, this location is in the middle of a production area with high traffic and limited access. Another potential location near MW-8 located outside of the western end of the Main Building was also identified; however, without treatment of the source area within the vicinity of TMW-21 and TMW-22, ongoing impact from the upgradient source to downgradient groundwater at MW-8 would likely occur, and the effectiveness of the pilot study would be difficult to accurately evaluate. As a result, the area near TMW-31 was selected for the ISCO portion of the pilot study.

The objective of the proposed ISERD pilot study was to decrease the concentration of TCE in the shallow and intermediate groundwater zones in the vicinity of monitoring wells MW-10 and MW-10I. The ISERD pilot study included the concurrent injection of an organic carbon substrate and ZVI into the targeted shallow and intermediate zone groundwater in order to create strongly anaerobic and reducing conditions suitable for reduction of the Site-related CVOCs in groundwater. Additional amendments including a pH buffer and a bioaugmentation culture were used to enhance the reduction of CVOCs. The ERD substrate and amendments were also delivered to the subsurface via targeted DPT injection.

Figure 2-2 shows the ISERD pilot study area and the DPT injection locations for shallow zone groundwater treatment near MW-10. **Figure 2-3** shows the ISERD pilot study area and the DPT injection locations for intermediate zone groundwater treatment near MW-10I. Flow direction in shallow zone groundwater near MW-10 is to the north-northwest (**Figure 1-3**), and the flow direction in intermediate zone groundwater near MW-10I is to the west-northwest (**Figure 1-4**).

2.2 Pilot Study Design

The following subsections describe the injection design and amendments which were used to achieve the ISCO and ERD pilot study objectives.

2.2.1 ISCO Pilot Study

For the ISCO injections using DPT, a radius of influence (ROI) of 8 ft was assumed, in order to obtain adequate coverage for the successful treatment of shallow zone groundwater with elevated TCE in the vicinity of monitoring well TMW-31. For this area, a potassium permanganate (KMnO_4) solution (approximately 4% by weight) was injected into three locations via DPT using a Geoprobe® series 6600 rig. The vertical injection interval targeted for the three injection locations was from 10 ft bgs to 20 ft bgs. A typical DPT injection point detail for the ISCO pilot study is shown in **Figure 2-4**. The specific chemical oxidant product that was used is described in the following subsection.

2.2.1.1 RemOx®S ISCO Reagent

For the ISCO field pilot study, the Carus Corporation KMnO_4 product denoted as RemOx®S ISCO reagent (RemOx®S), was used for the treatment of TCE in the shallow zone groundwater within the vicinity of TWM-31. RemOx®S is a strong chemical oxidant that has been used for the treatment of CVOCs in groundwater at numerous sites with varying lithologies including those similar to the Shakespeare Composite Structures Site. The use of RemOx®S does require activation like other chemical oxidants such as persulfate or hydrogen peroxide. Its use is applicable over a wide range of pH values, and it can easily be detected in monitoring wells several months following injection due to its natural deep purple color. RemOx®S is deep purple when it is chemically active and becomes brown once it is no longer active.

2.2.2 ISERD Pilot Study

For the ISERD DPT injections, an ROI of 10 feet was assumed for both the shallow and intermediate zone groundwater, in order to obtain adequate coverage for the successful treatment of groundwater with elevated TCE concentrations in the vicinity of MW-10 and MW-10I. Injections were conducted using a Geoprobe® series 7822 DPT rig. For the shallow zone, a barrier-type injection approach was utilized. Five ERD DPT injections were conducted upgradient of MW-10 and the associated observation well (ISERD-OSW-1S). The vertical injection interval for shallow zone groundwater treatment ranged from 20 ft bgs to 30 ft bgs. A typical DPT injection point detail for the shallow zone is shown in **Figure 2-5**.

The barrier-type injection pattern was also intended for use near intermediate monitoring well MW-10I; however, varying depths of impenetrable layers of either partially weathered rock or bedrock prevented the DPT rig from reaching the planned intermediate zone injection depth. As a result, the orientation of DPT injection points had to be altered since the targeted DPT injection depths could not be achieved. Injection points in the MW-10I area surrounded this well and the associated observation well (ISERD-OSW-1I). The vertical injection interval for

intermediate zone groundwater treatment ranged from 30 ft bgs to 36 ft bgs. A typical DPT injection point detail for the intermediate zone is shown in **Figure 2-6**. The five intermediate zone injections were conducted first, followed by the shallow zone injections.

The substrate used for the ISERD injections at the Site included a combination of biological and chemical amendments that included Anaerobic Biochem Plus® Olé (ABC®+Olé), which is a combination of Anaerobic Biochem® Olé (ABC®-Olé) and ZVI, magnesium oxide, guar, RTB-1 (microbial amendment consisting of *Dehalococcoides* [DHC] bacteria, and sodium sulfite). A description of each of these amendments is presented in the following subsections.

2.2.2.1 ABC®+Olé

A combination organic carbon source/ZVI substrate known as ABC®+Olé was used for the ERD pilot study. ABC®+Olé is a combination bioremediation/chemical reductant product developed and patented by Redox Tech. The use of ABC®+Olé results in the creation of strong reducing conditions within the targeted shallow and intermediate groundwater zones, which ultimately is intended to enhance the reductive dechlorination of Site-related CVOCs via two mechanisms. First, ABC®+Olé contains a readily available carbon food source to indigenous microorganisms, which consists of a mixture of fast-release soluble lactic acids (glycerin) and slow-release fatty acids (oleic acid) along with a dipotassium phosphate buffer. This combination of products serves to promote the ISB of the targeted CVOCs. Second, ABC®+Olé contains added ZVI, which does not rely on microbial degradation to treat the targeted CVOCs but rather utilizes ISCR. ISCR by ZVI works via an abiotic degradation pathway (β -elimination) that occurs on the surface of the granular ZVI, with the ZVI primarily acting as an electron donor.

The addition of ZVI to the ABC®+Olé mixture provides a number of advantages over traditional ERD applications without ZVI. The ZVI provides an immediate reduction in existing groundwater conditions. ZVI also raises the pH in the targeted groundwater, and the corrosion of the ZVI produces small quantities of hydrogen gas, which is an energy source for a wide range of anaerobic bacteria. Finally, the β -elimination pathway accounts for the majority of the degradation that occurs when the targeted CVOCs come into contact with the ZVI. This pathway avoids the production of cis-1,2-DCE and VC and the potential “stall out” or accumulation of these constituents that may occur during microbially-induced reductive dechlorination.

For the proposed ERD injection event, the ABC®+Olé mixture consisted of 50% by weight ABC®-Olé and 50% by weight ZVI. In particular, the 50% by weight ABC®-Olé consisted of long chain fermentable carbon (C14 to C18 fatty acids), which is comprised of a mixture of fatty acid methyl ester, soybean oil, and an emulsifier, approximately 5% by weight glycerin, and 0.1% by weight dipotassium phosphate as a micronutrient and buffer.

2.2.2.2 Magnesium Oxide

At the Site, the native pH of the targeted shallow and intermediate groundwater zones is generally between 4.5 and 6.5 S.U. As a result, magnesium oxide, which is transformed into magnesium hydroxide upon contact with water, was injected along with the ABC®+Olé to more aggressively raise and sustain the pH within the immediate vicinity of the DPT injection locations. The quantity of magnesium oxide injected was approximately 1% by weight of the injected solution.

2.2.2.3 Guar

Guar is used as a stabilizing, thickening, and suspending agent for injection substrates. In this case, the added guar was used to achieve the hydraulic emplacement of the ABC®+Olé mixture at each ISERD DPT injection location.

2.2.2.4 RTB-1

Bioaugmentation, by means of RTB-1, was also implemented for the ISERD portion of the pilot study to increase the effectiveness of the ABC®+Olé injection. Bioaugmentation is defined as the addition of high-performance microbial cultures capable of degrading targeted CVOCs. Bioaugmentation for the treatment of chlorinated ethenes entails the addition of a naturally occurring, non-pathogenic, microbial culture that contains *DHC* bacteria, which are capable of completely dechlorinating TCE and its daughter products to harmless ethene. Bioaugmentation is often used when there is incomplete dechlorination of TCE following biostimulation with an organic carbon source.

Not all *DHC* in nature dechlorinate VC efficiently due to the lack of necessary enzymes. RTB-1 offers an enriched dechlorinating culture that includes lactate as a carbon source and uses TCE as an electron acceptor. As such, RTB-1 offers an enriched dechlorinating culture capable of efficiently degrading TCE, cis-1,2-DCE, and VC to innocuous ethene. The *DHC* present in RTB-1 dechlorinate VC to ethene via halorespiration, and not via the less efficient cometabolic processes.

2.2.2.5 Sodium Sulfite

A small quantity of sodium sulfite normally is used at each temporary ERD DPT injection location. The purpose of sodium sulfite addition was to precondition the targeted groundwater by deoxygenating it prior to the injection of the strictly anaerobic RTB-1 culture.

2.3 Pilot Study Implementation

Implementation activities which were conducted during the pilot study are described in the following subsections.

2.3.1 Access Agreements

An agreement for accessing the Dickert property was executed for the area of the proposed ISERD pilot study activities prior to conducting any of the pilot study field work.

2.3.2 Monitoring Well and Injection Well Permitting

A monitoring well permit application was submitted to SCDHEC Bureau of Land and Waste Management on July 8, 2021 for construction of observation wells for each pilot test area. SCDHEC issued Monitoring Well Approval # MW-12873 in written correspondence dated July 9, 2021. Also, a Class V.A. SCDHEC underground injection control (UIC) permit, to construct and operate the ISCO and ERD pilot study DPT injection wells, was obtained from SCDHEC prior to conducting any pilot study activities. Copies of the monitoring well permit and UIC permits are included as **Attachments A and B**, respectively.

2.3.3 Utility Clearance

Underground utility clearances were conducted prior to any subsurface work associated with the pilot study (i.e., installation of temporary monitoring wells and installation of DPT injection points). Two utility surveys were performed to identify all major above-grade and below-ground private and public utilities entering or crossing the Site; these surveys were performed using the South Carolina One Call Service and also through a private utility locator company. Subsurface utilities and other unknown anomalies within the ISCO and ERD pilot study areas were located and marked with high visibility flagging and/or paint by the private utility locating service.

2.3.4 Observation Well Installation and Development

Three new observation wells (ISCO-OBSW-1S, ERD-OBSW-1S, ERD-OBSW-1I) were installed in August 2021 as part of pilot study activities. Based on the general Site groundwater flow direction to the west-northwest for both the shallow and intermediate groundwater zones and the calculated groundwater flow velocities of 18.25 ft/yr in the shallow zone and 10.95 ft/yr in the intermediate zone, ISCO-OBSW-1S was installed approximately 15 to 20 feet northwest of TMW-31 and outside of the Main Building. ERD-OBSW-1S was installed approximately 15 feet northwest of MW-10, and ERD-OBSW-1I was installed approximately 10 feet northwest of MW-10I based on the slower groundwater flow velocity associated with intermediate zone groundwater. **Figures 2-1, 2-2, and 2-3** show the locations of ISCO-OBSW-1S, ERD-OBSW-1S, and ERD-OBSW-1I, respectively.

The observation wells were installed using roto sonic drilling techniques. ISCO-OBSW-1S was installed to depth of 20 ft bgs and consisted of one-inch diameter Schedule 40 polyvinyl chloride (PVC) riser pipe attached to 10 ft of 0.010-inch circum-slotted Schedule 40 PVC well screen set from 10 to 20 ft bgs. ERD-OBSW-1S was installed to depth of 30 ft bgs and consisted of one-inch diameter Schedule 40 PVC riser pipe attached to 10 ft of 0.010-inch circum-slotted Schedule 40 PVC well screen set from 20 to 30 ft bgs. ERD-OBSW-1I was installed to depth of 35 ft bgs and consisted of one-inch diameter Schedule 40 PVC riser pipe attached to 10 ft of 0.010-inch circum-slotted Schedule 40 PVC well screen set from 30 to 35 ft bgs.

The screen for all new wells was placed at the bottom of the boring, and a washed silica sand filter pack was emplaced in the boring annulus around the outside of the screen from the bottom of the well to 2 or 2.5 ft above the top of the well screen. The sand filter pack was used to stabilize the formation and to help yield a less turbid groundwater sample. A 2 ft thick (minimum) bentonite seal was installed on top of the sand filter pack to seal the wells at the desired level. The well annulus was grouted to the existing ground surface with a cement/bentonite grout mixture. All wells were flush mount and set in two-ft by two-ft by six-inch thick concrete pads. Soil cuttings generated during the well boring advancement and well construction were contained in 55-gallon Department of Transportation (DOT)-approved drums. Boring logs and monitoring well installation details for ISCO-OBSW-1S, ERD-OBSW-1S, and ERD-OBSW-1I, along with the DHEC Form 1903 water well records, are included in **Attachment C**.

Following installation, the observation wells were allowed to equilibrate and maintain a steady water level. The wells subsequently were developed to remove gross sands and sediments generated during well installation activities and to allow the sand filter pack to settle and compact around the well screens. A submersible pump was used to develop each of the newly installed wells. The submersible pump was used to surge and purge the screened interval, removing gross sands and sediments that had accumulated in the well during installation. Development water from each well was collected in 55-gallon DOT-approved drums. Each drum was transported to a designated staging area on the Valmont property.

Water quality parameters including pH, specific conductance (SC), temperature, and turbidity were monitored and recorded during the development process. Well development was considered complete when visible gross materials had been removed from the well and water quality parameters had stabilized to within 10%. Following development, the locations and elevations of the wells were surveyed by a South Carolina licensed surveyor on August 26, 2021. Copies of the well development records and the survey data are included in **Attachment C**.

2.3.5 Baseline Groundwater Sampling Event

Upon completion of observation well installation and development activities, a baseline groundwater sampling event was conducted on August 19 and 20, 2021. This baseline event was performed for both pilot study areas and prior to the planned DPT injection activities, to provide baseline CVOC and biogeochemical data. These data served as a baseline for subsequently monitoring the effectiveness of the pilot study injection events. Site monitoring well construction details, including existing pilot study area wells MW-10, MW-10I, and TMW-31 and background well MW-2, are provided in **Table 2-1**.

Low-flow purging and sampling of eight monitoring wells (MW-2 as background well, TMW-29, TWM-31, ISCO-OBSW-1S, MW-10, ERD-OBSW-1S, MW-10I, ERD-OBSW-11) was conducted in accordance with applicable USEPA standard operating procedures using a peristaltic pump with Teflon®-lined polyethylene tubing. New tubing was used at each monitoring well to eliminate the potential for cross-contamination between monitoring locations. Purge rates ranged from 100 to 500 milliliters per minute to prevent excessive drawdown. Groundwater field indicator parameters were measured and recorded during well sampling. The groundwater field indicator parameters include pH, SC, dissolved oxygen (DO), oxidation reduction potential (ORP), temperature, and turbidity. The color of the collected groundwater sample also was recorded. Active ISCO product RemOx®S is deep purple in color in groundwater, and that color served as an indicator of the presence of residual amounts of the oxidant in post-injection sampling events. Water quality instrumentation was calibrated prior to the baseline sampling event. A copy of the groundwater sample collection record for the August 2021 baseline sampling event is included in **Attachment D**.

The baseline groundwater samples were submitted to a State of South Carolina-certified analytical laboratory, Pace Analytical Services (Pace) in West Columbia, SC and Microbial Insights, Inc. in Knoxville, Tennessee. Sample collection containers were labeled with appropriate identifying information including sample location, sample identification, collection date and time, laboratory analyses to be performed, sampler's initials, and type of preservative. Samples were placed on ice immediately after collection. Chain of custody forms and samples were packed in coolers with ice. Custody seals were affixed to the lid interface of each cooler to ensure that the samples had not been tampered with. Coolers were hand-delivered to the Pace facility on the same day that sampling was completed. Samples analyzed for microbial parameters were shipped to Microbial Insights the same day of collection for delivery the following day.

The requested laboratory analysis for the ISCO pilot study and ISERD pilot study are described in the following subsections.

2.3.5.1 ISCO Baseline Sampling Event Analytical Parameters

The ISCO pilot study baseline groundwater samples were analyzed for VOCs utilizing USEPA Method SW-846 Method 8260D. Additionally, the groundwater samples were analyzed for total dissolved solids (TDS) via Method 2540C, and chloride by Method 9056A. **Table 2-2** specifies the baseline and ISCO groundwater monitoring program, and **Figure 2-1** shows the locations of the ISCO pilot study monitoring wells that were sampled during for the pilot study.

2.3.5.2 ISERD Baseline Sampling Event Analytical Parameters

All ISERD pilot study baseline groundwater samples were analyzed for VOCs utilizing USEPA Method SW-846 Method 8260D. Additionally, biogeochemical parameters were collected for the ISERD groundwater samples and included nitrate, nitrite, sulfate, and chloride by USEPA Methods 300.0/353.2, dissolved (laboratory filtered) and total iron and dissolved and total manganese by USEPA Method 6010D, methane/ethane/ethene by USEPA Method RSK-175, alkalinity by SM 2320B, and total organic carbon (TOC) by SM 5310C. The collected ISERD groundwater samples also were analyzed for *Dehalobacter spp* (*DHB*), *DHC* and specific enzymes (functional genes) responsible for reductive dechlorination of CVOCs using Census® analysis. Census® analysis uses a molecular biological tool called quantitative polymerase chain reaction for enumeration of specific microorganisms and/or genes encoding specific biological functions. *DHB* can degrade TCE to cis-1,2-DCE, whereas *DHC* can perform complete degradation (i.e., TCE to ethene). **Table 2-2** summarizes the baseline ERD groundwater monitoring program, and **Figures 2-2 and 2-3** show the locations of the ERD pilot study monitoring wells which were sampled for shallow and intermediate zone groundwater, respectively.

2.3.6 Pilot Study Injection Event

The following subsections describe injection event details which were implemented for the ISCO and ERD pilot study.

2.3.6.1 ISCO Injection Details – Pilot Study

The remediation firm Redox Tech was subcontracted to conduct the injection of RemOx®S via DPT with oversight provided by AECOM. As recommended by Redox Tech and verified by AECOM, a total of 827 pounds of RemOx®S was mixed with water to make 2,250 gallons of permanganate solution, resulting in an approximate 4% by weight RemOx®S treatment solution. This solution was subsequently injected into three temporary DPT points to treat shallow zone groundwater in the vicinity of well TMW-31. The targeted treatment area encompassed approximately 550 square ft and assumed an 8-ft ROI for each DPT injection point. At each of the three temporary DPT locations, the treatment solution containing approximately 276 pounds of RemOx®S and 750 gallons of water was injected using a chemical grout pump. Each DPT injection was conducted over a 10-ft vertical interval from 10 to 20 ft bgs. The RemOx®S solution was injected, in 2-ft intervals beginning at the bottom of the desired treatment interval. This bottom-up injection method equates to 5 vertical intervals per treatment point location and 15 injection intervals overall.

The RemOx®S was shipped to the site immediately prior to the ISCO injection event. To prepare the RemOx®S mixture, water was obtained from a fire hydrant owned by the City of Newberry, located in front of the Valmont property, after installation of a backflow preventer and water meter. The water was contained in a mobile trailer-mounted holding tank or similar apparatus and subsequently transported from the fire hydrant location to the location of the proposed ISCO DPT injections.

The RemOx®S was delivered to the site as a solid in 50-pound buckets. Prior to injection, the appropriate amount of RemOx®S was added to the water holding tank. A stainless-steel paddle mixer was then used to thoroughly mix the water and RemOx®S within the holding tank. Once the solution was fully mixed, a chemical grout pump was used to inject the required quantity of ISCO solution through the DPT rods. Injection was conducted in a bottom-to-top approach at each location.

ISCO injections were conducted on September 20 and 21, 2021. A Geoprobe® series 7822 rig was used to drive the DPT rods to the anticipated deepest injection interval (20 ft bgs). Injection occurred in two foot “lifts” starting at

the bottom of the desired treatment interval. This process was continued until all five intervals at the particular ISCO DPT injection location (total of 750 gallons of RemOx®S solution per injection location) had been delivered into the subsurface. The injection depth intervals for each DPT injection location were 18-20 ft bgs, 16-18 ft bgs, 14-16 ft bgs, 12-14 ft bgs, and 10-12 ft bgs. According to Redox Tech, the average injection pressure for each interval averaged 20.3 pounds per square inch gauge (psig) with a maximum anticipated injection pressure of 30 psig. The average calculated flow rate of the injected solution was 5.9 gallons per minute (gpm). There was no indication of daylighting or geoprobe refusal during the ISCO injections. All DPT injection points were abandoned using a Portland cement or Portland cement/bentonite grout. The concrete (where appropriate) was patched to match the pre-existing surface.

Figure 2-1 shows the ISCO pilot study area and the associated DPT injection locations. The ISCO injection field report and completed DHEC 1903 forms are included in **Attachment E**.

2.3.6.2 ISERD Injection Details – Pilot Study

Redox Tech was also subcontracted to conduct the injection of ABC®+Olé for the ISERD injection portion of the pilot study with oversight provided by AECOM. Five temporary shallow zone and five temporary intermediate zone groundwater DPT injection points were used to inject the ABC®+Olé solution in a barrier-type formation upgradient of monitoring well MW-10. As previously described, the DPT injections for MW-10I had to be modified to accommodate DPT refusal at the originally proposed injection locations. In total, 10,000 pounds of ABC®+Olé in 5,000 gallons of water was injected.

The ISERD injectate chemicals were shipped to the site immediately prior to the injection event. At each of the ten targeted DPT locations, an approximate 19% by weight solution of ABC®+Olé was used. A 19% by weight solution equates to approximately 1,000 pounds of ABC®+Olé mixed with 500 gallons of water per DPT injection location. Each injection in the shallow zone was performed over a 10-ft vertical interval from 20 ft bgs to 30 ft bgs for the targeted shallow zone groundwater. Each injection in the intermediate zone was performed over a 6-ft vertical interval and from 30 ft bgs to 36 ft bgs for the targeted intermediate zone groundwater.

In addition, approximately 100 pounds of magnesium oxide was added per DPT injection location for pH buffering, and guar was used to achieve hydraulic emplacement of the ABC®+Olé mixture at each injection point.

In preparation for injection, the stock ingredients for ABC®+Olé were mixed together. Water was obtained from a fire hydrant located in front of the facility, after installation of a backflow preventer and water meter. The water was pumped into a mobile, trailer-mounted 2000-gallon polyethylene holding tank and then transported from the fire hydrant location to the site of the ISERD DPT injections. ABC®-Olé, delivered to the Site as a concentrated liquid in plastic totes, was staged near the DPT injection locations and gravity drained into the holding tank containing the water. A stainless-steel paddle mixer was used to thoroughly mix the water and ABC®-Olé within the holding tank.

Following thorough mixing, 100 gallons of the ABC®-Olé stock mixture were pumped using a double diaphragm pump from the 2000-gallon polyethylene holding tank into two 75-gallon feed hoppers located on an open trailer that was staged next to the ERD injection locations. Each feed hopper contained 50-gallons of ABC®-Olé solution. ZVI, which comes in 50-pound buckets, was staged next to the feed hopper trailer. One bucket of ZVI and five pounds of magnesium oxide were added to each 75-gallon feed hopper. These materials were thoroughly mixed with the ABC®-Olé stock solution using shear mixing arms located in each of the 75-gallon feed hoppers, thereby creating the ABC®+Olé solution to be injected. Once the solution was fully mixed and suspended, a chemical grout pump was used to inject all 100 gallons of the ABC®+Olé slurry through DPT rods set to the appropriate interval within the subsurface.

ISERD injections were conducted during the period of September 22 through 24, 2021. For each shallow injection point interval, 100 gallons of the ABC[®]+Olé solution were injected at each of the five intervals for the five injection locations. Injection was conducted in a bottom-to-top approach, for a total of 2,500 gallons injected into the shallow zone. For the intermediate zone, the target depth was 36 ft bgs. However, at two of the five injection locations, geoprobe refusal occurred before the 36-ft depth was reached. As a result, the volume of injectant solution varied among the intervals and injection points. The target volume was 167 gallons of solution per injection interval across each 6-foot target zone, but two intervals at injection location ERD-I2 received either 83 or 84 gallons, and two intervals at injection location ERD-I3 received 250 gallons.

A Geoprobe[®] Model 7822 track rig was used to drive the DPT rods to the specified injection intervals. Injections occurred in two foot “lifts” starting at the bottom of the desired treatment interval. The DPT rods were subsequently pulled upwards to each successive interval until all five intervals at the ISERD DPT injection location were completed (total of 500 gallons of ABC[®]+Olé solution per injection location). The intervals for each DPT injection location that targeted shallow zone groundwater treatment in the vicinity of MW-10 were 28-30 ft bgs, 26-28 ft bgs, 24-26 ft bgs, 22-24 ft bgs, and 20-22 ft bgs. The target intervals for each DPT injection location in intermediate zone groundwater in the vicinity of MW-10I were 34-36 ft bgs, 32-34 ft bgs, and 30-32 ft bgs. However, as previously mentioned, geoprobe refusal occurred at two locations (ERD-I2 at 34.5 ft bgs and ERD-I3 at 34 ft bgs). The five intermediate zone DPT injections were performed first, followed by the shallow zone DPT injections.

The same mixing and injection process was repeated for each of the ten temporary ISERD DPT injection points. According to Redox Tech, the average injection pressure for each interval was 66 psig with a maximum injection pressure of 100 psig. The average calculated flow rate of the injected solution was 14.5 gpm. There was no indication of daylighting or geoprobe refusal during the ISERD injections. All DPT injection points were abandoned using a Portland cement or Portland cement/bentonite grout.

Figures 2-2 and 2-3 show the ISERD pilot study area and the associated DPT injection locations for shallow zone and intermediate zone groundwater, respectively. The ISERD injection field report and completed DHEC 1903 forms are included in **Attachment E**.

2.3.6.3 ISERD Injection Details - Bioaugmentation Event

Based on the results of the BSTS described in **Section 1.4** of this PSWP, bioaugmentation was conducted on December 7 and 8, 2021, approximately 75 days after the initial ABC[®]+Olé injection event. The purpose of waiting 75 days for bioaugmentation was to allow enough time for the targeted shallow and intermediate zone groundwater near MW-10 and MW-10I to become sufficiently conditioned (i.e., achieve low DO and ORP and neutral pH) for the injection of the RTB-1 microbial culture to promote ISB. To assist with the bioaugmentation process, additional carbon source in the form of ABC[®]-Olé was injected concurrently with the RTB-1.

For the bioaugmentation event, water was again obtained from the fire hydrant in front of the main building. The water was filled into the mobile, trailer-mounted polyethylene holding tank and then transported from the fire hydrant location to the area of the previous ABC[®]+Olé DPT injections. ABC[®]-Olé was staged near the bioaugmentation DPT injection locations and gravity drained into the holding tank containing the water. The ratio of the mixture was 100 pounds of ABC[®]-Olé in 100 gallons of water per injection location. A stainless-steel paddle mixer was used to thoroughly mix the water and ABC[®]-Olé within the holding tank. Per a discussion with Redox Tech on December 1, 2021, no sodium sulfite or ZVI was added to the mixture for the bioaugmentation injection event. **Table 2-3** provides a summary of the quantity of ISERD and bioaugmentation materials injected during the December 2021 bioaugmentation event.

Once the solution was fully mixed, a chemical grout pump was used to inject the ISERD solution through DPT rods set to the appropriate interval within the subsurface. Halfway through injection at each depth interval, 0.4 liters of RTB-1 was “slipstreamed” into the DPT rod to promote bioaugmentation. Subsequently, the remaining ABC®-Olé solution was injected within the same interval.

A Geoprobe® Model 7822 track rig was used to drive the DPT rods to the specified injection interval. The five shallow zone injection points were advanced to total depths ranging from 26 to 30 ft bgs; four of the borings encountered refusal before reaching the targeted depth of 30 ft target. The bioaugmentation mixture volume for each location was injected from the total boring depth up to 20 ft bgs. The five intermediate zone injection points were advanced to total depths ranging from 37 to 32 feet bgs. Four of the five borings encountered refusal before reaching the targeted depth of 37 ft. The shallow zone injections were performed first, followed by the five intermediate zone injections. Several of the borings were repeated due to Geoprobe refusal prior to reaching the target depths. Daylighting of the injectant was observed at one of the intermediate zone borings. All DPT injection points were abandoned using a Portland cement or Portland cement/bentonite grout.

2.3.7 Post-Injection Performance Monitoring Program

Post-injection performance monitoring was conducted on a quarterly basis for one year to evaluate the effectiveness of the pilot study. **Table 2-2** contains a summary of the post-injection performance monitoring program as originally designed. Monitoring events actually occurred at the end of October 2021, in early-March 2022, in mid-July 2022, and mid-December 2022. The first post-injection performance monitoring event was conducted approximately 30 days after completion of the ISCO and ISERD injection events. The primary purpose of this initial monitoring event was to verify that groundwater has been sufficiently conditioned (i.e., achieved low DO and ORP and neutral pH) in the ERD pilot study area prior to the injection of RTB-1, which occurred in early-December 2021. Subsequent performance monitoring events were used to track changes in groundwater quality following injection, to assess the effectiveness of the ISCO and ISERD injection events, and to evaluate progress towards reducing the TCE concentrations in groundwater within the pilot study areas.

2.3.8 Equipment Decontamination

Equipment decontamination activities were conducted on field equipment that contacted site media to prevent cross-contamination. Pressure washing and/or steam cleaning activities were conducted on non-sampling equipment (e.g., drill rods, DPT rods) using a portable pressure/steam washer.

New groundwater sample tubing was used for sampling each monitoring well. Water level measurement tapes were rinsed with distilled water between collecting water level elevations at the various wells.

2.3.9 IDW Management

Investigation-Derived Waste (IDW) generated as part of the pilot study consisted of soil cuttings, well development water, and decontamination water as well as purge water generated during monitoring well sampling events. IDW was containerized in 55-gallon DOT-approved drums. The drums were labeled to indicate the type of material contained, site location, investigation point of origin, and date on which materials were initially placed into the drum. Drums filled were secured at the end of each day in the designated area on site. Grab samples of IDW soil and water from well installation, equipment decontamination, and well development were collected on August 26, 2021 from the drums and analyzed for waste characterization parameters. Soil and aqueous IDW was analyzed for VOCs by USEPA SW-846, Method 8260D, semivolatile organic compounds (SVOCs) by USEPASW-846, Method 8270E, and metals by USEPA SW-846, Methods 6010D and 7471A. The drums were staged at the facility pending

characterization, profiling, manifesting, and off-Site disposal. The lab data indicated that the IDW was not a hazardous waste; therefore, the wastes were maintained on site until January 2023, when the IDW from 2021 and all other purge water IDW from sampling events was manifested and shipped off site (see **Section 3.3**). Other non-hazardous IDW (e.g., personal protective equipment, paper towels, trash) was bagged and transported off-Site for disposal as municipal waste.

2.3.10 Pilot Study Update Summary

The Pilot Study Update Summary (PSUS) was prepared and submitted to SCDHEC in December 2022. This summary report included a description of temporary observation well installation and development, pilot study injection event activities, baseline and post-injection performance monitoring activities, associated analytical results through July 2022, and preliminary conclusions. The December 2022 monitoring event had not been conducted at the time the PSUS (**AECOM, 2022**) was submitted.

Section 3. Pilot Study Results

The following subsections discuss the site hydrology with the study areas, post-injection pilot study monitoring results, and remedial action derived waste disposal.

3.1 Site Hydrogeology

The sitewide groundwater monitoring event data from February 2022 were used to evaluate site groundwater flow directions and groundwater velocity. Section 3.1 of the Sitewide Groundwater Monitoring Report addressed those calculations and makes a comparison with previous data. Groundwater flow directions in February 2022 were to the west-northwest in the shallow zone (**Figure 1-3**), to the west-northwest in the intermediate zone (**Figure 1-4**), and to the west in the bedrock zone (**Figure 1-5**). The average groundwater flow velocities in the shallow and intermediate zones were 18.9 feet per year (ft/yr) and 13.1 ft/yr, respectively. The values determined in February 2022 are of similar magnitude compared with calculated values for the previous groundwater elevation measurement events. Groundwater flow velocities within each interval have varied historically based on temporal variations in water levels.

3.2 Pilot Study Performance Monitoring

The baseline groundwater monitoring event was conducted on August 19 and 20, 2021, one month prior to the pilot study injection event conducted September 20-24, 2021. As discussed in Section 2.3.5, the baseline event was performed to provide baseline CVOC and biogeochemical data. Monitoring wells in both pilot study areas were sampled. Groundwater performance monitoring of both pilot study areas subsequently occurred in late-October 2021, early-March 2022, mid-July 2022, and mid-December 2022. Field and analytical results are discussed in this section.

3.2.1 Field Parameter Results Summary

The following field analytical parameters were measured in monitoring wells sampled for VOCs: temperature, pH, SC, DO, ORP, and turbidity. Field parameters were measured for the baseline monitoring event and for each performance monitoring event. Field data were recorded on the groundwater sample collection records. Copies of those records for the baseline and performance monitoring events are included in **Attachment E**. Laboratory analytical data from the PS are summarized in **Tables 3-1 and 3-2**.

DO is the most preferred terminal electron acceptor relative to others (nitrate, ferric iron, sulfate) that can be used by microorganisms for the biodegradation of organic carbon. Organic carbon includes naturally occurring and anthropogenic sources. If DO is present in groundwater at concentrations above 0.5 milligrams per liter (mg/L), aerobic biodegradation is the predominant microbial process. During this process, microorganisms naturally present in groundwater couple the oxidation of an electron donor (usually organic carbon) with the reduction of an electron acceptor (AFCEE et al., 2004).

Reductive dechlorination is the primary process by which chlorinated solvents such as TCE are biologically degraded. This is an anaerobic process. Anaerobic bacteria generally cannot function at DO concentrations greater than 0.5 mg/L. After depletion of DO, anaerobic microorganisms will use nitrate as an electron acceptor, followed by ferric iron, sulfate, and carbon dioxide (methanogenesis). Each sequential reaction drives the ORP of the groundwater further downward and into the range within which reductive dechlorination can occur.

ORP is a measure of the oxidation-reduction (redox) state of the aquifer, and it is an indicator of the relative tendency of the groundwater to accept or transfer electrons. ORP values in groundwater can vary from as low as -400 millivolts (mV) to as high as 800 mV. As terminal electron acceptors and nutrients are depleted, the ORP of the groundwater decreases (i.e., becomes more negative). Reductive dechlorination is possible at less than 50 mV and is more likely at less than -100 mV.

The pH of groundwater influences the presence and activity of the microbial population in groundwater. Historical investigations and current groundwater monitoring conducted at the Site generally confirm that a lowered pH and oxidative conditions dominate the shallow and intermediate zone aquifers. Microorganisms capable of degrading TCE and its daughter products generally prefer pH values between 6 and 8 S.U. A pH below 5.5 is generally considered inhibitory to degradation by *DHC*. The pH can be an issue in ERD applications when the targeted ambient aquifer pH is either above or below this preferred range. As a result, a neutralization agent (magnesium oxide) was injected concurrently with the organic carbon source during the ISERD pilot study injections.

Field measurements of DO, ORP, and pH obtained during purging efforts in the performance monitoring well network were evaluated to determine if oxidative conditions remained present in the ISCO PS area and if reducing (anaerobic) conditions remained present within the ISERD PS area during the 15 month period following the completion of the PS injection event that occurred in September 2021. Field results are summarized below.

3.2.1.1 Baseline Field Parameters

A copy of the groundwater sample collection record for the baseline monitoring event is included in **Attachment D**. The stabilized DO values measured during the August 2021 baseline monitoring event ranged from 3.64 to 4.53 mg/L at the three monitoring points (TMW-29, TMW-31, and ISCO-OBSW-1S) located in the ISCO PS area. DO values were 1.72 and 2.68 mg/L at the two monitoring points (MW-10 and ERD-OBSW-1S) located in the shallow zone groundwater ISERD PS area, and DO values were 1.73 and 2.50 mg/L at the two points (MW-10I and ERD-OBSW-1I) located in the intermediate zone groundwater ISERD PS area. These concentrations indicate aerobic conditions were present in both PS areas; however, the DO concentrations were low enough (<3.0 mg/L) that following the injection of the ISERD amendments in September 2021, the DO concentrations were able to be lowered in the ISERD PS area.

The stabilized ORP values measured during the baseline sampling event ranged from -119.6 to +185.7 mV at the three monitoring points in the ISCO PS area. ORP values were +150 and +153 mV at the two monitoring points in the shallow zone groundwater ISERD PS area, and +82.7 and +158 mV at the two points in the intermediate groundwater zone ISERD PS area. The negative ORP occurred at the newly installed observation well in the ISCO PS area. The naturally occurring positive ORP values at most locations indicate that while the site groundwater was generally conducive for chemical oxidation, it was not generally conducive to reductive dechlorination without some form of field enhancement(s).

The pH values observed during the September 2021 baseline monitoring event ranged from 4.5 to 5.72 S.U. at the three monitoring points in the ISCO PS area. Measured pH values were 5.17 and 5.21 S.U. at the two monitoring points in the shallow groundwater zone ISERD PS area; recorded pH values were 5.35 and 5.41 S.U. at the two points in the intermediate zone groundwater ISERD PS area. The baseline pH data indicated that the ISERD performance monitoring wells would all need to receive pH buffering (to adjust the pH range to between 6 and 8 S.U.) during the September 2021 pilot study injection event.

3.2.1.2 Performance Monitoring Field Parameters

Copies of the groundwater sample collection records for the performance monitoring events are included in **Attachment D**. The stabilized DO values measured during the March 2022 through December 2022 performance monitoring period ranged from 4.14 to 8.01 mg/L at the three monitoring points in the ISCO PS area. The DO values measured are not as important for ISCO as for ERD but are listed because increased DO values in comparison to background indicate the presence of active chemical oxidant. Stabilized DO values ranged from 0.10 to 0.87 mg/L at the two monitoring points in the shallow zone groundwater ISERD PS area. The December 2022 DO concentrations in the shallow zone groundwater, 15 months after the injection event, remained low at 0.27 mg/L and 0.71 mg/L in MW-10 and ERD-OBSW-1S, respectively. DO concentrations ranged from 0.08 to 0.48 mg/L at the two points in the intermediate zone groundwater ISERD PS area. The December 2022 DO concentrations in the intermediate zone groundwater, 15 months after the injection event, remained low at 0.25 mg/L and 0.08 mg/L. The DO concentrations measured for both the shallow and intermediate zones indicate that groundwater conditions remain favorable for anaerobic biodegradation to occur 15 months after completion of the injection event.

The stabilized ORP values measured during the March 2022 through December 2022 performance monitoring period ranged from +223 to +869 mV at the three monitoring points in the ISCO PS area. The ORP values are not as important for ISCO as for ERD but are listed because increased ORP values in comparison to background indicate the presence of active chemical oxidant. Stabilized ORP values ranged from -211 to +198 mV at the two monitoring points in the shallow zone groundwater ISERD PS area, and ORP ranged from -580 to +59 mV at the two points in the intermediate zone groundwater ISERD PS area. For all wells in the ISERD PS area, the ORP was initially reduced, and negative ORP was achieved at three of the four wells. The ability to maintain lowered ORP values that are conducive for reductive dechlorination to occur was observed at two of the wells (MW-10 and ERD-OBSW-1I). In general, the results of the ISERD PS indicate that conditions remained favorable for reductive dechlorination of CVOCs to occur with the exception of ERD-OBSW-1S.

The stabilized pH values observed during the October 2021 through December 2022 performance monitoring period ranged from 4.49 to 6.09 S.U. at the three monitoring points in the ISCO PS area. The pH values are not as critical for ISCO as for ERD but are listed for comparison. Stabilized pH values ranged from 5.47 to 10.03 S.U. at the two monitoring points in the shallow zone groundwater ISERD PS area. The December 2022 pH concentrations, 15 months after the PS injection, were 6.86 S.U. and 5.47 S.U., the first pH reading being above the lower limit of acceptable range of greater than 5.5 S.U. for favorable conditions for anaerobic biodegradation to occur. The pH value of 5.47 S.U. indicates that additional buffering is necessary in the vicinity of this well in order to maintain more ideal conditions for reductive dechlorination to occur. Stabilized pH values ranged from 5.66 to 9.76 S.U. at the two points in the intermediate zone groundwater ISERD PS area. The December 2022 pH concentrations, 15 months after the PS injection event, were 6.06 and 7.50 S.U., both above the lower limit of greater than 5.5 S.U. for reductive dechlorination to occur. The ISERD PS data indicates that with proper amendments, the pH can be raised to within the optimal range for anaerobic degradation; however, to maintain the pH above the lower limit of the optimal range for reductive dechlorination, periodic injection of pH buffer may be required. Also, the elevated pH values observed in MW-10 and ERD-OBSW-1I indicate that too much pH buffer can be added, which is also detrimental to reductive dechlorination. It should be noted that the ZVI injected for the ISERD PS, which promotes abiotic degradation, is not affected by the pH.

3.2.2 Microbial Data Summary

Microbial data were collected periodically from the ISERD pilot study area monitoring wells during the period of August 2021 to December 2022, for Census® analysis and evaluation. Census® analysis uses a molecular biological tool called quantitative polymerase chain reaction for enumeration of specific microorganisms and/or genes encoding specific biological functions. For this pilot study, Census® quantification was used to look for a

key group of dechlorinating bacteria, *DHC*. In addition, *Dehalobacter spp* (*DHB*) and key functional genes were also analyzed, including *tceA* reductase and vinyl chloride reductase. *DHB* can degrade TCE to cis-1,2-DCE, whereas *DHC* can perform complete degradation (i.e., TCE to ethene). Proliferation of *DHC* occurs most readily in an aquifer pH between 6 and 8 S.U. Groundwater samples collected from the four ISERD performance monitoring wells were analyzed for *DHB*, *DHC*, and specific functional genes, during the baseline monitoring event of August 20, 2021, approximately one month prior to the ISERD injections. During the performance monitoring period after the injection event, three more microbial monitoring events were conducted (October 2021, March 2022, and December 2022). The bioaugmentation event was conducted December 7-8, 2021. Cell density results for the four ISERD monitoring wells are shown in **Table 3.2**. Data reports containing the Census® results are included in **Attachment F**.

For the baseline event in August 2021, *DHB* were observed in three of the four wells (all but ERD-OBSW-1S). The cell density occurred at relatively low concentrations (i.e., between 1.7 and 130 cells per milliliter [cells/mL]). Only groundwater at MW-10I contained detectable *DHC*, at 3.2 cells/mL, during the baseline sampling event. In the October 29, 2021 samples, collected approximately five weeks after the ISERD injection event, *DHB* was reported in the groundwater samples from all four ISERD PS wells, and *DHC* was present at low concentrations in all but ERD-OBSW-1S. The cell density increased for both *DHB* and *DHC* at wells MW-10 and ERD-OBSW-1I, with *DHB* and *DHC* counts of 28,500 and 6,260 cells/mL at MW-10, respectively. At ERD-OBSW-1I, *DHB* and *DHC* counts of 11,300 and 105 cells/mL were detected, respectively. At ERD-OBSW-1S, no *DHC* was reported, but the *DHB* count was reported at 20,700 cells/mL. At MW-10I, *DHB* was detected at 521 cells/mL, and *DHC* was detected at 1 cell/mL. These results indicate that stimulation of *DHB* within the vicinity of the four ISERD PS wells was caused by the injection of the ABC®+Olé in September 2021. Some stimulation of *DHC* was also created by the September 2021 injection event.

During the March 2022 and December 2022 performance monitoring events, the cell counts were lower or non-detect for both *DHB* and *DHC*, when compared with the October 2021 post-injection monitoring with two exceptions. In December 2022, *DHB* increased to 11,700 cells/mL, compared with the 130 cells/mL reported in March 2022 at ERD-OBSW-1S. At MW-10I, the *DHB* was detected at 1,240 cells/mL in December 2022, compared to 391 cells/mL detected in March 2022. These results indicate that the bioaugmentation event conducted in December 2021 was not successful at increasing the *DHC* population in the vicinity of any of the ISERD monitoring wells. One potential reason is that pH near two of the targeted wells (MW-10 and ERD-OBSW-1I) was above 8 S.U., which is not conducive for *DHC* to flourish. Furthermore, stimulation of *DHB* near all four of these wells occurred following the September 2021 but has declined over time possibly due to the lack of available TOC. TOC is currently low at ERD-OBSW-1S and MW-10I.

The only functional gene (vinyl chloride reductase) detected during the ISERD PS occurred in October 2021 when vinyl chloride reductase was detected in groundwater collected at ERD-OBSW-1I at 13.7 cells/mL (**Table 3-2**).

3.2.3 VOC and Other Parameter Data Summary

Baseline VOC samples were collected in August 2021. Groundwater monitoring occurred in late-October 2021, early-March 2022, mid-July 2022, and mid-December 2022 for post-injection performance monitoring. Samples were analyzed for Target Compound List-Volatile Organic Compounds (TCL-VOCs) using SW-846 Method 8260D. Samples from wells located within the ISCO PS area were also analyzed for chloride and TDS. Groundwater samples collected from the ISERD study area were analyzed for electron acceptors, electron donors, TOC, alkalinity, dissolved gases, and biological parameters (discussed in Section 3.2.2). Samples were sent to Pace in West Columbia, South Carolina for analysis. Results are summarized in **Tables 3-1 and 3-2**, for the ISCO and ISERD pilot tests, respectively. The associated laboratory analytical reports are contained in **Attachment G**.

3.2.3.1 ISCO PS Results

The analytical data for the Site background well (MW-2) and for samples collected from the three monitoring wells in the ISCO treatment area (TMW-29, TMW-31, and ISCO OBSW-1) are contained in **Table 3-1**. Field observations, regarding the color of the groundwater when sampled, are also included in discussion of the ISCO PS results. As indicated in the PSWP, the ISCO injectate (KMnO₄) when activated has a deep purple color. That color, when present in a groundwater sample, indicates that some of the oxidant is still remaining in the sample. In the following paragraphs, the VOC and other analytical results are discussed for each ISCO PS monitoring well, for both the baseline event and the post-injection performance monitoring events.

Background monitoring well MW-2: MW-2 is located approximately 400 feet upgradient (east) of the ISCO injection area and outside the main and pole winder buildings (**Figure 1-3**). Groundwater from this well was sampled in August 2021 (baseline), and in March, July, and December 2022 (performance monitoring).

- Other than a low detection of styrene in the March 2022 sample, no Site-related CVOCs were detected in samples collected from this background well.
- Chloride was detected in MW-2 during the baseline sampling event at a concentration of 2.3 mg/L and in March and December 2022, at 2.2 mg/L for both events.
- TDS was reported in MW-2 as less than the reporting limit of 25 mg/L in August 2021 and then detected at 34 and 26 mg/L in the March and December 2022 samples, respectively.

Sidegradient monitoring well TMW-29: TMW-29 is located approximately 60 feet side gradient of the ISCO treatment area (**Figure 2-1**). It was sampled during the baseline event and in March 2022; however, the water level was too low to allow collection of samples in July or December 2022.

- TCE was detected above its MCL of 5 micrograms per liter (µg/L) in both samples: 12 µg/L during the baseline event and 9.3 µg/L in March 2022. Those concentrations were too low for chemical oxidant injections.
- Chloride was detected in both samples collected from TMW-29: 3.1 mg/L during the baseline event and 2.8 mg/L in March 2022.
- TDS was reported in TMW-29 as less than the reporting limit of 25 mg/L in August 2021 and then was detected at 51 mg/L in the March 2022 sample.

Hot spot monitoring well TMW-31: This well is located just inside the building (**Figure 2-1**) and is the “hot spot” well where the ISCO injection treatment effort was primarily focused.

- The color of groundwater samples collected as the monitoring efforts progressed has ranged from clear (baseline – August 2021) to pink-purple in March 2022, and back to clear in July and December 2022.
- TCE was detected at 920 µg/L in the baseline sample collected from this well.
- During the first sampling event after treatment (March 2022), the TCE concentration in this well was lower (480 µg/L) than the baseline result. During the July 2022 sampling event, the TCE concentration rebounded to 860 µg/L (and to 1,200 µg/L in its duplicate sample). In the December 2022 sample, TCE increased to 3,600 µg/L. This increase could be related to matrix back diffusion of TCE within the treatment zone of influence and/or flushing effects from groundwater elevation fluctuations over the time that performance monitoring was conducted.
- Chloride concentrations have been relatively consistent in the samples collected from TMW-31, ranging between 5.6 and 6.1 mg/L.
- TDS concentrations increased from 41 mg/L in the baseline sample to 65, 62, and 55 mg/L in March, July, and December 2022, respectively.
- Nitrate was only analyzed in July 2022 and was present at 1.3 mg/L.

Downgradient observation well ISCO-OBSW-1: This well was installed downgradient and in close proximity to TMW-31 and the injection area. It is located outside of the building (**Figure 2-1**).

- The color of groundwater samples collected from this well changed from clear (baseline event – August 2021) to purple (July 2022) and then to light purple (December 2022). This indicates that some active chemical oxidant is still present in the vicinity of this well.
- TCE was detected in the baseline sample at a concentration of 960 µg/L, but it was not detected in any of the three samples collected from this well since the ISCO injection event was conducted in September 2021. The TCE degradation compound, cis-1,2-DCE, was detected in the baseline sample collected from this well at 6.7 µg/L. It has not been detected in any of the three samples collected from this well since the baseline event. The presence of a purple color coupled with the reduction of TCE from 960 µg/L to non-detect indicates that ISCO chemically oxidized the TCE.
- Chloride was detected in the baseline sample collected from this well at 5.7 mg/L and again in the March and December 2022 samples at 7 and 6.1 µg/L, respectively.
- TDS values increased from 67 mg/L in the baseline sample to 260 mg/L and then 340 mg/L in the March and July 2022 samples, respectively. In December 2022, TDS was detected at 110 mg/L. TDS is an indication of the presence of the oxidant. The decreasing TDS concentration and change to a light purple color in December 2022 indicates that the residual oxidant present in the ISCO PS area has decreased when compared with prior monitoring events.

3.2.3.2 ERD PS Results

VOC results along with field parameters, and various indicator parameters including TOC, electron acceptors (nitrate, manganese, dissolved iron, sulfate), degradation indicators (chloride), degradation end products (dissolved gases), and biological parameters were used to evaluate the effectiveness of ISERD. As shown in **Table 3-2**, several VOCs were detected in groundwater samples collected from the four wells in the ISERD PS study area (MW-10, MW-10I, ERD-OBSW-1S and ERD-OBSW-1I) during the PS. Only three of the VOCs – TCE and its degradation compounds cis-1,2-DCE and VC – were detected above their respective MCLs. In the following paragraphs, the VOC and other analytical results are discussed for each ISERD PS monitoring well, for both the baseline event and the performance monitoring events.

Background well MW-2: See the summary presented in **Section 3.2.3.1**.

Shallow zone monitoring well MW-10: This well is located on private property north of the Valmont facility (**Figure 2-2**).

- During the ISERD portion of the PS, TCE was detected in groundwater from MW-10 at 740 µg/L (790 µg/L in the duplicate sample) during the baseline event. The detected concentrations were 600 µg/L and 590 µg/L in October 2021 and March 2022. In July 2022, the TCE concentration rebounded to 760 µg/L and then decreased to 500 µg/L in December 2022.
- Neither cis-1,2-DCE nor VC were detected in samples collected from well MW-10 through July 2022. In December 2022, when the pH had decreased to 6.86, cis-1,2-DCE and VC were both detected at low concentrations of 15 µg/L and 4.3 µg/L, respectively.
- Review of field parameters, particularly pH, indicate that the pH buffer associated with the in-situ treatment efforts is still present near MW-10. The pH values measured during each post injection monitoring effort (ranging from 10.03 to 9.85 through July 2022 and then 6.86 in December 2022) are well above the baseline value of 5.17.
- TOC values initially increased (4,800 mg/L in October 2021, which indicates the presence of the injected substrate), but TOC concentrations since then have declined during each subsequent monitoring event

(250 mg/L in December 2022). The TOC, which is still above the baseline of <1 in August 2021, indicates that substrate was still present in groundwater in December 2022.

- After the injection event, the electron acceptors nitrate, iron, and sulfate increased slightly through July 2022 and then showed a decrease in December 2022 except for an increase in iron concentration. The concentrations for each of these parameters were still above their respective baseline values except for nitrate and iron. The increase in iron may be the result of the ZVI that was injected.
- The degradation indicator chloride was below the baseline value in MW-10 in all four performance monitoring events.
- Methane values continued to increase following the in-situ treatment event through July 2022, with a decline detected in December 2022. Ethane has not been detected in MW-10 to date. Ethene was detected in March and July 2022 at J-flagged estimated concentrations.
- *DHC* and *DHB* increased initially after the ISERD event was conducted in September 2021, but they have since decreased to pre-treatment values. No increase in *DHC* or *DHB* were detected following the December 2021 bioaugmentation event. None of the reductase enzymes were detected in any samples collected from MW-10 during the study. It is suspected that the elevated pH values in the vicinity of MW-10 may have had an adverse effect on the bacteria added during the December 2021 bioaugmentation injection.

Shallow zone observation monitoring well ERD-OBSW-1S: This observation well was installed as a shallow zone groundwater ISERD observation well approximately 15 feet downgradient (northwest) of MW-10 (**Figure 2-2**).

- TCE was detected in samples collected from this well ranging from 240 µg/L during the August 2021 baseline event, up to 410 µg/L 30 days after the injection event, and down to 150 µg/L during the July 2022 sampling event. The detected December 2022 TCE concentration was 240 µg/L. Cis-1,2-DCE values increased from 0.7 µg/L during baseline sampling event, to 86 µg/L in March 2022, and to 110 µg/L in both July and December 2022. These results are above the MCL of 70 µg/L, but it is an indication of reductive dechlorination of TCE. VC was not detected in any samples collected from ERD-OBSW-1S.
- Review of the associated field parameters, particularly the rise in pH following the ISERD injection event, indicates the pH buffering efforts had an initial effect on the targeted injection area near this well. However, the pH decreased to 5.47 in December 2022.
- TOC values initially increased in ERD-OBSW-1S but returned to near baseline conditions in July and December 2022. The electron acceptor iron increased slightly since treatment potentially from the injection of the ZVI. However, concentrations of other acceptors (nitrate and sulfate) did not noticeably change from the baseline values.
- The concentrations for the degradation compound chloride increased from its baseline value of 69 mg/L to 110 mg/L during the July 2022 sampling event and then declined to 87 mg/L in December 2022.
- Methane values continued to increase in ERD-OBSW-1S from the time of the ISERD injection event through July 2022 but decreased in December 2022. No other dissolved gases were detected in ERD-OBSW-1S during the PS.
- *DHB* was reported for this well following the ISERD injection event in September 2021. *DHB* initially increased, but they subsequently decreased in March 2022 and then rebounded in December 2022. *DHC* and reductase enzymes were not detected in ERD-OBSW-1 following ISERD injection in September 2021 and bioaugmentation in December 2021.

Intermediate zone monitoring well MW-10I: MW-10I is located on private property north of the Valmont facility (**Figure 2-3**).

- The baseline TCE concentration detected was 870 µg/L. TCE was detected during post-injection performance monitoring at concentrations ranging from 1,100 µg/L in October 2021 (one month post injection), to 50 µg/L in March 2022, 57 µg/L in July 2022, and 55 µg/L in December 2022. Cis-1,2-DCE

values increased since from non-detect at the baseline event, to 690 µg/L, 570 µg/L, and 550 µg/L in March, July, and December 2022, respectively. VC, which had not been detected in any previous sampling events, was detected at an estimated concentration of 0.49 µg/L (J-flagged estimated concentration) in July 2022 and was not detected in December 2022.

- TOC values initially increased in MW-10I in October 2021 and March 2022 after the injection event but have declined during each subsequent monitoring event. The increase in TOC detected is likely the result of the September 2021 ISERD injection event and its subsequent decrease is due to the movement of the injected TOC away from the point of injection over time with groundwater flow.
- Dissolved and total iron values increased in MW-10I through July 2022, which suggests the influence of ZVI from the injection event. The iron concentration either declined or was unchanged in December 2022. Other electron acceptors including nitrate and sulfate had very low or non-detect values detected in samples collected from this well.
- The detected chloride in MW-10I increased in October 2021 with subsequent detections remaining similar to the baseline concentration.
- Methane values increased in MW-10I in the March through December 2022 samples. Ethene and ethane were not detected in MW-10I during any of the monitoring events.
- *DHB* increased initially in October 2021 after injection near MW-10I but declined in July 2022 and then increased in December 2022. *DHC* and the reductase enzymes were not observed following the ISERD injection event in September 2021 or the bioaugmentation event in December 2021.

Intermediate zone observation monitoring well ERD-OBSW-1I: This well was installed as an intermediate zone groundwater ISERD observation well approximately 15 feet downgradient (northwest) of MW-10I.

- TCE was detected at 1,000 µg/L during the baseline event, and steadily declined to 83 µg/L in December 2022. TCE degradation compound concentrations for cis-1,2-DCE and VC showed an increasing trend beginning in March 2022. The cis-1,2-DCE and VC concentrations in the December 2022 sample collected from this well were 340 µg/L and 4.6 µg/L, respectively. Both constituents exceeded their respective MCLs of 70 µg/L and 2 µg/L.
- The TOC concentration initially increased in ERD-OBSW-1I after the ISERD injection event but subsequently declined during the March and July 2022 monitoring events. TOC increased to 150 µg/L in December 2022.
- Total iron concentrations have increased in samples collected from this well since the ISERD injection event, which suggests the influence of ZVI from the injection event. Dissolved iron concentrations remained below 3 µg/L throughout the PS. Other electron acceptors including nitrate and sulfate continue to have very low or non-detect values detected in samples collected from this well.
- Chloride detections remained similar to the baseline value throughout the PS.
- Methane values continued to increase to a relatively steady concentration of 8,300 µg/L in December 2022. Ethene and ethane concentrations remained low or non-detect in samples collected during the PS.
- *DHC* and *DHB* increased initially in October 2021 after the ISERD injection event occurred, but decreased in March 2022 and were not detected in the December 2022 sample. A low concentration of vinyl chloride reductase was also detected in October 2021, but this enzyme was not detected during the subsequent sampling events.

3.2.4 Data Validation

General validation was performed on the analytical laboratory deliverables for the PS. The general and complete validation process was performed in accordance with the USEPA Region 4 *Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services* in association with the USEPA's *Contract Laboratory Program, National Functional Guidelines for Organic Data Review* (USEPA, 1999), *Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review* (USEPA, 2002), and the approved Quality

Assurance Project Plan for the project. The USEPA data validation protocols were used in conjunction with the SW-846 analytical methodologies to determine if data should be accepted without qualification, rejected, or qualified. Data flags, if applied, were consistent with the USEPA validation guidelines cited above. Similar procedures have been used to validate data collected since the RI and prior analytical data. A detailed description of the data validation activities is provided in the Phase II RI Work Plan (AECOM, 2017).

Information for the groundwater samples collected during the ISCO and ERD pilot studies are shown in **Tables 3-1 and 3-2**, including the sample location identification numbers, date collected, and analytical parameters for each sample. The analytical results for the samples collected from the PS are presented as validated data by analyte. The summary tables also include human health screening values (USEPA MCLs) that allow for comparison with the sample results.

As indicated in **Tables 3-1 and 3-2**, the following data flags were added to a few samples as part of the data validation process: B (detected in the method blank), H (out of holding time), and J (estimated result less than the limit of quantitation and greater than or equal to the detection limit). The flagged data were evaluated, and it was determined that all of the flagged data could be used for their intended purpose.

Analytical reports for the PS data are included in **Attachments F and G** on compact disc. Data validation reports for samples collected during the PS are included in **Attachment H**.

3.3 Remedial Action Derived Waste

Soil cuttings, well development water, equipment decontamination water, and groundwater sampling purge water were contained in 55-gallon steel drums and staged at the on-Site designated staging area. Soil and groundwater samples were collected on September 26, 2021 for soil and groundwater media. The laboratory analytical report containing those data is included in **Attachment I**. Those data, along with groundwater sampling data from October 2021 through December 2022, were used to indicate that the remedial action derived waste was not a hazardous waste. Therefore, there was no maximum holding time for the waste containers. Purge water from the October 2021 through December 2022 sampling events was also contained in 55-gallon drums, awaiting off-site transport and disposal.

In January 2023, AECOM subcontracted to Green Rock Strategies to mobilize to the Site, load and transport drums of remedial action derived waste, and dispose of the non-hazardous wastes through A&D Environmental Services. **Attachment I** contains a copy of the bill of lading / material manifest for eight drums of liquid, three drums of solids, and two empty used drums. The wastes were picked up on January 10 and January 24, 2023 and transported to the A&D Environmental Services facility in Archdale, North Carolina for treatment and subsequent disposal.

Section 4. Pilot Study Conclusions and Next Step Actions

4.1 Pilot Study Conclusions

Three PS observation monitoring wells were installed on August 5 and 6, 2021. The baseline groundwater monitoring event occurred on August 19 and 20, 2021. The ISCO and ISERD injection events occurred during the period of September 19 through 24, 2021. A supplemental bioaugmentation injection event was conducted in the ISERD treatment area on December 7-8, 2021. Four post-injection performance monitoring events (October 2021, March 2022, July 2022, and December 2022) were conducted during the PS. Based on these field activities and the data collected during the monitoring events, the following conclusions have been drawn for the ISCO and ISERD pilot tests.

4.1.1 ISCO PS Conclusions

The ISCO treatment efforts were focused on a CVOC groundwater “hot spot,” located in the area of existing monitoring well (TMW-31), inside the eastern portion of the Valmont facility main building. Overall, the ISCO treatment efforts initially appear to have reduced CVOC concentrations in the groundwater from wells TMW-31 and ISCO-OBSW-1; however, continuing reduction of VOC concentrations through December 2022 appears only to have occurred at ISCO-OBSW-1. ISCO treatment using the oxidant KMnO_4 , resulted in the decrease in the TCE concentration at well ISCO-OBSW-1 from 960 $\mu\text{g/L}$ to non-detect concentrations ($<25 \mu\text{g/L}$) in December 2022, approximately 15 months after the ISCO injection event. Less impact was observed at TMW-31 because access around this well was limited due to interference by overhead structures within that portion of the building. Those obstructions required an alteration to the orientation of the injection points initially planned near TMW-31.

Review of field observations and measurements in conjunction with the associated analytical results from the ISCO study area monitoring wells indicate the following ISCO PS conclusions:

- Treatment using KMnO_4 oxidant was effective in decreasing the TCE concentrations to non-detect levels in the area where obstructions did not limit access to the DPT injection equipment.
- The December 2022 TCE concentration of 3,600 $\mu\text{g/L}$ in groundwater at “hot spot” well TMW-31 indicates that a TCE source still exists in groundwater underneath and potentially immediately next to the building in that area. A decrease in TCE concentration was observed March 2022 when a light purple color was observed in the sample, which indicated that some chemical oxidant remained in the vicinity of the well. Following the March 2022 sampling event, the concentration of TCE continued to increase, and the presence of the chemical oxidant was no longer observed. Matrix back diffusion of TCE from shallow aquifer materials in this area likely contributed to the increasing TCE concentrations in that well.
- Because of overhead obstructions inside the eastern end of the building, another approach to accessing appropriate injection locations in the TMW-31 CVOC groundwater source area may need to be identified.
- An ROI of at most 10 feet was confirmed during the pilot study.

4.1.2 ISERD PS Conclusions

The ISERD treatment efforts were focused on one CVOC groundwater source area, located in the vicinity of shallow zone groundwater well (MW-10) and intermediate zone groundwater well (MW-10I), a well pair located on a privately-owned parcel to the north of the Valmont property.

CVOC concentrations and biogeochemical parameters were evaluated during the post-injection performance monitoring events. The CVOC concentrations and range of biogeochemical parameter concentrations indicate various degrees of constituent degradation within the targeted shallow and intermediate zone treatment areas.

4.1.2.1 Shallow Zone

At shallow groundwater monitoring well MW-10, the TCE concentration in groundwater decreased from 740 µg/L during the baseline event to 500 µg/L in December 2022, approximately 15 months after the injection event. A TCE spike to 760 µg/L occurred in July 2022, so these results indicate that ISERD was not as effective as desired for groundwater in this area. In December 2022, the degradation products cis-1,2-DCE and VC were detected for the first time during the PS at low concentrations of 15 µg/L and 4.3 µg/L, respectively. The pH in the groundwater from this well was buffered using magnesium oxide during the September 2021 shallow zone injection event, increasing from 5.17 S.U. at the baseline event to an elevated 9.85 to 10.03 S.U. during the period of October 2021 to July 2022. As previously described, the elevated pH values observed during the majority of 2022 at this well were likely the result of using too much magnesium oxide buffer. This elevated pH appears to have limited the effectiveness of reductive dechlorination in this area until the December 2022 monitoring event. During that event, the pH in MW-10 was reported as 6.86 S.U., the detected TCE concentration was 500 µg/L, the DO remained low (0.27 mg/L), the ORP remained negative (-119 mV), and the detected TOC was 250 mg/L. These conditions are conducive for reductive dechlorination to occur, and the elevated concentration of dissolved iron is conducive for abiotic degradation to occur. Based on the December 2022 results, it is possible that additional positive effects of the ISERD injection will still occur at this location.

At shallow observation well ERD-OBSW-1, the treatment results were similar to the results for MW-10. The TCE decreased from 240 µg/L detected during the baseline sampling event in September 2021, to 180 µg/L in March 2022, to 150 µg/L in July 2022, and then rebounded to 240 µg/L in December 2022. Degradation product cis-1,2-DCE was present at 110 µg/L in both July and December 2022; VC was present for the first time in December 2022 at a detected concentration of 0.43 µg/L. The pH in the shallow zone groundwater from this well was buffered using magnesium oxide during the September 2021 injection event, increasing from 5.21 S.U. at the baseline event in August 2021 to between 5.82 S.U. and 7.95 S.U. during the period of October 2021 to July 2022. The December 2022 pH value for this well was 5.47 S.U., which is below the favorable range for reductive dechlorination to occur. Other observations during the post-injection performance monitoring period indicate that ORP remained positive, dissolved iron concentrations remained low, and TOC and methane never greatly increased. These results combined with the CVOC results indicate that influence from the September 2021 ISERD injection event never fully impacted the shallow groundwater in the vicinity of this well. Also, these results indicate that the shallow zone groundwater aquifer lithology in this area is tight and that the predicted ROI of 10 feet or less for the injection locations is correct as ISERD influence was seen at MW-10, which was located approximately 10 feet away from the DPT injection points. However, observation well ERD-OBSW-1S was located between 15 and 20 feet away from the DPT injection points, which was outside of the optimal ROI of 10 feet.

4.1.2.2 Intermediate Zone

CVOC reductions observed during the ISERD PS for intermediate zone groundwater indicate that the September 2021 injection event was more successful than for shallow zone groundwater. At MW-10I, the TCE concentration in groundwater was 870 µg/L during the baseline event, spiked to 1,100 µg/L in October 2021, and then decreased

to the 50 to 57 µg/L range in March to December 2022. Similar results were observed in observation well ERD-OBSW-11, with TCE detected at 1,000 µg/L during the baseline event, and then decreasing to 520, 590, 180, and 83 µg/L during the four post-injection performance monitoring events. Degradation product cis-1,2-DCE was present in groundwater from both wells during the March to December 2022 period, and VC was detected in ERD-OBSW-11 at low concentrations during the same time period. A noted increase in methane was detected in both wells beginning in March 2022. At MW-10I, the dissolved iron concentration increased while this same increase was not observed for ERD-OBSW-11. This is expected since the injected ZVI stays in place where it is injected and does not travel with groundwater flow. TOC increased in both wells but the increase was much greater in the observation well. Because of the presence of obstructions encountered during the injection event for the intermediate groundwater zone, the DPT injection points ended up being installed in a rough circle around ERD-OBSW-11. Because of this change from the original injection locations, an observation regarding ROI for the injection points cannot be made.

4.1.2.3 Overall ISERD Conclusions

Review of field observations and measurements along with analytical results from the ISERD study area monitoring wells indicates the following PS conclusions:

- CVOC and the biogeochemical concentrations indicate that overall conditions, with enhancement, in the treatment areas remain favorable for continued degradation to occur in the vicinity of MW-10, MW-10I, and ERD-OBSW-11. The distance of ERD-OBSW-1S from the injection locations prevented treatment at this well due to the tight lithology associated with the shallow zone groundwater aquifer.
- An increase in other parameters such as dissolved iron, TOC, and methane also support the conclusion that conditions still could be favorable for continued degradation of CVOCs.
- The ERD technology worked favorably for the intermediate zone, as evidenced by the decline in TCE concentrations and increase in cis-1,2-DCE. The pH may have been a limiting factor for success in the shallow zone.
- The bioaugmentation injection event conducted in December 2021 did not result in a significant increase in *DHC* and associated reductase enzymes, which indicates limited effectiveness of this procedure.
- If ISERD is conducted in the future, buffering to increase the targeted groundwater pH will need to be closely controlled in order to avoid increasing the pH to above 8 S.U., which is outside the favorable range for reductive dechlorination to occur.
- An ROI of at most 10 feet was confirmed during the pilot study.

4.2 Recommendations and Next Step Actions

The following recommendations are presented and summarized as next step actions:

- Signify requests that the PS results, as summarized in this report, be accepted by SCDHEC.
- Signify plans to begin the FS Report within the next several weeks.
- Both ISCO and ISERD should be retained as potential treatment technologies and for remedial alternative development in the FS.
- Data contained in the Sitewide Groundwater Monitoring Report (still in progress at the time this PS Report is being submitted), for monitoring conducted in 2022, will also be used during FS development. Due to an unexpected increase in the trichloroethene (TCE) concentration (to greater than 3 mg/L) in the final PS monitoring event (December 2022) groundwater sample from monitoring well MW-31, it is recommended that a limited additional assessment of groundwater quality, including installation of up to six additional monitoring wells, be performed in the vicinity of monitoring this well. A work plan and monitoring well request will be submitted to SCDHEC within the next week.

Section 5. References

AECOM, 2017. Phase II Remedial Investigation Work Plan, Shakespeare Composite Structures, Newberry, South Carolina. Revised April 2017.

AECOM, 2018. Remedial Investigation Report, Shakespeare Composite Structures, Newberry, South Carolina. November 2018.

AECOM, 2019. Feasibility Study Work Plan, Shakespeare Composite Structures, Newberry, South Carolina. May 2019.

AECOM, 2020. Bench Scale Treatability Study Report, Shakespeare Composite Structures, Newberry, South Carolina. May 2020.

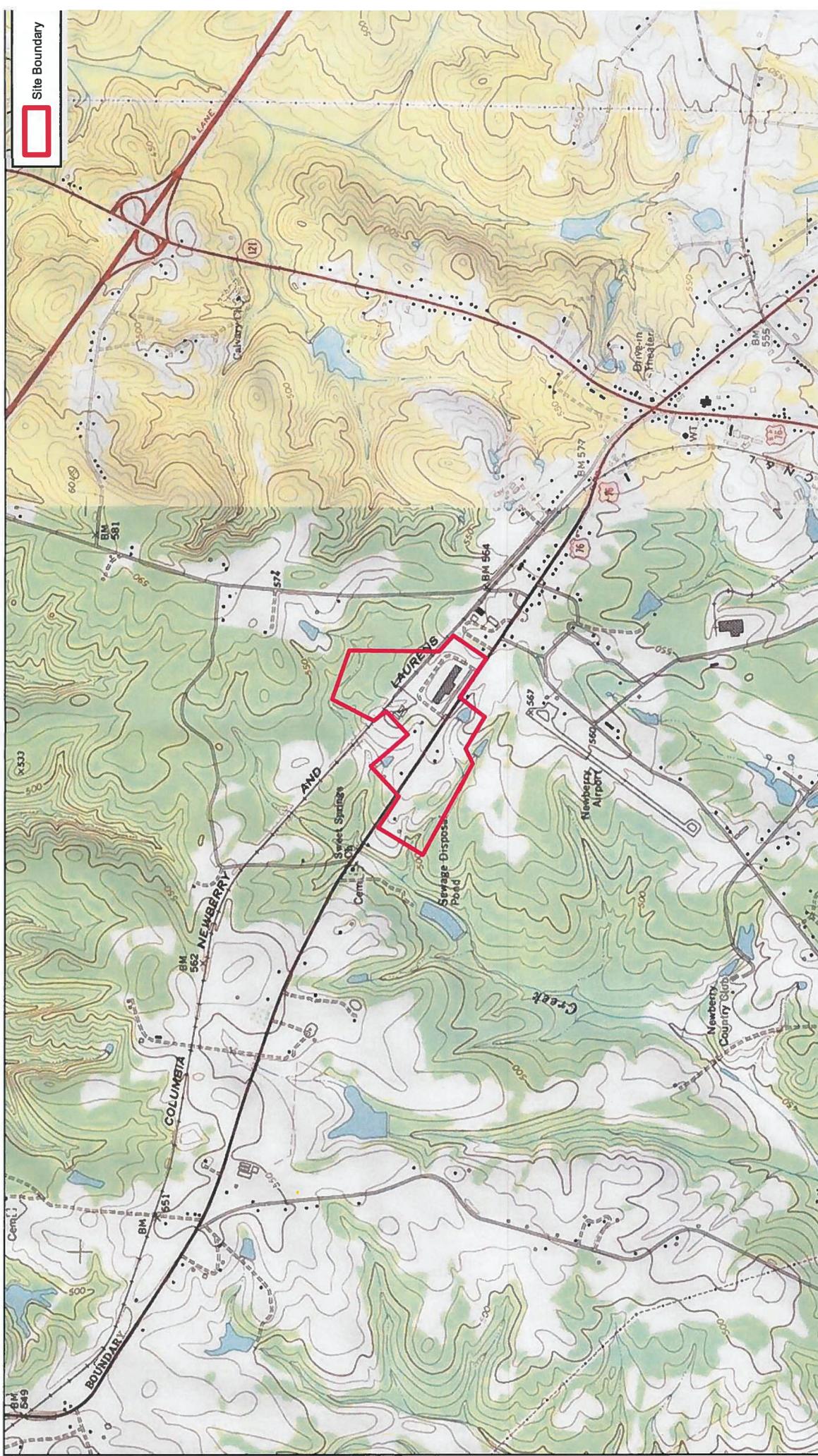
AECOM, 2022. Pilot Study Update Summary, Shakespeare Composite Structures, Newberry, South Carolina. December 2022.

AFCEE et al., 2004. Principles and Practices of Enhanced Anaerobic Bioremediation of Chlorinated Solvents. Prepared by Parsons Corporation. August 2004.

USEPA, 1999. Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services in association with the USEPA's Contract Laboratory Program, National Functional Guidelines for Organic Data Review. USEPA Region 4. 1999.

USEPA, 2002. Contract Laboratory Program, National Functional Guidelines for Inorganic Data Review. USEPA, 2002.

FIGURES



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Figure 1-1: Site Location Map

Shakespear Composition Structures
 Newberry, South Carolina

Project No.: 60635197; Prepared by: KA; Date: 9/10/20

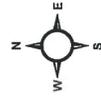




Figure 1-2: Site Plan

Shakespear Composition Structures
 Newberry, South Carolina

Project No.: 60635197; Prepared by: KA; Date: 09/10/20



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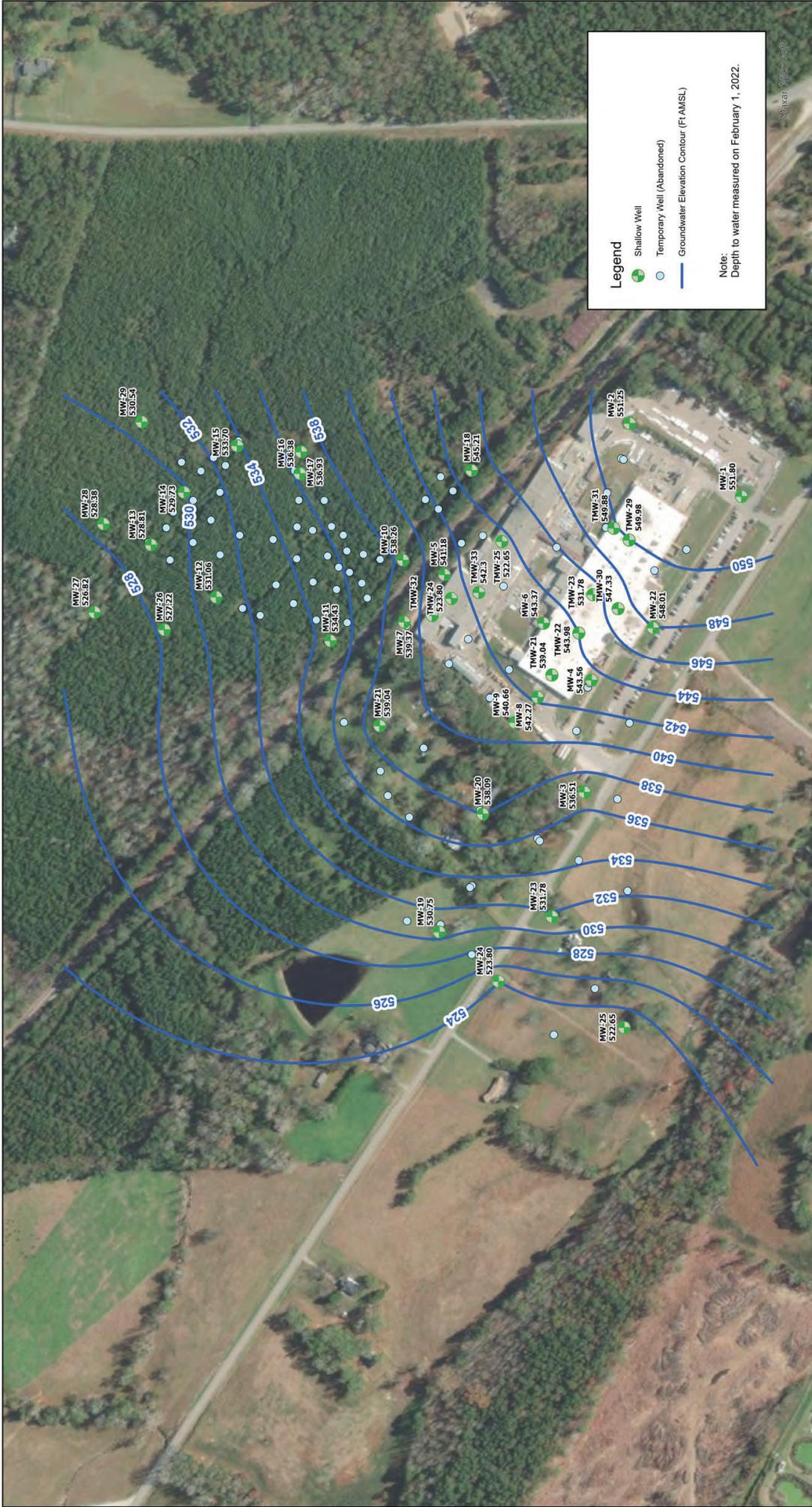


Figure 1-3
Wells and Elevations in Shallow Zone

Shakespeare Composition Structures
Newberry, South Carolina
Project Number: 60704227

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Figure 1-4
Wells and Elevations in Intermediate Zone

Shakespeare Composition Structures
Newberry, South Carolina
Project Number: 60704227

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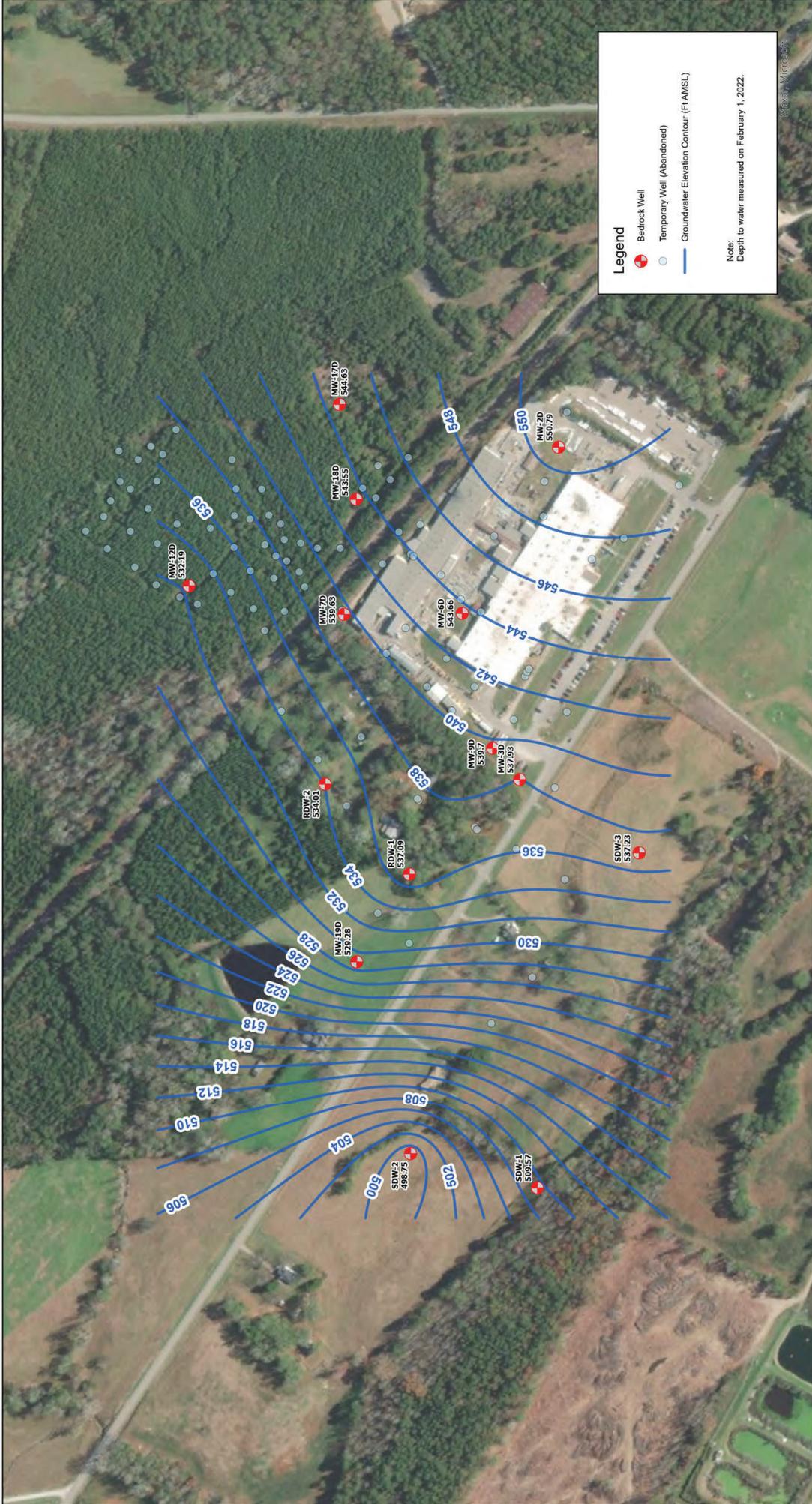


Figure 1-5
Wells and Elevations in Bedrock Zone

Shakespeare Composition Structures
Newberry, South Carolina
Project Number: 60704227



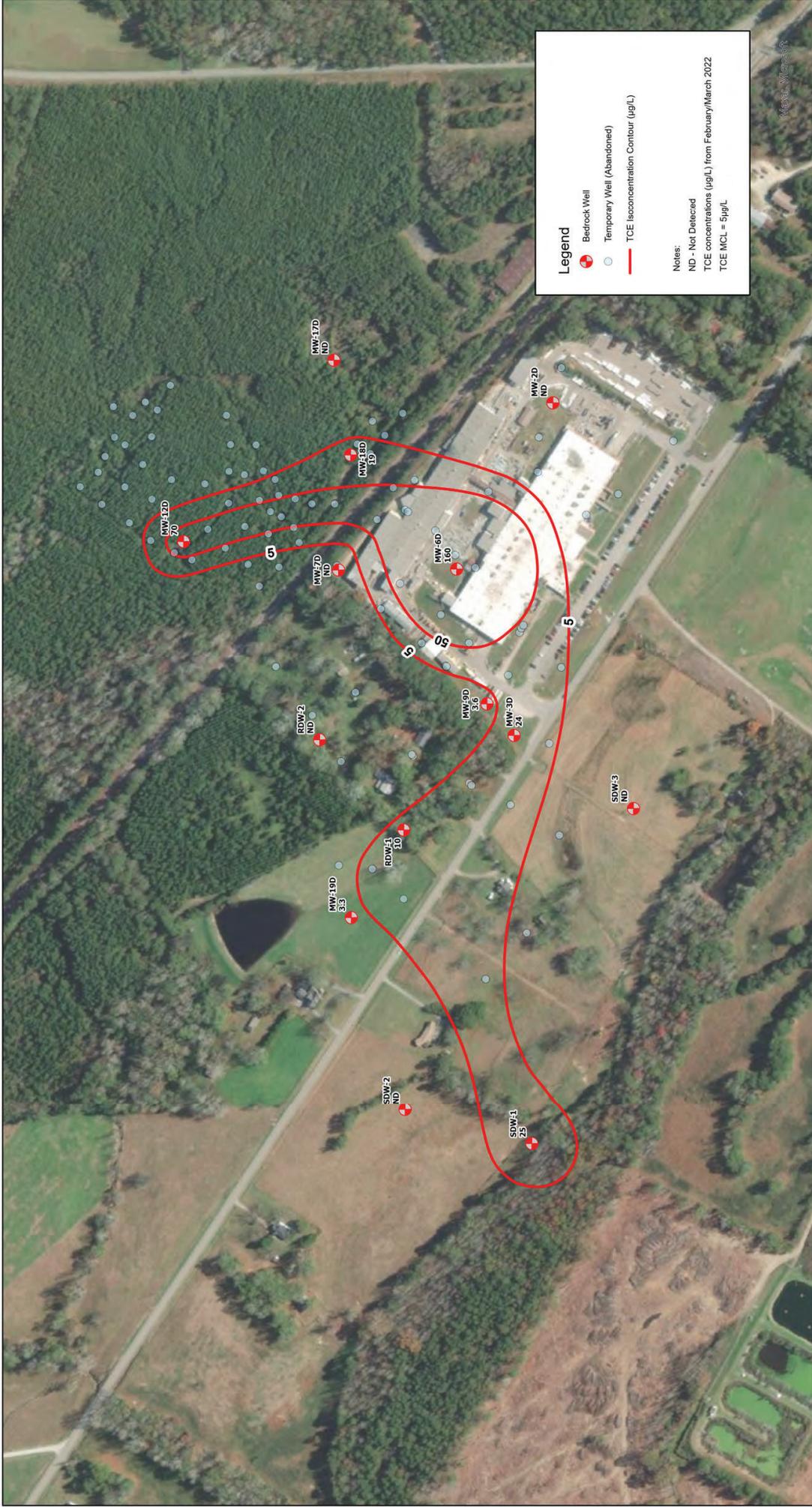


Figure 1-8
TCE Concentrations
in Bedrock Zone
Shakespeare Composition Structures
Newberry, South Carolina
Project Number: 60704227



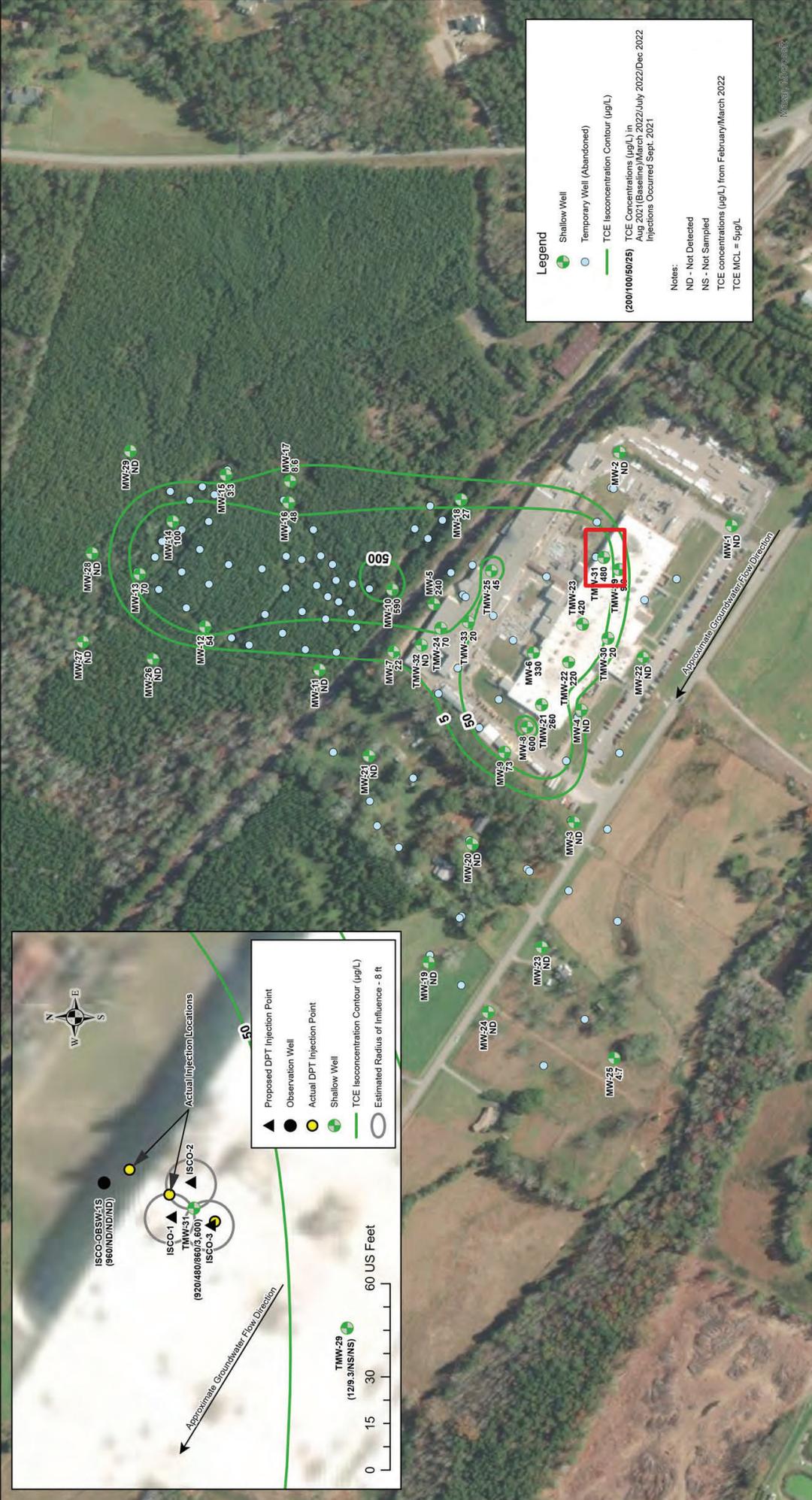


Figure 2-1
ISCO Pilot Study Results
Shallow Zone
 Shakespear Composition Structures
 Newberry, South Carolina
 Project No: 60704227



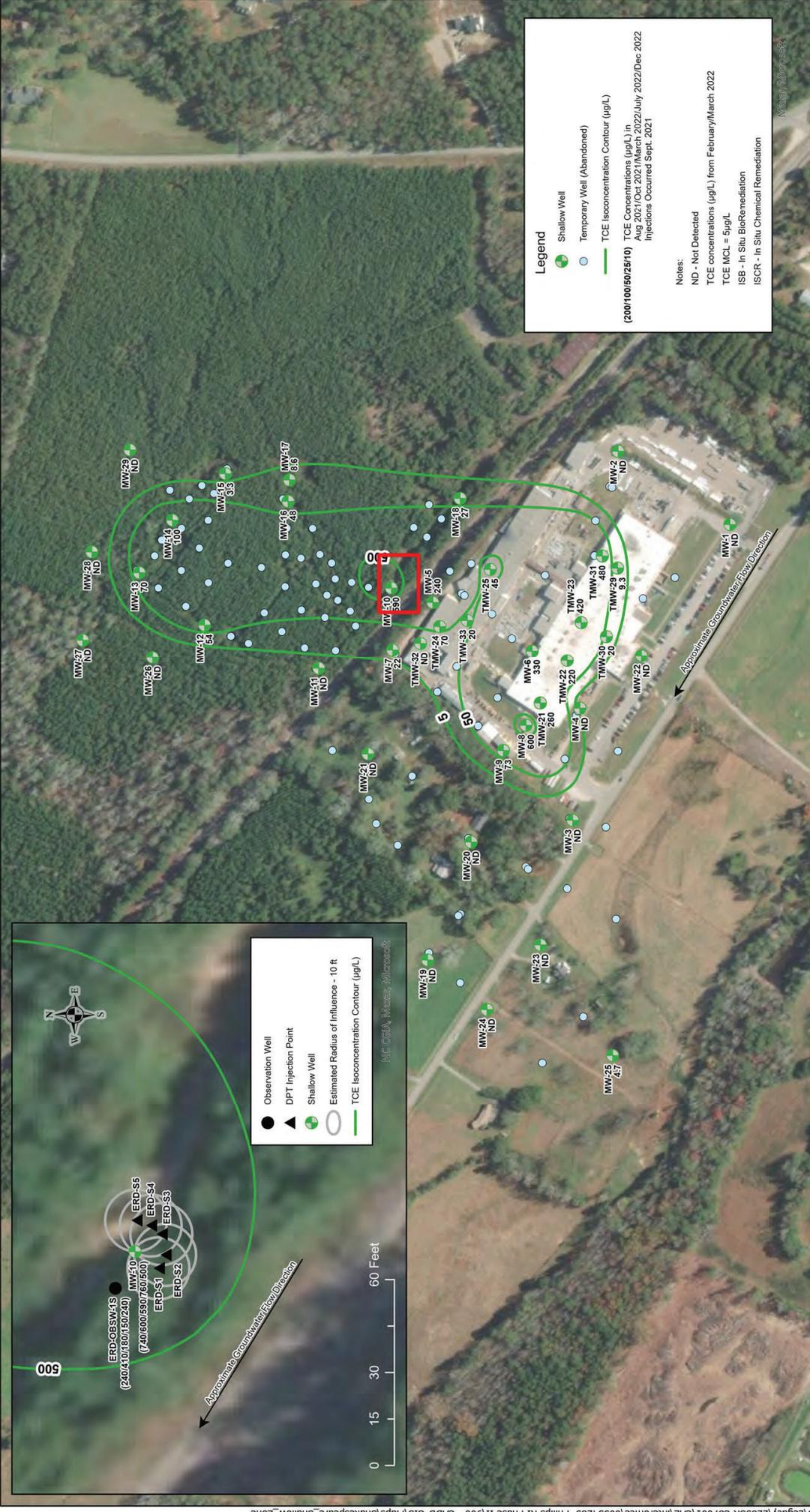
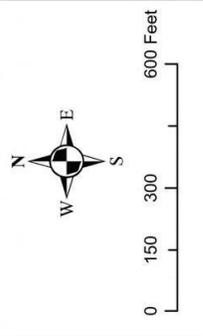
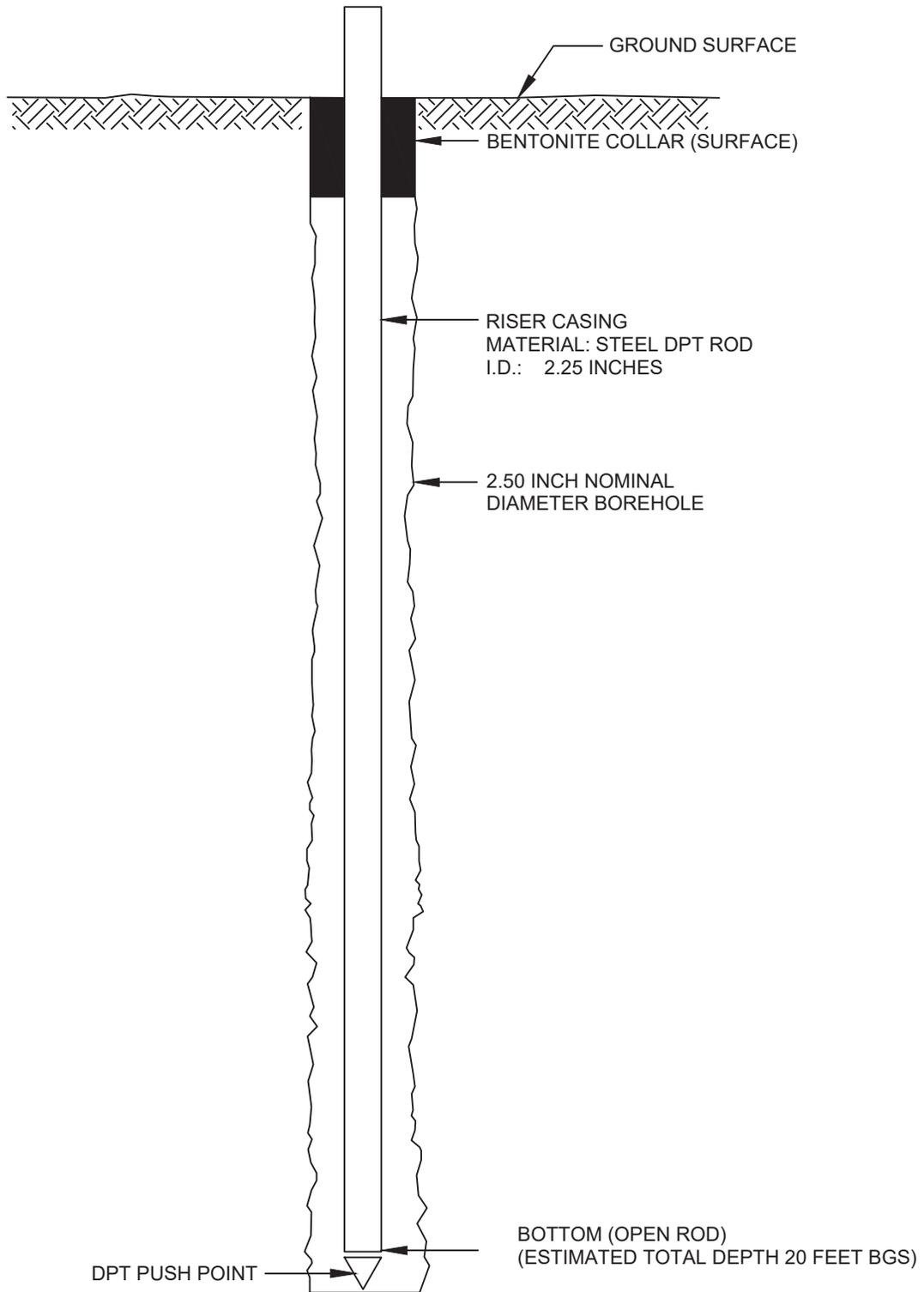


Figure 2-2
Enhanced Reductive Dechlorination (ISB and ISCR) Pilot Study Results
Shallow Zone

Shakespeare Composition Structures
 Newberry, South Carolina
 Project No: 60704227





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TYPICAL DPT INJECTION POINT DETAIL
ISCO PILOT STUDY - SHALLOW ZONE

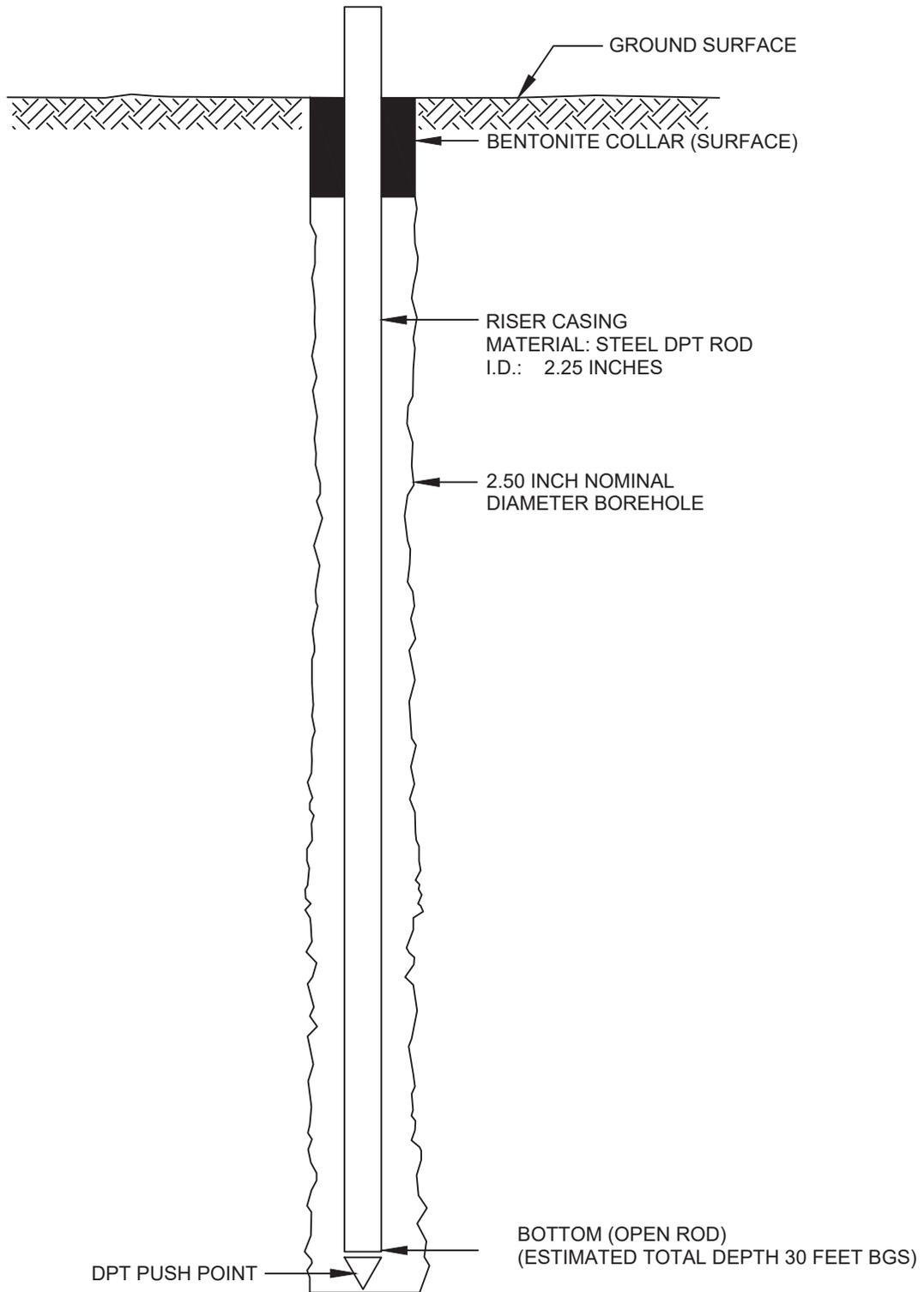
SHAKESPEARE COMPOSITE STRUCTURES SITE
NEWBERRY, SOUTH CAROLINA

PROJECT NO.
60704227

DRAWN BY:
RJS

DATE:
04/27/2023

FIGURE 2-4



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TYPICAL DPT INJECTION POINT DETAIL
ERD PILOT STUDY - SHALLOW ZONE

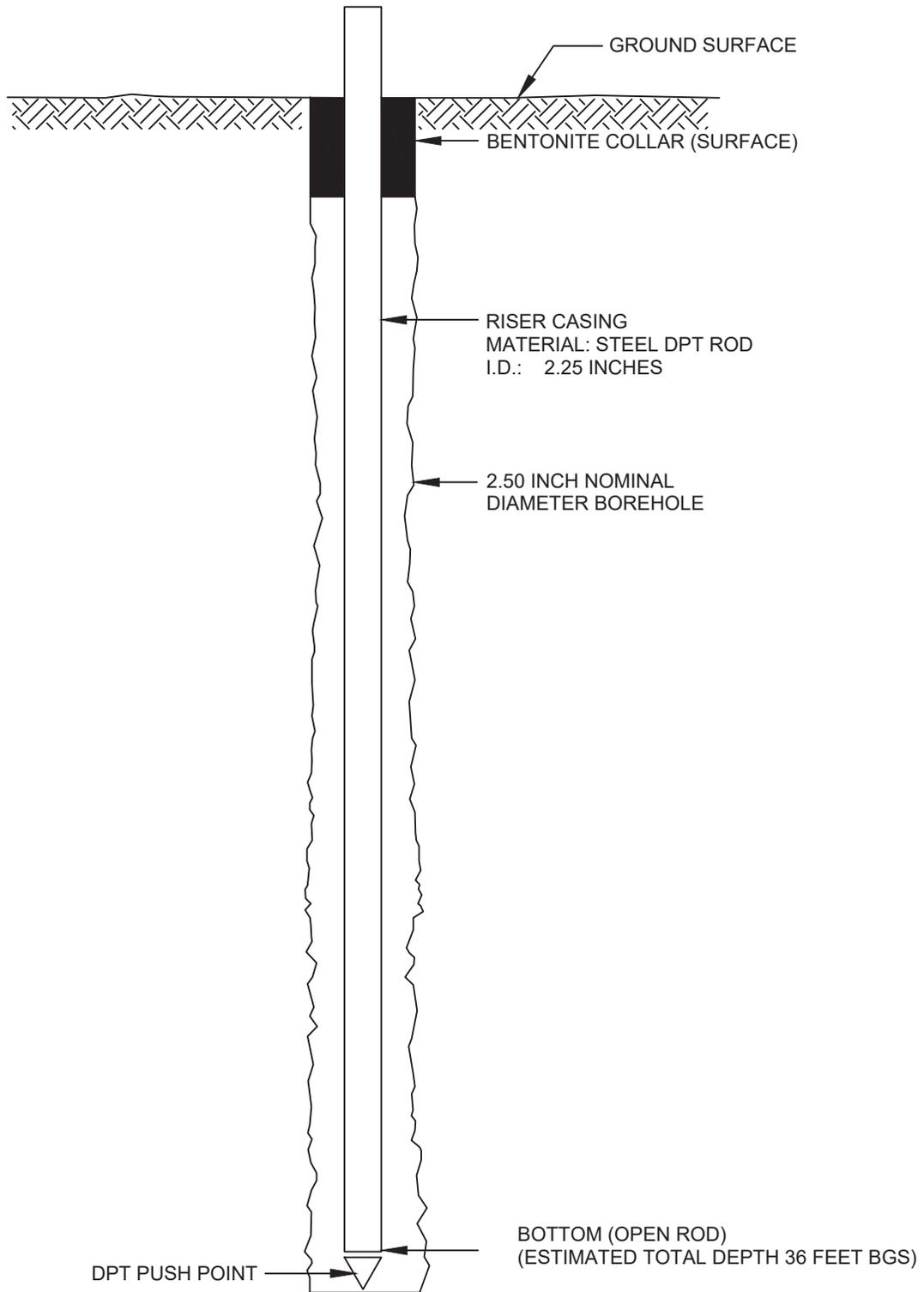
SHAKESPEARE COMPOSITE STRUCTURES SITE
NEWBERRY, SOUTH CAROLINA

PROJECT NO.
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FIGURE 2-5



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TYPICAL DPT INJECTION POINT DETAIL
ERD PILOT STUDY - INTERMEDIATE ZONE

SHAKESPEARE COMPOSITE STRUCTURES SITE
NEWBERRY, SOUTH CAROLINA

PROJECT NO.
60704227

DRAWN BY:
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DATE:
04/27/2023

FIGURE 2-6

TABLES

Table 2-1
 Permanent Monitoring Well Construction Details
 Shakespear Composite Structures Site
 Newberry, South Carolina

Well ID	Date of Installation	Location and Purpose	TD	Screen Interval (feet)	Diameter	Material	TOC Elevation (ft ansl)	Ground Elevation (ft ansl)	Depth to Bedrock (feet)	Top of Bedrock Elevation (ft ansl)	TD Elevation (ft ansl)
Shallow Wells											
MW-1	4/10/2014	Former Shakespear property. Permanent well installed at former location of TMW-8	14.2	4.2 - 14.2	2 inch	Sch 40 PVC	561.85	561.85	15	546.85	547.65
MW-2	4/10/2014	Former Shakespear property. Permanent well installed at former location of TMW-7	24.7	14.7-24.7	"	"	558.42	558.42	"	"	553.72
MW-3	4/10/2014	Former Shakespear facility property - southwest corner of plant property.	26	15.2-26.2	"	"	549.00	549.00	"	"	523.00
MW-4	4/11/2014	Former Shakespear property. Permanent well installed at former location of TMW-3	26	15.2-26.2	"	"	560.13	560.13	"	"	534.13
MW-5	4/14/2014	Former Shakespear property. Permanent well installed at former location of TMW-11	26	15.2-26.2	"	"	557.74	557.74	"	"	531.74
MW-6	4/14/2014	Former Shakespear property. Permanent well installed at former location of TMW-5	26	15.2-26.2	"	"	561.32	561.32	"	"	535.32
MW-7	4/15/2014	Former Shakespear property. Permanent well installed at former location of TMW-16	26	14.2-26.2	"	"	554.72	554.72	"	"	528.72
MW-8	4/15/2014	Former Shakespear property. Permanent well installed at former location of TMW-13	26	13.5-25.5	"	"	558.27	558.27	"	"	532.27
MW-9	4/16/2014	Former Shakespear property. Permanent well installed at former location of TMW-17	26	15.2-25.8	"	"	556.36	556.36	"	"	530.36
MW-21	5/21/2014	Former Shakespear property - west end of main building. Temporary well converted to permanent well	23.5	13.5-23.5	1 inch	"	550.96	550.96	"	"	527.46
MW-22	5/21/2014	Former Shakespear property - west end of main building. Temporary well converted to permanent well	25	15-25	"	"	548.23	548.23	"	"	523.23
MW-23	5/21/2014	Former Shakespear property - central portion of main building. Temporary well converted to permanent well	25	15-25	"	"	537.03	537.03	"	"	512.03
MW-24	5/29/2014	Former Shakespear property - west end of pole winder building. Temporary well converted to permanent well	25	15-25	"	"	531.12	531.12	"	"	506.12
MW-25	5/29/2014	Former Shakespear property - central portion of pole winder building. Temporary well converted to permanent well	25	15-25	"	"	532.07	532.07	"	"	507.07
MW-29	6/3/2014	Former Shakespear property - east central portion of main building. Temporary well converted to permanent well.	13	8-13	"	"	536.41	536.41	"	"	523.41
MW-30	6/3/2014	Former Shakespear property - inside south central portion of main building. Temporary well converted to permanent well.	25	15-25	"	"	543.34	543.34	"	"	518.34
MW-31	6/3/2014	Former Shakespear property - inside north portion of main building. Temporary well converted to permanent well.	21	11-21	"	"	542.24	542.24	"	"	521.24
ISCO OSW-1	8/6/2021	Former Shakespear property - outside north portion of main building.	20	10 - 20	2 inch	"	548.19	548.33	"	"	528.33
MW-32	6/4/2014	Former Shakespear property - inside northwest corner of pole winder building. Temporary well converted to permanent well.	25	15-25	"	"	551.59	551.59	"	"	526.59
MW-33	6/4/2014	Former Shakespear property - inside west central portion of pole winder building. Temporary well converted to permanent well.	25	15-25	"	"	551.58	551.58	"	"	506.58
MW-10	8/4/2015	Dicket property - Former Location of TMW-42	30.32	20.3 - 30.3	2 inch	Sch 40 PVC	550.96	550.96	42	508.96	520.84
ISERO SW-1	8/5/2021	Dicket property - West of MW-10	30	20 - 30	"	"	560.72	560.72	"	"	530.71
MW-11	"	Dicket property - Former Location of TMW-87	30.32	20.3 - 30.3	"	"	548.24	548.24	"	"	517.92
MW-12	"	Dicket property - Former Location of TMW-73	31.37	20.37 - 30.37	"	"	537.03	537.31	"	"	505.84
MW-13	"	Dicket property - Former Location of TMW-89	25.29	15.29 - 25.29	"	"	531.16	531.16	14	517.16	505.87
MW-14	8/5/2015	Dicket property - Former Location of TMW-95	20.22	10.22 - 20.22	"	"	531.97	531.97	"	"	511.75
MW-15	"	Dicket property - Former Location of TMW-98	11.63	1.63 - 11.63	"	"	536.41	536.32	"	"	524.69
MW-16	"	Dicket property - Former Location of TMW-99	20.29	10.29 - 20.29	"	"	543.35	542.37	"	"	522.84
MW-17	"	Dicket property - east of MW16	30.27	10.59 - 20.59	"	"	542.37	542.36	"	"	512.09
MW-18	8/3/2015	Dicket property - Former Location of TMW 72	23.67	13.67 - 23.67	"	"	551.58	551.6	18	533.60	527.93
MW-19	8/6/2015	Chapman property - Former Location of TMW-105	14.77	4.77 - 14.77	"	"	531.59	531.59	11	520.59	516.82
MW-20	"	Boazman property - Former Location of TMW -38/102	35.3	25.3 - 35.3	"	"	541.92	541.86	"	"	506.86
MW-21	8/7/2015	Ringer property - South of TMW-39	24.17	14.17 - 24.17	"	"	548.24	548.28	"	"	524.11
MW-22	8/26/2015	Former Shakespear property - South of entrance to main building	26.2	16.2 - 26.2	"	"	560.01	560.2	"	"	534
MW-23	12/15/2015	Shealy property - Former Location of TMW-107	25	10-20	"	"	543.48	543.75	"	"	518.75
MW-24	12/16/2015	Shealy property - Former Location of TMW-109	30	20 - 30	"	"	541.35	541.35	"	"	511.35
MW-25	2/27/2016	Shealy property - Southwest of MW-241 and MW-23	24.5	14.5 - 24.5	1 inch	Sch 40 PVC	535.60	535.5	30	505.50	505.5
MW-26	3/26/2018	Dicket property - north of MW-13	30	20 - 30	"	"	533.87	533.88	"	"	509.38
MW-27	3/27/2018	Dicket property - north of MW-14	30	20 - 30	"	"	530.62	530.62	"	"	500.62
MW-28	3/27/2018	Folk property - west-northwest of MW-12	23.5	13.5 - 23.5	"	"	552.43	552.23	"	"	508.73
MW-29	3/27/2018	Folk property - northwest of MW-12	24	14 - 24	"	"	539.53	539.79	"	"	515.79
Intermediate Wells											
MW-21	8/18/2015	Former Shakespear property - west of MW-2	46.5	36.5 - 46.5	2 inch	"	559.97	560.19	50	510.19	513.69
MW-31	8/11/2015	Former Shakespear property - adjacent to MW-3	54.73	44.7 - 54.7	"	"	548.84	548.96	"	"	494.23
MW-51	8/19/2015	Former Shakespear property - east of MW-5	57	47 - 57	"	"	559.70	559.6	56	503.60	502.6
MW-61	8/21/2015	Former Shakespear property - adjacent to MW-6	40	40 - 50	"	"	560.28	560.19	"	"	510.19
MW-71	8/20/2015	Former Shakespear property - adjacent to MW-7	47.1	37.1 - 47.1	"	"	560.07	555.3	"	"	508.2
MW-91	8/21/2015	Former Shakespear property - adjacent to MW-9	47.6	37.6 - 47.6	"	"	556.07	556.08	"	"	508.48
MW-101	8/24/2015	Former Shakespear property - adjacent to MW-10	44	34 - 44	"	"	548.4	548.5	"	"	507.5
ERO OBSV-11	8/5/2021	Dicket property - northwest of MW-101	36	26-36	2 inch	"	551.2	551.42	"	"	515.42
MW-121	6/12/2017	Dicket property - south of MW-12	47	38.8 - 46.8	"	"	536.6	536.44	"	"	489.44
MW-191	5/6/2017	Chapman property - east of MW-19	23	17.6 - 22.6	"	"	536.51	536.51	"	"	513.51
MW-201	8/11/2015	Boazman property - adjacent to MW-20, former Location of TMW-36	53.11	43.1 - 53.1	"	"	541.25	541.51	"	"	488.4
MW-211	8/10/2015	Ringer property - adjacent to MW-21	54.83	44.8 - 54.8	"	"	552.82	552.9	49	503.90	498.07
MW-241	2/18/2016	Shealy property - southwest of MW-23	35	35 - 30	"	"	544.99	545.06	31	514.06	510.06

Notes:
 ft ansl - feet above mean sea level

Table 2-2
Pilot Study Performance Monitoring Program
Shakespeare Composite Structures Site
Newberry, South Carolina

Monitoring Well Details		Monitoring Event					
ID	Location	Screen Depth (ft bgs)	Baseline	30 Days*	4 Months*	8 Months*	12 Months**
Background Well							
MW-2	Upgradient well	14-27	1,2,3,4	1	1,2,3,4	1	1,2,3,4
ISCO Pilot Study Performance Monitoring Well Network - Shallow Groundwater Zone							
TMW-29	Sidegradient of injection area	8-13	1,2,3	1	1,2,3	1,2,3	1,2,3
TMW-31	Within injection area	11-21	1,2,3	1	1,2,3	1,2,3	1,2,3
ISCO-OBSW-1S	Downgradient from injection area	10-20	1,2,3	1	1,2,3	1,2,3	1,2,3
ERD Pilot Study Performance Monitoring Well Network - Shallow Groundwater Zone							
MW-10	Within injection area	20.3-30.3	1,2,4,5	1,2,4,5	1,2,4,5	1,2,4	1,2,4,5
ERD-OBSW-1S	Downgradient of injection area	20-30	1,2,4,5	1,2,4,5	1,2,4,5	1,2,4	1,2,4,5
ERD Pilot Study Performance Monitoring Well Network - Intermediate Groundwater Zone							
MW-10	Within injection area	31-41	1,2,4,5	1,2,4,5	1,2,4,5	1,2,4	1,2,4,5
ERD-OBSW-1I	Downgradient of injection area	25-35	1,2,4,5	1,2,4,5	1,2,4,5	1,2,4	1,2,4,5

Field and Analytical Laboratory Parameter Monitoring Legend:

*Post-injection monitoring events

1 = Field indicator parameters (color, turbidity, temperature, specific conductivity, pH, DO, ORP, and groundwater elevation).

2 = VOCs by SW 846, Method 8260B.

3 = Additional ISCO parameters (TDS by SW-846, Method 2540C and Chloride by SW 9056A).

4 = Biogeochemical parameters (Nitrate/Nitrite/Sulfate/Chloride by SW 9056A, Dissolved [lab filtered] and Total Iron by SW 6020A, Methane/Ethane/Ethene by RSK-175, Alkalinity by SM 2320B, and TOC by SW 9060A).

5 = *dehalococoides*, *dehalobacter spp.*, vinyl chloride reductases via CENSUS[™] qPCR analysis.

Abbreviations:

DO - Dissolved Oxygen

ERD - Enhanced Re

ft bgs - Feet Below Ground Surface

ID - Monitoring Well Identification

ISCO - In Situ Chemical Oxidation

OBSW - observation well

ORP - Oxidation/Reduction Potential

qPCR - Quantitative Polymerase Chain Reaction

TDS - Total Dissolved Solids

TOC - Total Organic Carbon

VOC - Volatile Organic Compound

Table 2-3
Bioaugmentation Injection Event Details
Shakespeare Composite Structures Site
Newberry, South Carolina

	Shallow Zone GW (MW-10 Area)	Intermediate Zone GW (MW-10I Area)
Targeted Treatment Areas and DPT Injection Point Details		
Area (square feet)	1,500	1,500
Shallow Groundwater Zone Depth (20 to 30 ft bgs)	10	-----
Shallow Groundwater Zone Depth (31 to 41 ft bgs)	-----	10
Aquifer Volume (cubic feet)	15,000	15,000
Estimated Radius of Influence	10	10
Number of Injection Points	5	5
Average Horizontal Hydraulic Gradient (ft/ft)	0.016	0.014
Average Hydraulic Conductivity (ft/day)	0.80	0.72
Estimated Effective Porosity (unitless)	0.25	0.3
Groundwater Seepage Velocity (ft/day)	0.05	0.03
Estimated Injection Duration (days)	0.5	0.5
Total Quantities of ISERD Injection Substrate Chemicals and Bioaugmentation Product Per DPT Injection Location		
No. of Injection Intervals - ERD-S1 (30-28, 28-26, 26-24, 24-22, 22-20 ft bgs)	5	-----
No. of Injection Intervals - ERD-S2 (28-26, 26-24, 24-22, 22-20 ft bgs)	4	-----
No. of Injection Intervals - ERD-S3 (26-24, 24-22, 22-20 ft bgs)	3	-----
No. of Injection Intervals - ERD-S4 (30-28, 28-26, 26-24, 24-22, 22-20 ft bgs)	3	-----
No. of Injection Intervals - ERD-S5 (29-28, 28-26, 26-24, 24-22, 22-20 ft bgs)	5	-----
No. of Injection Intervals - ERD-I1 (35-33, 33-31 ft bgs)	-----	2
No. of Injection Intervals - ERD-I2 (37-35, 35-33, 33-31 ft bgs)	-----	3
No. of Injection Intervals - ERD-I3 (34-33, 33-31 ft bgs)	-----	1
No. of Injection Intervals - ERD-I4 (32-31 ft bgs)	-----	1
No. of Injection Intervals - ERD-I5 (33-31 ft bgs)	-----	1
ABC -Ole (pounds)	100	100
Water (gallons)	100	100
RTB-1 (liters)	2	2
Total Quantities of ISERD Injection Substrate Chemicals and Bioaugmentation Product Injected		
ABC -Ole (pounds)	500	500
Water (gallons)	500	500
RTB-1 (liters)	10	10
Notes:		
Refer to bioaugmentation injection logs in Attachment E for additional details.		
DPT - direct push technology		
ERD - enhanced reductive dechlorination		
ft bgs - feet below ground surface		
ft/day - feet per day		
ft/ft - feet per foot		

Table 3-1
Sample Results - ISCO Pilot Study Wells
Shakespeare Composite Structures Site
RP-YCC-14-0271-RP
Newberry, SC

Sample ID Laboratory ID Date Collected	USEPA MCL ¹	MW-2			TMW-29		
		WH20094-001 08/19/21	XC01066-006 03/01/22	XG20043-007 07/20/22	XL28017-003 12/28/22	WH20094-003 08/20/21	XC01066-003 03/01/22
Volatile Organic Compounds by USEPA Method 8260D (µg/L)							
Acetone	NS	< 10	< 10	< 10	< 11	24	7.9 J//
cis-1,2-Dichloroethene	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Styrene	100	< 0.5	5.1	< 0.5	< 0.5	50	120
Trichloroethene (TCE)	5	< 0.5	< 0.5	< 0.5	< 0.5	12	9.3
Chloride by USEPA Method 300.0 (mg/L)							
Chloride	250 ³	2.3	2.2	NA	2.2	3.1	2.8
Nitrate	10	0.078 B//	NA	NA	0.074	NA	NA
TDS by USEPA Method SM 2540C-2011, ~2015 (mg/L)							
Total Dissolved Solids	500 ³	< 25	34	NA	26	< 25	51
Field Parameters							
Color/Odor	NS	NA	clear/no	clear	clear	NA	lt. tan/no
Dissolved oxygen (mg/L)	NS	7.26	8.30	6.89	6.78	4.53	8.01
ORP (mV)	NS	187.4	821.6	627.3	330.2	185.7	539.1
pH	NS	4.91	4.63	5.36	5.36	4.5	4.49
Specific Conductivity (µS/cm)	NS	0.02	21.74	20	24	0.035	37.75
Temperature (Celsius)	NS	22	19.61	22.2	19.3	23.5	21.31
Turbidity (NTU)	NS	6.98	0.05	3.79	4.51	4.43	276.76

Notes:
-a- Indicates a field duplicate sample.
1 - United States Environmental Protection Agency Maximum Contaminant Level (USEPA, March 2022).
2 - 1998 Final Rule for Disinfectants and Disinfection By-Products: The total for trihalomethanes is 80 µg/L.
3 - Secondary MCL.
NA - Not Analyzed
NS - No Standard
Bold font indicates the analyte was detected.

Laboratory Data Qualifiers
H - Out of holding time.
J - Estimated result less than the limit of quantitation and greater than or equal to the detection limit.
B - Detected in the method blank.
None added.
Analysis Data Qualifiers
h - Holding time exceeded by less than two times.

Bold outline indicates an exceedance of the USEPA MCL.
Data Qualifiers
Separates the laboratory added data qualifiers from the validation data qualifiers. The laboratory added data qualifiers precede the first “/”. The result qualifiers follow the first “/”, and the analysis qualifiers follow the second “/”.
The result qualifiers are a product of the data validation process, and the analysis qualifier defines the type of

Table 3-1 Sample Results - ISCO Pilot Study Wells Shakespeare Composite Structures Site RP-YCC-14-6271-RP Newberry, SC		ISCO-OBWS-IS												
Sample ID Laboratory ID Date Collected	USEPA MCL ¹	TMW-31					TMW-31 (Dup)							
		XC01066-004 03/01/22	XC01066-006 07/20/22	XL28017-001 12/28/22	XC01066-004 03/01/22	XC01066-006 07/20/22	XL28017-001 12/28/22	XC01066-004 03/01/22	XC01066-006 07/20/22	XL28017-002 12/28/22	XC01066-004 03/01/22	XC01066-006 07/20/22		
Volatile Organic Compounds by USEPA Method 8260D (Chloride by USEPA Method 300.0 (mg/L))														
Acetone	NS	< 100	< 50	< 100	< 500	< 50	< 100	< 500	< 100	< 200	< 500	< 100	< 200	< 500
cis-1,2-Dichloroethene	70	8.5	3	9.6	32	9.5	9.6	32	6.7	10	25	10	10	25
Styrene	100	< 5	< 2.5	7.5	< 2.5	5	/M/A	< 2.5	5	< 10	< 2.5	< 10	< 2.5	< 2.5
Trichloroethene (TCE)	5	920	480	860	3600	1200	860	3600	960	< 10	< 2.5	< 10	< 2.5	< 2.5
Chloride	250 ³	6.1	6	5.6	3.2	NA	5.6	3.2	5.7	< 100	7	< 100	7	6.1
Nitrate	10	NA	NA	1.3	NA	NA	1.3	NA	NA	NA	2.4	NA	2.4	NA
TDS by USEPA Method SM 2540C-2011, -2015 (mg/L)	500 ³	41	65	62	55	NA	62	55	67	260	340	260	340	110
Field Parameters														
Color/Odor	NS	NA	lt. purple	clear	clear	NA	clear	clear	NA	NA	purple	NA	purple	lt purple
Dissolved oxygen (mg/L)	NS	4.43	5.17	4.14	4.84	NA	4.14	4.84	3.64	NA	6.85	NA	6.85	4.85
ORP (mV)	NS	169.6	869.1	640.3	222.8	NA	640.3	222.8	-119.6	NA	720.1	NA	720.1	631.4
pH	NS	4.71	4.62	5.28	5.62	NA	5.28	5.62	5.72	NA	6.01	NA	6.01	6.09
Specific Conductivity (uS/cm)	NS	0.048	63.22	58	67	NA	58	67	0.094	NA	219	NA	219	160
Temperature (Celsius)	NS	23.6	24.25	23.7	24.4	NA	23.7	24.4	23.8	NA	22.2	NA	22.2	18.7
Turbidity (NTU)	NS	17.91	1.02	8.88	9.78	NA	8.88	9.78	NA	NA	8.84	NA	8.84	8.15

Notes:

- a - Indicates a field duplicate sample.
- ¹ - United States Environmental Protection Agency Maximum Contaminant Level (USEPA, March 2022).
- ² - 1998 Final Rule for Disinfectants and Disinfection By-Products: The total for trihalomethanes is 80 µg/L.
- ³ - Secondary MCL.
- NA - Not Analyzed
- NS - No Standard
- Bold font indicates the analyte was detected.

Laboratory Data Qualifiers

- H - Out of holding time.
- J - Estimated result less than the limit of quantitation and greater than or equal to the detection limit.
- B - Detected in the method blank.

Result Data Qualifiers

- None added
- Analysis Data Qualifiers
- h - Holding time exceeded by less than two times.

Data Qualifiers

- Bold outline indicates an exceedance of the USEPA MCL.
- Data Qualifiers**
- Separates the laboratory added data qualifiers from the validation data qualifiers. The laboratory added data qualifiers precede the first "Y". The result qualifiers follow the first "Y", and the analysis qualifiers follow the second "Y".
- The result qualifiers are a product of the data validation process, and the analysis qualifier defines the type of

Attachment A

Monitoring Well Permit



July 9, 2021

Mr. Dean Weeks
Phillips Lighting
200 Franklin Square Drive
Somerset, NJ 08873

Re: Monitoring Well Approval Letter
Former Shakespeare Composite Structures Site
Monitoring Well Installation Permit Request dated July 8, 2021
Newberry County
Voluntary Cleanup Contract 14-6271-RP
File # 51025

Dear Mr. Weeks:

The Department has reviewed and approves the monitoring well installation request. Please submit the monitoring well boring logs with the next pilot study report, to my attention, on or before October 30, 2021. Please feel free to contact me with any questions or comments at (803) 898-0722 or at kuhnkm@dhec.sc.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kimberly Kuhn", is positioned above the typed name and title.

Kimberly Kuhn, Project Manager
State Voluntary Cleanup Section
Bureau of Land and Waste Management

Enc: Monitoring Well Approval Form (MW-12873)

CC: Lucas Berresford, BLWM
Veronica Barringer, Midlands BEHS Office
Scott Ross, AECOM, 101 Research Drive, Columbia, SC 29203
File # 51025

Attachment B

UIC Permits



November 24, 2020

Mr. Dean Weeks
Signify North America Corporation
200 Franklin Square Drive
Somerset, NJ 8873

Re: Underground Injection Control Permit #SCHE03020600
Shakespeare Composite Structures Site
Newberry County

Dear Mr. Weeks:

Enclosed is a Permit to Construct twenty-three (23) DPT Class VA-I wells at the Shakespeare Composite Structure Site, Newberry County as requested in the permit application received November 6, 2020. **Other permits maybe necessary for the intended activities. Please ensure all permits have been obtained before proceeding.**

**South Carolina Board of Health and Environmental Control
Guide to Board Review
Pursuant to S.C. Code Ann. § 44-1-60
Effective May 8, 2014**

The decision of the South Carolina Department of Health and Environmental Control (Department) becomes the final agency decision fifteen (15) calendar days after notice of the decision has been mailed to the applicant, permittee, licensee and affected persons who have requested in writing to be notified, unless a written request for final review accompanied by a filing fee in the amount of \$100 is filed with Department by the applicant, permittee, licensee or affected person.

Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference.

I. Filing of Request for Final Review

1. A written Request for Final Review (RFR) and the required filing fee of one hundred dollars (\$100) must be received by Clerk of the Board within fifteen (15) calendar days after notice of the staff decision has been mailed to the applicant, permittee, licensee, or affected persons. If the 15th day occurs on a weekend or State holiday, the RFR must be received by the Clerk on the next working day. RFRs will not be accepted after 5:00 p.m.
2. RFRs shall be in writing and should include, at a minimum, the following information:
 - The grounds for amending, modifying, or rescinding the staff decision;
 - a statement of any significant issues or factors the Board should consider in deciding how to handle the matter;
 - the relief requested; and
 - a copy of the decision for which review is requested.

3. RFRs should be filed in person or by mail at the following address:

South Carolina Board of Health and Environmental Control

Attention: Clerk of the Board

2600 Bull Street

Columbia, South Carolina 29201

Alternatively, RFR's may be filed with the Clerk by facsimile (803-898-3393) or by electronic mail (boardclerk@dhec.sc.gov).

4. The filing fee maybe paid by cash, certified check or credit card. If a RFR is filed by facsimile or electronic mail, the filing fee may be mailed to the Clerk of the Board and the envelope must be postmarked within the time allowed for filing a RFR.
5. If there is any perceived discrepancy in compliance with this RFR filing procedure, the Clerk should consult with the Chairman or, if the Chairman is unavailable, the Vice-Chairman. The Chairman or the Vice-Chairman will determine whether the RFR is timely and properly filed and direct the Clerk to (1) process the RFR for consideration by the Board or (2) return the RFR and filing fee to the requestor with a cover letter explaining why the RFR was not timely or properly filed. Processing an RFR for consideration by the Board shall not be interpreted as a waiver of any claim or defense by the agency in subsequent proceedings concerning the RFR.
6. If the RFR will be processed for Board consideration, the Clerk will send an Acknowledgement of RFR to the Requestor and the applicant, permittee, or licensee, if other than the Requestor.
7. The Clerk will email the RFR to all Board members for review, and all Board members will confirm receipt of the RFR to the Clerk by email. If a Board member does not confirm receipt of the RFR within twenty-four (24) hour period, the Clerk will contact the Board member and confirm receipt. If a Board member believes the RFR should be considered by the RFR Committee, he or she will respond to the Clerk's email within forty-eight (48) hours and will request further review. If no Board member requests further review of the RFR within the forty-eight (48) hour period, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, stating the Board will not hold a Final Review Conference. A copy of the Notice of Appeal Procedure will be included with the letter.

NOTE: If the time periods described above end on a weekend or State holiday, the time is automatically extended to 5:00 p.m. on the next business day.

8. If the RFR is to be considered by the RFR Committee, the Clerk will forward a copy of the RFR to Department staff and Office of General Counsel. A Department response to the RFR should be provided by Department staff to the Clerk within eight (8) working days after the RFR is forwarded.

II. Final Review Conference Scheduling

1. If a Conference will be held, the Clerk will send a letter by certified mail to the Requestor, with copy by regular mail to the applicant, permittee, or licensee, if not the Requestor, informing the Requestor of the determination.
2. The Clerk will request Department staff provide the Administrative Record.
3. The Clerk will send Notice of Final Review Conference to the parties at least ten (10) days before the Conference. The Conference will be publicly noticed and should:
 - include the place, date and time of the Conference;
 - state the presentation times allowed in the Conference;
 - state evidence may be presented at the Conference;
 - if the conference will be held by committee, include a copy of the Chairman's order appointing the committee; and
 - inform the Requestor of his or her right to request a transcript of the proceedings of the Conference prepared at Requestor's expense.

4. If a party requests a transcript of the proceedings of the Conference and agrees to pay all related costs in writing, including costs for the transcript, the Clerk will schedule a court reporter for the Conference.

III. Final Review Conference and Decision

1. The order of presentation in the Conference will, subject to the presiding officer's discretion, be as follows:
 - Department staff will provide an overview of the staff decision and the applicable law to include [10 minutes]:
 - Type of decision (permit, enforcement, etc.) and description of the program.
 - Parties
 - Description of facility/site
 - Applicable statutes and regulations
 - Decision and materials relied upon in the administrative record to support the staff decision.
 - Requestor(s) will state the reasons for protesting the staff decision and may provide evidence to support amending, modifying, or rescinding the staff decision. [15 minutes] *NOTE: The burden of proof is on the Requestor(s)*
 - Rebuttal by Department staff[15 minutes]
 - Rebuttal by Requestor(s)[10 minutes]

Note: Times noted in brackets are for information only and are superseded by times stated in the Notice of Final Review Conference or by the presiding officer.
2. Parties may present evidence during the conference; however, the rules of evidence do not apply.
3. At any time during the conference, the officers conducting the conference may request additional information and may question the Requestor, the staff, and anyone else providing information at the conference.
4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
5. All Conferences are open to the public.
6. The officers may deliberate in closed session.
7. The officers may announce the decision at conclusion of the Conference or it may be reserved for consideration.
8. The Clerk will mail the written final agency decision (FAD) to parties within 30 days after the Conference. The written decision must explain the basis for the decision and inform the parties of their right to request a contested case hearing before the Administrative Law Court. The FAD will be sent by certified mail, return receipt requested.
9. Communications may also be sent by electronic mail, in addition to the forms stated herein, when electronic mail addresses are provided to the Clerk.

The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

Please submit all of the well logs for the installed wells to schedule a well inspection. An inspection of the UIC System must be conducted prior to issuance of the Permit to Operate. If you have any questions, please call Bruce Crawford at (803) 898-4177.

Sincerely,

Alex Butler, Manager
Water Monitoring Assessment and Protection Division
SCDHEC - Bureau of Water

cc: Kim Kuhn, SCDHEC-BLWM
Scott Ross, AECOM Tech. Services, 101 Research Drive, Columbia, SC 29203



WATER MONITORING ASSESSMENT & PROTECTION DIVISION

Injection Well Construction Permit
for
Class II, III, and V.A. Injection Well(s)

Permit #SCHE03020600

Date Issued: November 24, 2020

Date Expired: November 24, 2023

For (Operator): Signify North America Corporation

In accordance with R.61-72 this permit will become final unless it is appealed within fifteen (15) days of the issuance date.

In accordance with provisions of Title 48, Chapter 1, South Carolina Code of Laws, 1976, as amended, permission is granted for construction of twenty-three (23) Class VA-I injection wells with a true diameter of one (1) to three (3) inches, and a total depth of approximately eleven (11) to thirty (30) feet located at Shakespeare Composite Structure, Newberry County, SC with the following provisions:

- 1) **The Department's UIC Permitting Program shall be notified by Email at least 24 hours prior to installing injection wells at crawfobd@dhec.sc.gov or by calling (803) 898-4177.**
- 2) The operator shall submit completed SCDHEC well record forms to the Department's Water Monitoring, Assessment & Protection Division after completion of the injection wells.
- 3) **All Constructed wells for underground injection that require grouting are to have the well annulus grouted within 24 hours of screen installation.**
- 4) **All wells remaining more than 24 hours from installation are to have water tight capped casings, lockable vaults and/or protective covers and surface pads. All Direct Push Technology (DPT) wells are to be abandoned upon completion of injection activities at each location.**
- 5) Upon completion of construction, injection activities shall not commence prior to receiving approval from the Department to operate the injection wells. This provision also applies to injection during cycle testing.
- 6) When the injection wells are no longer in use, or upon request by the Department, within sixty (60) days all injection wells must be permanently abandoned in accordance with the South Carolina Well Standards and Regulations (R.61-71).

Alex Butler, Manager
Water Monitoring Assessment and Protection Division
SCDHEC - Bureau of Water

STATEMENT OF BASIS - UIC DRAFT PERMIT #SCHE03020600

In accordance with the South Carolina Underground Injection Control Regulations, Section R61-87.13(J), this Statement of Basis has been prepared for the Shakespeare Composite Structure Site Underground Injection Control permit application received November 6, 2020.

Ownership of the proposed injection well is Signify North America Corporation, 200 Franklin Square Drive, Somerset, NJ 8873. The permit (UIC SCHE03020600) is for the construction of twenty-three (23) injection wells at the Shakespeare Composite Structure Site. The intent of the injection wells is to inject potassium permanganate- ZVI (zero valent iron)- with bioaugmentation - magnesium oxide and guar for the remediation of groundwater quality as described in the plan dated September 29, 2020. The final permit for the underground injection proposal has been prepared based on staff review and the application of the Pollution Control Act of South Carolina and the Underground Injection Control Regulations of South Carolina.

Conditions of the permit issuance include the submittal of well records for all injection wells installed and the inspection of well construction by the Department prior to injection.



November 25, 2020

Mr Dean Weeks
Signify North America Corporatin
200 Franklin Square Drive
Somerset, NJ 08873

Re: Underground Injection Control Permit #SCHE03020600
Shakespeare Composite Structures, 19845 US Hwy 76, Newberry, SC Site

Dear Mr. Weeks:

Enclosed is a Permit to Operate twenty-three (23) as Class VA-I (Aquifer Remediation) injection wells at the Shakespeare Composite Structures, 19845 US Hwy 76, Newberry, SC Site, Newberry County, SC. **Other permits maybe necessary for the intended activities. Please ensure all permits have been obtained before proceeding.**

**South Carolina Board of Health and Environmental Control
Guide to Board Review
Pursuant to S.C. Code Ann. § 44-1-60
Effective May 8, 2014**

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Applicants, permittees, licensees, and affected parties are encouraged to engage in mediation during the final review process.

If the Board declines in writing to schedule a final review conference, the Department's decision becomes the final agency decision and an applicant, permittee, licensee, or affected person may request a contested case hearing before the Administrative Law Court within thirty (30) calendar days after notice is mailed that the Board declined to hold a final review conference.

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 - include the place, date and time of the Conference;
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 - Description of facility/site
 - Applicable statutes and regulations
 - Decision and materials relied upon in the administrative record to support the staff decision.
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 - Rebuttal by Department staff[15 minutes]
 - Rebuttal by Requestor(s)[10 minutes]

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4. The presiding officer, in his or her sole discretion, may allow additional time for presentations and may impose time limits on the Conference.
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The above information is provided as a courtesy; parties are responsible for complying with all applicable legal requirements.

If you have any questions, please call Bruce Crawford at (803) 898-4177.

Sincerely,



Alex Butler, Manager
Water Monitoring Assessment and Protection Division
SCDHEC - Bureau of Water

cc: Kim Kuhn, SCDHEC-BLWM
Scott Ross, AECOM Tech. Services, Inc., 101 Research Drive, Columbia, SC 29203



WATER MONITORING ASSESSMENT & PROTECTION DIVISION

Injection Well Operating Approval

for

Class II, III, and V.A. Injection Well(s)

Permit #SCHE03020600

Date of Issue: November 25, 2020

In accordance with R.61-72 this permit will become final unless it is appealed within fifteen (15) days of the issuance date.

In accordance with the provisions of Title 48, Chapter 1, South Carolina Code of Laws, 1976, as amended, and pursuant to receiving a Permit to Operate twenty-three (23) Class VA-I (Aquifer Remediation) injection wells, authorization is granted to Signify North America Corporation to operate twenty-three (23) Class VA-I (Aquifer Remediation) injection wells located at the Shakespeare Composite Structures, 19845 US Hwy 76, Newberry, SC Site, Newberry County, SC, and are subject to the attached provisos noted for the operator.

The Class VA-I injection wells are one (1) to three (3) inches in diameter and approximately eleven (11) to thirty (30) feet deep.

Pursuant to Title 48, Chapter 1, South Carolina Code of Laws, 1976, as amended, this authorization may be rescinded if these injection wells should, at any time, contaminate, pollute, or otherwise adversely affect other water in the vicinity or for any other conditions contained in R61-87, Title 48, Chapter 1, South Carolina Code of Laws, 1976, as amended.

Expires: November 24, 2023

A handwritten signature in black ink, appearing to read "Alex Butler", is written over a horizontal line.

Alex Butler, Manager
Water Monitoring Assessment and Protection Division
SCDHEC - Bureau of Water

Date November 25, 2020

Provisions to the Injection Well Operating Approval
for
Underground Injection Well Permit #SCHE03020600
Shakespeare Composite Structures, 19845 US Hwy 76, Newberry, SC
Newberry County, S.C.
November 25, 2020

- 1) Construction of new or abandonment of existing wells must be reported to the Department within thirty (30) days of completion.
- 2) Only potassium permanganate- ZVI (zero valent iron)- with bioaugmentation - magnesium oxide - guar as described in the corrective action plan may be injected into the subsurface at the twenty-three (23) Class VA-I (Aquifer Remediation) injection wells. Any changes in the system operation other than as presented in the UIC Permit Application must be reported to the Department prior to implementation.
- 3) **Permit must be maintained as an active Permit to Operate. Failure to renew a Permit within 30 days of expiration will result in automatic closure of the Permit to Operate. Reactivation of an expired Permit to Operate will be considered after a letter of request to reactivate UIC Permit #SCHE03020600 is received and reviewed.**

Attachment C

Boring Logs, As-built Construction Logs, Well Development Logs, and Survey Data for Pilot Study Observation Wells



Test Boring Report

BORING NO. ^{E10} 0BSW-1
 PAGE 1 OF 2

PROJECT: PS- Newberry
 CLIENT: Signity
 CONTRACTOR: JAEDACCO
 EQUIPMENT: Geoprobe 8140

PROJECT NO: 60035197
 LOCATION: Dickert Key
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____
 DATE START: 8/5/21
 DATE FINISH: 8/6/21
 DRILLER: Dylan Fierst
 OVERSIGHT: S. Ross

GROUNDWATER			DRILLING INFORMATION					
DATE	HRS	WATER	METHOD	<u>sonic</u>	CASING	<u>6"</u>	TEMP / PERM	<u>Temp</u>
			HOLE DIA	<u>6"</u>	CASING DIA		CASING TYPE	<u>Steel</u>
			DEPTH		CASING DEPTH		GROUT TYPE	
			SAMPLING	<u>N/A</u>	HAMMER WT	<u>N/A</u>	HAMMER FALL	<u>N/A</u>

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION	USCS
0-50					<p><u>Clayey Silt (ML)</u> Dry to moist, reddish yellow (10/25 YR), mostly silt, some clay, trace sand & mica, slightly plastic, nothing</p>	
50-100					<p><u>Silty Sand (SM)</u> Moist, light yellowish brown (10/4 YR), mostly medium sand, some silt, trace mica, non-plastic</p>	
100-150					<p>similar to above</p>	
150-200					<p>grayish to light brownish gray (10/2 YR), wet, faint relict structure</p>	
200						

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Soil Boring Report

ERD -
 BORING NO. OBSW-15
 PAGE 2 OF 2

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 8 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					<p style="margin: 0;"><u>SILTY SAND (SM)</u> moist, light olive brown (5% 2.5μm), mostly med. sand, little silt, few mica, non-plastic, relict structure</p>
25.0					<p style="margin: 0;">Boring Terminated @ 30.0'</p>
30.0					<p style="margin: 0;">Boring Terminated @ 30.0'</p>
35.0					<p style="margin: 0;">Boring Terminated @ 30.0'</p>
40.0					<p style="margin: 0;">Boring Terminated @ 30.0'</p>
45.0					<p style="margin: 0;">Boring Terminated @ 30.0'</p>

BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLER ID	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



Soil Boring Report

BORING NO: 08S-EN0-1J
 PAGE 1 OF 2

PROJECT: PS - Newberry
 CLIENT: Signify
 CONTRACTOR: SAEDACCO
 EQUIPMENT: Geoprobe 8140 Sonic

PROJECT NO: 60635197
 LOCATION: Dickert Prop
 ELEVATION: _____
 NORTHING: _____
 EASTING: _____

GROUNDWATER			DRILLING INFORMATION				DATE	
DATE	HRS	WATER	METHOD	CASING	TEMP / PERM	DATE START		
			HOLE DIA.	CASING DIA.	CASING TYPE	DATE FINISH		
			DEPTH	CASING DEPTH	GROUT TYPE	DRILLER:		
			SAMPLING	HAMMER WT	HAMMER FALL	OVERSIGHT:		

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	SOIL CLASSIFICATION USCS	
					<u>POORLY GRADED SAND (SP)</u> pale brown, med. dense, moist, mostly med to fine sand, few silt		
5.0					<u>SILT w/ SAND (ML)</u> pale yellowish brown to light gray to yellowish red (mottled) dense, moist, mostly silt, few med to fine sand, trace clay		
					similar to above except pale yellowish red to light gray (mottled)		
10.0					similar to above except moist med , soft, med alternating layers (1-2 mm thick) of pale brown to pale yellowish red to light gray, trace clay, trace fine mica		
15.0					similar to above except wet		
20.0					<u>Transitions to SILT w/ SAND (ML)</u> pale brown to pale yellow to light gray (faint-relict granitic structure)		

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			

DEPTH IN FEET	ORGANIC	SAMPLER	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
	VAPOR SCREENING (PPM)	BLOWS PER 8 INCHES			
20.0					<p><u>SILT w/ SAND (ML)</u> Pale brown to pale yellow to light gray (faint - relict granitic structure), moist to wet, med dense, mostly silt, little med to fine grz sand, trace of mica, trace clay</p> <p>Similar to above</p> <p><u>26</u> similar to above</p> <hr/> <p><u>SILT w/ SAND (ML) - SAPROLITE</u> Pale reddish yellow to pale yellow, dense, moist, mostly silt, little fine sand, trace mica (difficult drilling below 31').</p> <hr/> <p>Boring Terminated @ 36.0'</p> <p>Screen - 30-35 Filter - 27.5-35 Bentonite - 25-27.5</p>
21.0					
22.0					
23.0					
24.0					
25.0					
26.0					
27.0					
28.0					
29.0					
30.0					
31.0					
32.0					
33.0					
34.0					
35.0					
36.0					
37.0					
38.0					
39.0					
40.0					
41.0					
42.0					
43.0					
44.0					
45.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	18-30	VERY STIFF			TRACE	<5%		
		31+	HARD						



Soil Boring Report

BORING NO. 7310-08SW-15
 PAGE 1 OF 1

PROJECT: PS - Shakes, core Composite Structures
 CLIENT: Signify
 CONTRACTOR: SAEDACIO
 EQUIPMENT: Geoprobe 8140 Sonic

PROJECT NO: 60035197
 LOCATION: Valmont Plant
 ELEVATION: _____
 NORTHING: _____

GROUNDWATER				DRILLING INFORMATION			
DATE	HRS	WATER	METHOD	CASING	TEMP / PERM		
			HOLE DIA.	CASING DIA.	CASING TYPE		
			DEPTH	CASING DEPTH	GROUT TYPE		
			SAMPLING	HAMMER WT	HAMMER FALL		

EASTING: _____
 DATE START: 8/6/21
 DATE FINISH: 8/6/21
 DRILLER: D. Fierds
 OVERSIGHT: S. R. >>

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
					SOIL CLASSIFICATION	USCS
					<u>Grass / Topsoil</u>	
					<u>Fill - SAND CLAYEY SAND (SC)</u> <u>Yellowish red, stiff, moist, mostly med to fine sand, few clay, trace silt</u>	
5.0					<u>Similar to above</u>	
					<u>SILT w/ SAND (ML)</u> <u>Pale yellowish red w/ intermittent thin layers of white, moist, very dense, mostly silt, little sand, few clay</u>	
10.0					<u>Clayey silt</u> <u>SAND CLAY w/ SAND (CL/ML)</u> <u>Pale brown to yellowish brown to light gray (mottled), med, dense, moist, mostly silt, few clay, few med to fine sand, trace mica</u>	
15.0					<u>SILT w/ SAND (SM)</u> <u>Pale brown to brown to grayish brown (alternating layers), med dense, moist, mostly silt, some med to fine sand, trace clay, remnant weathered dark mineral assemblage, trace weathered feldspar (white) coarse</u>	
					<u>similar to above - relict granitic fabric evident</u>	
20.0					<u>Boring Terminated @ 20'</u>	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.	DESCRIPTIONS	NOTES
0-4	VERY LOOSE	0-2	VERY SOFT	SS SPLIT SPOON	MOSTLY 50-100%	WD WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST SHELBY TUBE	SOME 30-45%	NE NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G GRAB SAMPLE	LITTLE 15-25%	UR NOT READ
31-50	DENSE	9-15	STIFF	MC MACRO-CORE	FEW 5-10%	NR NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF		TRACE <5%	
		31+	HARD			



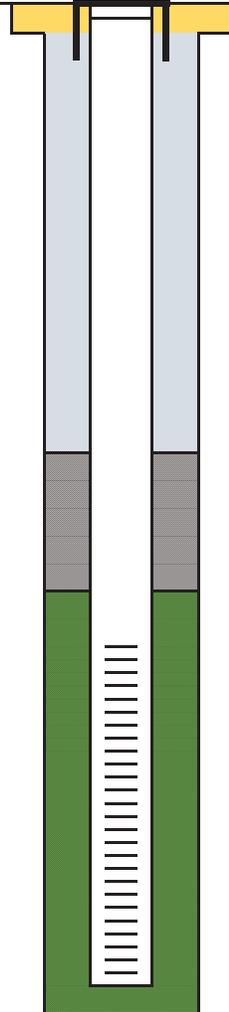
Shallow Monitoring Well Construction Details

PROJECT: Pilot Study - Shakespeare Comp. Structures	WELL NUMBER: ISCO-OBSW-1S
LOCATION: Newberry, South Carolina	JOB NUMBER: 60635197
CLIENT: Signify North America	TYPE OF INSTALLATION: Monitoring Well
CONTRACTOR: SAEDACCO, Inc.	LOCATION: Newberry, South Carolina
DRILLER: Dylan Fierst	INSTALLATION DATE: 08/06/21
FIELD REPRESENTATIVE: S. Ross	

SURVEY DATUM: SC State Plane, NAVD 88 (Vertical) NAD 83 (Horizontal)	NORTHING: 905001.02
TOP OF CASING ELEVATION: 548.19 ft	EASTING: 1808368.37

GROUND SURFACE ELEVATION: 548.33 ft	CASING STICKUP: 0.14
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COMMENTS:



TYPE OF ANNULAR SEAL	Grout
TYPE OF WELL CASING OR RISER	Sch. 40 PVC
INSIDE DIAMETER	1.0 inch
NOMINAL BOREHOLE DIAMETER	6.0 inch
TOP OF WELL SEAL	6.0 feet
TYPE OF SEAL	Bentonite Chips
TOP OF SAND FILTER PACK	8.0 feet
TOP OF SCREENED INTERVAL	10.0 feet
TYPE OF SCREEN	PVC
SLOT SIZE	0.010 inch
INSIDE DIAMETER	1.0 inch
SCREEN LENGTH	10.0 feet
FILTER PACK AROUND SCREEN	No. 2 Sand
BOTTOM OF WELL	20.0 feet
BOTTOM OF BOREHOLE	20.0 feet

NOTE: ALL DEPTHS ARE REFERENCED TO GROUND SURFACE
DIAGRAM NOT TO SCALE



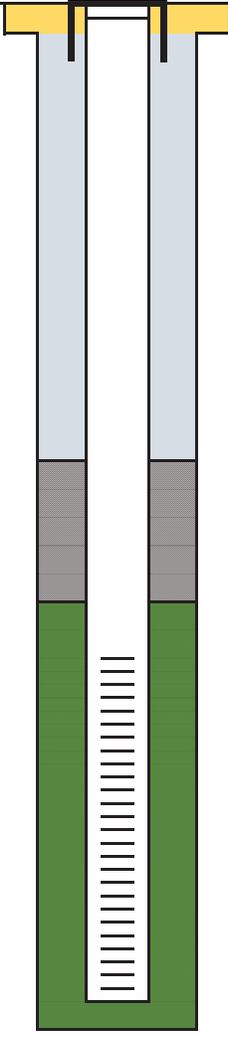
Shallow Monitoring Well Construction Details

PROJECT: <u>Pilot Study - Shakespeare Comp. Structures</u> LOCATION: <u>Newberry, South Carolina</u> CLIENT: <u>Signify North America</u> CONTRACTOR: <u>SAEDACCO, Inc.</u> DRILLER: <u>Dylan Fierst</u> FIELD REPRESENTATIVE: <u>S. Ross</u>	WELL NUMBER: <u>ERD-OBSW-11</u> JOB NUMBER: <u>60635197</u> TYPE OF INSTALLATION: <u>Monitoring Well</u> LOCATION: <u>Newberry, South Carolina</u> INSTALLATION DATE: <u>08/05/21</u>
--	--

SURVEY DATUM: <u>SC State Plane, NAVD 88 (Vertical)</u> <u>NAD 83 (Horizontal)</u> TOP OF CASING ELEVATION: <u>551.24 ft</u>	NORTHING: <u>904891.34</u> EASTING: <u>1808429.08</u>
--	--

GROUND SURFACE ELEVATION: <u>551.42 ft</u>	CASING STICKUP: <u>0.16</u>
---	------------------------------------

COMMENTS:



TYPE OF ANNULAR SEAL	<u>Grout</u>
TYPE OF WELL CASING OR RISER	<u>Sch. 40 PVC</u>
INSIDE DIAMETER	<u>1.0 inch</u>
NOMINAL BOREHOLE DIAMETER	<u>6.0 inch</u>
TOP OF WELL SEAL	<u>25.0 feet</u>
TYPE OF SEAL	<u>Bentonite Chips</u>
TOP OF SAND FILTER PACK	<u>27.5 feet</u>
TOP OF SCREENED INTERVAL	<u>30.0 feet</u>
TYPE OF SCREEN	<u>PVC</u>
SLOT SIZE	<u>0.010 inch</u>
INSIDE DIAMETER	<u>1.0 inch</u>
SCREEN LENGTH	<u>5.0 feet</u>
FILTER PACK AROUND SCREEN	<u>No. 2 Sand</u>
BOTTOM OF WELL	<u>35.0 feet</u>
BOTTOM OF BOREHOLE	<u>36.0 feet</u>

NOTE: ALL DEPTHS ARE REFERENCED TO GROUND SURFACE
 DIAGRAM NOT TO SCALE



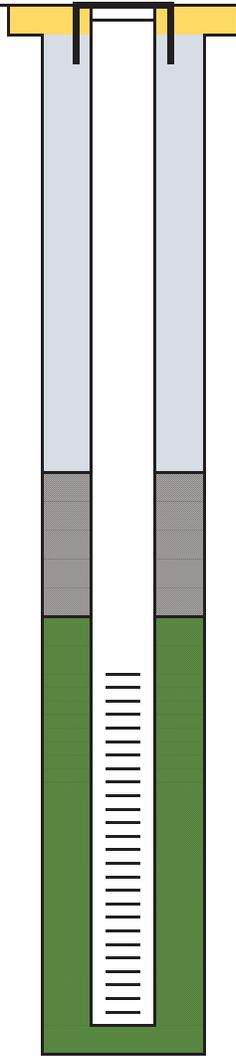
Shallow Monitoring Well Construction Details

PROJECT: <u>Pilot Study - Shakespeare Comp. Structures</u>	WELL NUMBER: <u>ERD-OBSW-1S</u>
LOCATION: <u>Newberry, South Carolina</u>	JOB NUMBER: <u>60635197</u>
CLIENT: <u>Signify North America</u>	TYPE OF INSTALLATION: <u>Monitoring Well</u>
CONTRACTOR: <u>SAEDACCO, Inc.</u>	LOCATION: <u>Newberry, South Carolina</u>
DRILLER: <u>Dylan Fierst</u>	INSTALLATION DATE: <u>08/05/21</u>
FIELD REPRESENTATIVE: <u>S. Ross</u>	

SURVEY DATUM: <u>SC State Plane, NAVD 88 (Vertical)</u> <u>NAD 83 (Horizontal)</u>	NORTHING: <u>904231.41</u>
TOP OF CASING ELEVATION: <u>560.72 ft</u>	EASTING: <u>1808543.89</u>

GROUND SURFACE ELEVATION: <u>560.71 ft</u>	CASING STICKUP: <u>0.01</u>
---	------------------------------------

COMMENTS:



TYPE OF ANNULAR SEAL	<u>Grout</u>
TYPE OF WELL CASING OR RISER	<u>Sch. 40 PVC</u>
INSIDE DIAMETER	<u>1.0 inch</u>
NOMINAL BOREHOLE DIAMETER	<u>6.0 inch</u>
TOP OF WELL SEAL	<u>16.0 feet</u>
TYPE OF SEAL	<u>Bentonite Chips</u>
TOP OF SAND FILTER PACK	<u>18.0 feet</u>
TOP OF SCREENED INTERVAL	<u>20.0 feet</u>
TYPE OF SCREEN	<u>PVC</u>
SLOT SIZE	<u>0.010 inch</u>
INSIDE DIAMETER	<u>1.0 inch</u>
SCREEN LENGTH	<u>10.0 feet</u>
FILTER PACK AROUND SCREEN	<u>No. 2 Sand</u>
BOTTOM OF WELL	<u>30.0 feet</u>
BOTTOM OF BOREHOLE	<u>30.0 feet</u>

NOTE: ALL DEPTHS ARE REFERENCED TO GROUND SURFACE
 DIAGRAM NOT TO SCALE



Monitoring Well Development Log

Page _____ of _____

Date Started (yr/mo/day) 8/19/14 Date Completed (yr/mo/day) 8/19/14

Field Personnel J. Butler

Site Name Shakespeare-Newberry

Job # 60635197

Well ID # ISCO OBSW-1S

Upgradient Downgradient

Weather Conditions partly cloudy

Air Temperature 90.5 °F

Total Well Depth (TWD) = 20.02 1/100 ft

Depth to Ground Water (DGW) = 10.16 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 9.86 1/100 ft

1 Casing Volume (OCV) = LWC x 0.163 = 1.61 gallons

5 Casing Volumes = 8.05 gallons

Method of Well Development Surge-overpump

Total Volume of Water Removed ~20 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
8/19/14 1420	0.5	Initial	23.5	7.26	-294.0	0.165	71100	71%	W/L
1425	0.6	2.5	23.4	6.75	-298.2	0.137	71100	71%	14.80
1430	0.6	5.0	22.5	6.18	-294.1	0.125	71100	71%	15.97
1435	0.5	7.5	22.3	6.19	-219.3	0.119	71000	71%	16.20
1440	0.5	10.0	22.3	5.83	-187.5	0.109	5999	41%	16.73
1445	0.5	12.5	22.2	5.79	-171.5	0.104	288.7	41%	16.90
1450	0.5	15.0	22.2	5.81	-167.6	0.100	141.6	41%	16.81
1455	0.6	17.5	22.6	5.85	-157.0	0.096	77.03	41%	12.87
1500	0.6	20.0	22.6	5.81	-149.1	0.094	38.67	41%	11.91

COMMENTS/OBSERVATIONS:

Monitoring Well Development Log

Date Started (yr/mo/day) 8/19/12 Date Completed (yr/mo/day) 8/19/12
 Field Personnel J. Butler
 Site Name Shakespeare-Newberry
 Job # 60635197
 Well ID # ERD OBSW-1S
 _____ Upgradient x _____ Downgradient Clear
 Weather Conditions Clear
 Air Temperature 90.5 °F

Total Well Depth (TWD) = 30.29 1/100 ft
 Depth to Ground Water (DGW) = 11.51 1/100 ft
 Length of Water Column (LWC) = TWD - DGW = 18.78 1/100 ft
 1 Casing Volume (OCV) = LWC x 0.163 = 3.06 gallons
 5 Casing Volumes = 15.3 gallons
 Method of Well Development _____ Surge-overpump _____
 Total Volume of Water Removed 15.3 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
8/19/12 1247	0.5	10.0	20.7	5.93	157.8	0.351	7.1100	21%	OK
8/19/12 1253	0.5	3	18.8	5.41	149.2	0.307	187.9	41%	17.30
8/19/12 1259	0.5	6	19.1	5.44	147.8	0.292	193.2	41%	17.10
8/19/12 1305	0.5	9	19.1	5.46	147.2	0.292	105.4	41%	16.84
8/19/12 1311	0.5	12	19.1	5.50	146.5	0.298	38.69	41%	17.47
8/19/12 1317	0.5	15	18.9	5.51	142.0	0.292	15.42	41%	17.51

COMMENTS/OBSERVATIONS: _____



Monitoring Well Development Log

Page _____ of _____

Date Started (yr/mo/day) 8/19/21 Date Completed (yr/mo/day) 8/19/21

Field Personnel J. Butler

Site Name Shakespeare-Newberry

Job # 60635197

Well ID # ERD OBSW-11

Upgradient x Downgradient Clear

Weather Conditions

Air Temperature 90.5 °F

Total Well Depth (TWD) = 35.50 1/100 ft

Depth to Ground Water (DGW) = 11.00 1/100 ft

Length of Water Column (LWC) = TWD - DGW = 24.5 1/100 ft

1 Casing Volume (OCV) = LWC x 0.163 = 3.99 gallons

5 Casing Volumes = 19.95 gallons

Method of Well Development Surge-overpump

Total Volume of Water Removed 120 gallons

Date/Time	Discharge Rate (gpm)	Volume Purged (gallons)	Water Temperature (°C)	pH	Eh	Specific Conductivity (µmhos/cm)	Turbidity/Color	Sand Content (%)	Remarks
8/19/21 1103	0.8	Initial	19.2	5.83	39.1	0.109	7100	25	1231
8/19/21 1108	0.8	4	18.8	5.61	65.7	0.089	340.3	41	1854
8/19/21 1113	0.8	8	18.6	5.40	79.6	0.086	409.6	41	1871
8/19/21 1118	0.8	12	18.5	5.60	69.3	0.088	27.31	41	1915
8/19/21 1123	0.8	16	18.6	5.63	73.7	0.088	31.29	41	1948
8/19/21 1128	0.8	20	18.7	5.56	73.5	0.089	25.17	41	1938

COMMENTS/OBSERVATIONS: _____

Northing	Easting	Elevation	Descripton
904231.4078	1808543.8870	560.72	MW WELL_CASING ISCO-OBSW-1S
904232.9502	1808545.0488	560.71	GROUND
904231.4863	1808544.3875	561.01	CONCRETE
904891.3427	1808429.0831	551.24	MW WELL_CASING ERD-OBSW-1S
904892.5119	1808430.1031	551.42	GROUND
904891.3227	1808429.7579	551.45	CONCRETE
905001.0240	1808368.3719	548.19	MW WELL_CASING ERD-OBSW-1I
905002.6324	1808368.4333	548.33	GROUND
905001.3737	1808368.9768	548.46	CONCRETE

Attachment D

Field Data Records and Equipment Calibration Logs for Groundwater Sampling Events



Well ID: TMW-29

Groundwater Sample Collection Record

Client: Newberry Date: 7/29/2020 Time: Start 1135 (24hr)
 Project No: 60635197.1 Finish 1208
 Site Location: Newberry, SC
 Weather: P cloudy 85° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

Total well length: 12.75 Water column length: 2.28

Water table depth: 10.47 Casing type/diameter: PVC/1" Minimum purge volume: NA (liters)

2. WELL PURGE DATA

Purge Method: PERISTALTIC Pump - Low Flow

Acceptance Criteria defined (Field Sampling Plan - 100% Design Project Operations Plan)

- Temperature 3% - ORP +/-10mV - Drawdown < 0.3 ft
- pH + 0.1 unit - SpCond. 3%
- D.O. <0.5 mg/L - Turbidity <10 NTU
- >0.5mg/L within 10% >10 NTU within 10%

Field Testing Equipment used:	Make	Model	Serial number(s)
	YSI	P20	17L103731
	HF Scientific	2000D	200711199
	RAE Systems	MiniRAE PID (10.6eV)	

Well Headspace= NA
Begin purge at 1138

Time (24hr)	Purge Vol. (Gals)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Comments
1140	0.00	22.9	4.96	30	172.9	6.78	220.4	100	12.00	Flow cell full
1145	0.50	22.7	4.80	29	161.8	5.79	125.4	100	12.37	
1150	~1.00	23.0	4.46	29	183.5	6.00	70.78	100	12.19	DRY @ 1148 -
1155	1.50	22.5	4.47	29	178.3	5.71	68.26	100	12.68	ALLOW TO RECOVER
							*45.96			*AT TIME OF SAMPLE BYPASS FLOW CELL

3. SAMPLE COLLECTION

Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Required	Time
TMW-29	40 ml vial	3	HCL	TCL VOC'S	1200

Comments: _____

Signature(s) of Collector(s): [Signature] Date: 7-29-20



Well ID:

TMW-31

Groundwater Sample Collection Record

Client: <u>Newberry</u>	Date: <u>7/29/2020</u>	Time: Start <u>1050</u> (24hr)
Project No: <u>60635197.1</u>		Finish <u>1125</u>
Site Location: <u>Newberry, SC</u>		
Weather: <u>P. cloudy 82°</u>	Collector(s): <u>James Leaphart</u>	

1. WATER LEVEL DATA: (measured from Top of Casing)

Total well length: 21.93 Water column length: 11.35Water table depth: 10.58 Casing type/diameter: PVC/1" Minimum purge volume: NA (liters)

2. WELL PURGE DATA

Purge Method: PERISTALTIC PUMP - LOW FLOW

Acceptance Criteria defined (Field Sampling Plan - 100% Design Project Operations Plan)

- Temperature	3%	- ORP	+/-10mV	- Drawdown	< 0.3 ft
- pH	+ 0.1 unit	- SpCond.	3%		
- D.O.	<0.5 mg/L	- Turbidity	<10 NTU		
	>0.5mg/L within 10%		>10 NTU within 10%		

Field Testing Equipment used:	Make	Model	Serial number(s)
	YSI	PRO	17L103731
	HF Scientific	20000	200711199
	RAE Systems	MiniRAE PID (10.6eV)	

Well Headspace= NA
Begin purge at 1052

Time (24hr)	Purge Vol. (Gals)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Comments
1054	0.00	22.7	5.21	57	156.3	9.61	24.19	200	11.20	Flow cell full
1059	1.00	22.7	4.83	49	162.6	6.59	28.24	200	11.23	
1104	1.75	22.9	4.54	48	175.9	5.42	34.55	150	11.16	
1109	2.50	22.8	4.49	48	181.4	5.36	35.26	150	11.16	
1114	3.25	22.8	4.51	48	180.1	5.10	36.55	150	11.16	
1119	4.00	22.8	4.53	48	182.5	4.96	35.20	150	11.16	

3. SAMPLE COLLECTION

Method: PERISTALTIC

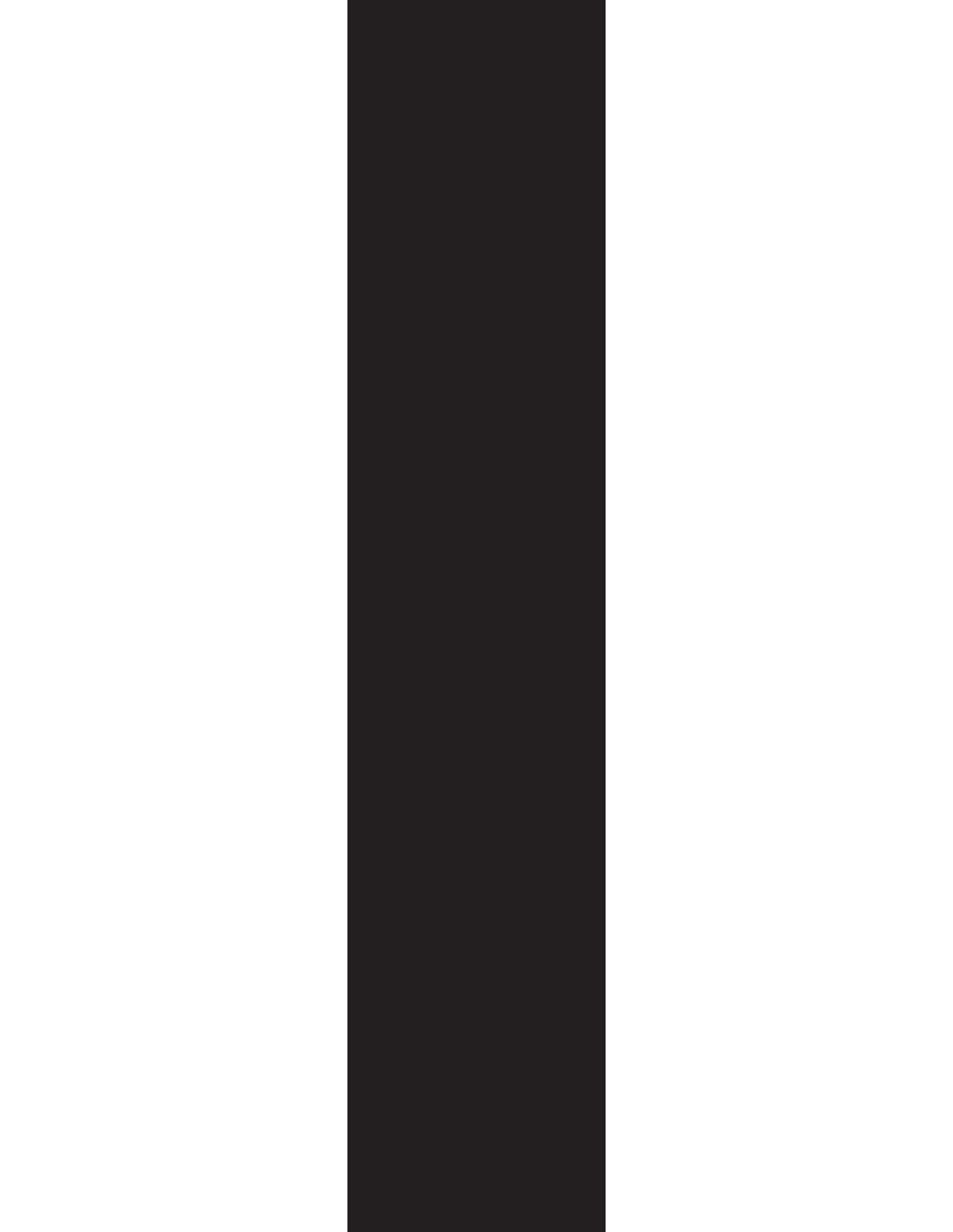
Sample ID	Container Type	No. of Containers	Preservation	Analysis Required	Time
TMW-31	40 ml VOA	3	HCL	TEL VOC'S	1120

Comments:

Signature(s) of Collector(s):

Date:

7.29.20



YSI Pro + / Water Quality Calibration Certificate



Cal Standard Temp, LAB, C : 21.5 Temp, FIELD, C :

Conductivity
1413 UMHO/CM @ 25°C

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
7903107	3/21	1.29		(+/- .5%)

PH 4.00
@ 25°C

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
7003164	3/22	3.98		(+/- 0.2 units)

PH 7.01
@ 25°C

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
7003167	3/22	7.03		(+/- 0.2 units)

PH 10.01
@ 25°C

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
7003038	3/22	9.98		(+/- 0.2 units)

ORP ZOBELLS
231.0 MV @ 25°C

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
7004132	1/21	237.5		(+/- 20 MV)

Dissolved Oxygen
(Saturated Air)

Post-Cal, LAB	Temp, C	% Saturation	mg/L	Acceptable Range (+/- 2%) / (+/- 2%)
	22.8	97.6	8.35	
Post-Cal, FIELD	Temp, C	% Saturation	mg/L	

New DO Membrane
 Yes No

Do Cap Color
 Black Blue Yellow

Model YSI - PRO PLUS S/N Cable N/A

Calibration referenced to the temperature of the calibration standards.

Turbidity

Lot #	Expiration	Post-Cal, LAB	Post-Cal, FIELD	Acceptable Range
2001146	JAN-22	0.01		(.0196 to .0204)
91102	NOV-21	9.99		(9.8 to 10.2)
2001149	JAN-22	1004		(970 to 1031)

Model Micro TPW S/N 200711199

Calibrated By Eric Olson Date of Calibration 7-24-22

Project Name PS Project number 60635797.1

Signed : [Signature]

Americas

Daily Tailgate Meeting

S3AM-209-FM5

Instructions: Conduct meeting prior to sending crews to individual tasks. Require attendance of all AECOM employees and subcontractors. Invite personnel from simultaneous operations for coordination purposes. Review scope of work and briefly discuss required and applicable topics. **This meeting is a daily refresher, not a full orientation.** Task-specific discussions associated with Task Hazard Assessment (THA) follow this meeting at the task location immediately before individual task is started.

AECOM Supervisor Name: SCOTT ROSS
 Phone Number:
 AECOM SH&E Rep. Name: LEE DAVIS
 Phone Number:
 Meeting Leader: JAMES LEAPHART

Date: 7-29-20 Project Name/Location: Newberry, SC Project Number: 60635197.1

Today's Scope of Work:
GROUNDWATER SAMPLING

Muster Point Location: <u>Front Parking</u>	First Aid Kit Location: <u>TRUCK</u>	Fire Extinguisher Location: <u>TRUCK</u>	Spill Kit Location: <u>TRUCK</u>
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<p>1. Required Topics</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Fitness for Duty requirements, all sign in / sign out <input checked="" type="checkbox"/> Required training (incl. task specific) completed and current <input checked="" type="checkbox"/> SH&E Plan onsite - understood, reviewed, signed by all (incl. scope, preplanning hazard assessments / risk registers, controls, procedures, requirements, etc.) <input checked="" type="checkbox"/> Task Hazard Assessments (THAs) are to be reviewed and completed for each task immediately prior to conducting <input checked="" type="checkbox"/> STOP WORK Right & Responsibility- all task changes/changed conditions re-assess with THA <input checked="" type="checkbox"/> Requirement to report to supervisor any injury, illness, damage, near miss, unsafe act / condition <input checked="" type="checkbox"/> Emergency Response Plan – including muster point, first aid kit, fire extinguisher, clinic/hospital location <input checked="" type="checkbox"/> Personal Protective Equipment (PPE) - Required items per hazard assessments in good condition / in use by all <input checked="" type="checkbox"/> Equipment/machinery inspected (documented as required) and in good condition - operators properly trained/certified <input checked="" type="checkbox"/> Work area set up and demarcation/ barricades in place to protect workers, site staff, and the public <input type="checkbox"/> Required checklists/records available, understood (describe): <input type="checkbox"/> Lessons Learned / SH&E improvements (describe): 	<p>2. Discuss if Applicable to Today's Work</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> Check <input checked="" type="checkbox"/> as reviewed or mark <input type="checkbox"/> as not applicable</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> <input type="checkbox"/> Biological/ Chemical / Electrical Hazards <input checked="" type="checkbox"/> <input type="checkbox"/> Ergonomics - Lifting, Body Position <input type="checkbox"/> <input checked="" type="checkbox"/> Lock Out/ Tag Out Short Service Employees - visual identifier and mentor/ oversight assignment <input checked="" type="checkbox"/> <input type="checkbox"/> Simultaneous/ Neighbouring Operations <input checked="" type="checkbox"/> <input type="checkbox"/> Slip/ Trip/ Fall Hazards <input checked="" type="checkbox"/> <input type="checkbox"/> Specialized PPE Needs <input type="checkbox"/> <input checked="" type="checkbox"/> Traffic Control <input checked="" type="checkbox"/> <input type="checkbox"/> Waste Management/ Decontamination <input checked="" type="checkbox"/> <input type="checkbox"/> Weather Hazards / Heat Stress / Cold Stress <input type="checkbox"/> <input checked="" type="checkbox"/> Subcontractor Requirements (e.g., JHAs, THAs, procedures, reporting, etc.) <input type="checkbox"/> <input checked="" type="checkbox"/> Work Permits / Plans required (e.g., Fall Protection, Confined Space, Hot Work, Critical Lifts, etc.); in place, understood (identify/attach): <input type="checkbox"/> <input type="checkbox"/> Other Topics (describe/attach): <input type="checkbox"/> <input type="checkbox"/> Client specific requirements (describe):
---	--

3. Daily Check Out by Site Supervisor

Describe incidents, near misses, observations or Stop Work interventions from today:	Describe Lessons Learned/ Improvement Areas from today:
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The site is being left in a safe condition and work crew checked out as fit unless otherwise specified as above.

Site Supervisor Name <u>James Leaphart</u>	Signature <u>[Signature]</u>	Date <u>7-29-20</u>	Time (at end of day / shift) <u>1215</u>
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Worker Acknowledgement / Sign In Sign Out sheets applicable to this meeting are on reverse and, if applicable, attached.

Daily Tailgate Meeting (S3AM-209-FM5)
 Revision 9 January 15, 2019

PRINTED COPIES ARE UNCONTROLLED. CONTROLLED COPY IS AVAILABLE ON COMPANY INTRANET.

All employees:

- **STOP WORK** if concerned / uncertain about safety / hazard or additional precaution is not recorded on the THA.
- **Be alert and communicate any changes in personnel or conditions at the worksite to the supervisor.**
- **Reassess task, hazards, & mitigations on an ongoing basis; amend the THA if needed.**

SITE WORKERS (including AECOM Contractors and Subcontractors): Your signature below means that you understand:

- * The requirement to participate in creating, reviewing, & updating hazard assessments (THA) applicable to your task(s).
- * The hazards & control measures associated with each task you are about to perform.
- * The permit to work requirements applicable to the work you are about to perform (if it includes permitted activities).
- * That no tasks or work is to be performed without a hazard assessment.
- * Your authority & obligation to "Stop Work" intervene, speak up/ listen up.

Your initials (right columns) certify that you arrived & departed fit for duty, & have reported all incidents/near misses; meaning:

- * You are physically and mentally fit for duty and have inspected your required PPE to ensure satisfactory condition.
- * You are not under the influence of any type of medication, drugs, or alcohol that could affect your ability to work safely.
- * You are aware of your responsibility to immediately report any illness, injury (regardless of where or when it occurred), or impairment/fatigue issue to the AECOM Supervisor.
- * You signed out as fit / uninjured unless you have otherwise informed the AECOM Supervisor.

Print Name & Company	Signature	Initials & Sign In Time	Initials & Sign Out Time
James Leighton AECOM		In & Fit JL 0930	Out & Fit JL 1215
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit
		In & Fit	Out & Fit

(Attach additional Site Worker sign-in/out sheets if needed) Identify number of attached sheets: _____

SITE VISITOR / SITE REPRESENTATIVE				
Name	Company Name	Arrival Time	Departure Time	Signature

Task Hazard Analysis

Task Name: General Field Work and Office Work

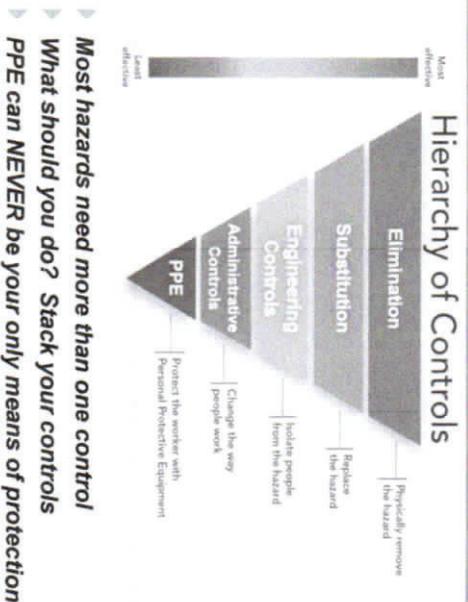
NEURISARY 7.29.20

Control #: Error! Reference source not found.

All Employees:

STOP WORK if uncertain about safety or if a hazard or additional precaution is not recorded on the THA. Be alert, recognize and communicate any changes in scope, personnel or conditions at the worksite to the supervisor.

For a more thorough identification of hazards, ask "What else could go wrong?" using the Hazard Categories



- ▶ Most hazards need more than one control
- ▶ What should you do? Stack your controls
- ▶ PPE can NEVER be your only means of protection

Worker Sign On

I participated in the on-site review and fully understand the content of this Task Hazard Assessment

	Printed Name	Signature
1.	Supervisor: James Leashley	J Leashley
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Visitor Acknowledgement

Visitors review task hazards and acknowledge understanding

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Submit a new THA for addition to the DCSA THA Library or send THA improvement suggestions to DCSA.THA.Library@AECOM.com

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/19/14 Time: Start 1550 am/pm
 Project No: 60635197 Finish 1645 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy 90° Collector(s): J. Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.72 c. Length of Water Column 18.83 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 6.39 d. Calculated System Volume (see back) 2.98 cu

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>Pro Plus</u>	<u>5489</u>
<u>MF Scientific</u>	<u>MicroT Pw</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1556	Initial	22.3	5.01	0.020	6.50	143.6	25.38	440	7.02	NA
1601	2.20	22.3	4.92	0.020	6.30	157.0	20.11	440	7.08	NA
1606	4.40	22.1	4.92	0.020	6.50	165.6	16.30	440	7.13	NA
1611	6.60	21.9	4.93	0.020	6.91	175.8	14.21	440	7.14	NA
1616	8.80	22.0	4.91	0.020	7.01	178.2	13.56	440	7.15	NA
1621	11.00	22.0	4.94	0.020	7.17	181.9	9.91	440	7.16	NA
1626	13.20	22.0	4.91	0.020	7.26	187.4	6.98	440	7.16	NA

- d. Acceptance criteria pass/fail
- | | | | |
|-------------------------------------|-------------------------------------|--------------------------|--------------------------|
| | Yes | No | N/A |
| Has required volume been removed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has required turbidity been reached | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have parameters stabilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

(continued on back)

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-2</u>	<u>40ml</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1630</u>
<u>MW-2</u>	<u>40ml</u>	<u>2</u>	<u>HCL</u>	<u>MEE</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>HNO3</u>	<u>Metals Fe</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>TDS</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>NO3/NO2/SO4/ALK</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>Diss Metals Fe</u>	<u>1630</u>
<u>MW-2</u>	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>Chloride</u>	<u>1630</u>

Signature: [Signature] Date: 8/19/14



Well ID: TMW-29

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1004 am/pm
 Project No: 60635197 Finish 1050 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Cloudy 80's Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 12.79 c. Length of Water Column 2.06 (a-b) Casing Diameter/Material 1"
 b. Water Table Depth 10.73 d. Calculated System Volume (see back) 0.33

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HF Scientific</u>	<u>MicroTPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1006	<u>Initial</u>	23.3	4.86	0.034	5.01	148.3	301.5	38	12.30	NA
1011	0.18	23.3	4.59	0.033	4.88	168.4	512.4	38	12.65	NA
1015	0.35								DRY	
* 1022	0.40	23.7	4.72	0.033	4.33	168.9	102.5	20	11.64	NA
1027	0.50	23.5	4.58	0.033	4.22	174.6	34.22	20	11.64	NA
1032	0.60	23.5	4.50	0.033	4.48	192.1	11.16	20	11.69	NA
1037	0.70	23.5	4.50	0.033	4.53	185.7	4.43	20	11.68	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>TMW-29</u>	<u>40ml</u>	<u>3</u>	<u>MLL</u>	<u>VOC</u>	<u>1040</u>
<u>TMW-29</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>TDJ</u>	<u>1040</u>
<u>TMW-29</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>chloride</u>	<u>1040</u>

Comments * Pump on lowest setting

Signature Justin Butler Date 8/20/21

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 0913 am/pm
 Project No: 60635197 Finish 1000 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: cloudy 80's Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 21.43 c. Length of Water Column 10.61 (a-b) Casing Diameter/Material 1"
 b. Water Table Depth 10.82 d. Calculated System Volume (see back) 1.73

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

- b. Acceptance Criteria defined (see workplan)
- Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>MF scientific</u>	<u>MicroTPW</u>	<u>206809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0917	<u>Initial</u>	<u>23.3</u>	<u>4.91</u>	<u>0.106</u>	<u>4.09</u>	<u>161.4</u>	<u>98.59</u>	<u>252</u>	<u>11.80</u>	<u>NA</u>
0922	<u>1.76</u>	<u>23.6</u>	<u>4.54</u>	<u>0.049</u>	<u>4.17</u>	<u>167.6</u>	<u>142.0</u>	<u>252</u>	<u>12.02</u>	<u>NA</u>
0927	<u>2.52</u>	<u>23.6</u>	<u>4.63</u>	<u>0.049</u>	<u>4.09</u>	<u>168.8</u>	<u>55.26</u>	<u>252</u>	<u>12.02</u>	<u>NA</u>
0932	<u>3.78</u>	<u>23.6</u>	<u>4.69</u>	<u>0.049</u>	<u>3.80</u>	<u>165.1</u>	<u>22.12</u>	<u>252</u>	<u>12.04</u>	<u>NA</u>
0937	<u>5.04</u>	<u>23.6</u>	<u>4.70</u>	<u>0.049</u>	<u>4.28</u>	<u>164.1</u>	<u>18.59</u>	<u>252</u>	<u>12.11</u>	<u>NA</u>
0942	<u>6.30</u>	<u>23.7</u>	<u>4.72</u>	<u>0.048</u>	<u>4.38</u>	<u>166.6</u>	<u>18.62</u>	<u>252</u>	<u>12.11</u>	<u>NA</u>
0947	<u>7.56</u>	<u>23.6</u>	<u>4.71</u>	<u>0.048</u>	<u>4.43</u>	<u>169.6</u>	<u>17.91</u>	<u>252</u>	<u>12.12</u>	<u>NA</u>

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>TMW-31</u>	<u>40 ml</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>0950</u>
<u>TMW-31</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>TDS</u>	<u>0950</u>
<u>TMW-31</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>Chloride</u>	<u>0950</u>

Comments _____

Signature  Date 8/20/21



Well ID: ISCO 0865-15

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/14 Time: Start 1530 am/pm
 Project No: 60635197 Finish _____ am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)
 a. Total Well Length 20.02 c. Length of Water Column 8.41 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 11.61 d. Calculated System Volume (see back) 1.37

2. WELL PURGE DATA
 a. Purge Method: Peristaltic Pump

- b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>ProPlus</u>	<u>5489</u>
<u>HFScientific</u>	<u>MicroTPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1535	<u>Initial</u>	<u>24.9</u>	<u>5.91</u>	<u>0.097</u>	<u>2.39</u>	<u>-109.1</u>	<u>69.60</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1540	<u>1.58</u>	<u>24.7</u>	<u>5.88</u>	<u>0.097</u>	<u>2.37</u>	<u>-137.1</u>	<u>57.61</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1545	<u>3.16</u>	<u>24.6</u>	<u>5.86</u>	<u>0.096</u>	<u>2.44</u>	<u>-141.4</u>	<u>50.83</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1550	<u>4.74</u>	<u>24.0</u>	<u>5.83</u>	<u>0.096</u>	<u>2.58</u>	<u>-139.2</u>	<u>43.88</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1555	<u>6.32</u>	<u>24.0</u>	<u>5.79</u>	<u>0.096</u>	<u>2.71</u>	<u>-137.4</u>	<u>39.94</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1600	<u>7.90</u>	<u>24.4</u>	<u>5.76</u>	<u>0.094</u>	<u>3.37</u>	<u>-124.2</u>	<u>30.11</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>
1605	<u>9.48</u>	<u>24.2</u>	<u>5.73</u>	<u>0.094</u>	<u>3.51</u>	<u>-126.8</u>	<u>26.63</u>	<u>316</u>	<u>11.25</u>	<u>NA</u>

- d. Acceptance criteria pass/fail
- | | Yes | No | N/A |
|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| Has required volume been removed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has required turbidity been reached | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Have parameters stabilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ISCO-0865-15</u>	<u>40ml</u>	<u>3</u>	<u>HCL</u>	<u>VOL</u>	<u>1620</u>
<u>ISCO-0865-15</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>TDS</u>	<u>1620</u>
<u>ISCO-0865-15</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>Chloride</u>	<u>1620</u>

Comments _____

Signature Justin Butler Date 8/20/14

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/24 Time: Start 1320 am/pm
 Project No: 60635197 Finish 1415 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy 90'S Collector(s): J. Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 29.59 c. Length of Water Column 18.02 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 11.55 d. Calculated System Volume (see back) 2.93

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HEXiophile</u>	<u>MicroTPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1324	<u>Totaled</u>	18.7	5.26	0.170	2.79	153.8	44.72	316	13.28	NA
1329	<u>1.58</u>	18.7	5.24	0.170	2.82	154.0	26.11	316	13.94	NA
1334	<u>3.16</u>	18.8	5.15	0.165	2.76	154.4	18.91	316	14.59	NA
1339	<u>4.74</u>	18.8	5.13	0.162	2.75	155.0	15.88	316	14.75	NA
1344	<u>6.32</u>	18.7	5.17	0.164	2.77	153.0	12.03	316	14.90	NA
1349	<u>7.90</u>	18.7	5.18	0.164	2.73	152.8	12.06	316	14.97	NA
1354	<u>9.48</u>	18.8	5.17	0.165	2.68	152.8	13.81	316	15.04	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION:

Method: Peristaltic Pump / Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10</u>	<u>40 mL</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1355</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>NO₂/NO₃/DO₄</u>	<u>1355</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>HNO₃</u>	<u>metals FC</u>	<u>1355</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>H₂SO₄</u>	<u>TOC</u>	<u>1355</u>
Comments			<u>None</u>	<u>Diss Metals Fe</u>	<u>1355</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>chloride</u>	<u>1355</u>
<u>MW-10</u>	<u>40 mL</u>	<u>2</u>	<u>HCL</u>	<u>Diss Gas/MEE</u>	<u>1355</u>
<u>MW-10</u>	<u>1L poly</u>	<u>1</u>	<u>None</u>	<u>Microbiols</u>	<u>1355</u>
<u>MW-10-dup</u>	<u>40 mL</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1355</u>

Signature: [Signature] Date: 8/20/24

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1110 am/pm
 Project No: 60635197 Finish 1200 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: cloudy 80's Collector(s): John Butter

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 4090 c. Length of Water Column 3004 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 1086 d. Calculated System Volume (see back) 4.90

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HF Scientific</u>	<u>MicroTPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1114	<u>Initial</u>	<u>18.5</u>	<u>5.53</u>	<u>0.088</u>	<u>3.08</u>	<u>166.5</u>	<u>19.41</u>	<u>316</u>	<u>11.47</u>	<u>NA</u>
1119	<u>1.58</u>	<u>18.4</u>	<u>5.43</u>	<u>0.089</u>	<u>2.41</u>	<u>164.2</u>	<u>18.38</u>	<u>316</u>	<u>11.54</u>	<u>NA</u>
1124	<u>3.16</u>	<u>18.4</u>	<u>5.40</u>	<u>0.089</u>	<u>2.43</u>	<u>164.8</u>	<u>17.71</u>	<u>316</u>	<u>11.60</u>	<u>NA</u>
1129	<u>4.74</u>	<u>18.4</u>	<u>5.37</u>	<u>0.089</u>	<u>2.45</u>	<u>160.7</u>	<u>12.38</u>	<u>316</u>	<u>11.61</u>	<u>NA</u>
1134	<u>6.32</u>	<u>18.4</u>	<u>5.37</u>	<u>0.089</u>	<u>2.39</u>	<u>159.2</u>	<u>9.28</u>	<u>316</u>	<u>11.61</u>	<u>NB</u>
1139	<u>7.90</u>	<u>18.5</u>	<u>5.37</u>	<u>0.089</u>	<u>2.46</u>	<u>158.0</u>	<u>7.01</u>	<u>316</u>	<u>11.61</u>	<u>NA</u>
1144	<u>9.48</u>	<u>18.5</u>	<u>5.35</u>	<u>0.088</u>	<u>2.50</u>	<u>158.3</u>	<u>5.13</u>	<u>316</u>	<u>11.61</u>	<u>NA</u>

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10I</u>	<u>40ML</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1145</u>
<u>MW-10I</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>NO₂/NO₃/SO₄</u>	<u>1145</u>
<u>MW-10I</u>	<u>250 poly</u>	<u>1</u>	<u>HNO₃</u>	<u>metals Fe</u>	<u>1145</u>
<u>MW-10I</u>	<u>250 poly</u>	<u>1</u>	<u>H₂SO₄</u>	<u>TOC</u>	<u>1145</u>
<u>MW-10I</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>Diss metals Fe</u>	<u>1145</u>
<u>MW-10I</u>	<u>250 poly</u>	<u>1</u>	<u>NONE</u>	<u>chloride</u>	<u>1145</u>
<u>MW-10I</u>	<u>40ML</u>	<u>2</u>	<u>HCL</u>	<u>Diss Gases MEE</u>	<u>1145</u>
<u>MW-10I</u>	<u>1L poly</u>	<u>1</u>	<u>NONE</u>	<u>Microbiol</u>	<u>1145</u>

Signature [Signature] Date 8/20/21

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1420 am/pm
 Project No: 60635197 Finish 1715 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy 90's Collector(s): J. Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30.29 c. Length of Water Column 18.69 (a-b) Casing Diameter/Material 3"
 b. Water Table Depth 11.60 d. Calculated System Volume (see back) 3.05

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HF Schenk Air</u>	<u>Micro TPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1425	Initial	19.0	5.27	0.296	2.30	165.9	120.1	316	12.01	NA
1430	1.58	18.8	5.19	0.292	1.89	164.0	52.78	316	12.08	NA
1435	3.16	18.7	5.17	0.291	1.85	160.8	26.04	316	12.14	NA
1440	4.74	18.6	5.18	0.291	1.81	157.3	17.22	316	12.15	NA
1445	6.32	18.5	5.19	0.291	1.77	154.4	13.96	316	12.16	NA
1450	7.90	18.7	5.21	0.292	1.74	151.2	12.08	316	12.16	NA
1455	9.48	18.7	5.21	0.292	1.72	149.9	11.56	316	12.16	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION:

Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ERD-OBSW-15	40ml	3	HCL	VOC	1500
ERD-OBSW-15	250poly	1	None	NO ₂ /NO ₃ /SO ₄	1500
ERD-OBSW-15	250poly	1	HNO ₃	Metals Fe	1500
ERD-OBSW-15	250poly	1	H ₂ SO ₄	TOC	1500
ERD-OBSW-15	250poly	1	None	Diss metals Fe	1500
ERD-OBSW-15	250poly	1	None	chloride	1500
ERD-OBSW-15	40ml	2	HCL	Diss gases MEE	1500
ERD-OBSW-15	1 L poly	1	None	Microbiols	1500

Signature: [Signature] Date: 8/20/21

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1200 am/pm
 Project No: 60635197 Finish 1248 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly cloudy 80's Collector(s): J. Butters

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 35.50 c. Length of Water Column 24.49 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 11.01 d. Calculated System Volume (see back) 399

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HFScientific</u>	<u>MicroTPW</u>	<u>20709171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1202	<u>Initial</u>	19.1	5.70	0.097	1.81	76.4	26.37	316	11.65	NA
1207	1.58	19.3	5.55	0.093	1.84	55.1	23.14	316	11.72	NA
1212	3.16	19.1	5.49	0.091	1.43	48.0	20.97	316	11.78	NA
1217	4.74	19.2	5.43	0.089	1.50	57.9	16.81	316	11.78	NA
1222	6.32	19.3	5.40	0.087	1.59	73.1	11.88	316	11.78	NA
1227	7.90	19.2	5.39	0.086	1.66	79.8	9.98	316	11.78	NA
1232	9.48	19.1	5.41	0.086	1.73	82.7	8.41	316	11.78	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION:

Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ERD-OB5W-1E	40ML	3	HCL	VOC	1235
ERD-OB5W-1E	250 poly	1	None	MNO₂/MNO₃/SO₂	1235
ERD-OB5W-1E	250 poly	1	HNO₃	Metals Fe	1235
ERD-OB5W-1E	250 poly	1	H₂SO₄	TOC	1235
ERD-OB5W-1E	250 poly	1	None	Diss Metals Fe	1235
ERD-OB5W-1E	250 poly	1	None	chloride	1235
ERD-OB5W-1E	40ML	2	HCL	Diss Gases MEE	1235
ERD-OB5W-1E	6 L poly	1	None	Microbiol's	1235

Signature: [Signature] Date: 8/20/21

Well ID: ISCO-0865-15

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1530 am/pm
 Project No: 60635197 Finish _____ am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 20.02 c. Length of Water Column 8.41 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 11.61 d. Calculated System Volume (see back) 1.37

2. WELL PURGE DATAa. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>ProPlus</u>	<u>5989</u>
<u>Hydroprobe</u>	<u>MicroTPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1535	Initial	24.9	5.91	0.097	2.39	-109.1	69.60	316	11.25	NA
1540	1.58	24.7	5.88	0.097	2.37	-137.1	57.61	316	11.25	NA
1545	3.16	24.6	5.86	0.096	2.44	-141.4	50.83	316	11.25	NA
1550	4.74	24.0	5.83	0.096	2.58	-139.2	43.88	316	11.25	NA
1555	6.32	24.0	5.79	0.096	2.71	-137.4	39.94	316	11.25	NA
1600	7.90	24.4	5.76	0.094	3.37	-124.2	30.11	316	11.25	NA
1605	9.48	24.2	5.73	0.094	3.51	-126.8	26.63	316	11.25	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ISCO-0865-15</u>	<u>40ml</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1620</u>
<u>ISCO-0865-15</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>TDS</u>	<u>1620</u>
<u>ISCO-0865-15</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>Chloride</u>	<u>1620</u>

Comments _____

Signature Justin Butler Date 8/20/21

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1420 am/pm
 Project No: 60635197 Finish 1715 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly Cloudy 90's Collector(s): J. Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30.29 c. Length of Water Column 18.69 (a-b) Casing Diameter/Material 3"
 b. Water Table Depth 11.60 d. Calculated System Volume (see back) 3.05

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HF Schenck</u>	<u>Micro TPW</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1425	Initial	19.0	5.27	0.296	2.30	165.9	120.1	316	12.01	NA
1430	1.58	18.8	5.19	0.292	1.89	164.0	52.78	316	12.08	NA
1435	3.16	18.7	5.17	0.291	1.85	160.8	26.04	316	12.14	NA
1440	4.74	18.6	5.18	0.291	1.81	157.3	17.22	316	12.15	NA
1445	6.32	18.5	5.19	0.291	1.77	154.4	13.96	316	12.16	NA
1450	7.90	18.7	5.21	0.292	1.74	151.2	12.08	316	12.16	NA
1455	9.48	18.7	5.21	0.292	1.72	148.9	11.56	316	12.16	NA

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ERD-OBSW-15	40ml	3	HCL	VOC	1500
ERD-OBSW-15	250poly	1	None	NO ₂ /NO ₃ /SO ₄	1500
ERD-OBSW-15	250poly	1	HNO ₃	Metals Fe	1500
ERD-OBSW-15	250poly	1	H ₂ O ₂	TAC	1500
ERD-OBSW-15	250poly	1	None	Diss metals Fe	1500
ERD-OBSW-15	250poly	1	None	Chloride	1500
ERD-OBSW-15	40ml	2	HCL	Diss gases MEE	1500
ERD-OBSW-15	1L poly	1	None	Microbiols	1500

Signature: [Signature] Date: 8/20/21

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 8/20/21 Time: Start 1200 am/pm
 Project No: 60635197 Finish 1248 am/pm
 Site Location: Shakespeare-Newberry
 Weather Conds: Partly cloudy 80's Collector(s): J. Butters

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 35.50 c. Length of Water Column 24.49 (a-b) Casing Diameter/Material 2"
 b. Water Table Depth 11.01 d. Calculated System Volume (see back) 399

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>5489</u>
<u>HFSchleifer</u>	<u>MicroTPW</u>	<u>20709171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>1202</u>	<u>Initial</u>	<u>19.1</u>	<u>5.70</u>	<u>0.097</u>	<u>1.81</u>	<u>76.4</u>	<u>28.37</u>	<u>316</u>	<u>11.65</u>	<u>NA</u>
<u>1207</u>	<u>1.58</u>	<u>19.3</u>	<u>5.55</u>	<u>0.093</u>	<u>1.34</u>	<u>55.1</u>	<u>23.14</u>	<u>316</u>	<u>11.72</u>	<u>NA</u>
<u>1212</u>	<u>3.16</u>	<u>19.1</u>	<u>5.49</u>	<u>0.091</u>	<u>1.43</u>	<u>48.0</u>	<u>20.97</u>	<u>316</u>	<u>11.78</u>	<u>NA</u>
<u>1217</u>	<u>4.74</u>	<u>19.2</u>	<u>5.43</u>	<u>0.089</u>	<u>1.50</u>	<u>57.9</u>	<u>16.81</u>	<u>316</u>	<u>11.78</u>	<u>NA</u>
<u>1222</u>	<u>6.32</u>	<u>19.3</u>	<u>5.40</u>	<u>0.087</u>	<u>1.59</u>	<u>73.1</u>	<u>11.88</u>	<u>316</u>	<u>11.78</u>	<u>NA</u>
<u>1227</u>	<u>7.90</u>	<u>19.2</u>	<u>5.39</u>	<u>0.086</u>	<u>1.66</u>	<u>79.8</u>	<u>9.98</u>	<u>316</u>	<u>11.78</u>	<u>NA</u>
<u>1232</u>	<u>9.48</u>	<u>19.1</u>	<u>5.41</u>	<u>0.086</u>	<u>1.73</u>	<u>82.7</u>	<u>8.41</u>	<u>316</u>	<u>11.78</u>	<u>NA</u>

d. Acceptance criteria pass/fail

Has required volume been removed	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Has required turbidity been reached	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Have parameters stabilized	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump/Reverse Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ERD-OBSW-1E</u>	<u>40ML</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>MNO2/MNO3/SO4</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>250 poly</u>	<u>1</u>	<u>HNO3</u>	<u>Metals Fe</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>250 poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TDC</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>Diss Metals Fe</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>250 poly</u>	<u>1</u>	<u>None</u>	<u>Chloride</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>40ML</u>	<u>2</u>	<u>HCL</u>	<u>Diss Gases MEE</u>	<u>1235</u>
<u>ERD-OBSW-1E</u>	<u>6 L poly</u>	<u>1</u>	<u>None</u>	<u>Microbiol's</u>	<u>1235</u>

Signature [Signature] Date 8/20/21



Well ID: ISERD-OBSW-10

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 10/29/21 Time: Start 1325 am/pm
 Project No: 60635197 Finish 1420 am/pm
 Site Location: Newberry, SC
 Weather Conds: Cloudy 60's Collector(s): Justin Butter

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material
 Sch 40 PVC - 2 in
 b. Water Table Depth 12.17 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Peristaltic pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>Pro Plus</u>	<u>3732</u>
<u>MF Scientific</u>	<u>MicroTAN</u>	<u>201809172</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1331	Initial	17.4	7.51	0.340	2.14	17.0	30.32	324	13.26	Clear
1336	1.62	17.4	6.79	0.352	0.79	22.9	26.11	324	13.34	↓ cloudy
1341	3.24	17.4	6.52	0.366	0.50	26.7	20.21	324	13.43	
1346	4.86	17.4	6.37	0.381	0.28	28.7	90.68	324	13.48	
1351	6.48	17.3	6.27	0.381	0.13	28.7	125.2	324	13.52	
1356	8.10	17.3	6.24	0.388	0.10	27.9	177.3	324	13.52	
1401	9.72	17.2	6.22	0.389	0.10	26.1	178.4	324	13.52	

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION:

Method: Low Flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ISERD-OBSW-10	40mL G	3	HCL	VOC	1405
ISERD-OBSW-10	40mL G	2	HCL	Diss Gas MEE	1405
ISERD-OBSW-10	250 poly	1	H2SO4	TOC	1405
ISERD-OBSW-10	250 poly	1	NA	chloride	1405
ISERD-OBSW-10	250 poly	1	HNO3	metals Fe	1405
ISERD-OBSW-10	250 poly	1	NA	Diss Metals Fe	1405
ISERD-OBSW-10	250 poly	1	NA	HNO3, NO2/SO4/ALK	1405
ISERD-OBSW-10	1L poly	1	NA	micro	1405

Signature _____ Date _____



Well ID: MW-10

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 10/29/21 Time: Start 12:15 am/pm
 Project No: 60635197 Finish 13:25 am/pm
 Site Location: Newberry, SC
 Weather Conds: Partly Cloudy 60°F Collector(s): John Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30.32 c. Length of Water Column 18.43 (a-b) Casing Diameter/Material
 Sch 40 PVC - 2 in
 b. Water Table Depth 11.89 d. Calculated System Volume (see back) 3.00/11.38

2. WELL PURGE DATA

a. Purge Method: Peristaltic pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10 mV
 - Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>3732</u>
<u>HFScientific</u>	<u>Metro TPW</u>	<u>201809172</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (μ S/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1225	<u>Inital</u>	<u>17.4</u>	<u>10.31</u>	<u>0.427</u>	<u>2.97</u>	<u>17.6</u>	<u>94.75</u>	<u>242</u>	<u>13.60</u>	<u>white/cloudy</u>
1230	<u>1.21</u>	<u>17.4</u>	<u>10.45</u>	<u>0.428</u>	<u>1.19</u>	<u>-3.6</u>	<u>25.07</u>	<u>242</u>	<u>14.61</u>	
1235	<u>2.42</u>	<u>17.4</u>	<u>10.39</u>	<u>0.425</u>	<u>0.83</u>	<u>-32.9</u>	<u>79.82</u>	<u>242</u>	<u>15.58</u>	
1240	<u>3.63</u>	<u>17.5</u>	<u>10.32</u>	<u>0.429</u>	<u>0.67</u>	<u>-68.7</u>	<u>74.15</u>	<u>242</u>	<u>16.03</u>	
1245	<u>4.84</u>	<u>17.4</u>	<u>10.26</u>	<u>0.428</u>	<u>0.63</u>	<u>-85.4</u>	<u>69.92</u>	<u>242</u>	<u>16.47</u>	
1250	<u>6.05</u>	<u>17.4</u>	<u>10.19</u>	<u>0.422</u>	<u>0.63</u>	<u>-98.5</u>	<u>67.17</u>	<u>242</u>	<u>16.55</u>	
1255	<u>7.26</u>	<u>17.2</u>	<u>10.88</u>	<u>0.415</u>	<u>0.66</u>	<u>-110.6</u>	<u>65.91</u>	<u>242</u>	<u>16.56</u>	<u>↓</u>

d. Acceptance criteria pass/fail

Has required volume been removed Yes No N/A
 Has required turbidity been reached
 Have parameters stabilized

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION:

Method: Low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10</u>	<u>40 mL G</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1300</u>
<u>MW-10</u>	<u>40 mL G</u>	<u>2</u>	<u>HCL</u>	<u>Diss Gas MEE</u>	<u>1300</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>H₂SO₄</u>	<u>TOC</u>	<u>1300</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>Chloride</u>	<u>1300</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>HNO₃</u>	<u>metals Fe</u>	<u>1300</u>
Comments			<u>As</u>		
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>Diss Metals Fe</u>	<u>1300</u>
<u>MW-10</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>NO₂/NO₃/SO₄/ALK</u>	<u>1300</u>
<u>MW-10</u>	<u>1L poly</u>	<u>1</u>	<u>NA</u>	<u>Micro</u>	<u>1300</u>

Signature

Date

10/29/21



Well ID: ISERD OBSW-101

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 10/29/21 Time: Start 1100 am/pm
 Project No: 60635197 Finish 1210 am/pm
 Site Location: Newberry, SC
 Weather Conds: partly cloudy 60's Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material
 Sch 40 PVC - 2 in
 b. Water Table Depth 11.55 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Peristaltic pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSF</u>	<u>Pro Plus</u>	<u>3737</u>
<u>HFScientific</u>	<u>MicroTPW</u>	<u>201809172</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1108	<u>Initial</u>	<u>17.4</u>	<u>7.97</u>	<u>0.344</u>	<u>0.53</u>	<u>-32.4</u>	<u>339.8</u>	<u>258</u>	<u>13.02</u>	<u>white/cloudy</u>
1123	<u>0.179 L</u>	<u>17.4</u>	<u>9.07</u>	<u>0.353</u>	<u>0.31</u>	<u>-117.4</u>	<u>329.0</u>	<u>258</u>	<u>13.11</u>	
1128	<u>0.419 L</u>	<u>17.3</u>	<u>9.19</u>	<u>0.357</u>	<u>0.22</u>	<u>-160.0</u>	<u>327.0</u>	<u>258</u>	<u>13.20</u>	
1133	<u>0.419 L</u>	<u>17.4</u>	<u>9.27</u>	<u>0.389</u>	<u>0.20</u>	<u>-185.0</u>	<u>425.3</u>	<u>258</u>	<u>13.20</u>	
1138	<u>5.16</u>	<u>17.4</u>	<u>9.71</u>	<u>0.384</u>	<u>0.14</u>	<u>-192.1</u>	<u>677.9</u>	<u>258</u>	<u>13.20</u>	
1143	<u>6.45</u>	<u>17.3</u>	<u>9.75</u>	<u>0.376</u>	<u>0.14</u>	<u>-192.0</u>	<u>706.3</u>	<u>258</u>	<u>13.20</u>	
1148	<u>7.74</u>	<u>17.3</u>	<u>9.76</u>	<u>0.374</u>	<u>0.12</u>	<u>-191.4</u>	<u>696.0</u>	<u>258</u>	<u>13.20</u>	

d. Acceptance criteria pass/fail
 Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ISERD-OBSW-10E</u>	<u>40ALG</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1130</u>
<u>ISERD-OBSW-10E</u>	<u>40ALG</u>	<u>2</u>	<u>HCL</u>	<u>Diss Gas MEE</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>250 poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>Chloride</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>250 poly</u>	<u>1</u>	<u>HNO3</u>	<u>Metals Fe</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>Diss Metals Fe</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>250 poly</u>	<u>1</u>	<u>NA</u>	<u>NO3 / NO2 / SO4 / ALK</u>	<u>1150</u>
<u>ISERD-OBSW-10E</u>	<u>1L</u>	<u>1</u>	<u>NA</u>	<u>Micro</u>	<u>1150</u>

Signature: Justin Butler Date: 10/29/21



Well ID: MW-101

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 10/29/21 Time: Start 1600 am/pm
 Project No: 60635197 Finish 1105 am/pm
 Site Location: Newberry, SC
 Weather Conds: Cloudy / Drizzle 60's Collector(s): Justin Butter

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 41.0 c. Length of Water Column 29.47 (a-b) Casing Diameter/Material Sch 40 PVC 2in.
 b. Water Table Depth 11.53 d. Calculated System Volume (see back) 4.30/18.21

2. WELL PURGE DATA

a. Purge Method: Peristaltic pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
YSE	PRO105	3732
HF Sicabtic	MICROTPW	201809172

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1004	Initial	17.4	5.66	0.127	4.09	75.7	6.80	258	12.29	slight white/cloudy
1009	1.29	17.3	5.58	0.128	0.91	62.2	20.18	258	12.31	
1014	2.58	17.3	5.57	0.127	0.44	55.2	45.57	258	12.33	
1019	3.87	17.3	5.59	0.129	0.38	47.6	93.12	258	12.33	
1024	5.16	17.3	5.60	0.129	0.31	44.1	128.7	258	12.33	
1029	6.45	17.3	5.64	0.130	0.27	37.0	145.6	258	12.35	
1034	7.74	17.3	5.66	0.131	0.24	34.6	141.6	258	12.35	

- d. Acceptance criteria pass/fail
- | | | | | | | |
|-------------------------------------|--------------------------|-----|--------------------------|----|--------------------------|-----|
| Has required volume been removed | <input type="checkbox"/> | Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | N/A |
| Has required turbidity been reached | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> | |
| Have parameters stabilized | <input type="checkbox"/> | | <input type="checkbox"/> | | <input type="checkbox"/> | |
- If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION:

Method: Low flow

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW-101	40NL G	3	HCL	VOC	1050
MW-101	40NL G	2	HCL	Diss Gases MBE	1050
MW-101	250 poly	1	H ₂ SO ₄	TOC	1050
MW-101	250 poly	1	NA	Chloride	1050
MW-101	250 poly	1	HNO ₃	Metals Fe	1050
Comments					
MW-101	250 poly	1	NA	Diss Metals Fe	1050
MW-101	250 poly	1	NA	MNO ₃ / NO ₂ / SO ₄ / ALK	1050
MW-101	1L	1	NA	Micro	1050

Signature: *[Signature]* Date: 10/29/21



Well ID: MW-12D

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 3/8/22 Time: Start 1125 am/pm
 Project No: 60635197 - 60675605 Finish 1220 am/pm
 Site Location: Shakespeare-Newberry, SC
 Weather Conds: Partly Cloudy 65° Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 81.45 c. Length of Water Column 76.33 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 5.12 d. Calculated System Volume (see back) 12.44 GAL

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>19A103315</u>
<u>HACH</u>	<u>2100 G</u>	<u>191206082318</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1141	Initial	15.8	6.82	0.091	4.36	60.8	266	190	5.22	Cloudy / NA
1146	0.85	15.8	6.20	0.089	4.24	60.7	721		5.22	Cloudy / NA
1151	1.90	16.0	6.19	0.092	4.41	65.7	71100		5.22	Cloudy / NA
1156	2.85	15.9	6.21	0.094	4.29	67.5	71100		5.22	Cloudy / NA
1201	3.80	16.0	6.21	0.093	4.19	69.1	71100		5.22	Cloudy / NA
1206	4.75	16.1	6.18	0.089	4.10	72.3	71100		5.22	Cloudy / NA
1211	5.70	16.2	6.14	0.086	4.14	76.6	71100	↓	5.22	Cloudy / NA

- d. Acceptance criteria pass/fail
- | | | | |
|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| | Yes | No | N/A |
| Has required volume been removed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Has required turbidity been reached | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Have parameters stabilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Low Flow/Reverse

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-12D-P08</u>	<u>40ML</u>	<u>2</u>	<u>HCL</u>	<u>TCL VOL</u>	<u>1130</u>
<u>MW-12D</u>	<u>40ML</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOL</u>	<u>1215</u>

Comments _____

Signature Justin Butler Date 3/8/22



Well ID: MW-20

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 3/7/22 Time: Start 1515 am/pm
 Project No: 60675505 Finish 1615 am/pm
 Site Location: Newberry, SC
 Weather Conds: cloudy 78 Collector(s): John Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 35.0 c. Length of Water Column 31.37 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 3.63 d. Calculated System Volume (see back) 5.81 GAL

2. WELL PURGE DATA

a. Purge Method: low flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>Pro Plus</u>	<u>19A103215</u>
<u>HACH</u>	<u>Micro 2100S</u>	<u>19120008281R</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1541	<u>Initial</u>	<u>18.8</u>	<u>5.39</u>	<u>0.092</u>	<u>1.22</u>	<u>143.2</u>	<u>26</u>	<u>226</u>	<u>4.42</u>	<u>clear/NA</u>
1546	<u>1.13</u>	<u>18.9</u>	<u>5.43</u>	<u>0.086</u>	<u>1.25</u>	<u>133.0</u>	<u>161</u>		<u>4.42</u>	<u>cloudy/NA</u>
1551	<u>2.26</u>	<u>18.9</u>	<u>5.41</u>	<u>0.088</u>	<u>1.06</u>	<u>123.2</u>	<u>308</u>		<u>4.39</u>	<u>cloudy/NA</u>
1556	<u>3.39</u>	<u>18.4</u>	<u>5.41</u>	<u>0.087</u>	<u>0.95</u>	<u>112.6</u>	<u>276</u>		<u>4.39</u>	<u>cloudy/NA</u>
1601	<u>4.52</u>	<u>18.6</u>	<u>5.39</u>	<u>0.087</u>	<u>1.00</u>	<u>113.5</u>	<u>264</u>		<u>4.41</u>	<u>cloudy/NA</u>
1606	<u>5.65</u>	<u>18.5</u>	<u>5.39</u>	<u>0.087</u>	<u>1.04</u>	<u>112.5</u>	<u>285</u>		<u>4.43</u>	<u>cloudy/NA</u>

d. Acceptance criteria pass/fail

Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-20-PDB</u>	<u>40mL</u>	<u>2</u>	<u>HCL</u>	<u>TCL VOC</u>	<u>1520</u>
<u>MW-20</u>	<u>40mL</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOC</u>	<u>1610</u>

Comments _____

Signature _____ Date 3/7/22



Well ID: MW-10

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 3/8/22 Time: Start 1355 am/pm
 Project No: 60635197 Finish 1450 am/pm
 Site Location: Shakespeare-Newberry, SC
 Weather Conds: Partly Cloudy 69° Collector(s): Justin B. Her

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth _____ d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10 mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSE</u>	<u>Pro Plus</u>	<u>19A103315</u>
<u>HACH</u>	<u>2100 Q</u>	<u>191206082318</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1404	1.89	17.7	10.04	0.567	0.71	-52.2	71100	190	14.55	white/NA
1409	2.84	17.4	9.97	0.559	0.41	-65.2	71100		15.00	white/NA
1414	3.79	17.3	9.87	0.545	0.38	-73.0	71100		15.53	white/NA
1419	4.74	17.4	10.02	0.541	0.37	-85.3	71100		18.86	white/NA
1424	5.69	17.4	9.92	0.539	0.35	-91.0	71100		16.18	white/NA
1429	6.64	17.6	9.87	0.499	0.29	-95.7	71100		16.28	white/NA
1434	7.59	17.6	9.85	0.488	0.30	-100.4	71100		16.38	white/NA

d. Acceptance criteria pass/fail

Has required volume been removed	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Low Flow/Reverse

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW-10	40mL	3	HCL	TCL VOC	1435
MW-10	40mL	2	HCL	NEE RSK175	1435
MW-10	250mL	1	HNO3	Fe + Mn	1435
MW-10	250mL	1	NONE	Fc + Mn unfiltered	1435
MW-10	250mL	1	NONE	Anion -	1435
MW-10	250mL	1	H2SO4	TOL	1435
MW-10	1L	1	NONE	DHC, DMB ₂	1435

Signature: [Signature] Date: 3/8/22



Well ID: MW-10E

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 3/8/22 Time: Start 1025 am/pm
 Project No: 60635197 Finish 1120 am/pm
 Site Location: Shakespeare-Newberry, SC
 Weather Conds: Partly Cloudy 63 Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length c. Length of Water Column (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 60.63 d. Calculated System Volume (see back)

2. WELL PURGE DATA

a. Purge Method: low flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ±10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>19A102315</u>
<u>HACH</u>	<u>2100A</u>	<u>191200052318</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1037	6.89	17.0	4.66	0.094	0.23	44.7	7100		11.45	white/NA
1042		17.4	4.62	0.102	0.27	56.4	7100		11.45	white/NA
1047		17.3	4.92	0.110	0.23	61.3	492		11.45	white/NA
1052		17.1	5.38	0.111	0.21	29.1	140		11.45	white/NA
1057		17.3	6.00	0.118	0.16	70.2	74.4		11.45	clear/NA
1102		17.2	6.06	0.119	0.14	-62.8	78.4		11.45	clear/NA
1107		17.2	6.08	0.120	0.14	-70.9	70.3		11.45	clear/NA

d. Acceptance criteria pass/fail

- Has required volume been removed Yes No N/A
- Has required turbidity been reached Yes No N/A
- Have parameters stabilized Yes No N/A

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION:

Method: Low Flow/Reverse

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW-10E	40mL	3	HCL	TLL VOC	1110
MW-10E	40mL	2	HCL	MEE PAH17S	1110
MW-10E	250mL	1	HNO3	Fe+Mn	1110
MW-10E	250mL	1	NONE	Fe+Mn (unfiltered)	1110
MW-10E Comments	250mL	1	NONE	Anion-	1110
MW-10E	250mL	1	H2SO4	TDC	1110
MW-10E	1L	1	NONE	Pb, Cd, Hg, Se	1110

Signature: Justin Butler

Date: 3/8/22



Well ID: ERD-OBSW-1

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 3/8/22 Time: Start 1250 am/pm
 Project No: 60675505 60635197 Finish 1350 am/pm
 Site Location: Newberry, SC
 Weather Conds: Partly Cloudy 67° Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length c. Length of Water Column (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 11.20 d. Calculated System Volume (see back)

2. WELL PURGE DATA

a. Purge Method: low flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>Pro Plus</u>	<u>19A103315</u>
<u>HACH</u>	<u>2100 G</u>	<u>191206082318</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1300	1.89	17.6	5.63	0.332	1.66	115.6	225	190	13.11	cloudy / NA
1305	2.84	17.7	5.68	0.335	1.15	94.3	179		13.22	cloudy / NA
1310	3.79	17.8	5.73	0.340	1.06	86.3	134		13.33	cloudy / NA
1315	4.74	17.9	5.78	0.345	0.93	77.0	151		13.35	cloudy / NA
1320	5.69	17.9	5.80	0.349	0.88	70.0	160		13.38	cloudy / NA
1325	6.64	17.8	5.82	0.351	0.85	61.8	156		13.38	cloudy / NA
1330	7.59	18.0	5.82	0.352	0.87	52.3	150	✓	13.39	cloudy / NA

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION:

Method: Low Flow/Reverse

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ERD-OBSW-1	40 mL	3	HCL	TC, VOC	1335
ERD-OBSW-1	40 mL	2	HCL	MEE Rsk 175	1335
ERD-OBSW-1	250 mL	1	HNO3	Fe+Mn	1335
ERD-OBSW-1	250 mL	1	NONE	Fe+Mn (unfiltered)	1335
ERD-OBSW-1	250 mL	1	NONE	Anion-	1335
ERD-OBSW-1	250 mL	1	H2SO4	TOC	1335
ERD-OBSW-1	1L	1	NONE	DHL, DHB+	1335

Signature Justin Butler

Date 3/8/22

1/2



Well ID: ERD-OBSW-1E

Low Flow Ground Water Sample Collection Record

Client: Signify North America Date: 3/8/22 Time: Start 0900 am/pm
 Project No: 60675505 6063597 Finish 1030 am/pm
 Site Location: Newberry, SC
 Weather Conds: Partly Cloudy 60 Collector(s): Justin Butler

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length c. Length of Water Column (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 10.58 d. Calculated System Volume (see back)

2. WELL PURGE DATA

a. Purge Method: low flow

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ±1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
YSE	Pro Plus	19A103315
HACH	2100Q	191206083315

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0921	3.78	16.8	9.48	0.380	0.56	135.4	71100	4.68	13.08	white/NA
0926	4.62	17.1	9.73	0.397	0.33	32.3	71100		13.17	white/NA
0931	5.46	17.1	9.94	0.457	0.25	-24.5	71100		13.25	white/NA
0936	6.30	17.0	9.91	0.509	0.24	-76.6	71100		13.28	white/NA
0941	7.14	17.2	9.87	0.540	0.20	-228.6	71100		13.28	white/NA
0946	7.98	17.0	9.69	0.551	0.14	-935.6	2400 298		13.28	white/NA
0951	8.82	17.0	9.67	0.744	0.12	-970.6	232		13.28	white/NA

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION:

Method: Low Flow/Reverse

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
ERD-OBSW-1E	40ML	3	HCL	TCLVOC	1010
ERD-OBSW-1E	40ML	2	HCL	MEE-RSK175	1010
ERD-OBSW-1E	250ML	1	HNO3	Metals Fe+Mn	1010
ERD-OBSW-1E	250ML	1	NONE	Fe+Mn (unfiltered)	1010
ERD-OBSW-1E	250ML	1	NONE	Anion-	1010
ERD-OBSW-1E	250ML	1	H2SO4	TDC	1010
ERD-OBSW-1E	1L	1	NONE	DHL, DMAB	1010

Signature [Signature] Date 3/8/22



FIELD INSTRUMENT CALIBRATION LOG

Project Name: Sigbee North Mission
 Project Number: 60675895
 Calibrated By: Justin Miller
 Signature: [Signature]

YSI 556 SN: 19110 191103715
 Turbidity Meter Model/SN: 1912820 82318
 Additional Equipment SN: _____
 Date: 3/8/22

Operation Notes:

- 1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
- 2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
- 3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature, and be sure the temperature sensor is submerged in the solution.

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559	35	6.950
16	9.870	21	8.915	26	8.113	31	7.430	36	6.837
17	9.665	22	8.743	27	7.968	32	7.305	37	6.727
18	9.467	23	8.578	28	7.827	33	7.183	38	6.620
19	9.276	24	8.418	29	7.691	34	7.065	39	6.515

Parameter	Before Calibration	After Calibration	Time	Units
Barometric Pressure	749.0		0834	mmHg
Temperature (Saturated Air)	15.9	16.0	0852	c
Temperature (Calibration Solution)	17.9	17.2	0849	c
DO	7.74	9.87	0834	mg/L
pH 7	6.94	7.04	0840	SU
pH 4	4.19	4.00	0843	SU
pH 10	10.01	10.10	0846	SU
Specific Conductance	1.43	1.15	0837	mS/cm
ORP	243.9	244.0	0849	mV

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted <input checked="" type="radio"/> Yes <input type="radio"/> No
	(circle one)

PROJECT NUMBER: 60675055 DATE: 3-7-22 REPORT NUMBER: _____

PROJECT & LOCATION: Valmont / Newberry

CLIENT: Signify North America AECOM FIELD REPRESENTATIVE: Marian [Signature]

SUBCONTRACTOR: AECOM

SUBCONTRACTOR PERSONNEL ON SITE: Murphy [Signature]

BRIEF SUMMARY OF WORK PERFORMED: Water levels

START TIME	STOP TIME	DESCRIPTION OF ACTIVITIES: REMARKS		Time
1019		MW-10	-11.13	1108 SDW-1 - 20.08
1017		MW-10I	-10.63	1104 SDW-2 - 85.67
1005		MW-11	-13.96	1038 SDW-3 - 07.84
0958		MW-12	-05.95	MW-1 MW-1 - 1500 - 10.02
1000		MW-12I	-04.12	MW-2 MW-2 1353 - 07.11
1001		MW-12D	-05.12	MW-2E MW-2E - 1350 - 10.92
0941		MW-13	-02.81	MW-2D MW-2D - 1351 - 09.45
0946		MW-14	-02.47	MW-3 MW-3 (1487) 10.50 10.50
0944		MW-15	-02.78	1452 MW-3E - 11.15
1012		MW-16	-07.07	1453 MW-3D - 11.31
1010		MW-17	-05.39	1439 MW-4 - 16.40
1025		MW-17D	-08.28	1415 MW-5 - 16.12
1027		MW-18	-06.51	1408 MW-5E - 16.60
1021		MW-18D	-10.64	1400 MW-6 - 17.79
0956		MW-26	-06.51	1402 MW-6E - 17.42
0954		MW-27	-03.96	1403 MW-6D - 19.62
0939		MW-28	-04.12	1418 MW-7E - 15.33
0936		MW-29	-09.11	1418 MW-7E - 15.50
1016		Obs-1501E	-10.58	1419 MW-7D - 15.49
1018		Obs-1501E	-11.20	1442 MW-8 - 15.70
1126		MW-19	-04.40	1444 MW-9 - 15.47
1113		MW-19E	-03.17	1445 MW-9E - 15.34
1128		MW-19D	-03.44	1447 MW-9D - 13.13
1155		MW-20	-03.63	1458 MW-22 - 12.41
1154 →		MW-20E	03.58 35.58	1335 TMW-21 - 18.35
1146		MW-21	-09.40	1329 TMW-22 - 17.38
1152		MW-21E	-18.70	1339 TMW-23 - 16.42
1054		MW-23	-17.51	1424 TMW-24 - 18.39
1049		MW-24	-11.61	1428 TMW-25 - 16.45
1047		MW-24E	-13.59	1341 TMW-29 - 11.57
1112		MW-25	-12.64	1314 TMW-30 - 14.10
1158		RDW-1	-03.80	1345 TMW-31 - 11.81
1148		RDW-2	-17.01	TMW-32 - 0

TMW-32 172
 1348 -
 OBS-1501
 11.08

FIELD REPRESENTATIVES SIGNATURE: _____

DATE: _____

Well ID: MW-2

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-20-22 Time: Start 1011 am/pm
 Project No: 60635197.5 Finish 1045 am/pm
 Site Location: newberry SC
 Weather Conds: Cloudy 81° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.78 c. Length of Water Column 16.3 (a-b) Casing Diameter/Material 2"/pvc
 b. Water Table Depth 8.48 d. Calculated System Volume (see back) 2.66

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH + 1.0 unit - ORP + 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>Incitu</u>	<u>Troll 600</u>	<u>808958</u>
<u>YSI</u>	<u>PR0</u>	<u>184105489</u>
<u>MICRO TPW</u>	<u>20000</u>	<u>200711199</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1012	0	21.7	5.77	22	7.50	588.6	18.29	110	8.80	CLEAR
1017	0.55	21.7	5.38	21	7.48	622.4	12.42	100	8.78	"
1022	1.05	22.1	5.38	21	7.01	626.1	8.45	100	8.78	"
1027	1.55	22.0	5.36	20	6.99	628.0	8.39	100	8.78	"
1032	2.05	22.2	5.36	20	6.89	627.3	3.79	100	8.77	"

- d. Acceptance criteria pass/fail
- | | | | |
|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| | Yes | No | N/A |
| Has required volume been removed | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Has required turbidity been reached | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Have parameters stabilized | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

(continued on back)

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-2</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>1035</u>

Comments _____

Signature James Leaphart Date 7-20-22

Well ID: TMW-31

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-20-22 Time: Start 0905 am/pm
 Project No: 60635197.5 Finish 0930 am/pm
 Site Location: newberry SC
 Weather Conds: P. Cloud 76° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 21.65 c. Length of Water Column 9.14 (a-b) Casing Diameter/Material 1" 27pvc
 b. Water Table Depth 12.51 d. Calculated System Volume (see back) 0.37

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH +1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>insti</u>	<u>Trotl 600</u>	<u>808958</u>
<u>451</u>	<u>PR0</u>	<u>184105489</u>
<u>Micro TPW</u>	<u>20000</u>	<u>200711199</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>0906</u>	<u>0</u>	<u>24.1</u>	<u>5.88</u>	<u>61</u>	<u>5.37</u>	<u>634.3</u>	<u>38.54</u>	<u>100</u>	<u>13.42</u>	<u>clear</u>
<u>0911</u>	<u>0.50</u>	<u>23.9</u>	<u>5.43</u>	<u>58</u>	<u>3.71</u>	<u>640.2</u>	<u>24.60</u>	<u>0.80</u>	<u>13.10</u>	<u>"</u>
<u>0916</u>	<u>0.90</u>	<u>23.9</u>	<u>5.32</u>	<u>56</u>	<u>3.94</u>	<u>644.0</u>	<u>15.22</u>	<u>0.80</u>	<u>13.11</u>	<u>"</u>
<u>0921</u>	<u>1.30</u>	<u>23.8</u>	<u>5.31</u>	<u>57</u>	<u>4.07</u>	<u>639.2</u>	<u>9.46</u>	<u>0.80</u>	<u>13.11</u>	<u>"</u>
<u>0926</u>	<u>1.70</u>	<u>23.7</u>	<u>5.28</u>	<u>58</u>	<u>4.14</u>	<u>640.3</u>	<u>8.88</u>	<u>0.80</u>	<u>13.11</u>	<u>"</u>

d. Acceptance criteria pass/fail
 Has required volume been removed Yes No N/A
 Has required turbidity been reached Yes No N/A
 Have parameters stabilized Yes No N/A
 If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>TMW-31</u>	<u>40 ml vva</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>0930</u>
	<u>250ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>TDS</u>	
	<u>250ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	

Comments _____

Signature [Signature] Date 7-20-22

Well ID: ISCO - OBSW - 15

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-20-22 Time: Start 0803 am/pm
 Project No: 60635197.5 Site Location: newberry SC Finish 0852 am/pm
 Weather Conds: P. Cloudy 73° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 20.02 c. Length of Water Column 8.17 (a-b) Casing Diameter/Material
 b. Water Table Depth 11.87 d. Calculated System Volume (see back) 4.33 2"/pvc

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
In situ	Froil 600	808938
<u>YSI</u>	<u>PR0</u>	<u>18K105489</u>
<u>MICROTRU</u>	<u>20000</u>	<u>200711149</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0805	0	22.6	6.94	187	7.08	551.7	71.47	100	12.08	PURPLE
0810	0.50	22.2	6.31	192	6.96	659.5	64.77	0.90	12.20	"
0815	0.95	22.5	6.18	212	6.67	683.3	47.13	0.90	12.23	"
0820	1.40	22.5	6.10	214	6.87	697.1	35.42	0.90	12.25	"
0825	1.85	22.4	6.05	213	6.69	706.9	26.58	0.90	12.28	"
0830	2.30	22.3	6.05	211	6.80	713.0	23.12	0.90	12.28	"
0835	2.75	22.2	6.01	219	6.85	720.1	8.84	0.90	12.29	"

d. Acceptance criteria pass/fail

Has required volume been removed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ISCO - OBSW - 15</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>0840</u>
	<u>250 ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>TDS</u>	

Comments _____

Signature JA Leaphart Date 7-20-22

Well ID: ERD-CBSW-11

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-19-22 Time: Start 1248 am/pm
 Project No: 60635197.5 Finish 1500 am/pm
 Site Location: newberry SC
 Weather Conds: Partly 88° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 35.50 c. Length of Water Column 24.0 (a-b) Casing Diameter/Material 2"/pvc
 b. Water Table Depth 11.50 d. Calculated System Volume (see back) 3.91

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow
 b. Acceptance Criteria defined (see workplan)
 - Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>Insitu</u>	<u>Troll 600</u>	<u>808958-</u>
<u>4.5i</u>	<u>PR0</u>	<u>184105489</u>
<u>Micro TPW</u>	<u>20000</u>	<u>200711199</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1249	0	20.5	8.25	83	1.58	26.5	603.2	100	12.38	muddy white
1254	0.50	21.3	9.26	81	0.63	-56.4	828.4	0.90	12.97	" "
1259	0.95	22.1	8.91	74	0.39	-151.9	>1100	0.90	13.33	" "
1304	1.40	22.0	8.99	76	0.32	-167.4	855.2	0.90	13.60	" "
1309	1.85	22.7	9.10	81	0.30	-167.2	597.4	0.90	13.75	" "
1314	2.30	22.2	9.09	83	0.28	-199.9	528.8	0.90	13.86	" "
1319	2.75	22.3	9.09	84	0.25	-258.7	420.4	0.90	13.92	" "

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ERD-CBSW-11</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>1420</u>
	<u>40ml vob</u>	<u>2</u>	<u>Hcl</u>	<u>MEE</u>	
	<u>500 ml Poly</u>	<u>1</u>	<u>None</u>	<u>ALK, NO2, NO3, SO4, CHLORIDE</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>HNO3</u>	<u>TOTAL Fe</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>None</u>	<u>Diss Fe</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	

Comments: Soft Bottom

Signature: [Signature] Date: 7-19-22

Well ID: MW-101

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-19-22 Time: Start 1145 am/pm
 Project No: 60635197.5 Finish 1245 am/pm
 Site Location: newberry SC
 Weather Conds: Cloud 82° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 40.92 c. Length of Water Column 28.62 (a-b) Casing Diameter/Material 2"/pvc
 b. Water Table Depth 12.30 d. Calculated System Volume (see back) 4.67

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH + 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used: Make insitu Model Troll-600 Serial Number 808958

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1147	0	20.3	7.19	135	3.48	52.0	756.9	100	12.61	mucky
1152	0.50	19.9	6.6	133	1.67	-9.2	59.54	1	12.71	wood
1157	1.00	19.7	6.46	125	0.99	-55.9	39.76	1	12.76	wood
1202	1.50	19.7	6.30	124	0.79	-108.1	37.49	100	12.78	"
1207	2.00	19.7	6.21	124	0.60	-101.6	33.16	1	12.80	"
1212	2.50	19.8	6.18	124	0.52	-103.3	31.55	100	12.80	"
1217	3.00	19.7	6.16	122	0.48	-102.5	30.21	100	12.81	"

d. Acceptance criteria pass/fail Yes No N/A (continued on back)
 Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-101</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>1220</u>
	<u>40ml voa</u>	<u>2</u>	<u>Hcl</u>	<u>MEE</u>	
	<u>500ml Poly</u>	<u>1</u>	<u>None</u>	<u>ALK, NO2, NO3, Sulf, CHLORIDE</u>	
	<u>250ml Poly</u>	<u>1</u>	<u>HNO3</u>	<u>TOTAL Fe</u>	
	<u>250ml Poly</u>	<u>1</u>	<u>None</u>	<u>DISS Fe</u>	
Comments	<u>250ml Poly</u>	<u>1</u>	<u>H2Se4</u>	<u>TCC</u>	

Signature [Signature] Date 7-19-22

Well ID: ERD
OBSW-15

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7.19.22 Time: Start 1014 am/pm
 Project No: 60635197.5 Finish 1138 am/pm
 Site Location: newberry SC
 Weather Conds: Cloud 81° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30.27 c. Length of Water Column 17.49 (a-b) Casing Diameter/Material
 b. Water Table Depth 12.78 d. Calculated System Volume (see back) 2.85 2"/pvc

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH ±1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>Insiteir</u>	<u>Troll 600</u>	<u>808958</u>
<u>451 Pro</u>	<u>Pro</u>	<u>104405489</u>
<u>M1420 TFW</u>	<u>2000</u>	<u>200711199</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1017	0	19.4	8.11	399	7.80	37.9	397.2	100	13.22	LT. Tan
1022	0.50	19.9	8.08	386	3.72	45.1	151.6	100	13.63	Cloudy
1027	1.00	19.8	8.02	375	2.48	42.7	24.35	100	13.84	Clear
1032	1.45	20.4	8.04	383	1.88	68.9	19.36	0.90	13.84	"
1037	1.90	20.5	8.01	379	1.29	112.5	14.99	0.90	13.84	"
1042	2.35	20.5	8.01	377	1.23	129.0	15.51	0.90	13.84	"
1047	2.80	20.5	7.93	379	0.84	140.4	16.02	0.90	13.86	"

d. Acceptance criteria pass/fail

Has required volume been removed	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	N/A
Has required turbidity been reached	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A
Have parameters stabilized	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	N/A

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ERD.OBSW-15</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>1100</u>
	<u>40ml VOA</u>	<u>2</u>	<u>HCL</u>	<u>MEC</u>	
	<u>500 ml Poly</u>	<u>1</u>	<u>None</u>	<u>ALK, NO2, NO3, SO4, CHLORIDE</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>HNO3</u>	<u>Total Fe</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>None</u>	<u>Diss Fe</u>	
Comments	<u>250 ml Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TCC</u>	

Signature James Leaphart

Date 7.19.22

Well ID: MW-10

Low Flow Ground Water Sample Collection Record

Client: Shakespeare Composite Structures Date: 7-19-22 Time: Start 0900 am/pm
 Project No: 60635197.5 Finish 1005 am/pm
 Site Location: newberry SC
 Weather Conds: clear 80° Collector(s): James Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 29.30 c. Length of Water Column 16.6 (a-b) Casing Diameter/Material 2"/pvc
 b. Water Table Depth 12.70 d. Calculated System Volume (see back) 2.71

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump - Low Flow

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10 mV
- Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>In situ</u>	<u>Trotter 600</u>	<u>808958</u>
<u>YSI</u>	<u>P20</u>	<u>124105489</u>
<u>MICROTRAK</u>	<u>20000</u>	<u>200711199</u>

Time (24hr)	Remove d (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>0900</u>	<u>0</u>	<u>18.9</u>	<u>9.50</u>	<u>64</u>	<u>1.44</u>	<u>-157.6</u>	<u>929.7</u>	<u>100</u>	<u>13.67</u>	<u>MILKY WTR</u>
<u>0907</u>	<u>0.50</u>	<u>19.5</u>	<u>9.69</u>	<u>65</u>	<u>0.59</u>	<u>-249.1</u>	<u>486.5</u>	<u>100</u>	<u>13.95</u>	<u>" "</u>
<u>0912</u>	<u>1.00</u>	<u>19.5</u>	<u>9.79</u>	<u>65</u>	<u>0.38</u>	<u>-203.1</u>	<u>376.1</u>	<u>100</u>	<u>14.35</u>	<u>" "</u>
<u>0917</u>	<u>1.50</u>	<u>20.0</u>	<u>9.83</u>	<u>66</u>	<u>0.38</u>	<u>-208.8</u>	<u>374.2</u>	<u>100</u>	<u>14.60</u>	<u>" "</u>
<u>0922</u>	<u>2.00</u>	<u>19.7</u>	<u>9.86</u>	<u>65</u>	<u>0.38</u>	<u>-213.2</u>	<u>401.2</u>	<u>100</u>	<u>14.82</u>	<u>" "</u>
<u>0927</u>	<u>2.50</u>	<u>19.7</u>	<u>9.91</u>	<u>65</u>	<u>0.30</u>	<u>-210.5</u>	<u>388.3</u>	<u>100</u>	<u>15.00</u>	<u>" "</u>

d. Acceptance criteria pass/fail Yes No N/A

- Has required volume been removed Yes No N/A
- Has required turbidity been reached Yes No N/A
- Have parameters stabilized Yes No N/A

(continued on back)

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Peristaltic Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10</u>	<u>40 ml voa</u>	<u>3</u>	<u>Hcl</u>	<u>8260B</u>	<u>0930</u>
	<u>40 ml vOA</u>	<u>2</u>	<u>Hcl</u>	<u>MEC</u>	
	<u>500 ml Poly</u>	<u>1</u>	<u>None</u>	<u>ALK, NO3, NO2, SO4, CHLORIDE</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>None</u>	<u>TOTAL Fe</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>None</u>	<u>Dis Fe</u>	
Comments	<u>250 ml Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>Toc</u>	

Signature J. Leaphart

Date 7-19-22



FIELD INSTRUMENT CALIBRATION LOG

Project Name: SHAWESPORE
 Project Number: 60035197
 Calibrated By: J. Caplan
 Signature: [Signature]

YSI 556 SN: 18H15489
 Turbidity Meter Model/SN: MICRO TPW 20071149
 Additional Equipment SN: —
 Date: 7-20-22

Operation Notes:

- 1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
- 2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
- 3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Table 1: Calibration Values At Various Temperatures

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Table 2: Atmospheric Pressure / Altitude Table

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Table 3: DO % Saturation Vs. Temperature

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559
16	9.870	21	8.915	26	8.113	31	7.430
17	9.665	22	8.743	27	7.968	32	7.305
18	9.467	23	8.578	28	7.827	33	7.183
19	9.276	24	8.418	29	7.691	34	7.065

YSI 556 Calibration

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	736.4		0738	mmHg
Temperature (Saturated Air)	24.2	24.4	0735	c
Temperature (Calibration Solution)	25.6	25.6	0748	c
DO	8.19	8.42	0755	mg/L
pH 7	7.14	7.01	0740	SU
pH 4	4.00	4.00	0743	SU
pH 10	10.0	10.01	0745	SU
Specific Conductance	—	—		mS/cm
ORP	232.8	231.2	0748	mV

MicroTPW Calibration

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: <input checked="" type="radio"/> Yes <input type="radio"/> No
	(circle one)



FIELD INSTRUMENT CALIBRATION LOG

Project Name: SHAKESPEARE
 Project Number: 60635157
 Calibrated By: J. LEAHANE
 Signature: [Signature]

YSI 556 SN: 18H105489
 Turbidity Meter Model/SN: MC207AU 202711197
 Additional Equipment SN: _____
 Date: 7-19-22

Operation Notes:

- 1) Turn meter on in Run mode and allow to warm up 10 to 15 minutes prior to calibration.
- 2) Observe DO % for 2-3 minutes when meter is initially turned on. The unit should display decreasing values until it is stabilized near 100%.
- 3) If the meter does not stabilize at/near 100%, indicates the DO sensor requires maintenance.

These values should be keyed in when calibrating a water quality meter. Be sure to use the temperature of the standards, not ambient temperature; and be sure the temperature sensor is submerged in the solution.

Temp. C	pH 4	pH 7	pH 10	Conductivity	ORP
5	4.00	7.07	10.19	896.00	257.00
10	4.00	7.06	10.16	1020.00	250.50
15	4.00	7.04	10.10	1147.00	244.00
20	4.00	7.02	10.05	1278.00	237.50
25	4.00	7.01	10.01	1413.00	231.00
30	4.00	6.99	9.96	1548.00	224.50

mm Hg = millimeters of mercury. Note that the YSI 556 uses this information ONLY when the DO calibration is being done. After calibration is complete it no longer corrects for pressure change. Verify the meter is correct for your altitude when calibrating.

Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)	Altitude feet (asl)	Pressure (mmHg)
0	760	1126	730	2290	699
278	752	1413	722	2587	692
558	745	1703	714	2887	684
841	737	1995	707	3190	676

Temp C.	DO	Temp C.	DO	Temp C.	DO	Temp C.	DO
15	10.084	20	9.092	25	8.263	30	7.559
16	9.870	21	8.915	26	8.113	31	7.430
17	9.665	22	8.743	27	7.968	32	7.305
18	9.467	23	8.578	28	7.827	33	7.183
19	9.276	24	8.418	29	7.691	34	7.065

Parameter	Before Calibration	After Calibration	Time	Units
Barametric Pressure	745.9		0834	mmHg
Temperature (Saturated Air)	25.3	25.4	0858	C
Temperature (Calibration Solution)	27.2	27.2	0848	C
DO	7.87	8.23	0858	mg/L
pH 7	7.19	7.00	0839	SU
pH 4	4.01	4.00	0841	SU
pH 10	10.01	9.98	0845	SU
Specific Conductance	No CAL SOLUTION SENT WITH METER			mS/cm
ORP	233.6	229.3	0848	mV

Calibrations performed 0.02, 10, and 1,000 NTU	Calibrations accepted: <input checked="" type="radio"/> Yes <input type="radio"/> No
	(circle one)

YSI 556 MPS / Water Quality Calibration Certificate



Cal Standard Temp. LAB, C: 26.1 Temp. FIELD, C:

Conductivity Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 @ 25° S011347 11/22 1.45 (+/- .5%)

PH 4.00 Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 @ 25° S102053 2/23 4.02 (+/- 0.2 units)

PH 7.01 Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 @ 25° 8101544 2/23 7.14 (+/- 0.2 units)

PH 10.01 Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 @ 25° 8102673 3/23 10.02 (+/- 0.2 units)

ORP ZOBELLS Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 231.0 MV @ 25° 8108575 6/22 237.5 (+/- 20 MV)

Dissolved Oxygen Post-Cal. LAB Temp, C 25.8 % Saturation 97.0 mg/L 8.08 Acceptable Range
 Saturated Air: Post-Cal. FIELD Temp, C % Saturation mg/L (+/- 2%) / (+/- 2%)

New DO Membrane Yes No Do Cap Color Black Blue Yellow

Model YSI PRO PERIS S/N 5489 Cable N/A

Calibration referenced to the temperature of the calibration standards.

Turbidity Lot # Expiration Post-Cal. LAB Post-Cal. FIELD Acceptable Range
 .02 NTU 211042 01-23 0.02 (.0196 to .0204)
 .10 NTU 211019 01-23 10.17 (9.8 to 10.2)
 1000 NTU 211059 01-23 1022 (970 to 1031)

Model Micro TPW S/N 200711199

Calibrated By Eric Olson Date of Calibration 7-14-22

Project Name SIGNIFY Project number 60635197

Signed Eric Olson



Well ID: TMW-31

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12-28-22 Time: Start 0920 am/pm
 Project No: 60635197 Finish 1000 am/pm
 Site Location: Newberry, SC
 Weather Conds: Clear, 31° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 21.43 c. Length of Water Column 7.58 (a-b) Casing Diameter/Material 1" PVC
 b. Water Table Depth 13.85 d. Calculated System Volume (see back)

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ±10mV
- Sp. Cond. 3% - Drawdown <0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>PRO</u>	<u>3731</u>
<u>MICRO TPW</u>	<u>20000</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0921	1.00	23.5	6.16	96	5.16	169.7	49.62	100	15.45	CLEAR
0926	0.50	24.2	5.77	73	5.03	207.4	81.13	100	16.07	"
0931	1.00	24.4	5.72	71	4.57	212.3	42.54	100	16.14	"
0936	1.50	24.4	5.67	69	4.80	216.5	23.72	100	16.21	"
0941	2.00	24.4	5.61	68	4.80	222.2	13.64	100	16.34	"
0946	2.50	24.4	5.62	67	4.84	222.8	9.78	100	16.38	"

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>TMW-31</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>0950</u>
	<u>250ml POLY</u>	<u>1</u>	<u>NONE</u>	<u>TDS</u>	
	<u>250ml POLY</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	

Comments _____

Signature J. Leaphart Date 12-28-22



Well ID: ISCO-03SW-15

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12.28.22 Time: Start 1015 am/pm
 Project No: 60635197 Finish 1103 am/pm
 Site Location: Newberry, SC
 Weather Conds: Clear, 37° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 20.02 c. Length of Water Column _____ (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 13.20 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used: Make Model Serial Number

<u>YSI</u>	<u>PRO</u>	
<u>MICRO TCU</u>	<u>20000</u>	

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1018	1.00	17.3	5.99	144	4.69	394.2	48.09	100	13.39	LT PURPLE
1023	0.50	18.8	6.04	150	4.21	483.0	33.36	100	13.47	
1028	1.00	18.0	6.07	156	4.64	542.3	20.00	100	13.47	
1033	1.50	18.2	6.09	157	4.83	583.1	14.82	100	13.47	
1038	2.00	18.4	6.07	159	4.83	617.1	10.51	100	13.48	
1043	2.50	18.6	6.08	159	4.95	625.3	8.42	100	8.42 13.48	
1048	3.00	18.7	6.09	160	4.85	631.4	8.15	100	13.48	

d. Acceptance criteria pass/fail Yes No N/A (continued on back)

Has required volume been removed

Has required turbidity been reached

Have parameters stabilized

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ISCO-03SW-15</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>1050</u>
	<u>250ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>TDS</u>	
	<u>250ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	

Comments _____

Signature J. Leaphart Date 12.28.22



Well ID: MW-2

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12-28-22 Time: Start 1127 am/pm
 Project No: 60635197 Finish 1245 am/pm
 Site Location: Newberry, SC
 Weather Conds: Clear, 45° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 24.75 c. Length of Water Column 14.52 (a-b) Casing Diameter/Material 2" (PVC)
 b. Water Table Depth 9.23 d. Calculated System Volume (see back) 2.53

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ± 1.0 unit - ORP ± 10 mV
- Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:	Make	Model	Serial Number
	<u>YSI</u>	<u>PRO</u>	<u>3731</u>
	<u>MICRO TPW</u>	<u>20000</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1129	14.12	17.7	6.00	38	7.27	297.8	16.35	100	9.52	Clear
1134	0.50	18.6	5.36	30	6.83	328.0	9.94	100	9.58	"
1139	1.00	19.1	5.34	26	6.81	331.5	5.10	100	9.60	"
1144	1.50	19.1	5.30	24	6.73	331.2	4.96	100	9.61	"
1149	2.00	19.3	5.36	24	6.78	330.2	4.51	100	9.61	"

d. Acceptance criteria pass/fail

	Yes	No	N/A	(continued on back)
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
MW-2	40 ml vial	3	HCL	TCL VOCs	1150
	250ml Poly	1	NONE	ALK, NO2, NO3, TDS, SO4	
	250ml Poly	1	NONE	CHLORIDE	
	250ml Poly	1	HNO3	TOTAL IRON	
Comments	40 ml vial	2	HCL	MEC	
	250ml Poly	1	HNO3	TOC	
	250ml Poly	1	NONE	DISS. IRON	

Signature: J. Leaphart Date: 12-28-22



Well ID: MW-10

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12-19-22 Time: Start 1050 am/pm
 Project No: 60635197 Finish 1205 am/pm
 Site Location: Newberry, SC
 Weather Conds: P. Cloudy Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 29.20 c. Length of Water Column 15.27 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 13.93 d. Calculated System Volume (see back) 2.49

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
- pH ±1.0 unit - ORP ± 10mV
- Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:	Make	Model	Serial Number
	<u>YSI</u>	<u>PRO</u>	<u>3731</u>
	<u>MICRO TAP</u>	<u>20000</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1056	INITIAL	15.3	7.01	660	0.44	-40.6	7100	100	14.29	milky
1101	0.50	15.5	7.13	680	0.27	-110.6	>1100	100	15.05	"
1106	1.00	15.4	7.01	670	0.25	-124.5	71100	100	15.54	"
1111	1.50	15.3	6.92	660	0.25	-122.0	71100	100	15.96	"
1116	2.00	15.7	6.90	640	0.33	-130.2	71100	100	16.36	"
1121	2.50	15.2	6.89	612	0.46	-128.4	71100	100	16.57	"
1126	3.00	15.0	6.86	597	0.27	-119.1	>1100	100	16.76	"

d. Acceptance criteria pass/fail Yes No N/A (continued on back)

Has required volume been removed

Has required turbidity been reached (JL)

Have parameters stabilized

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>1130</u>
	<u>250 Poly</u>	<u>1</u>	<u>HNO3</u>	<u>TOTAL IRON</u>	
	<u>250 Poly</u>	<u>1</u>	<u>NONE</u>	<u>DISS IRON</u>	
	<u>250 Poly</u>	<u>1</u>	<u>NONE</u>	<u>ALK, NO2, NO3, SO4</u>	
Comments	<u>40 ml vial</u>	<u>2</u>	<u>HCL</u>	<u>MEE</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	
	<u>250 ml Poly</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	
	<u>1 LITRE Poly</u>	<u>1</u>	<u>NONE</u>	<u>DIC</u>	

Signature J. Leaphart Date 12-19-22



Well ID: ERD-OBSW-15

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12-19-22 Time: Start 12:18 am/pm
 Project No: 60635197 Finish 13:20 am/pm
 Site Location: Newberry, SC
 Weather Conds: Clear 46° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 30.00 c. Length of Water Column 15.83 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 14.17 d. Calculated System Volume (see back) 2.58

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC PUMP

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH ±1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>120</u>	<u>3731</u>
<u>MICRO TAP</u>	<u>20000</u>	<u>2-18-09171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>1220</u>	<u>1.00</u>	<u>15.2</u>	<u>5.79</u>	<u>390</u>	<u>0.65</u>	<u>189.2</u>	<u>426.3</u>	<u>100</u>	<u>14.44</u>	<u>cloudy</u>
<u>1225</u>	<u>0.50</u>	<u>15.4</u>	<u>5.69</u>	<u>392</u>	<u>0.61</u>	<u>194.9</u>	<u>76.89</u>	<u>100</u>	<u>14.94</u>	<u>"</u>
<u>1230</u>	<u>1.00</u>	<u>15.6</u>	<u>5.57</u>	<u>379</u>	<u>0.71</u>	<u>202.4</u>	<u>35.52</u>	<u>100</u>	<u>15.09</u>	<u>clear</u>
<u>1235</u>	<u>1.50</u>	<u>15.9</u>	<u>5.46</u>	<u>373</u>	<u>0.70</u>	<u>205.2</u>	<u>19.84</u>	<u>100</u>	<u>15.18</u>	<u>"</u>
<u>1240</u>	<u>2.00</u>	<u>15.6</u>	<u>5.44</u>	<u>369</u>	<u>0.72</u>	<u>205.6</u>	<u>10.93</u>	<u>100</u>	<u>15.21</u>	<u>"</u>
<u>1245</u>	<u>2.50</u>	<u>16.0</u>	<u>5.47</u>	<u>369</u>	<u>0.71</u>	<u>197.6</u>	<u>7.73</u>	<u>100</u>	<u>15.24</u>	<u>"</u>

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ERD-OBSW-15</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>1250</u>
	<u>40ml vial</u>	<u>2</u>	<u>HCL</u>	<u>MEE</u>	
	<u>250</u>	<u>1</u>	<u>H2O2</u>	<u>TOTAL IRON</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>DSS- IRON</u>	
Comments	<u>250</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>ALK, NO2, NO3, SO4</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	
	<u>1 LITRE Poly</u>	<u>1</u>	<u>NONE</u>	<u>DIC</u>	

Signature: J. Leaphart Date: 12-19-22

Well ID: MW-10I

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12.14.22 Time: Start 1335 am/pm
 Project No: 60635197 Finish 1435 am/pm
 Site Location: Newberry, SC
 Weather Conds: P. Cloudy, 47° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 40.90 c. Length of Water Column 26.85 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 14.05 d. Calculated System Volume (see back) 4.38

2. WELL PURGE DATA

a. Purge Method: Peristaltic Pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH ±1.0 unit - ORP ±10mV
 - Sp. Cond. 3% - Drawdown <0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>P120</u>	<u>3731</u>
<u>micra TPU</u>	<u>20000</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1337	Initial	15.4	6.19	160	2.35	76.5	942.1	100	14.32	MURKY
1342	0.50	15.4	6.24	160	0.82	52.5	170.0	100	14.50	"
1347	1.00	15.6	6.15	153	0.43	48.9	66.18	100	14.55	CLOUDY
1352	1.50	15.8	6.10	139	0.30	56.0	23.39	100	14.56	CLEAR
1357	2.00	16.0	6.07	129	0.26	60.6	17.25	100	14.56	"
1402	2.50	15.9	6.08	128	0.23	60.5	8.67	100	14.57	"
1407		15.9	6.06	126	0.25	58.9	8.75	100	14.57	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

(continued on back)

3. SAMPLE COLLECTION: Method: Peristaltic

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW-10I</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>1410</u>
	<u>40ml vial</u>	<u>2</u>	<u>HCL</u>	<u>MEC</u>	
	<u>250</u>	<u>1</u>	<u>Amo3</u>	<u>TOTAL 1200</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>DISS 1200</u>	
Comments	<u>250</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>ALK, NO2, NO3, SO4</u>	
	<u>250</u>	<u>1</u>	<u>NONE</u>	<u>CHLORIDE</u>	
	<u>1 liter Poly</u>	<u>1</u>	<u>NONE</u>	<u>DIC</u>	

Signature: J. Leaphart Date: 12-19-22

Well ID: ERD-035W-1I

Low Flow Ground Water Sample Collection Record

Client: Signify Date: 12-19-22 Time: Start 1438 am/pm
 Project No: 60635197 Finish 1545 am/pm
 Site Location: Newberry, SC
 Weather Conds: P. Cloudy, 48° Collector(s): J. Leaphart

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 35.30 c. Length of Water Column 22.08 (a-b) Casing Diameter/Material 2" PVC
 b. Water Table Depth 13.22 d. Calculated System Volume (see back) 3.60

2. WELL PURGE DATA

a. Purge Method: PERISTALTIC PUMP

b. Acceptance Criteria defined (see workplan)

- Temperature 3% -D.O. 10%
 - pH ± 1.0 unit - ORP ± 10 mV
 - Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>451</u>	<u>P20</u>	<u>3731</u>
<u>MICRO TPU</u>	<u>20000</u>	<u>201809171</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1440	INITIAL	15.1	7.04	690	0.76	52.6	>1100	100	14.05	MILKY
1445	0.50	15.8	8.40	880	0.11	-258.4	240.4	100	14.90	"
1450	1.00	15.7	8.18	890	0.09	-209.8	351.6	100	15.29	"
1455	1.50	15.6	7.85	880	0.05	-151.1	465.9	100	15.71	"
1500	2.00	15.6	7.57	830	0.05	-120.9	>1100	100	15.98	"
1505	2.50	15.5	7.56	810	0.08	-120.2	>1100	100	16.10	"
1510	3.00	15.7	7.50	800	0.08	-118.8	>1100	100	16.18	"

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: PERISTALTIC

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>ERD-035W-1I</u>	<u>40 ml vial</u>	<u>3</u>	<u>HCL</u>	<u>TCL VOCs</u>	<u>1515</u>
	<u>40 ml vial</u>	<u>2</u>	<u>HCL</u>	<u>MEE</u>	
	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>Total Iron</u>	
	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>Diss. Iron</u>	
Comments	<u>250 Poly</u>	<u>1</u>	<u>H2SO4</u>	<u>TOC</u>	
	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>As, NO2, NO3, Sulf</u>	
	<u>250 Poly</u>	<u>1</u>	<u>None</u>	<u>Chloride</u>	
	<u>1 Liter Poly</u>	<u>1</u>	<u>None</u>	<u>DIC</u>	

Signature J. Leaphart Date 12-19-22

Attachment E

**Redox Tech Field Summary Report and DHEC 1903 Forms for ISCO and ERD Injections
and Abandonment**

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Field Summary Report for AECOM – Newberry, SC

Prepared by Geoff Ives on September 30, 2021

Project Name	AECOM – Newberry, SC	Start and End Date	September 20 – 24, 2021
City and State	Newberry, SC	Address	19845 US-76 Newberry, SC 29108
Contaminant of Concern	Chlorinated Solvents	Contaminated Media	Groundwater
Field Contractor	Redox Tech, LLC	Client	Scott Ross 803-740-1921 Scott.Ross@aecom.com
Address	200 Quade Drive Cary, NC	Address	101 Research Drive Columbia, SC 29203
Field Lead	Geoffrey Ives	Oversight	Justin Butler
Phone Number	404-966-7345	Phone Number	864-903-3573
Email	ives@redox-tech.com	Email	Justin.butler@aecom.com
Crew Members	Geoffrey Ives, Robert Sullivan, Wesley Rivett, John Purkey	Number of Points and Depths	ABC+: 5 points 36'-30', 5 points 30'-20' Permanganate: 3 points 20'-10'
Chemical	ABC ZVI Magnesium Oxide Potassium Permanganate	Mass or Volume	5,000 lbs 5,000 lbs 1,000 lbs 827 lbs
Concentration of Chemical	See Narrative	Volume of Solution or Slurry	5,000 gal ABC+ slurry 2,250 gal permanganate solution

REDOX TECH, LLC



"Providing Innovative In Situ Soil and Groundwater Treatment"

Brief Narrative

Redox Tech performed direct-push technology (DPT) injections of potassium permanganate solution and Anaerobic BioChem Plus (ABC+) slurry at 19845 US-76 Newberry, SC 29108 between September 20 – 24, 2021. Permanganate solution was injected at three locations in a shallow hot spot around well TMW-31 (Figure 1). ABC+ slurry with pH buffer was injected at five intermediate locations slightly upgradient of well MW-10i (Figure 2) and five shallow locations slightly upgradient of well MW-10 (Figure 3). A total of 827 pounds (lbs) of potassium permanganate, 10,000 lbs of ABC+, and 1,000 lbs of magnesium oxide pH buffer were injected during this injection event.

For the permanganate injections, a staging area was set up directly outside of the room that TMW-31 is in. Here, a mixing station was constructed on a secondary containment pad with a 550-gallon (gal) polyethylene (poly) tank equipped with a pneumatic mixer. A chemical resistant diaphragm pump was plumbed to the poly tank within the containment, and used to inject the permanganate solution. Water for mixing amendment solution was drawn from the fire hydrant in front of the facility and transported in a 2,000 gal water truck as needed.

A total of 2,250 gal of permanganate solution containing 827 lbs of potassium permanganate was injected into the three target locations (ISCO-1, 2, and 3) around TMW-31. Each injection point received 275.6 lbs of potassium permanganate in 750 gal of solution. DPT injections were performed bottom-up, so the drill string was advanced to the target depth and then lifted upwards, injecting amendment at two-foot depth intervals. Each injection point received 150 gal of permanganate solution at 18, 16, 14, 12, and 10 feet (ft) below ground surface (bgs). Injection pressures averaged 20.3 pounds per square inch (psi) at an average flow rate of 5.9 gallons per minute (gpm). Field notes from these permanganate injections are provided in Table 1.

The 10 ABC+ injection points received a total of 10,000 lbs of ABC+ and 1,000 lbs of magnesium oxide in 5,000 gal of slurry. Each injection point received 500 lbs of ABC, 500 lbs of zero valent iron (ZVI), and 100 lbs of magnesium oxide in 500 gal of slurry. The vertical interval of injection for the intermediate locations around MW-10i was from 36 – 30 ft bgs, injecting amendment at

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two-foot intervals. At two of the intermediate locations, ERD-I2 and ERD-I3, refusal was reached before 36 ft bgs. Both ERD-I2 and ERD-I3 received 250 gal of slurry at 32 – 34 ft and 250 gal of slurry at 30 – 32 ft. The other three intermediate locations received 167 gal of slurry at each depth (34 – 36, 32 – 34, and 30 – 32 ft). The shallow ABC+ injections around well MW-10 were completed as planned, with 100 gal of slurry injected at two-foot intervals between 20 – 30 ft. Injection pressures averaged 66 psi at an average flow rate of 14.5 gpm. Field notes from the ABC+ injections are provided in Table 2.

All DPT boreholes were abandoned with Portland cement grout, and borings advanced through concrete were repaired and patched with high strength concrete.

Remedial fieldwork was completed by Redox crewmembers Wesley Rivett, Robert Sullivan, John Purkey, and Geoff Ives, with oversight provided by Justin Butler.

The Redox Tech crew completed injections and demobilized on September 24, 2021.



Figure 1. Potassium Permanganate Injection Location Map

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Figure 2. Intermediate Zone ABC+ Injection Location Map

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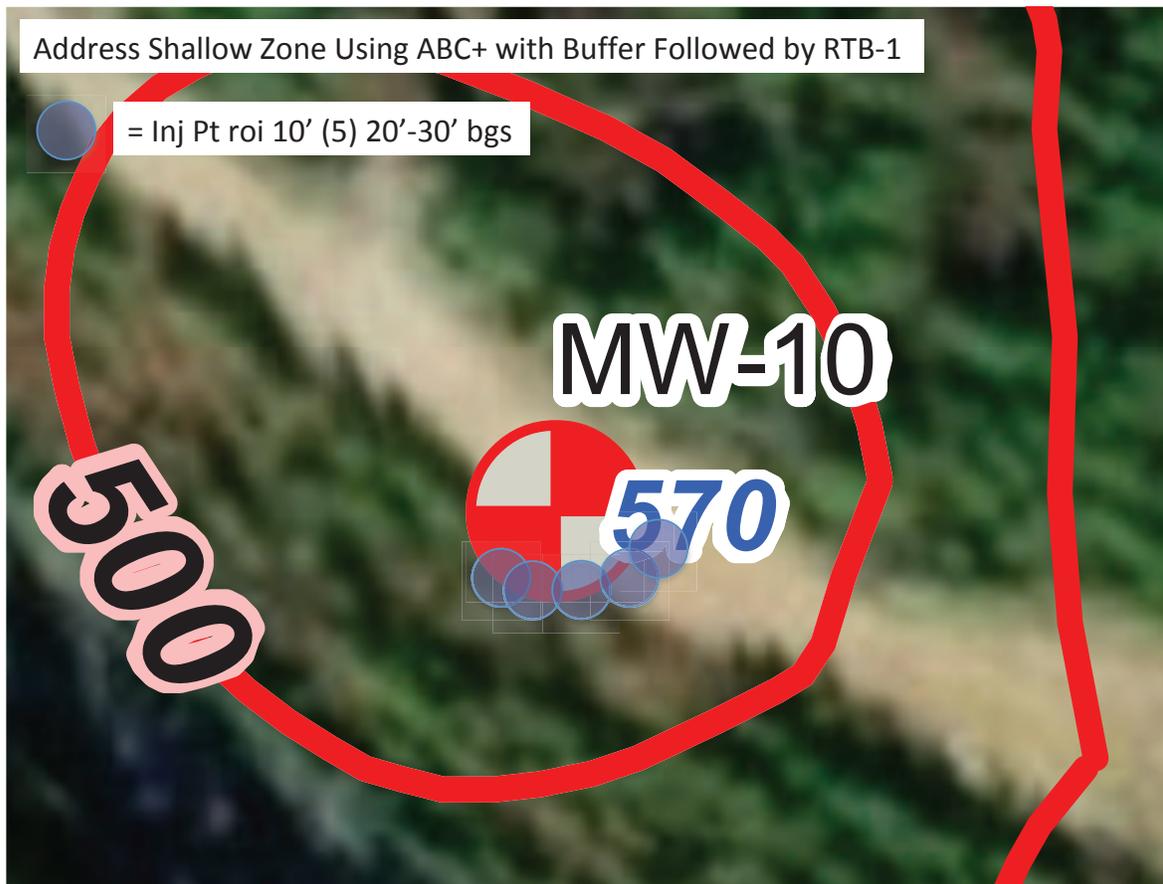


Figure 3. Shallow Zone ABC+ Injection Location Map



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Table 1. Potassium Permanganate Injection Logs

Date	Injection Point	Depth Interval (ft)	Start Time	Stop Time	Injection Pressure (psi)	Flow Rate (gpm)	Volume Injected (gal)	Notes
9/20/21	ISCO-2	18'-20'	14:55	15:27	25	4.7	150	
9/20/21	ISCO-2	16'-18'	15:27	15:54	20	5.6	150	
9/20/21	ISCO-2	14'-16'	15:54	16:21	20	5.6	150	
9/20/21	ISCO-2	12'-14'	16:35	16:57	20	6.8	150	
9/20/21	ISCO-2	10'-12'	16:57	17:16	15	7.9	150	
9/21/21	ISCO-1	18'-20'	7:43	8:07	20	6.3	150	
9/21/21	ISCO-1	16'-18'	8:07	8:35	20	5.4	150	
9/21/21	ISCO-1	14'-16'	8:35	9:03	20	5.4	150	
9/21/21	ISCO-1	12'-14'	9:14	9:43	20	5.2	150	
9/21/21	ISCO-1	10'-12'	9:43	10:08	15	6.0	150	
9/21/21	ISCO-3	18'-20'	11:17	11:42	30	6.0	150	
9/21/21	ISCO-3	16'-18'	11:42	12:11	25	5.2	150	
9/21/21	ISCO-3	14'-16'	12:11	12:33	20	6.8	150	
9/21/21	ISCO-3	12'-14'	12:45	13:09	20	6.3	150	
9/21/21	ISCO-3	10'-12'	13:09	13:35	15	5.8	150	



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Table 2. ABC+ Injection Logs

Date	Injection Point	Depth Interval (ft)	Start Time	Stop Time	Injection Pressure (psi)	Flow Rate (gpm)	Volume Injected (gal)	Notes
9/22/21	ERD-15	34'-36'	10:06	10:20	60	11.9	167	
9/22/21	ERD-15	32'-34'	10:26	10:39	50	12.8	167	
9/22/21	ERD-15	30'-32'	10:53	11:03	40	16.7	167	
9/22/21	ERD-12	32'-34.5'	13:59	14:12	80	12.8	167	Refusal at 34.5'
9/22/21	ERD-12	32'-34.5'	14:35	14:41	70	13.8	83	
9/22/21	ERD-12	30'-32'	14:45	14:50	60	16.8	84	
9/22/21	ERD-12	30'-32'	15:08	15:19	60	15.2	167	
9/22/21	ERD-11	34'-36'	16:03	16:13	100	16.7	167	
9/22/21	ERD-11	32'-34'	17:32	17:43	100	15.2	167	
9/22/21	ERD-11	30'-32'	17:55	18:07	60	13.9	167	
9/23/21	ERD-13	32'-34'	8:21	8:40	80	13.2	250	Refusal at 34'
9/23/21	ERD-13	30'-32'	9:01	9:19	90	13.9	250	
9/23/21	ERD-14	34'-36'	9:41	9:52	100	15.2	167	
9/23/21	ERD-14	32'-34'	10:35	10:46	80	15.2	167	
9/23/21	ERD-14	30'-32'	10:56	11:06	70	16.7	167	
9/23/21	ERD-S1	28' - 30'	13:41	13:48	70	14.3	100	
9/23/21	ERD-S1	26' - 28'	13:49	13:58	70	11.1	100	
9/23/21	ERD-S1	24' - 26'	14:08	14:15	60	14.3	100	
9/23/21	ERD-S1	22' - 24'	14:18	14:26	70	12.5	100	
9/23/21	ERD-S1	20' - 22'	14:28	14:35	60	14.3	100	
9/23/21	ERD-S5	28' - 30'	15:13	15:20	100	14.3	100	
9/23/21	ERD-S5	26' - 28'	15:23	15:30	60	14.3	100	
9/23/21	ERD-S5	24' - 26'	15:37	15:43	80	16.7	100	
9/23/21	ERD-S5	22' - 24'	15:47	15:53	80	16.7	100	



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Table 2. ABC+ Injection Logs

Date	Injection Point	Depth Interval (ft)	Start Time	Stop Time	Injection Pressure (psi)	Flow Rate (gpm)	Volume Injected (gal)	Notes
9/23/21	ERD-S5	20' - 22'	16:04	16:10	60	16.7	100	
9/23/21	ERD-S4	28' - 30'	17:12	17:18	60	16.7	100	
9/23/21	ERD-S4	26' - 28'	17:22	17:29	60	14.3	100	
9/23/21	ERD-S4	24' - 26'	17:32	17:39	70	14.3	100	
9/23/21	ERD-S4	22' - 24'	17:41	17:47	70	16.7	100	
9/23/21	ERD-S4	20' - 22'	17:48	17:55	60	14.3	100	
9/24/21	ERD-S2	28' - 30'	9:39	9:46	70	14.3	100	
9/24/21	ERD-S2	26' - 28'	9:48	9:57	60	11.1	100	
9/24/21	ERD-S2	24' - 26'	10:18	10:26	40	12.5	100	
9/24/21	ERD-S2	22' - 24'	10:28	10:34	40	16.7	100	
9/24/21	ERD-S2	20' - 22'	10:35	10:42	60	14.3	100	
9/24/21	ERD-S3	28' - 30'	8:11	8:18	40	14.3	100	
9/24/21	ERD-S3	26' - 28'	8:20	8:27	50	14.3	100	
9/24/21	ERD-S3	24' - 26'	8:43	8:50	50	14.3	100	
9/24/21	ERD-S3	22' - 24'	8:52	8:59	45	14.3	100	
9/24/21	ERD-S3	20' - 22'	9:01	9:08	45	14.3	100	

PROJECT NUMBER: 60635197 DATE: 12/8/21 REPORT NUMBER: _____

PROJECT & LOCATION: Pilot Study - Shakespeare Comp. Structures Site Newberry, SC

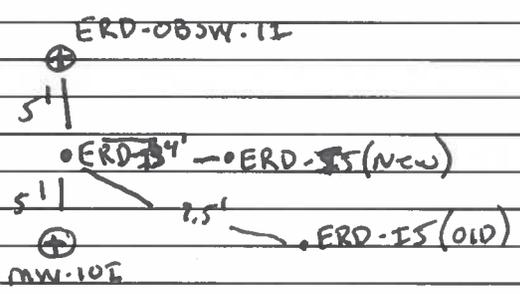
CLIENT: Signify AECOM FIELD REPRESENTATIVE: _____

SUBCONTRACTOR: Redox Tech

SUBCONTRACTOR PERSONNEL ON SITE: Jeremy Ray, Robert Sullivan, John Purkey

BRIEF SUMMARY OF WORK PERFORMED: Injections @ Dickert Property

START TIME	STOP TIME	DESCRIPTION OF ACTIVITIES: REMARKS
0800		Arrive on site, H&S meeting
0815		Begin drilling ERD-I1, 35' Refusal
0846		Begin injecting @ ERD-I1
0857		Injection complete
0905		Begin drilling @ ERD-I2, 37' Refusal
0918		Begin injecting @ ERD-I2
0933		Injection complete
0941		Begin drilling ERD-I3, 34' Refusal
0952		Begin injecting @ ERD-I3
1003		Injection complete
1013		Begin drilling ERD-I5, Refused @ 28', offset, try again, Refused 30'+23'
1050		Begin injecting @ ERD-I4, Refusal 32', come back to ERD-I5
1105		Begin injecting @ ERD-I4
1117		Injection complete, Daylighting up ERD-I5 holes @ end of injection
1130		Begin drilling ERD-I5 again, refusal 28', offset closer to ERD-I3, split difference in locations. Refusal 33'
1155		Begin injecting ERD-I5
1210		Injection complete, Flush lines
1240		Begin site clean up & demob
1400		Leave site



FIELD REPRESENTATIVES SIGNATURE: *John Purkey* DATE: 12/8/21

REAGENT INJECTION LOG

Pilot Study
Shakespeare Composite Structures Site
Newberry, South Carolina

Injection Area

Date	Time Start	Injection Point	Method of Delivery	Batch No.	Injection Depth (ft)	Volume Injected (gallons)	Flow Meter Flow Rate (gpm)	Notes/Observations	Technician Initials
Example			DPT Bottom-Up	1	45-41	500	4.2 (15:35) 5.2 (15:45) 4.2 (16:00)	Daylighting at 16:00, injection stopped	
12/7/21	1325	ERD-52 <i>520</i>	DPT Bottom-Up	1	28-20	100		split volume into 4 intervals	AB
12/7/21	1411	ERD-51	DPT Bottom-Up	1	30-20	100			AB
12/7/21	1450	ERD-53	DPT Bottom-Up	1	26-20	100		split volume into 3 intervals	AB
12/7/21	1538	ERD-54	DPT Bottom-Up	1	26-20	100		split volume into 3 intervals	AB
12/7/21	1613	ERD-55	PPT Bottom-Up	1	29-30	100			AB
12/8/21	0847	ERD-51	DPT Bottom-Up	2	85-91	100		Divide load into 2 Intervals	AB

REAGENT INJECTION LOG

Pilot Study
Shakespeare Composite Structures Site
Newberry, South Carolina

Injection Area _____

Date	Time Start	Injection Point	Method of Delivery	Batch No.	Injection Depth (ft)	Volume Injected (gallons)	Flow Meter Flow Rate (gpm)	Notes/Observations	Technician Initials
Example			DPT Bottom-Up	1	45-41	500	4.2 (15:35) 5.2 (15:45) 4.2 (16:00)	Daylighting at 16:00, injection stopped	
12/8/21	0918	ERD-12	DPT Bottomup	2	37-31	10		split load into 3 intervals	gms
12/8/21	0952	ERD-13	DPT Bottomup	2	34-31	10		split load into 2 intervals 34-33, 33-31	gms
12/8/21	1105	ERD-14	DPT Bottom up	2	32-31	10		Entire load into 1 interval	gms
12/8/21		ERD-15	DPT Bottomup	2	33-31	10		Entire load into 1 interval	gms

Attachment F

Laboratory Reports of Analysis and Chain-of-Custody Records for Microbial Analysis



10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133



Client: Scott Ross
AECOM
101 Research Dr
Columbia, SC 29203

Phone: 803-201-9662

Fax:

Identifier: 077SH

Date Rec: 08/21/2021

Report Date: 08/27/2021

Client Project #: 60635197

Client Project Name: Shakespeare - Signify North America

Purchase Order #: 137415

Test results provided for: CENSUS

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Results relate only to the items tested and the sample(s) as received by the laboratory.

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
 Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: AECOM
 Project: Shakespeare - Signify North America

MI Project Number: 077SH
 Date Received: 08/21/2021

Sample Information

Client Sample ID:	MW-101	ERD-OBSW-11	MW-10	ERD-OBSW-1S
Sample Date:	08/20/2021	08/20/2021	08/20/2021	08/20/2021
Units:	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	HT/CB	HT/CB	HT/CB	HT/CB

Dechlorinating Bacteria

<i>Dehalococcoides</i>	<i>DHC</i>	3.20E+00	<5.00E-01	<5.00E-01	<5.00E-01
tceA Reductase	TCE	1.00E-01 (J)	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase	VCR	1.00E-01 (J)	<5.00E-01	<5.00E-01	<5.00E-01
<i>Dehalobacter spp.</i>	<i>DHBt</i>	8.28E+01	1.30E+02	1.70E+00 (J)	<4.80E+00

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
 < = Result not detected

Quality Assurance/Quality Control Data

Samples Received 8/21/2021

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	08/21/2021	08/27/2021	0 °C	104%	non-detect	non-detect
TCE	08/21/2021	08/27/2021	0 °C	100%	non-detect	non-detect
VCR	08/21/2021	08/27/2021	0 °C	96%	non-detect	non-detect
DHBt	08/21/2021	08/27/2021	0 °C	106%	non-detect	non-detect
DHC	08/21/2021	08/27/2021	0 °C	101%	non-detect	non-detect



10515 Research Dr
Knoxville, TN 37932
865-573-8188
www.microbe.com

INVOICE TO: (For Invoices paid by a third party it is imperative that all information be provided)

Name: SA ME
Company: _____
Address: _____
email: _____
Phone: _____
Fax: _____

Purchase Order No. _____
Subcontract No. _____
MI Quote No. _____

Please Check One:
 More samples to follow
 No Additional Samples

REPORT TO:
Name: Scott Ross
Company: AEOM
Address: 101 Research Dr
Columbia SC 29203
email: Scott.Ross@AEOM.com
Phone: 803.740.1921
Fax: _____

Project Manager: _____
Project Name: Shakespeare
Project No.: 60635197

Report Type: Standard (default) Microbial Insights Level III raw data (15% surcharge) Microbial Insights Level IV (25% surcharge) Comprehensive Interpretive (15%) Historical Interpretive (35%)
EDD type: Microbial Insights Standard (default) All other available EDDs (5% surcharge) Specify EDD Type: _____

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information			CENSUS: Please select the target organism/gene																															
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	Total Number of Containers	PLFA	NGS	QuantArray Chlor	QuantArray Petro	DHC (Dehalococoides) (bvc, lcc, vcr)	DHC (Dehalobacter)	DHG (Dehalogenimonas)	DSM (Desulfuromonas)	DSB (Desulfibacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nitS and nitK)	AMO (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Naphthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR: RNA (Expression Option)*	Other:	Other:	Other:			
10955	1 MW-10I	10/28/14	1050	Aq	1					X	X	X																						
2	ISERD-ORSW-10I	10/28/14	1150	Aq	1					X	X	X																						
3	MW-10	10/28/14	1310	Aq	1					X	X	X																						
4	ISERD-ORSW-10	10/28/14	1405	Aq	1					X	X	X																						

Relinquished by: [Signature] Date: 10/29/14 Received by: [Signature] Date: 10/30/14

It is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. ****Saturday delivery: See sampling protocol for alternate shipping address.**

* additional cost and sample preservation are associated with RNA samples.



10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133



Client: Scott Ross
AECOM
101 Research Dr
Columbia, SC 29203

Phone: 803-201-9662

Fax:

Identifier: 109SJ

Date Rec: 10/30/2021

Report Date: 11/05/2021

Client Project #: 60635197

Client Project Name: Shakespeare - Signify North America

Purchase Order #: 137415

Test results provided for: CENSUS

Reviewed By:

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Results relate only to the items tested and the sample(s) as received by the laboratory.

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
 Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: AECOM
 Project: Shakespeare - Signify North America

MI Project Number: 109SJ
 Date Received: 10/30/2021

Sample Information

Client Sample ID:	MW-101	ISERD-0BSW-10	MW-10	ISERD-0BSW-10
Sample Date:	10/29/2021	10/29/2021	10/29/2021	10/29/2021
Units:	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	BB/CS	BB/CS	BB/CS	BB/CS

Dechlorinating Bacteria

		MW-101	ISERD-0BSW-10	MW-10	ISERD-0BSW-10
<i>Dehalococcoides</i>	DHC	1.00E+00	1.05E+02	6.26E+03	<1.90E+00
tceA Reductase	TCE	<5.00E-01	<3.13E+01	<1.00E+03	<1.90E+00
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<3.13E+01	<1.00E+03	<1.90E+00
Vinyl Chloride Reductase	VCR	<5.00E-01	1.37E+01 (J)	<1.00E+03	<1.90E+00
<i>Dehalobacter spp.</i>	DHBt	5.21E+02	1.13E+04	2.85E+04	2.07E+04

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
 < = Result not detected

Quality Assurance/Quality Control Data

Samples Received 10/30/2021

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHBt	10/30/2021	11/05/2021	0 °C	116%	non-detect	non-detect
BVC	10/30/2021	11/05/2021	0 °C	109%	non-detect	non-detect
TCE	10/30/2021	11/05/2021	0 °C	111%	non-detect	non-detect
VCR	10/30/2021	11/05/2021	0 °C	100%	non-detect	non-detect
DHC	10/30/2021	11/05/2021	0 °C	106%	non-detect	non-detect



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Client: Scott Ross
AECOM
101 Research Dr
Columbia, SC 29203

Phone: 803-201-9662

Fax:

Identifier: 036TC

Date Rec: 03/09/2022

Report Date: 03/15/2022

Client Project #: 60635197

Client Project Name: Shakespeare Composite Structures

Purchase Order #: 137415

Test results provided for: CENSUS

Reviewed By:

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Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: AECOM
Project: Shakespeare Composite Structures

MI Project Number: 036TC
Date Received: 03/09/2022

Sample Information

Client Sample ID:	ERD-0BSW-1I	MW-10I	ERD-OBSW-1	MW-10
Sample Date:	03/08/2022	03/08/2022	03/08/2022	03/08/2022
Units:	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	BB/CS	BB/CS	BB/CS	BB/CS

Dechlorinating Bacteria

<i>Dehalococcoides</i>	DHC	1.00E-01 (J)	<1.30E+00	<8.00E-01	<2.50E+01
tceA Reductase	TCE	<5.00E-01	<1.30E+00	<8.00E-01	<2.50E+01
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	<1.30E+00	<8.00E-01	<2.50E+01
Vinyl Chloride Reductase	VCR	<5.00E-01	<1.30E+00	<8.00E-01	<2.50E+01
<i>Dehalobacter spp.</i>	DHBT	5.92E+03	3.91E+02	4.66E+03	<2.50E+02

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
 < = Result not detected

Quality Assurance/Quality Control Data

Samples Received 3/9/2022

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/09/2022	03/15/2022	0 °C	94%	non-detect	non-detect
DHBT	03/09/2022	03/15/2022	0 °C	108%	non-detect	non-detect
BVC	03/09/2022	03/15/2022	0 °C	105%	non-detect	non-detect
TCE	03/09/2022	03/15/2022	0 °C	101%	non-detect	non-detect
VCR	03/09/2022	03/15/2022	0 °C	106%	non-detect	non-detect

SITE LOGIC Report

QuantArray[®]-Chlor Study

Contact: Scott Ross

Phone: 803-201-9662

Address: AECOM
101 Research Dr
Columbia, SC 29203

Email: scott.ross@aecom.com

MI Identifier: 090TB

Report Date: 03/17/2022

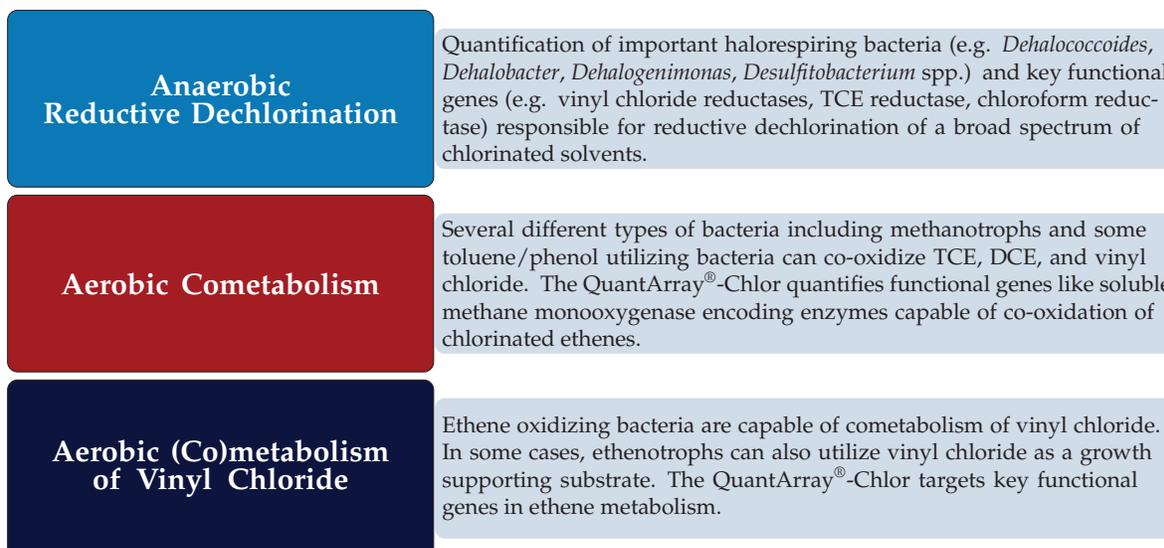
Project: Shakespeare Composite Structures, 60675505.3
Comments:

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The QuantArray[®]-Chlor Approach

Quantification of *Dehalococcoides*, the only known bacterial group capable of complete reductive dechlorination of PCE and TCE to ethene, has become an indispensable component of assessment, remedy selection, and performance monitoring at sites impacted by chlorinated solvents. While undeniably a key group of halo-respiring bacteria, *Dehalococcoides* are not the only bacteria of interest in the subsurface because reductive dechlorination is not the only potential biodegradation pathway operative at contaminated sites, and chlorinated ethenes are not always the primary contaminants of concern. The QuantArray[®]-Chlor not only includes a variety of halo-respiring bacteria (*Dehalococcoides*, *Dehalobacter*, *Dehalogenimonas*, etc.) to assess the potential for reductive dechlorination of chloroethenes, chloroethanes, chlorobenzenes, chlorophenols, and chloroform, but also provides quantification of functional genes involved in aerobic (co)metabolic pathways for biodegradation of chlorinated solvents and even competing biological processes. Thus, the QuantArray[®]-Chlor will give site managers the ability to simultaneously yet economically evaluate the potential for biodegradation of a spectrum of common chlorinated contaminants through a multitude of anaerobic and aerobic (co) metabolic pathways to give a much more clear and comprehensive view of contaminant biodegradation.

The QuantArray[®]-Chlor is used to quantify specific microorganisms and functional genes to evaluate the following:



How do QuantArrays[®] work?

The QuantArray[®]-Chlor in many respects is a hybrid technology combining the highly parallel detection of microarrays with the accurate and precise quantification provided by qPCR into a single platform. The key to highly parallel qPCR reactions is the nanoliter fluidics platform for low volume, solution phase qPCR reactions.

How are QuantArray® results reported?

One of the primary advantages of the QuantArray®-Chlor is the simultaneous quantification of a broad spectrum of different microorganisms and key functional genes involved in a variety of pathways for chlorinated hydrocarbon biodegradation. However, highly parallel quantification combined with the various metabolic and cometabolic capabilities of different target organisms can complicate data presentation. Therefore, in addition to Summary Tables, QuantArray® results will be presented as Microbial Population Summary and Comparison Figures to aid in data interpretation and subsequent evaluation of site management activities.

Types of Tables and Figures:

Microbial Population Summary	Figure presenting the concentrations of QuantArray®-Chlor target populations (e.g. <i>Dehalococcoides</i>) and functional genes (e.g. vinyl chloride reductase) relative to typically observed values.
Summary Tables	Tables of target population concentrations grouped by biodegradation pathway and contaminant type.
Comparison Figures	Depending on the project, sample results can be presented to compare changes over time or examine differences in microbial populations along a transect of the dissolved plume.

Results

Table 1: Summary of the QuantArray®-Chlor results obtained for samples MW-6i, MW-5, MW-6, MW-9, and MW-22.

Sample Name	MW-6i	MW-5	MW-6	MW-9	MW-22
Sample Date	02/24/2022	02/24/2022	02/24/2022	02/24/2022	02/24/2022
<i>Reductive Dechlorination</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	2.00E-01	5.00E-01	6.50E+00	<2.40E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	5.25E+03	<4.90E+00	2.00E+02	<2.38E+01	1.10E+02
<i>Dehalobacter</i> DCM (DCM)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
cerA Reductase (CER)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
trans-1,2-DCE Reductase (TDR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Desulfitobacterium</i> spp. (DSB)	6.41E+03	1.38E+01	4.47E+03	<2.38E+01	5.46E+02
<i>Dehalobium chlorocoercia</i> (DECO)	8.33E+02	3.84E+02	2.47E+03	<2.38E+01	3.88E+01
<i>Desulfuromonas</i> spp. (DSM)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
PCE Reductase (PCE-1)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
PCE Reductase (PCE-2)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
Chloroform Reductase (CFR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Aerobic (Co)Metabolic</i>					
Soluble Methane Monooxygenase (SMMO)	<4.80E+00	<4.90E+00	1.39E+02	<2.38E+01	1.24E+02
Toluene Dioxygenase (TOD)	2.24E+01	6.00E+00	2.22E+01	<2.38E+01	<4.90E+00
Phenol Hydroxylase (PHE)	1.50E+02	<4.90E+00	4.55E+01	<2.38E+01	7.74E+01
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
Toluene Monooxygenase 2 (RDEG)	2.38E+02	<4.90E+00	2.08E+02	<2.38E+01	4.14E+02
Toluene Monooxygenase (RMO)	5.40E+00	<4.90E+00	3.22E+03	<2.38E+01	<4.90E+00
Ethene Monooxygenase (EtnC)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	2.73E+02
Epoxyalkane Transferase (EtnE)	4.36E+02	<4.90E+00	<4.80E+00	<2.38E+01	1.35E+02
Dichloromethane Dehalogenase (DCMA)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Other</i>					
Total Eubacteria (EBAC)	6.07E+04	5.67E+03	8.89E+04	3.80E+01 (I)	1.94E+04
Sulfate Reducing Bacteria (APS)	1.79E+03	4.74E+02	3.89E+04	<2.38E+01	2.25E+03
Methanogens (MGN)	8.73E+01	2.60E+00 (J)	1.41E+03	<2.38E+01	5.00E-01 (J)

Legend:

NA = Not Analyzed
I = Inhibited

NS = Not Sampled
< = Result Not Detected

J = Estimated Gene Copies Below PQL but Above LQL

Table 2: Summary of the QuantArray®-Chlor results obtained for samples TMW-24, TMW-21, TMW-22, MW-7i, and MW-7.

Sample Name	TMW-24	TMW-21	TMW-22	MW-7i	MW-7
Sample Date	02/28/2022	02/28/2022	02/28/2022	03/03/2022	03/03/2022
<i>Reductive Dechlorination</i>					
	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	<5.00E-01	<5.00E-01	7.00E-01	3.70E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	1.00E-01 (J)	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	<4.90E+00	9.64E+03	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalobacter</i> DCM (DCM)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
cerA Reductase (CER)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
trans-1,2-DCE Reductase (TDR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Desulfotobacterium</i> spp. (DSB)	<4.90E+00	1.14E+04	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalobium chlorocoercia</i> (DECO)	<4.90E+00	2.46E+02	<4.90E+00	<4.50E+00	<4.80E+00
<i>Desulfuromonas</i> spp. (DSM)	5.20E+00	1.41E+02	<4.90E+00	<4.50E+00	<4.80E+00
PCE Reductase (PCE-1)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
PCE Reductase (PCE-2)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Chloroform Reductase (CFR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
1,1 DCA Reductase (DCA)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
1,2 DCA Reductase (DCAR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Aerobic (Co)Metabolic</i>					
Soluble Methane Monooxygenase (SMMO)	<4.90E+00	3.31E+02	<4.90E+00	<4.50E+00	<4.80E+00
Toluene Dioxygenase (TOD)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	3.00E-01 (J)
Phenol Hydroxylase (PHE)	<4.90E+00	2.76E+03	1.29E+02	<4.50E+00	2.70E+00 (J)
Trichlorobenzene Dioxygenase (TCBO)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Toluene Monooxygenase 2 (RDEG)	<4.90E+00	2.53E+02	1.60E+00 (J)	<4.50E+00	<4.80E+00
Toluene Monooxygenase (RMO)	<4.90E+00	<5.20E+00	<4.90E+00	1.79E+02	<4.80E+00
Ethene Monooxygenase (EtnC)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Epoxyalkane Transferase (EtnE)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Dichloromethane Dehalogenase (DCMA)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Other</i>					
Total Eubacteria (EBAC)	5.39E+03	2.40E+06	6.99E+04	2.46E+04	5.85E+03
Sulfate Reducing Bacteria (APS)	<4.90E+00	7.69E+03	3.18E+03	4.89E+02	9.80E+00
Methanogens (MGN)	<4.90E+00	<5.20E+00	<4.90E+00	8.00E-01 (J)	1.40E+00 (J)

Legend:

NA = Not Analyzed

I = Inhibited

NS = Not Sampled

< = Result Not Detected

J = Estimated Gene Copies Below PQL but Above LQL

Table 3: Summary of the QuantArray®-Chlor results obtained for samples MW-5i, MW-8, MW-9, MW-20i, and MW-6D.

Sample Name	MW-5i	MW-8	MW-9	MW-20i	MW-6D
Sample Date	03/03/2022	03/04/2022	03/04/2022	03/04/2022	03/04/2022
<i>Reductive Dechlorination</i>					
	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	<5.00E-01	<5.00E-01	<5.00E-01	2.10E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	1.00E-01 (J)	<5.00E-01
Vinyl Chloride Reductase (VCR)	2.00E-01 (J)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	1.11E+03	<5.00E+00	<4.70E+00	6.01E+01	<4.60E+00
<i>Dehalobacter</i> DCM (DCM)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
cerA Reductase (CER)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
trans-1,2-DCE Reductase (TDR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
<i>Desulfotobacterium</i> spp. (DSB)	<4.80E+00	<5.00E+00	1.33E+01	1.19E+04	4.58E+01
<i>Dehalobium chlorocoercia</i> (DECO)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	2.58E+02
<i>Desulfuromonas</i> spp. (DSM)	<4.80E+00	<5.00E+00	<4.70E+00	5.00E+00	8.04E+01
PCE Reductase (PCE-1)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
PCE Reductase (PCE-2)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Chloroform Reductase (CFR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	1.02E+01
<i>Aerobic (Co)Metabolic</i>					
Soluble Methane Monooxygenase (SMMO)	1.61E+01	<5.00E+00	<4.70E+00	1.32E+02	<4.60E+00
Toluene Dioxygenase (TOD)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Phenol Hydroxylase (PHE)	1.38E+02	<5.00E+00	5.28E+02	3.15E+03	2.35E+03
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Toluene Monooxygenase 2 (RDEG)	2.38E+02	<5.00E+00	3.99E+01	2.45E+03	5.70E+02
Toluene Monooxygenase (RMO)	9.00E+00	<5.00E+00	4.43E+03	6.00E+00	5.70E+00
Ethene Monooxygenase (EtnC)	1.61E+03	<5.00E+00	<4.70E+00	2.34E+03	4.57E+01
Epoxyalkane Transferase (EtnE)	6.79E+03	<5.00E+00	<4.70E+00	5.06E+03	1.69E+02
Dichloromethane Dehalogenase (DCMA)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
<i>Other</i>					
Total Eubacteria (EBAC)	1.03E+05	5.73E+02 (I)	3.26E+05	4.78E+05	3.98E+05
Sulfate Reducing Bacteria (APS)	1.20E+03	<5.00E+00	<4.70E+00	1.85E+03	<4.60E+00
Methanogens (MGN)	1.00E+00 (J)	<5.00E+00	1.50E+00 (J)	4.00E-01 (J)	6.00E-01 (J)

Legend:

NA = Not Analyzed
I = Inhibited

NS = Not Sampled
< = Result Not Detected

J = Estimated Gene Copies Below PQL but Above LQL

Microbial Populations MW-6i

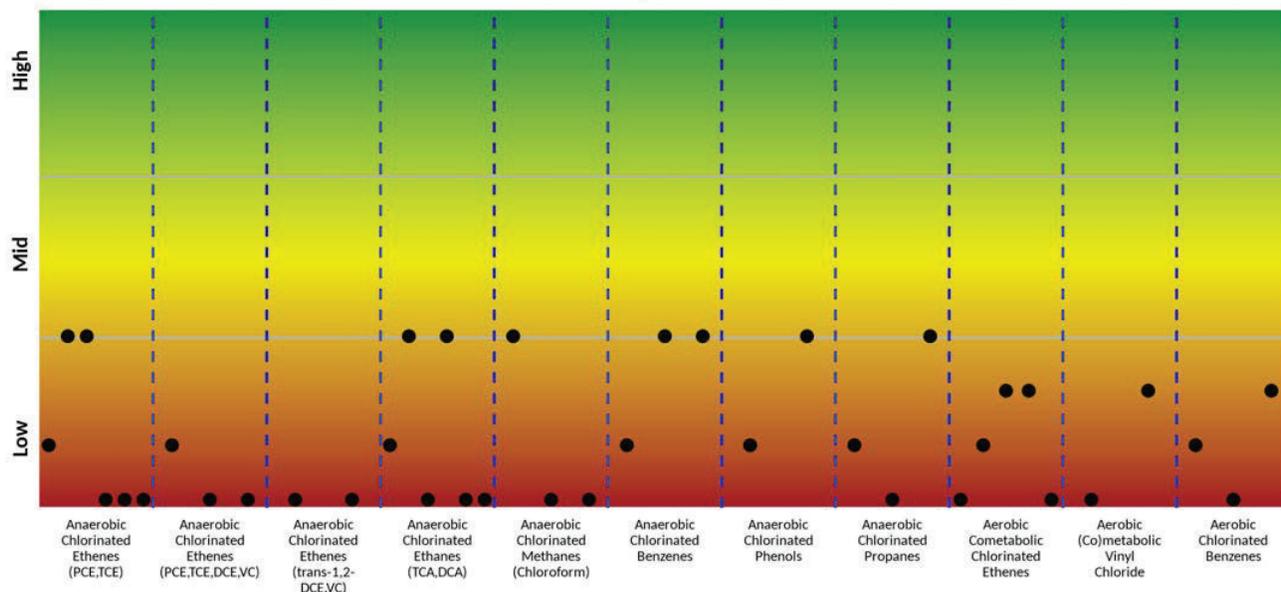


Figure 1: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-5

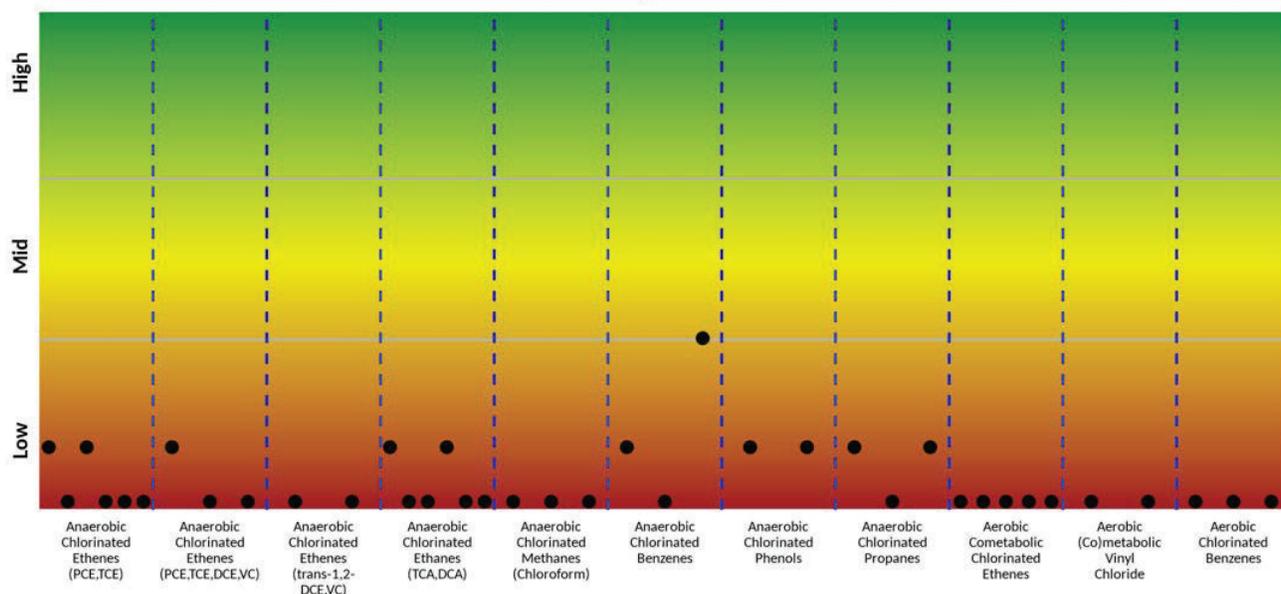


Figure 2: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-6

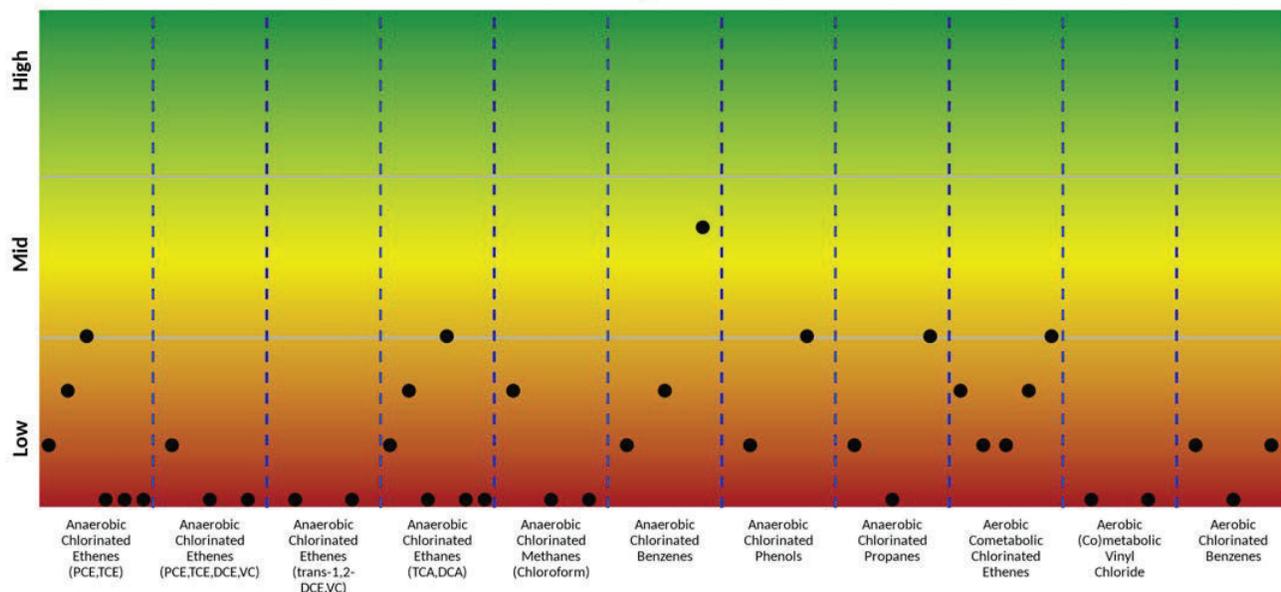


Figure 3: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-9

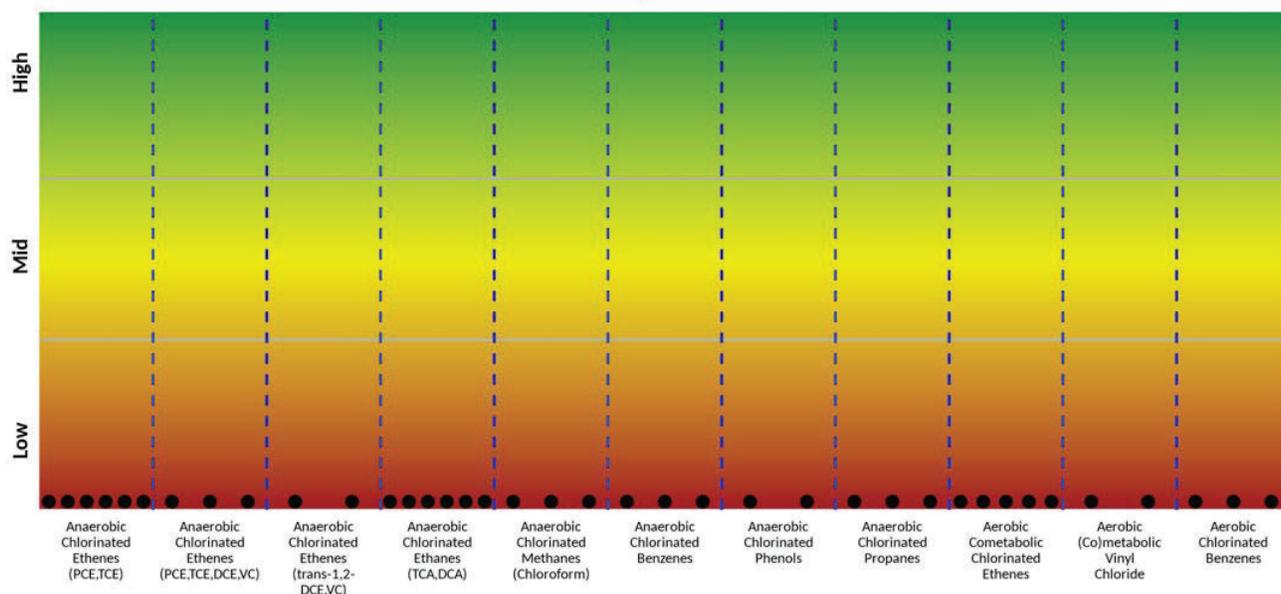


Figure 4: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹*Desulfotobacterium dichloroelimians* DCA1. ²Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-22

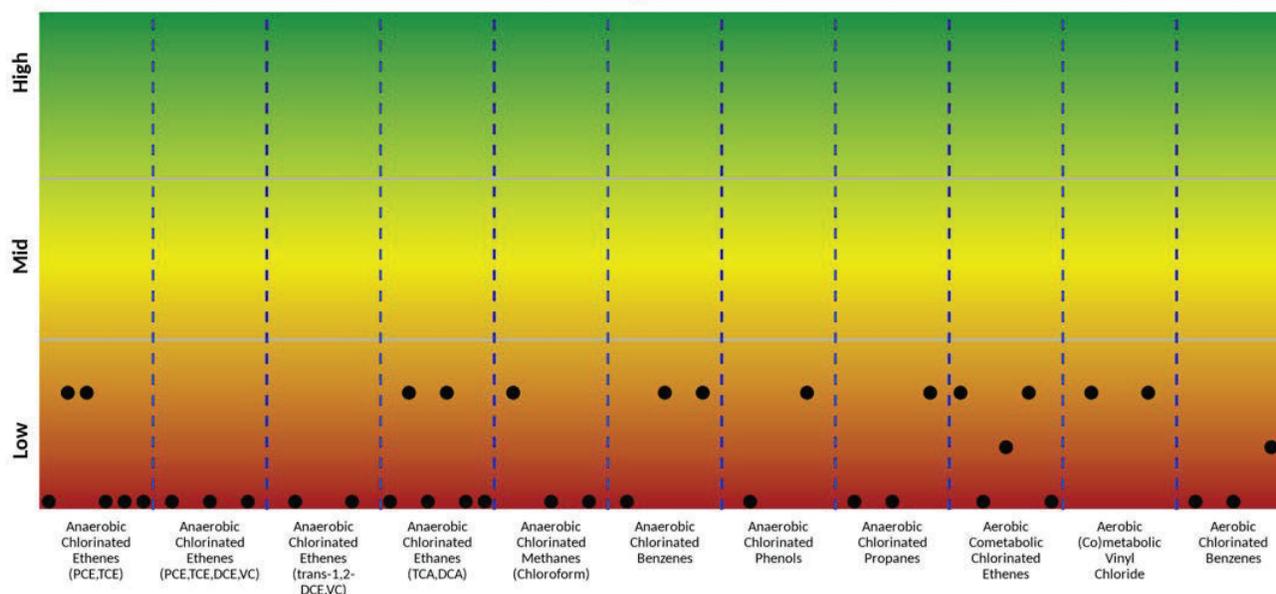


Figure 5: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC)	sMMO, TOD, PHE, RDEG, RMO
(Co)metabolic Vinyl Chloride	etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations TMW-24

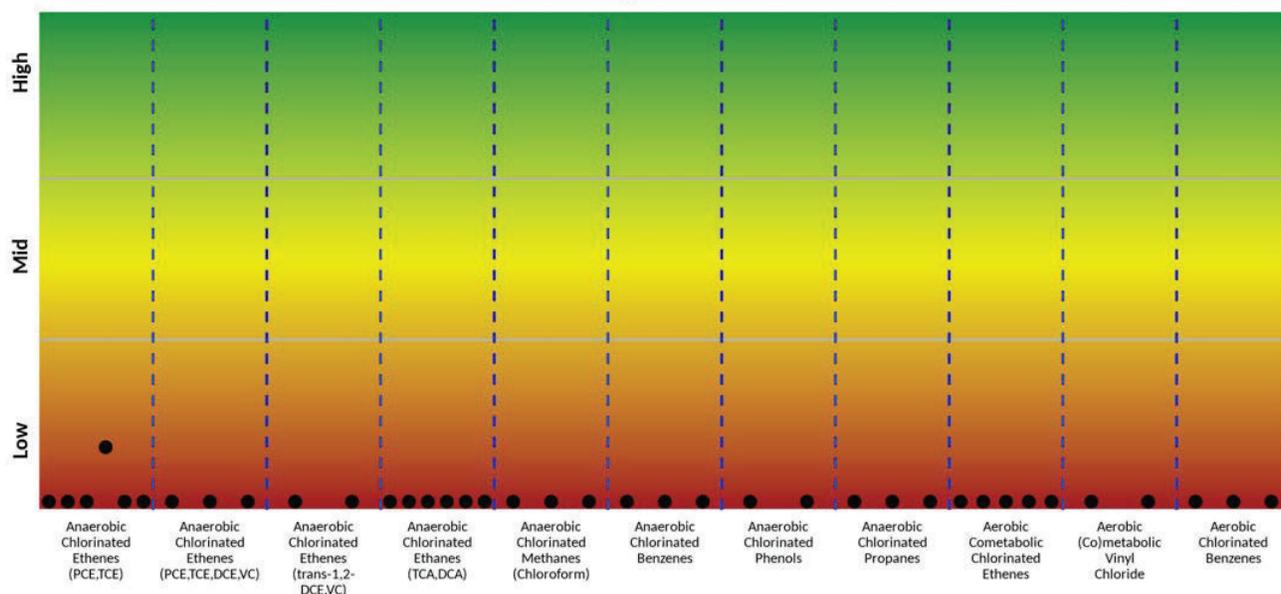


Figure 6: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations TMW-21

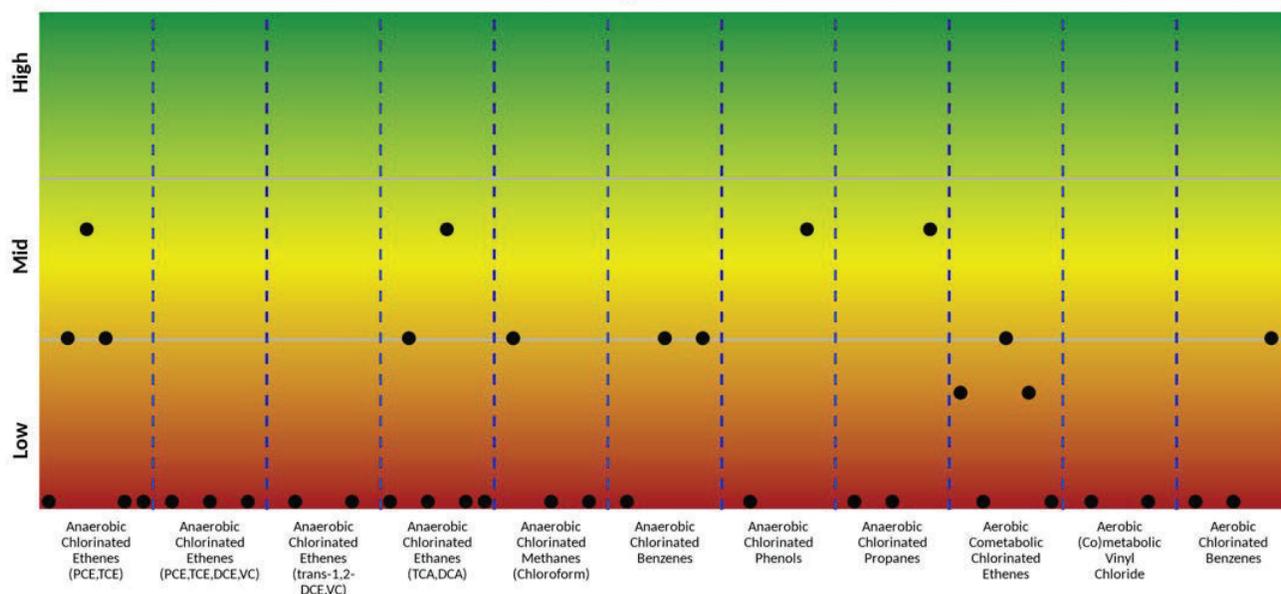


Figure 7: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC)	sMMO, TOD, PHE, RDEG, RMO
(Co)metabolic Vinyl Chloride	etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfitobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations TMW-22

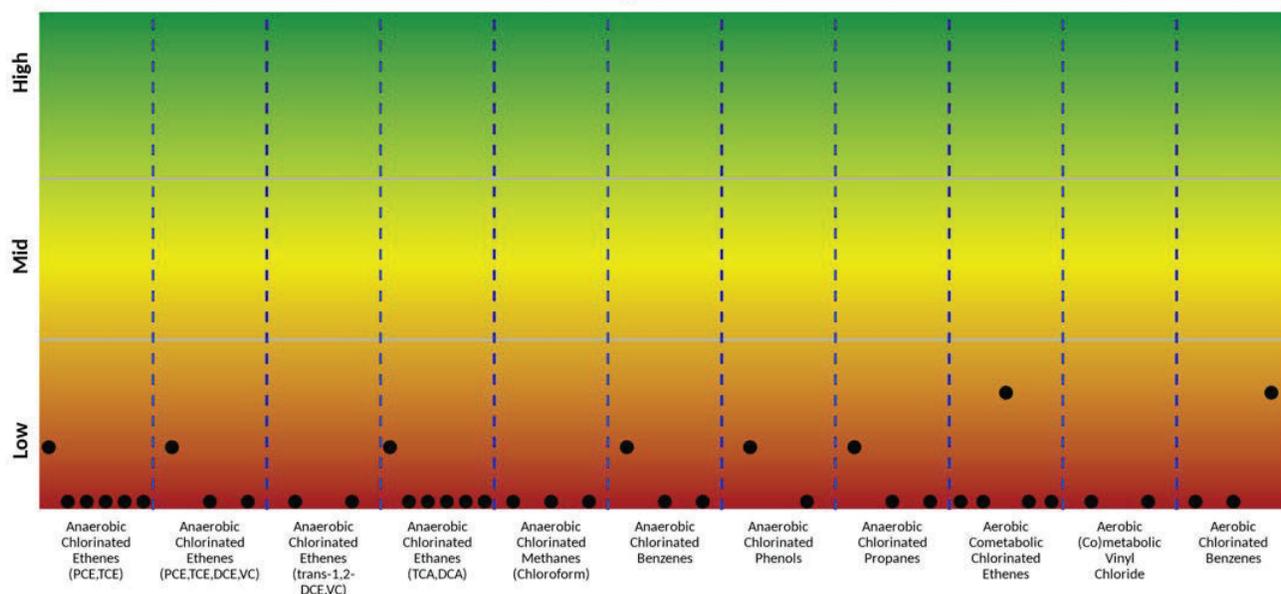


Figure 8: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE, DCE, VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-7i

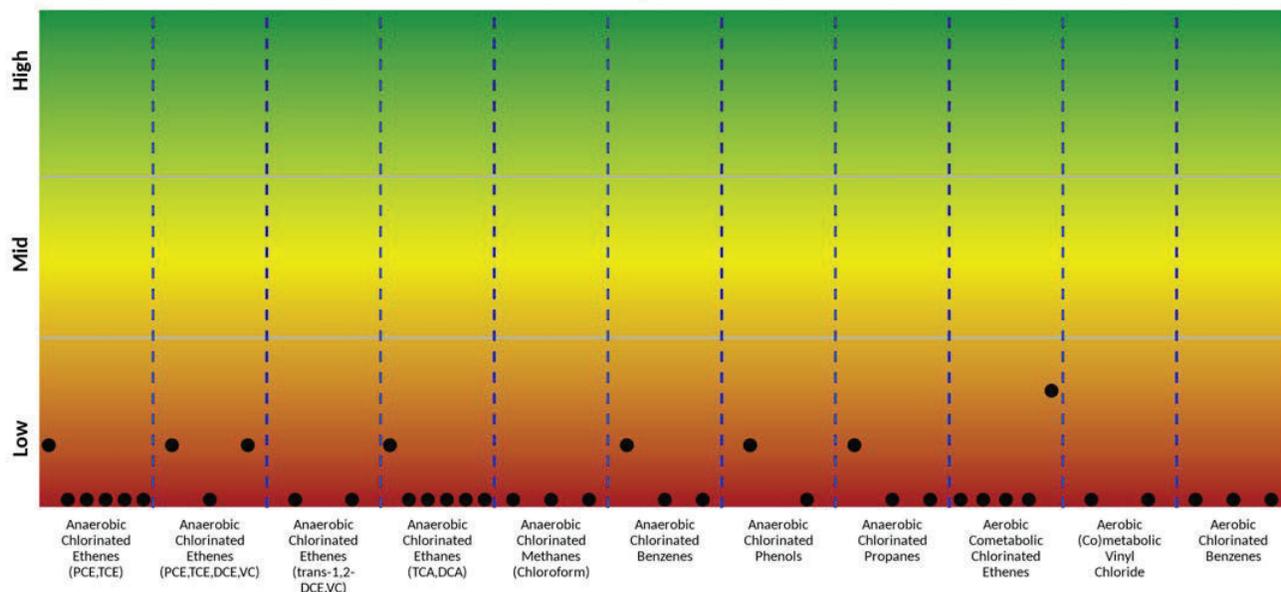


Figure 9: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroelimians* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-7

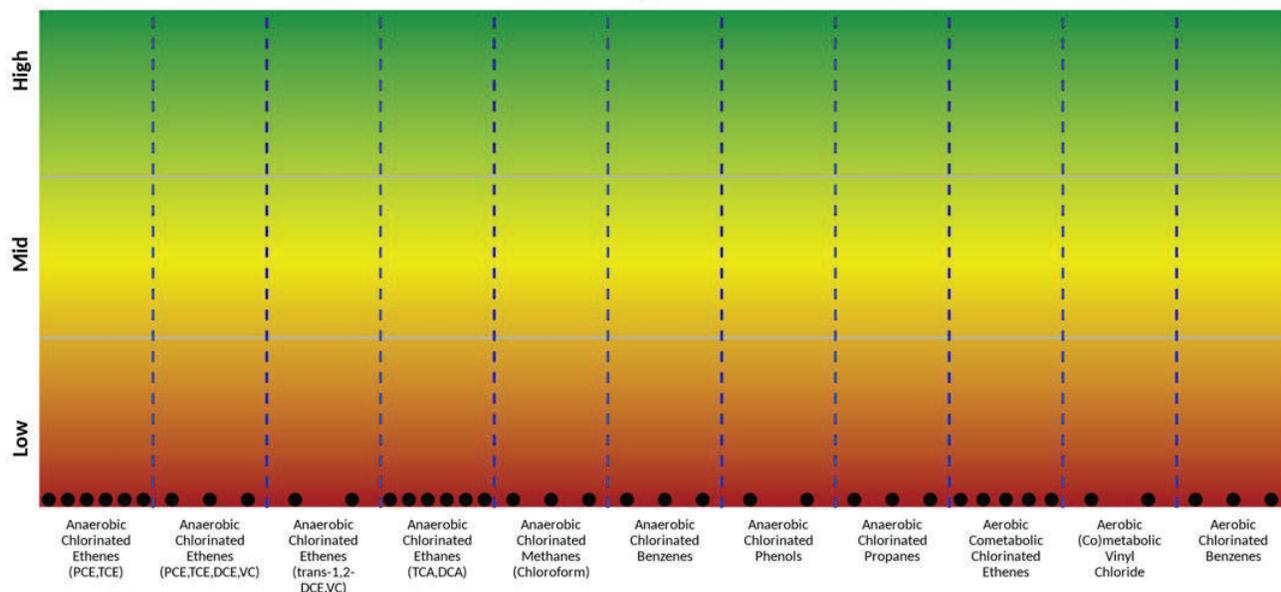


Figure 10: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroelimians* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-5i

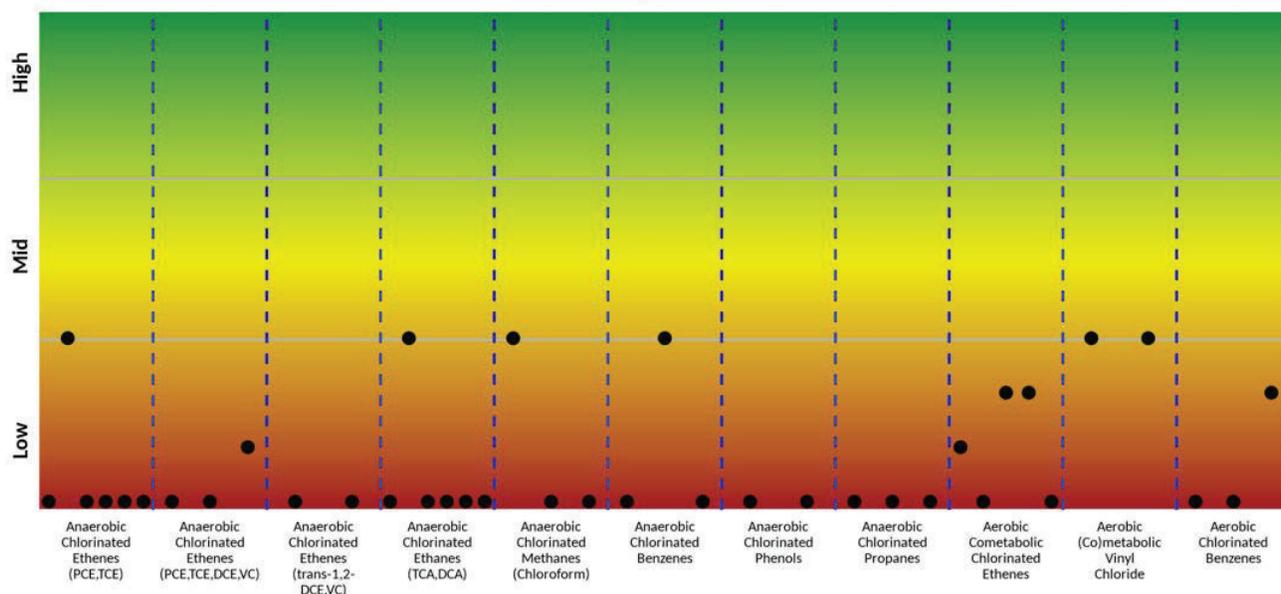


Figure 11: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-8

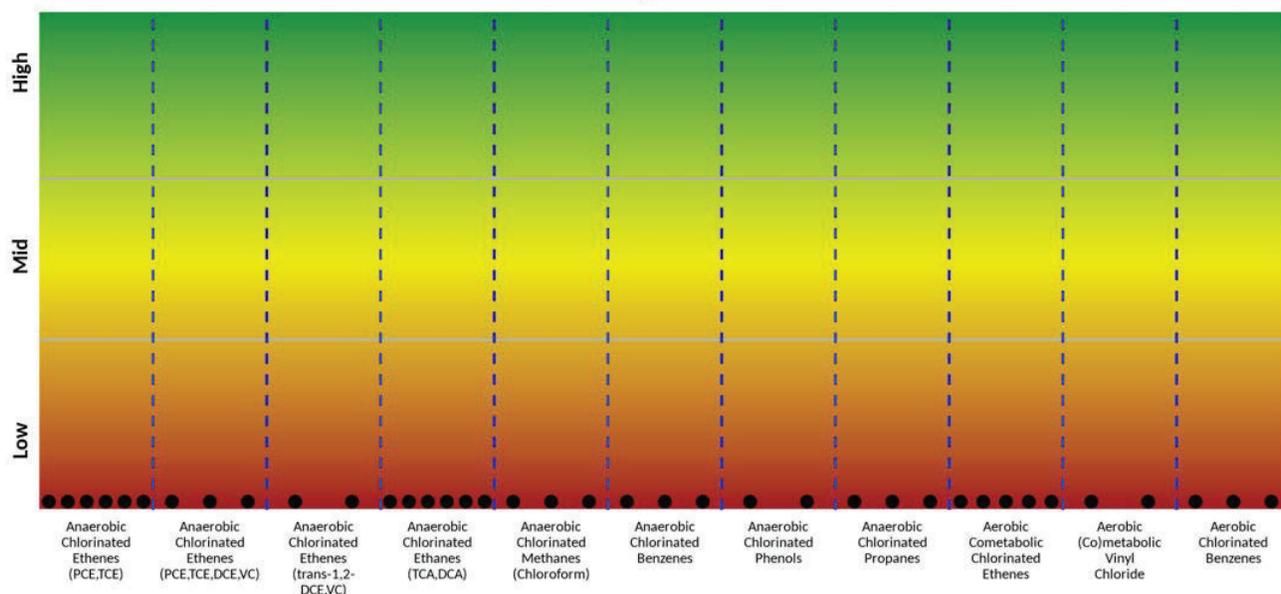


Figure 12: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-9

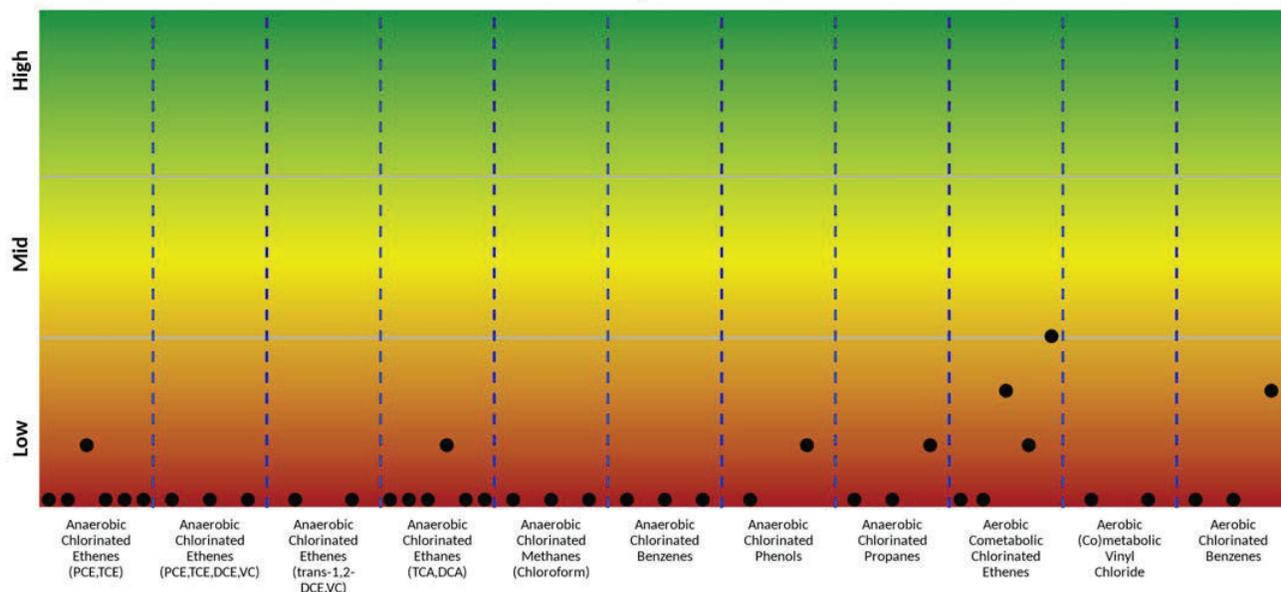


Figure 13: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-20i

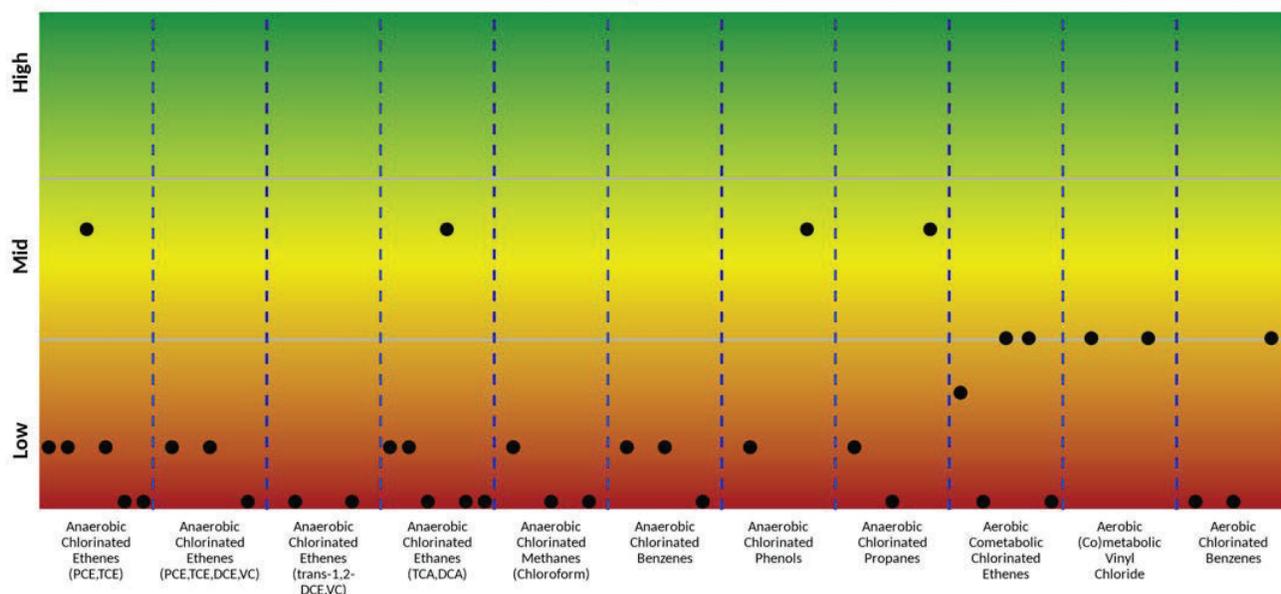


Figure 14: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC)	sMMO, TOD, PHE, RDEG, RMO
(Co)metabolic Vinyl Chloride	etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Microbial Populations MW-6D

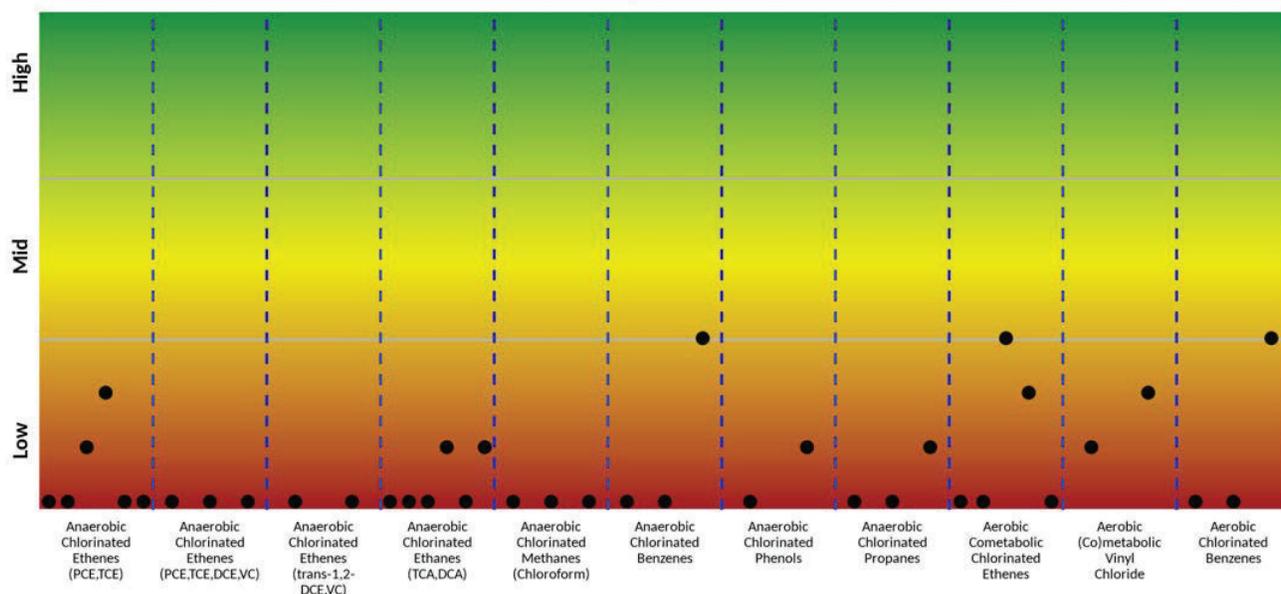


Figure 15: Microbial population summary to aid in evaluating potential pathways and biodegradation of specific contaminants.

Anaerobic - Reductive Dechlorination or Dichloroelimination

Chlorinated Ethenes (PCE, TCE)	DHC, DHBt, DSB, DSM, PCE-1, PCE-2
Chlorinated Ethenes (PCE, TCE, DCE, VC)	DHC, BVC, VCR
Chlorinated Ethenes (trans-1,2-DCE, VC)	TDR, CER
Chlorinated Ethanes (TCA and 1,2-DCA)	DHC, DHBt, DHG, DSB ¹ , DCA, DCAR
Chlorinated Methanes (Chloroform)	DHBt, DCM, CFR
Chlorinated Benzenes	DHC, DHBt ² , DECO
Chlorinated Phenols	DHC, DSB
Chlorinated Propanes	DHC, DHG, DSB ¹

Aerobic - (Co)metabolism

Chlorinated Ethenes (TCE,DCE,VC) (Co)metabolic Vinyl Chloride	sMMO, TOD, PHE, RDEG, RMO etnC, etnE
Chlorinated Benzenes	TOD, TCBO, PHE

¹ *Desulfotobacterium dichloroeliminans* DCA1. ² Implicated in reductive dechlorination of dichlorobenzene and potentially chlorobenzene.

Table 4: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples MW-6i, MW-5, MW-6, MW-9, and MW-22.

Sample Name	MW-6i	MW-5	MW-6	MW-9	MW-22
Sample Date	02/24/2022	02/24/2022	02/24/2022	02/24/2022	02/24/2022
<i>Reductive Dechlorination</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	2.00E-01	5.00E-01	6.50E+00	<2.40E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	<2.40E+00	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	5.25E+03	<4.90E+00	2.00E+02	<2.38E+01	1.10E+02
<i>Dehalobacter</i> DCM (DCM)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Desulfitobacterium</i> spp. (DSB)	6.41E+03	1.38E+01	4.47E+03	<2.38E+01	5.46E+02
<i>Dehalobium chlorocoercia</i> (DECO)	8.33E+02	3.84E+02	2.47E+03	<2.38E+01	3.88E+01
<i>Desulfuromonas</i> spp. (DSM)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00

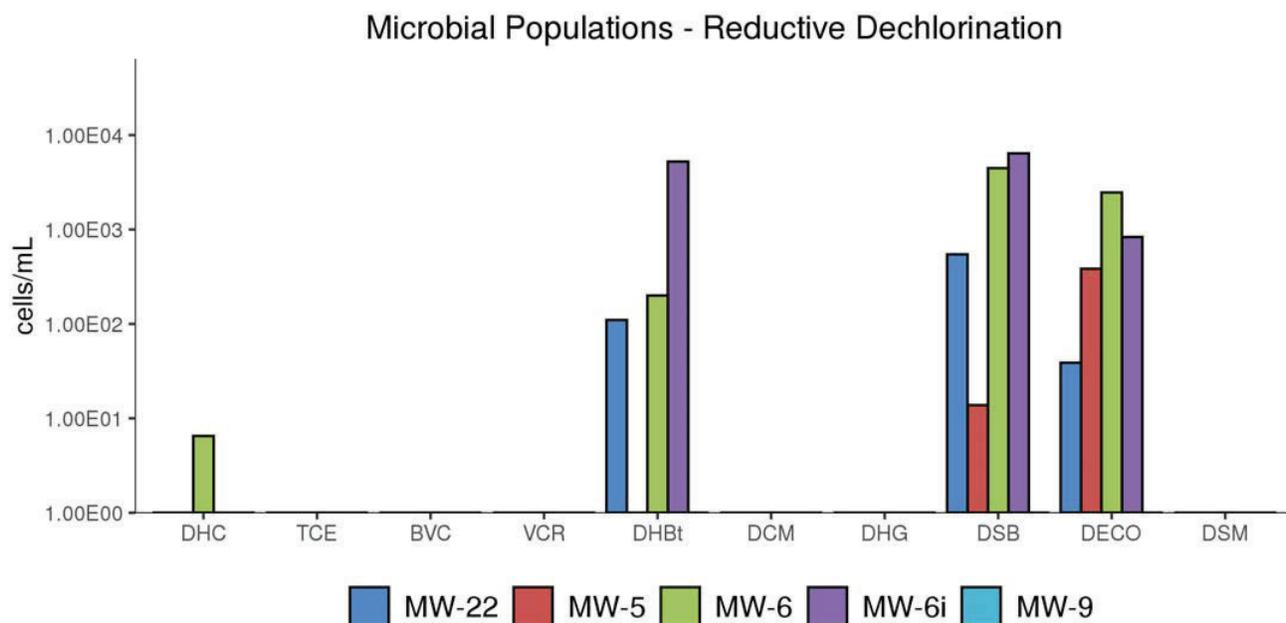


Figure 16: Comparison - microbial populations involved in reductive dechlorination.

Table 5: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples MW-6i, MW-5, MW-6, MW-9, and MW-22.

Sample Name	MW-6i	MW-5	MW-6	MW-9	MW-22
Sample Date	02/24/2022	02/24/2022	02/24/2022	02/24/2022	02/24/2022
<i>Reductive Dechlorination</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Chloroform Reductase (CFR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
PCE Reductase (PCE-1)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
PCE Reductase (PCE-2)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Dehalogenimonas trans-1,2-DCE</i> Reductase (TDR)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
<i>Dehalogenimonas cerA</i> Reductase (CER)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00

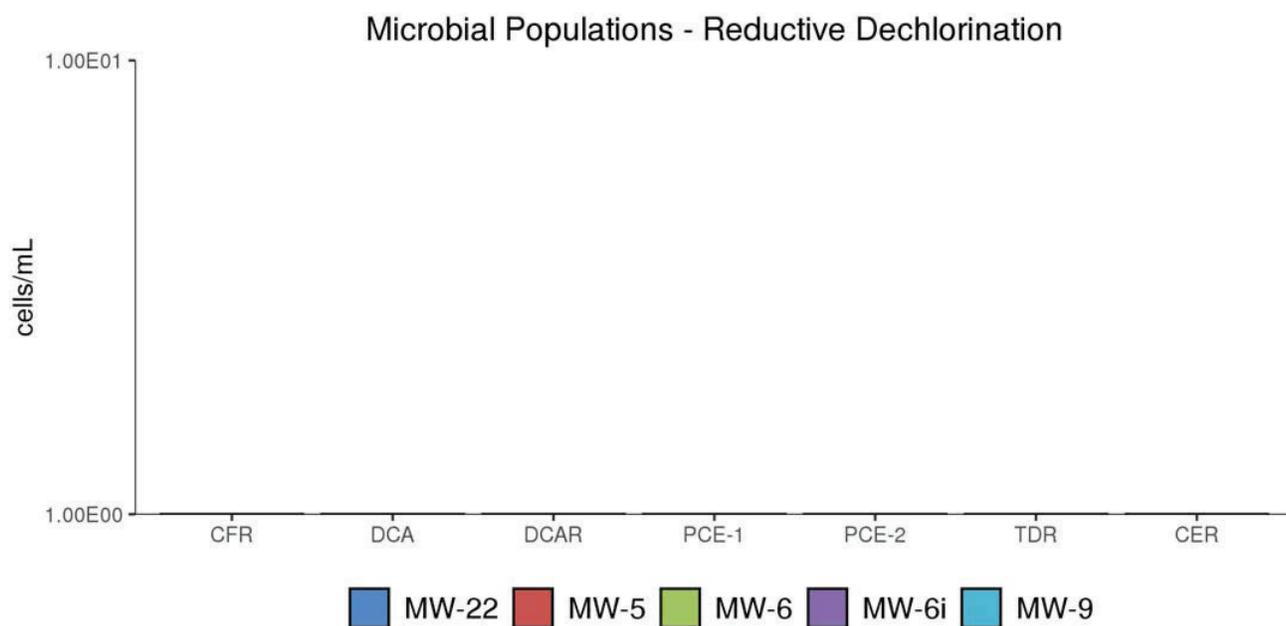


Figure 17: Comparison - microbial populations involved in reductive dechlorination.

Table 6: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples TMW-24, TMW-21, TMW-22, MW-7i, and MW-7.

Sample Name	TMW-24	TMW-21	TMW-22	MW-7i	MW-7
Sample Date	02/28/2022	02/28/2022	02/28/2022	03/03/2022	03/03/2022
Reductive Dechlorination	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	<5.00E-01	<5.00E-01	7.00E-01	3.70E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
Vinyl Chloride Reductase (VCR)	<5.00E-01	<5.00E-01	<5.00E-01	1.00E-01 (J)	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	<4.90E+00	9.64E+03	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalobacter</i> DCM (DCM)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Desulfitobacterium</i> spp. (DSB)	<4.90E+00	1.14E+04	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalobium chlorocoercia</i> (DECO)	<4.90E+00	2.46E+02	<4.90E+00	<4.50E+00	<4.80E+00
<i>Desulfuromonas</i> spp. (DSM)	5.20E+00	1.41E+02	<4.90E+00	<4.50E+00	<4.80E+00

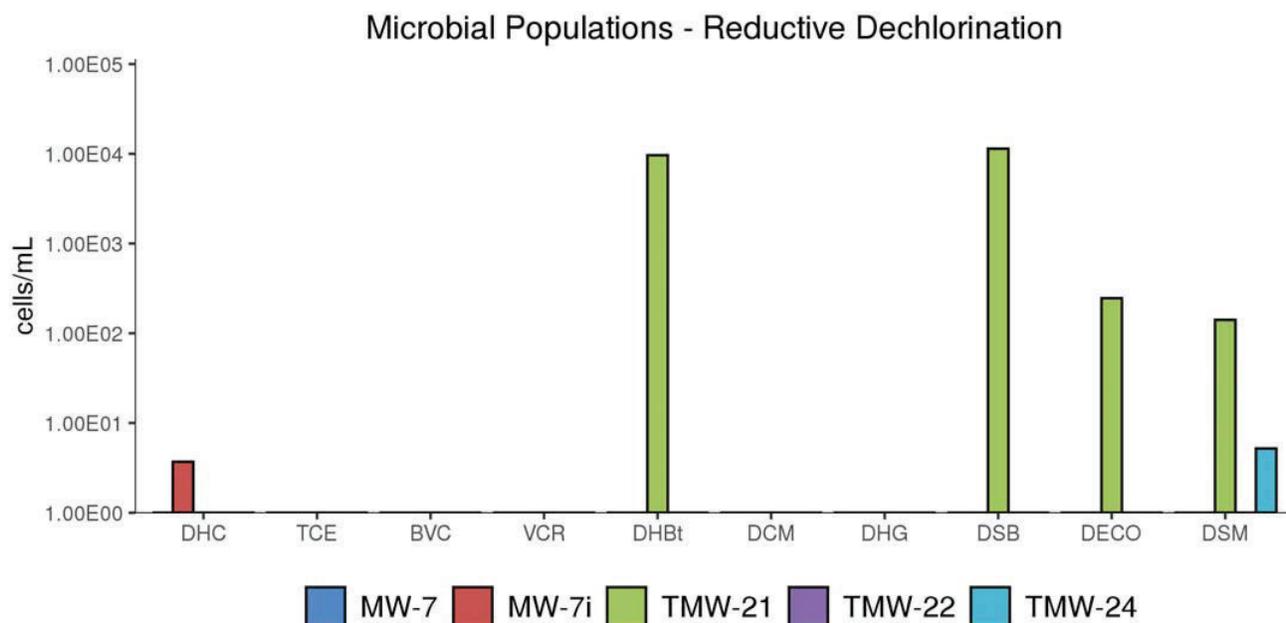


Figure 18: Comparison - microbial populations involved in reductive dechlorination.

Table 7: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples TMW-24, TMW-21, TMW-22, MW-7i, and MW-7.

Sample Name	TMW-24	TMW-21	TMW-22	MW-7i	MW-7
Sample Date	02/28/2022	02/28/2022	02/28/2022	03/03/2022	03/03/2022
<i>Reductive Dechlorination</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Chloroform Reductase (CFR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
1,1 DCA Reductase (DCA)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
1,2 DCA Reductase (DCAR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
PCE Reductase (PCE-1)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
PCE Reductase (PCE-2)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalogenimonas trans-1,2-DCE</i> Reductase (TDR)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
<i>Dehalogenimonas cerA</i> Reductase (CER)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00

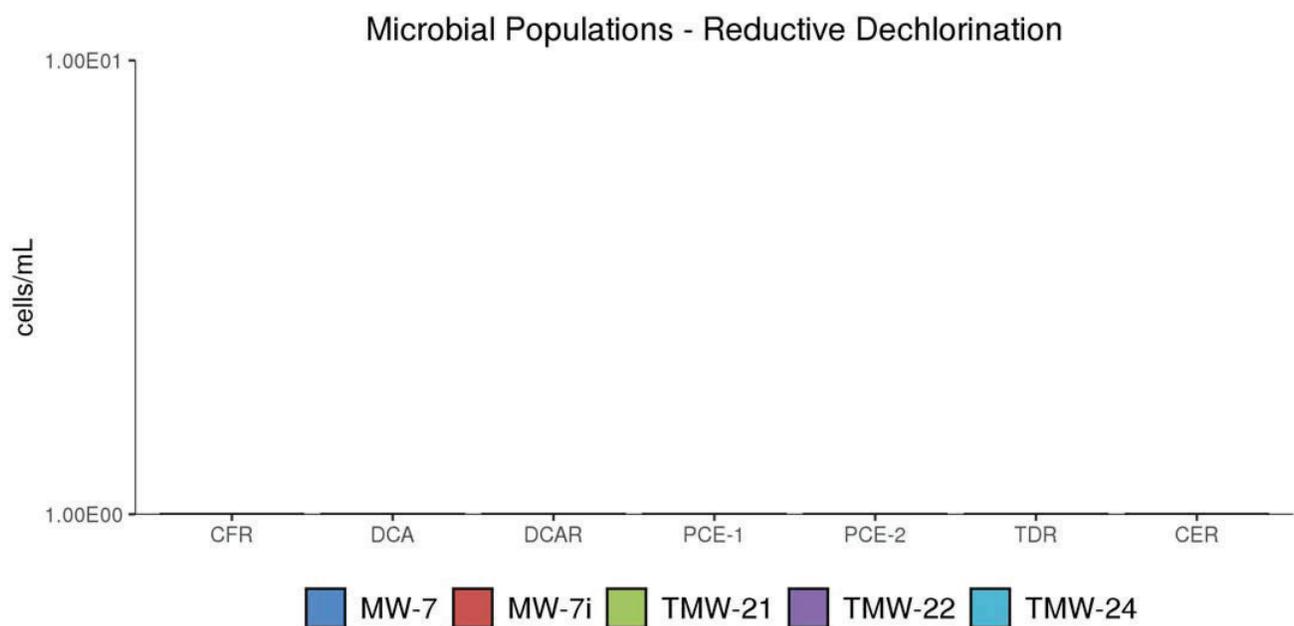


Figure 19: Comparison - microbial populations involved in reductive dechlorination.

Table 8: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples MW-5i, MW-8, MW-9, MW-20i, and MW-6D.

Sample Name	MW-5i	MW-8	MW-9	MW-20i	MW-6D
Sample Date	03/03/2022	03/04/2022	03/04/2022	03/04/2022	03/04/2022
Reductive Dechlorination	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
<i>Dehalococcoides</i> (DHC)	<5.00E-01	<5.00E-01	<5.00E-01	2.10E+00	<5.00E-01
tceA Reductase (TCE)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
BAV1 Vinyl Chloride Reductase (BVC)	<5.00E-01	<5.00E-01	<5.00E-01	1.00E-01 (J)	<5.00E-01
Vinyl Chloride Reductase (VCR)	2.00E-01 (J)	<5.00E-01	<5.00E-01	<5.00E-01	<5.00E-01
<i>Dehalobacter</i> spp. (DHBt)	1.11E+03	<5.00E+00	<4.70E+00	6.01E+01	<4.60E+00
<i>Dehalobacter</i> DCM (DCM)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
<i>Dehalogenimonas</i> spp. (DHG)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
<i>Desulfobacterium</i> spp. (DSB)	<4.80E+00	<5.00E+00	1.33E+01	1.19E+04	4.58E+01
<i>Dehalobium chlorocoercia</i> (DECO)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	2.58E+02
<i>Desulfuromonas</i> spp. (DSM)	<4.80E+00	<5.00E+00	<4.70E+00	5.00E+00	8.04E+01

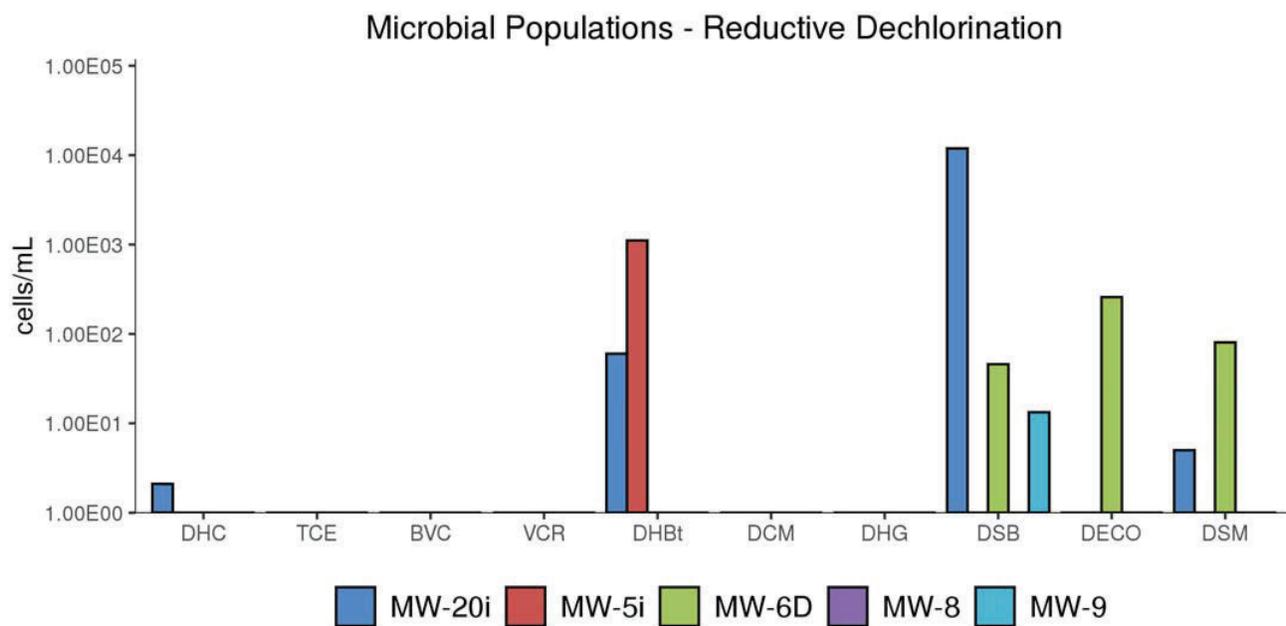


Figure 20: Comparison - microbial populations involved in reductive dechlorination.

Table 9: Summary of the QuantArray®-Chlor results for microorganisms responsible for reductive dechlorination for samples MW-5i, MW-8, MW-9, MW-20i, and MW-6D.

Sample Name	MW-5i	MW-8	MW-9	MW-20i	MW-6D
Sample Date	03/03/2022	03/04/2022	03/04/2022	03/04/2022	03/04/2022
Reductive Dechlorination	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Chloroform Reductase (CFR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
1,1 DCA Reductase (DCA)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
1,2 DCA Reductase (DCAR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	1.02E+01
PCE Reductase (PCE-1)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
PCE Reductase (PCE-2)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Dehalogenimonas trans-1,2-DCE Reductase (TDR)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Dehalogenimonas cerA Reductase (CER)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00

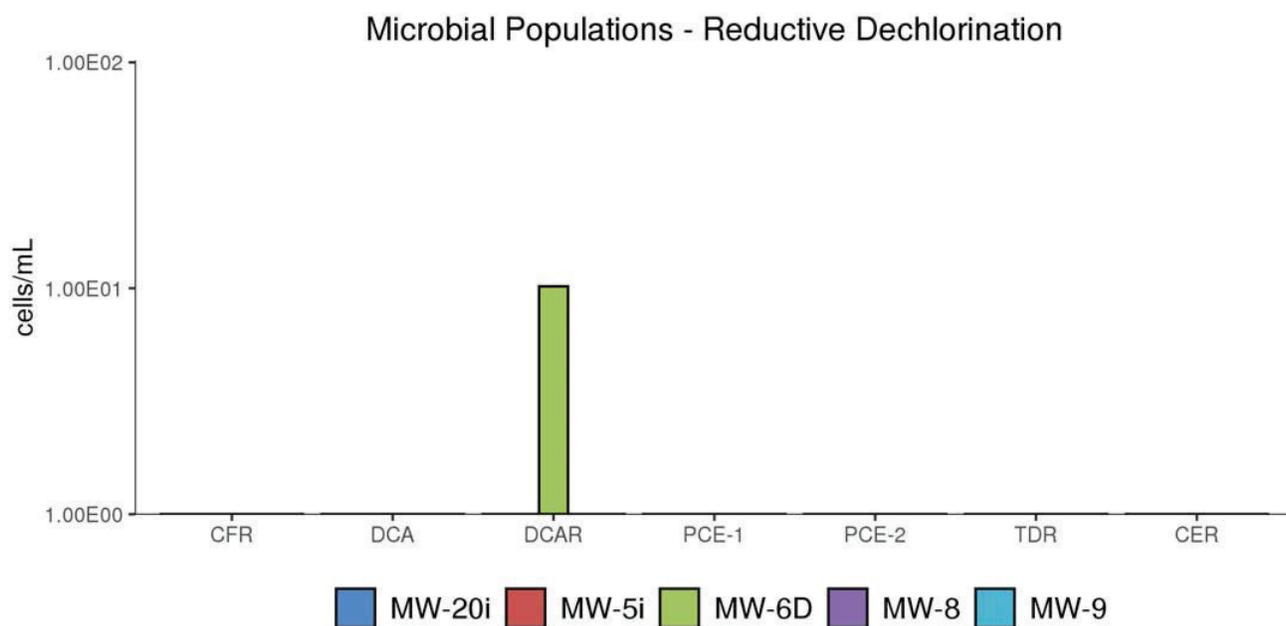


Figure 21: Comparison - microbial populations involved in reductive dechlorination.

Table 10: Summary of the QuantArray®-Chlor results for microorganisms responsible for aerobic (co)metabolism for samples MW-6i, MW-5, MW-6, MW-9, and MW-22.

Sample Name	MW-6i	MW-5	MW-6	MW-9	MW-22
Sample Date	02/24/2022	02/24/2022	02/24/2022	02/24/2022	02/24/2022
<i>Aerobic (Co)Metabolic</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Soluble Methane Monooxygenase (SMMO)	<4.80E+00	<4.90E+00	1.39E+02	<2.38E+01	1.24E+02
Toluene Dioxygenase (TOD)	2.24E+01	6.00E+00	2.22E+01	<2.38E+01	<4.90E+00
Phenol Hydroxylase (PHE)	1.50E+02	<4.90E+00	4.55E+01	<2.38E+01	7.74E+01
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00
Toluene Monooxygenase 2 (RDEG)	2.38E+02	<4.90E+00	2.08E+02	<2.38E+01	4.14E+02
Toluene Monooxygenase (RMO)	5.40E+00	<4.90E+00	3.22E+03	<2.38E+01	<4.90E+00
Ethene Monooxygenase (EtnC)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	2.73E+02
Epoxyalkane Transferase (EtnE)	4.36E+02	<4.90E+00	<4.80E+00	<2.38E+01	1.35E+02
Dichloromethane Dehalogenase (DCMA)	<4.80E+00	<4.90E+00	<4.80E+00	<2.38E+01	<4.90E+00

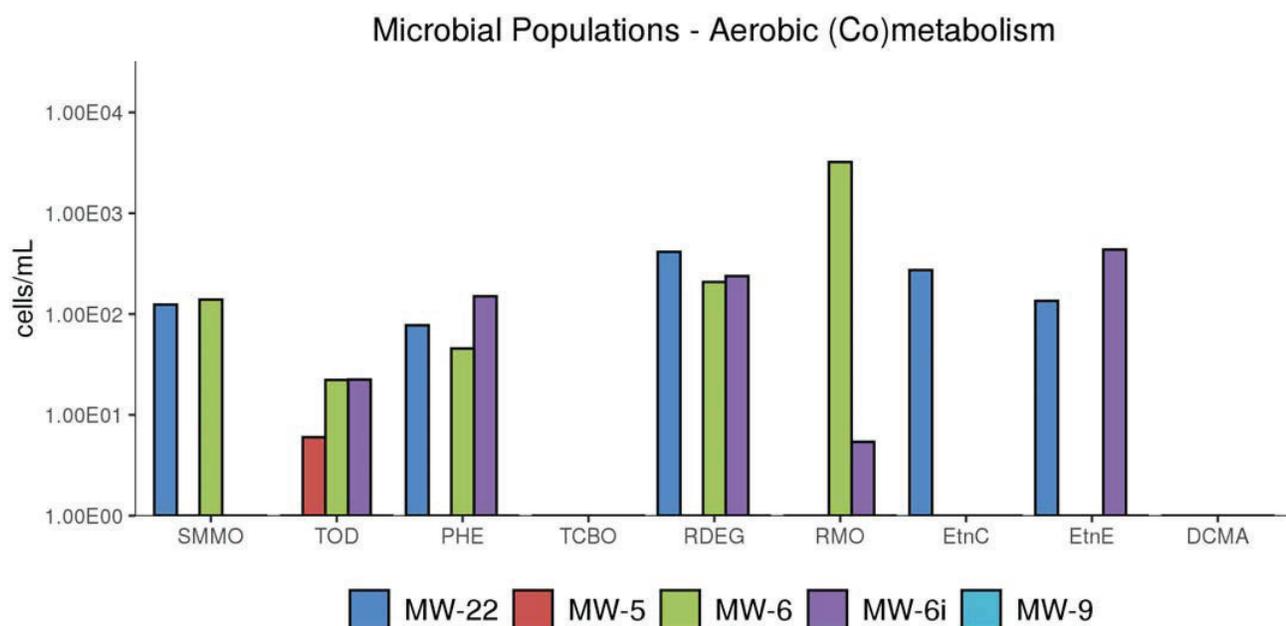


Figure 22: Comparison - microbial populations involved in aerobic (co)metabolism.

Table 11: Summary of the QuantArray®-Chlor results for microorganisms responsible for aerobic (co)metabolism for samples TMW-24, TMW-21, TMW-22, MW-7i, and MW-7.

Sample Name	TMW-24	TMW-21	TMW-22	MW-7i	MW-7
Sample Date	02/28/2022	02/28/2022	02/28/2022	03/03/2022	03/03/2022
<i>Aerobic (Co)Metabolic</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Soluble Methane Monooxygenase (SMMO)	<4.90E+00	3.31E+02	<4.90E+00	<4.50E+00	<4.80E+00
Toluene Dioxygenase (TOD)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	3.00E-01 (J)
Phenol Hydroxylase (PHE)	<4.90E+00	2.76E+03	1.29E+02	<4.50E+00	2.70E+00 (J)
Trichlorobenzene Dioxygenase (TCBO)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Toluene Monooxygenase 2 (RDEG)	<4.90E+00	2.53E+02	1.60E+00 (J)	<4.50E+00	<4.80E+00
Toluene Monooxygenase (RMO)	<4.90E+00	<5.20E+00	<4.90E+00	1.79E+02	<4.80E+00
Ethene Monooxygenase (EtnC)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Epoxyalkane Transferase (EtnE)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00
Dichloromethane Dehalogenase (DCMA)	<4.90E+00	<5.20E+00	<4.90E+00	<4.50E+00	<4.80E+00

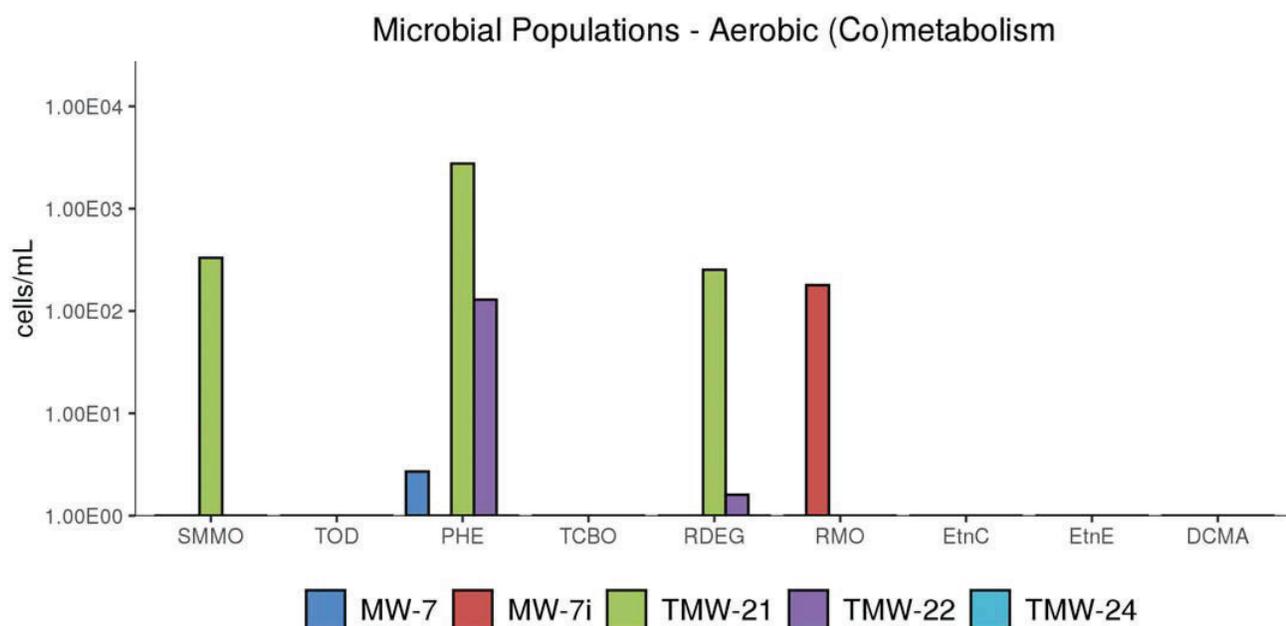


Figure 23: Comparison - microbial populations involved in aerobic (co)metabolism.

Table 12: Summary of the QuantArray®-Chlor results for microorganisms responsible for aerobic (co)metabolism for samples MW-5i, MW-8, MW-9, MW-20i, and MW-6D.

Sample Name	MW-5i	MW-8	MW-9	MW-20i	MW-6D
Sample Date	03/03/2022	03/04/2022	03/04/2022	03/04/2022	03/04/2022
<i>Aerobic (Co)Metabolic</i>	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Soluble Methane Monooxygenase (SMMO)	1.61E+01	<5.00E+00	<4.70E+00	1.32E+02	<4.60E+00
Toluene Dioxygenase (TOD)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Phenol Hydroxylase (PHE)	1.38E+02	<5.00E+00	5.28E+02	3.15E+03	2.35E+03
Trichlorobenzene Dioxygenase (TCBO)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00
Toluene Monooxygenase 2 (RDEG)	2.38E+02	<5.00E+00	3.99E+01	2.45E+03	5.70E+02
Toluene Monooxygenase (RMO)	9.00E+00	<5.00E+00	4.43E+03	6.00E+00	5.70E+00
Ethene Monooxygenase (EtnC)	1.61E+03	<5.00E+00	<4.70E+00	2.34E+03	4.57E+01
Epoxyalkane Transferase (EtnE)	6.79E+03	<5.00E+00	<4.70E+00	5.06E+03	1.69E+02
Dichloromethane Dehalogenase (DCMA)	<4.80E+00	<5.00E+00	<4.70E+00	<4.90E+00	<4.60E+00

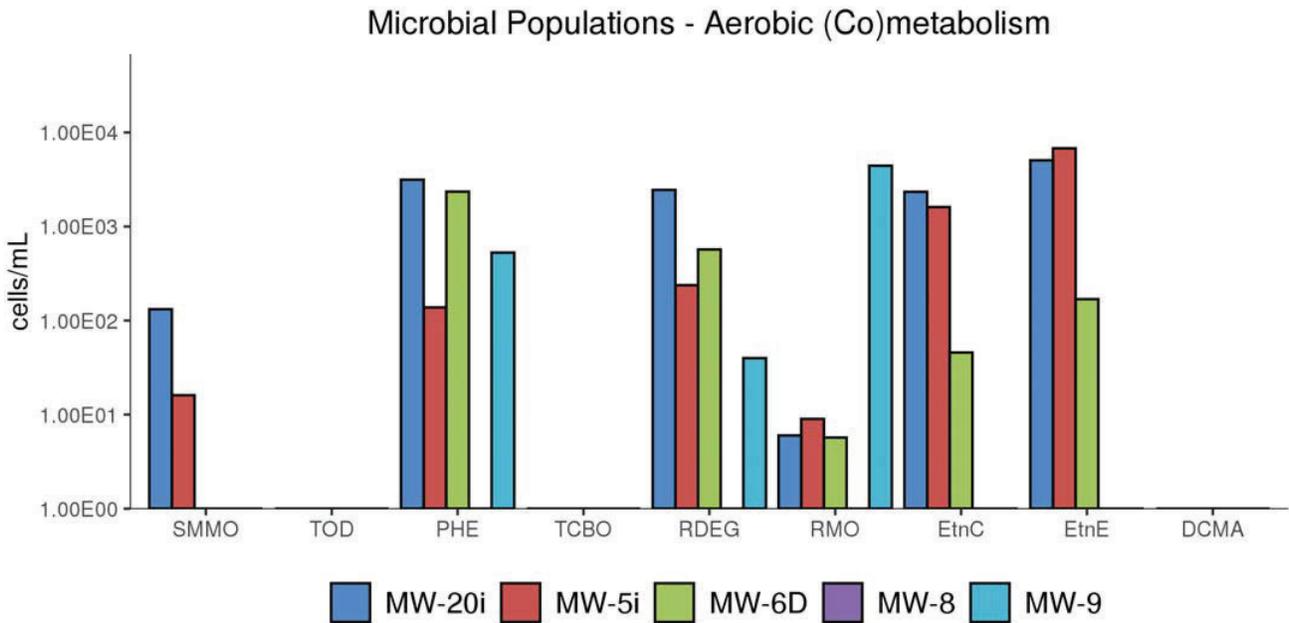


Figure 24: Comparison - microbial populations involved in aerobic (co)metabolism.

Table 13: Summary of the QuantArray® results for total bacteria and other populations for samples MW-6i, MW-5, MW-6, MW-9, and MW-22.

Sample Name	MW-6i	MW-5	MW-6	MW-9	MW-22
Sample Date	02/24/2022	02/24/2022	02/24/2022	02/24/2022	02/24/2022
Other	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Total Eubacteria (EBAC)	6.07E+04	5.67E+03	8.89E+04	3.80E+01 (I)	1.94E+04
Sulfate Reducing Bacteria (APS)	1.79E+03	4.74E+02	3.89E+04	<2.38E+01	2.25E+03
Methanogens (MGN)	8.73E+01	2.60E+00 (J)	1.41E+03	<2.38E+01	5.00E-01 (J)

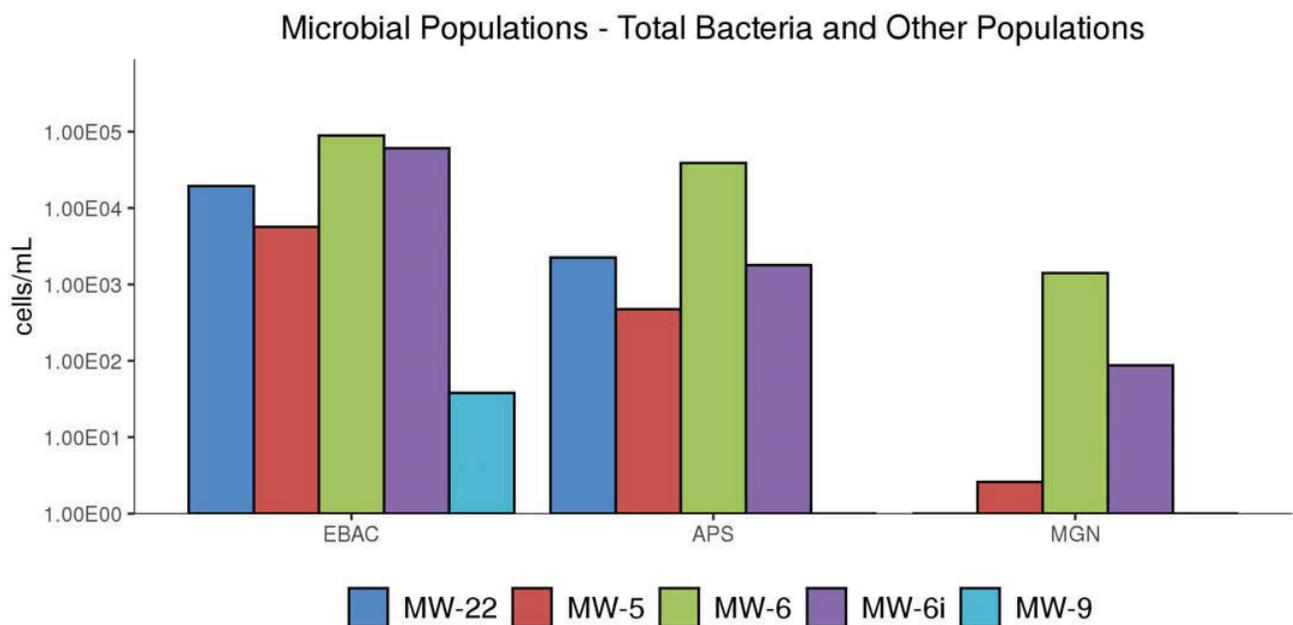


Figure 25: Comparison - microbial populations.

Table 14: Summary of the QuantArray[®] results for total bacteria and other populations for samples TMW-24, TMW-21, TMW-22, MW-7i, and MW-7.

Sample Name	TMW-24	TMW-21	TMW-22	MW-7i	MW-7
Sample Date	02/28/2022	02/28/2022	02/28/2022	03/03/2022	03/03/2022
Other	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Total Eubacteria (EBAC)	5.39E+03	2.40E+06	6.99E+04	2.46E+04	5.85E+03
Sulfate Reducing Bacteria (APS)	<4.90E+00	7.69E+03	3.18E+03	4.89E+02	9.80E+00
Methanogens (MGN)	<4.90E+00	<5.20E+00	<4.90E+00	8.00E-01 (J)	1.40E+00 (J)

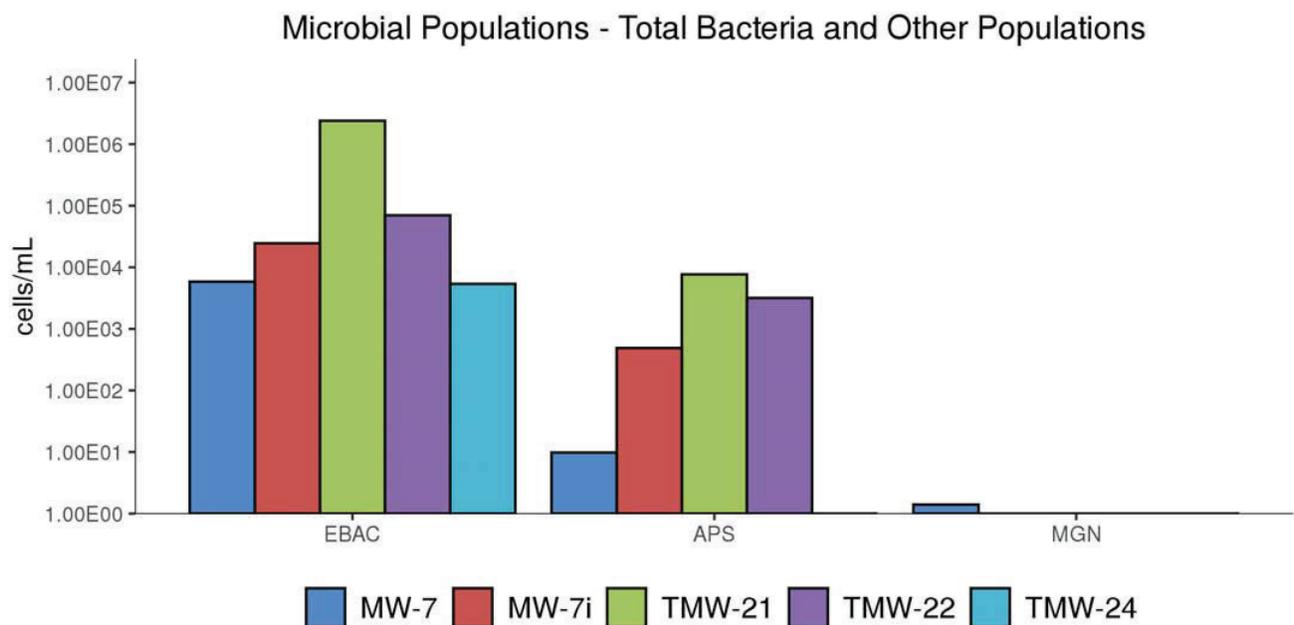


Figure 26: Comparison - microbial populations.

Table 15: Summary of the QuantArray® results for total bacteria and other populations for samples MW-5i, MW-8, MW-9, MW-20i, and MW-6D.

Sample Name	MW-5i	MW-8	MW-9	MW-20i	MW-6D
Sample Date	03/03/2022	03/04/2022	03/04/2022	03/04/2022	03/04/2022
Other	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Total Eubacteria (EBAC)	1.03E+05	5.73E+02 (I)	3.26E+05	4.78E+05	3.98E+05
Sulfate Reducing Bacteria (APS)	1.20E+03	<5.00E+00	<4.70E+00	1.85E+03	<4.60E+00
Methanogens (MGN)	1.00E+00 (J)	<5.00E+00	1.50E+00 (J)	4.00E-01 (J)	6.00E-01 (J)

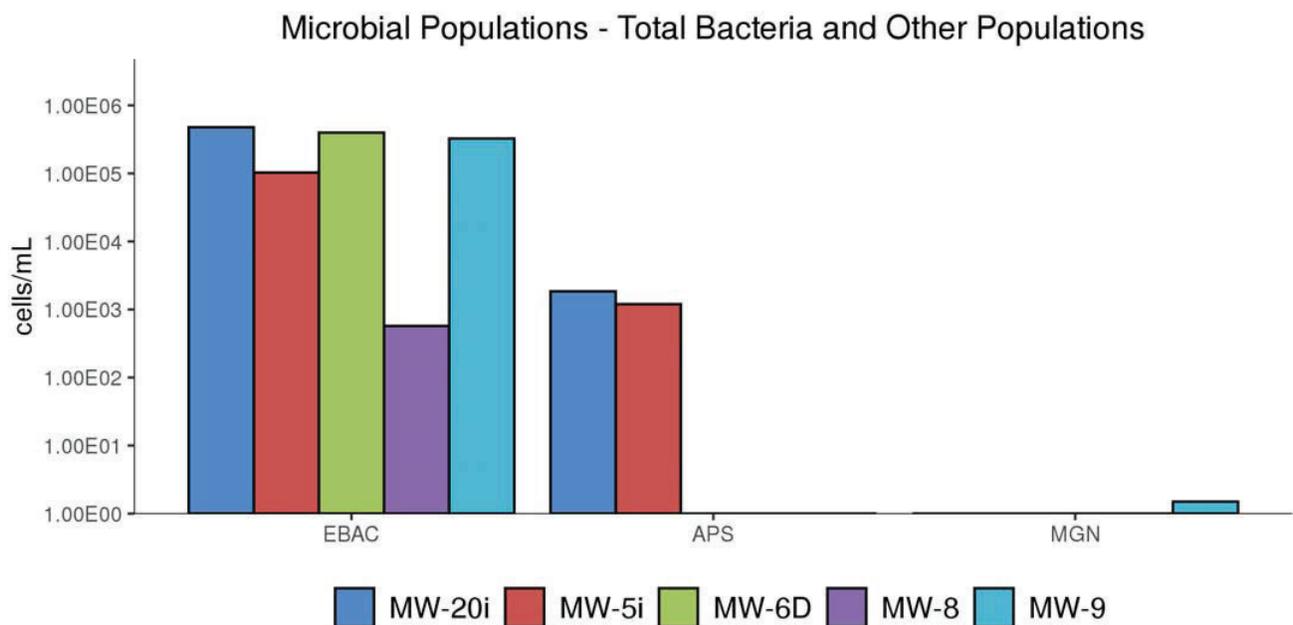


Figure 27: Comparison - microbial populations.

Interpretation

The overall purpose of the QuantArray[®]-Chlor is to give site managers the ability to simultaneously yet economically evaluate the potential for biodegradation of a spectrum of common chlorinated contaminants through a multitude of anaerobic and aerobic (co)metabolic pathways in order to provide a clearer and more comprehensive view of contaminant biodegradation. The following discussion describes the interpretation of results in general terms and is meant to serve as a guide.

Reductive Dechlorination - Chlorinated Ethenes: While a number of bacterial cultures including *Dehalococcoides*, *Dehalobacter*, *Desulfotobacterium*, and *Desulfuromonas* spp. capable of utilizing PCE and TCE as growth-supporting electron acceptors have been isolated [1–5], *Dehalococcoides* may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene [6]. In fact, the presence of *Dehalococcoides* has been associated with complete reductive dechlorination to ethene at sites across North America and Europe [7], and Lu et al. [8] have proposed using a *Dehalococcoides* concentration of 1×10^4 cells/mL as a screening criterion to identify sites where biological reductive dechlorination is predicted to proceed at “generally useful” rates.

At chlorinated ethene sites, any “stall” leading to the accumulation of daughter products, especially vinyl chloride, would be a substantial concern. While *Dehalococcoides* concentrations greater than 1×10^4 cells/mL correspond to ethene production and useful rates of dechlorination, the range of chlorinated ethenes degraded varies by strain within the *Dehalococcoides* genus [6, 9], and the presence of co-contaminants and competitors can have complex impacts on the halo-respiring microbial community [10–15]. Therefore, QuantArray[®]-Chlor also provides quantification of a suite of reductive dehalogenase genes (PCE, TCE, BVC, VCR, CER, and TDR) to more definitively confirm the potential for reductive dechlorination of all chlorinated ethene compounds including vinyl chloride.

Perhaps most importantly, QuantArray[®]-Chlor quantifies TCE reductase (TCE) and both known vinyl chloride reductase genes (BVC, VCR) from *Dehalococcoides* to conclusively evaluate the potential for complete reductive dechlorination of chlorinated ethenes to non-toxic ethene [16–18]. In addition, the analysis also includes quantification of reductive dehalogenase genes from *Dehalogenimonas* spp. capable of reductive dechlorination of chlorinated ethenes. More specifically, these are the trans-1,2-DCE dehalogenase gene (TDR) from strain WBC-2 [19] and the vinyl chloride reductase gene (CER) from GP, the only known organisms other than *Dehalococcoides* capable of vinyl chloride reduction [20]. Finally, PCE reductase genes responsible for sequential reductive dechlorination of PCE to cis-DCE by *Sulfurospirillum* and *Geobacter* spp. are also quantified. In mixed cultures, evidence increasingly suggests that partial dechlorinators like *Sulfurospirillum* and *Geobacter* may be responsible for the majority of reductive dechlorination of PCE to TCE and cis-DCE while *Dehalococcoides* functions more as cis-DCE and vinyl chloride reducing specialists [10, 21].

Reductive Dechlorination - Chlorinated Ethanes: Under anaerobic conditions, chlorinated ethanes are susceptible to reductive dechlorination by several groups of halo-respiring bacteria including *Dehalobacter*, *Dehalogenimonas*, and *Dehalococcoides*. While the reported range of chlorinated ethanes utilized varies by genus, species, and sometimes at the strain level, several general observations can be made regarding biodegradation pathways and daughter product formation. *Dehalobacter* spp. have been isolated that are capable of sequential reductive dechlorination of 1,1,1-TCA through 1,1-DCA to chloroethane [13]. Biodegradation of 1,1,2-TCA by several halo-respiring bacteria including *Dehalobacter* and *Dehalogenimonas* spp. proceeds via dichloroelimination producing vinyl chloride [22–24]. Similarly, 1,2-DCA biodegradation by *Dehalobacter*, *Dehalogenimonas*, and *Dehalococcoides* occurs via dichloroelimination producing ethene. While not utilized by many *Desulfotobacterium* isolates, at least one strain, *Desulfotobacterium dichloroeliminans* strain DCA1, is also capable of dichloroelimination of 1,2-DCA [25]. The 1,2-dichloroethane reductive dehalogenase gene (DCAR) from members of *Desulfotobacterium* and *Dehalobacter* is known to dechlorinate 1,2-DCA to ethene, while the 1,1-dichloroethane reductive dehalogenase (DCA) targets the gene responsible for 1,1-DCA dechlorination in some strains of *Dehalobacter*. In addition to chloroform, chloroform reductase (CFR) has also been shown to be responsible for reductive dechlorination of 1,1,1-TCA [26].

Reductive Dechlorination - Chlorinated Methanes: Chloroform is a common co-contaminant at chlorinated solvent sites and can inhibit reductive dechlorination of chlorinated ethenes. Grostern et al. demonstrated that a *Dehalobacter* population was capable of reductive dechlorination of chloroform to produce dichloromethane [27]. The *cfrA* gene encodes the reductase which catalyzes this initial step in chloroform biodegradation [26]. Justicia-Leon et al. have since shown that dichloromethane can support growth of a distinct group of *Dehalobacter* strains via fermentation [28]. The *Dehalobacter* DCM assay targets the 16S rRNA gene of these strains.

Reductive Dechlorination - Chlorinated Benzenes: Chlorinated benzenes are an important class of industrial solvents and chemical intermediates in the production of drugs, dyes, herbicides, and insecticides. The physical-chemical properties of chlorinated benzenes as well as susceptibility to biodegradation are functions of their degree of chlorination and the positions of chlorine substituents. Under anaerobic conditions, reductive dechlorination of higher chlorinated benzenes including hexachlorobenzene (HCB),

pentachlorobenzene (PeCB), tetrachlorobenzene (TeCB) isomers, and trichlorobenzene (TCB) isomers has been well documented [29], although biodegradation of individual compounds and isomers varies between isolates. For example, *Dehalococcoides* strain CBDB1 reductively dechlorinates HCB, PeCB, all three TeCB isomers, 1,2,3-TCB, and 1,2,4-TCB [9, 30]. *Dehalobium chloro-coercia* DF-1 has been shown to be capable of reductive dechlorination of HCB, PeCB, and 1,2,3,5-TeCB [31]. The dichlorobenzene (DCB) isomers and chlorobenzene (CB) were considered relatively recalcitrant under anaerobic conditions. However, new evidence has demonstrated reductive dechlorination of DCBs to CB and CB to benzene [32] with corresponding increases in concentrations of *Dehalobacter* spp. [33].

Reductive Dechlorination - Chlorinated Phenols: Pentachlorophenol (PCP) was one of the most widely used biocides in the U.S. and despite residential use restrictions, is still extensively used industrially as a wood preservative. Along with PCP, the tetrachlorophenol and trichlorophenol isomers were also used as fungicides in wood preserving formulations. 2,4-Dichlorophenol and 2,4,5-TCP were used as chemical intermediates in herbicide production (e.g. 2,4-D) and chlorophenols are known byproducts of chlorine bleaching in the pulp and paper industry. While the range of compounds utilized varies by strain, some *Dehalococcoides* isolates are capable of reductive dechlorination of PCP and other chlorinated phenols. For example, *Dehalococcoides* strain CBDB1 is capable of utilizing PCP, all three tetrachlorophenol (TeCP) congeners, all six trichlorophenol (TCP) congeners, and 2,3-dichlorophenol (2,3-DCP). PCP dechlorination by strain CBDB1 produces a mixture of 3,5-DCP, 3,4-DCP, 2,4-DCP, 3-CP, and 4-CP [34]. In the same study, however, *Dehalococcoides* strain 195 dechlorinated a more narrow spectrum of chlorophenols which included 2,3-DCP, 2,3,4-TCP, and 2,3,6-TCP, but no other TCPs or PCP. Similar to *Dehalococcoides*, some species and strains of *Desulfitobacterium* are capable of utilizing PCP and other chlorinated phenols. *Desulfitobacterium hafniense* PCP-1 is capable of reductive dechlorination of PCP to 3-CP [35]. However, the ability to biodegrade PCP is not universal among *Desulfitobacterium* isolates. *Desulfitobacterium* sp. strain PCE1 and *D. chlororespirans* strain Co23, for example, can utilize some TCP and DCP isomers, but not PCP for growth [2, 36].

Reductive Dechlorination - Chlorinated Propanes: *Dehalogenimonas* is a recently described bacterial genus of the phylum Chloroflexi which also includes the well-known chloroethene-respiring *Dehalococcoides* [23]. The *Dehalogenimonas* isolates characterized to date are also halo-respiring bacteria, but utilize a rather unique range of chlorinated compounds as electron acceptors including chlorinated propanes (1,2,3-TCP and 1,2-DCP) and a variety of other vicinally chlorinated alkanes including 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, and 1,2-dichloroethane [23].

Aerobic - Chlorinated Ethene Cometabolism: Under aerobic conditions, several different types of bacteria including methane-oxidizing bacteria (methanotrophs), and many benzene, toluene, ethylbenzene, xylene, and (BTEX)-utilizing bacteria can cometabolize or co-oxidize TCE, DCE, and vinyl chloride [37]. In general, cometabolism of chlorinated ethenes is mediated by monooxygenase enzymes with “relaxed” specificity that oxidize a primary (growth supporting) substrate (e.g. methane) and co-oxidize the chlorinated compound (e.g. TCE). QuantArray[®]-Chlor provides quantification of a suite of genes encoding oxygenase enzymes capable of co-oxidation of chlorinated ethenes including soluble methane monooxygenase (sMMO). Soluble methane monooxygenases co-oxidize a broad range of chlorinated compounds [38–41] including TCE, *cis*-DCE, and vinyl chloride. Furthermore, soluble methane monooxygenases are generally believed to support greater rates of aerobic cometabolism [40]. QuantArray[®]-Chlor also quantifies aromatic oxygenase genes encoding ring hydroxylating toluene monooxygenase genes (RMO, RDEG), toluene dioxygenase (TOD) and phenol hydroxylases (PHE) capable of TCE co-oxidation [42–46]. TCE or a degradation product has been shown to induce expression of toluene monooxygenases in some laboratory studies [43, 47] raising the possibility of TCE cometabolism with an alternative (non-aromatic) growth substrate. Moreover, while a number of additional factors must be considered, recent research under ESTCP Project 201584 has shown positive correlations between concentrations of monooxygenase genes (soluble methane monooxygenase, ring hydroxylating monooxygenases, and phenol hydroxylase) and the rate of TCE degradation [48].

Aerobic - Chlorinated Ethane Cometabolism: While less widely studied than cometabolism of chlorinated ethenes, some chlorinated ethanes are also susceptible to co-oxidation. As mentioned previously, soluble methane monooxygenases (sMMO) exhibit very relaxed specificity. In laboratory studies, sMMO has been shown to co-oxidize a number of chlorinated ethanes including 1,1,1-TCA and 1,2-DCA [38, 40].

Aerobic - Vinyl Chloride Cometabolism: Beginning in the early 1990s, numerous microcosm studies demonstrated aerobic oxidation of vinyl chloride under MNA conditions without the addition of exogenous primary substrates. Since then, strains of

Mycobacterium, *Nocardioideis*, *Pseudomonas*, *Ochrobactrum*, and *Ralstonia* species have been isolated which are capable of aerobic growth on both ethene and vinyl chloride (see Mattes et al. [49] for a review). The initial steps in the pathway are the monooxygenase (*etnABCD*) catalyzed conversion of ethene and vinyl chloride to their respective epoxyalkanes (epoxyethane and chlorooxirane), followed by epoxyalkane:CoM transferase (*etnE*) mediated conjugation and breaking of the epoxide [50].

Aerobic - Chlorinated Benzenes: In general, chlorobenzenes with four or less chlorine groups are susceptible to aerobic biodegradation and can serve as growth-supporting substrates. Toluene dioxygenase (TOD) has a relatively relaxed substrate specificity and mediates the incorporation of both atoms of oxygen into the aromatic ring of benzene and substituted benzenes (toluene and chlorobenzene). Comparison of TOD levels in background and source zone samples from a CB-impacted site suggested that CBs promoted growth of TOD-containing bacteria [51]. In addition, aerobic biodegradation of some trichlorobenzene and even tetrachlorobenzene isomers is initiated by a group of related trichlorobenzene dioxygenase genes (TCBO). Finally, phenol hydroxylases catalyze the continued oxidation and in some cases, the initial oxidation of a variety of monoaromatic compounds. In an independent study, significant increases in numbers of bacteria containing PHE genes corresponded to increases in biodegradation of DCB isomers [51].

Aerobic - Chlorinated Methanes: Many aerobic methylotrophic bacteria, belonging to diverse genera (*Hyphomicrobium*, *Methylobacterium*, *Methylophilus*, *Pseudomonas*, *Paracoccus*, and *Alibacter*) have been isolated which are capable of utilizing dichloromethane (DCM) as a growth substrate. The DCM metabolic pathway in methylotrophic bacteria is initiated by a dichloromethane dehalogenase (DCMA) gene. DCMA is responsible for aerobic biodegradation of dichloromethane by methylotrophs by first producing formaldehyde which is then further oxidized [52]. As discussed in previous sections, soluble methane monooxygenase (sMMO) exhibits relaxed specificity and co-oxidizes a broad spectrum of chlorinated hydrocarbons. In addition to chlorinated ethenes, sMMO has been shown to co-oxidize chloroform in laboratory studies [38, 41].

References

1. Gerritse, J. *et al.* Influence of different electron donors and acceptors on dehalorespiration of tetrachloroethene by *Desulfitobacterium frappieri* TCE1. *Applied and Environmental Microbiology* **65**, 5212–5221 (1999).
2. Gerritse, J. *et al.* *Desulfitobacterium* sp. strain PCE1, an anaerobic bacterium that can grow by reductive dechlorination of tetrachloroethene or ortho-chlorinated phenols. *Archives of Microbiology* **165**, 132–140 (1996).
3. Holliger, C., Schraa, G., Stams, A. & Zehnder, A. A highly purified enrichment culture couples the reductive dechlorination of tetrachloroethene to growth. *Applied and Environmental Microbiology* **59**, 2991–2997 (1993).
4. Krumholz, L. R., Sharp, R. & Fishbain, S. S. A freshwater anaerobe coupling acetate oxidation to tetrachloroethylene dehalogenation. *Applied and Environmental Microbiology* **62**, 4108–4113 (1996).
5. Löffler, F. E., Sanford, R. A. & Tiedje, J. M. Initial Characterization of a Reductive Dehalogenase from *Desulfitobacterium chlororespirans* Co23. *Applied and Environmental Microbiology* **62**, 3809–3813 (1996).
6. Maymó-Gatell, X., Anguish, T. & Zinder, S. H. Reductive dechlorination of chlorinated ethenes and 1, 2-dichloroethane by “*Dehalococcoides ethenogenes*” 195. *Applied and Environmental Microbiology* **65**, 3108–3113 (1999).
7. Hendrickson, E. R. *et al.* Molecular analysis of *Dehalococcoides* 16S ribosomal DNA from chloroethene-contaminated sites throughout North America and Europe. *Applied and Environmental Microbiology* **68**, 485–495 (2002).
8. Lu, X., Wilson, J. T. & Kampbell, D. H. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* **40**, 3131–3140 (2006).
9. Adrian, L., Szewzyk, U., Wecke, J. & Görisch, H. Bacterial dehalorespiration with chlorinated benzenes. *Nature* **408**, 580–583 (2000).
10. Amos, B. K., Suchomel, E. J., Pennell, K. D. & Löffler, F. E. Spatial and temporal distributions of *Geobacter lovleyi* and *Dehalococcoides* spp. during bioenhanced PCE-NAPL dissolution. *Environmental Science & Technology* **43**, 1977–1985 (2009).
11. Duhamel, M. & Edwards, E. A. Growth and yields of dechlorinators, acetogens, and methanogens during reductive dechlorination of chlorinated ethenes and dihaloelimination of 1, 2-dichloroethane. *Environmental Science & Technology* **41**, 2303–2310 (2007).
12. Duhamel, M. *et al.* Comparison of anaerobic dechlorinating enrichment cultures maintained on tetrachloroethene, trichloroethene, /textitcis-dichloroethene and vinyl chloride. *Water Research* **36**, 4193–4202 (2002).
13. Grostern, A. & Edwards, E. A. A 1, 1, 1-trichloroethane-degrading anaerobic mixed microbial culture enhances biotransformation of mixtures of chlorinated ethenes and ethanes. *Applied and Environmental Microbiology* **72**, 7849–7856 (2006).
14. Huang, D. & Becker, J. G. Determination of intrinsic monod kinetic parameters for two heterotrophic tetrachloroethene (PCE)-respiring strains and insight into their application. *Biotechnology and Bioengineering* **104**, 301–311 (2009).
15. Mayer-Blackwell, K. *et al.* 1, 2-Dichloroethane exposure alters the population structure, metabolism, and kinetics of a trichloroethene-dechlorinating *dehalococcoides mccartyi* consortium. *Environmental Science & Technology* **50**, 12187–12196 (2016).
16. Krajmalnik-Brown, R. *et al.* Genetic identification of a putative vinyl chloride reductase in *Dehalococcoides* sp. strain BAV1. *Applied and Environmental Microbiology* **70**, 6347–6351 (2004).
17. Müller, J. A. *et al.* Molecular identification of the catabolic vinyl chloride reductase from *Dehalococcoides* sp. strain VS and its environmental distribution. *Applied and Environmental Microbiology* **70**, 4880–4888 (2004).
18. Ritalahti, K. M. *et al.* Quantitative PCR targeting 16S rRNA and reductive dehalogenase genes simultaneously monitors multiple *Dehalococcoides* strains. *Applied and Environmental Microbiology* **72**, 2765–2774 (2006).

19. Molenda, O., Quaile, A. T. & Edwards, E. A. Dehalogenimonas sp. strain WBC-2 genome and identification of its trans-dichloroethene reductive dehalogenase, TdrA. *Applied and Environmental Microbiology* **82**, 40–50 (2016).
20. Yang, Y. *et al.* Grape pomace compost harbors organohalide-respiring Dehalogenimonas species with novel reductive dehalogenase genes. *The ISME Journal* **11**, 2767 (2017).
21. Maillard, J. *et al.* Reductive dechlorination of tetrachloroethene by a stepwise catalysis of different organohalide respiring bacteria and reductive dehalogenases. *Biodegradation* **22**, 949–960 (2011).
22. Grostern, A. & Edwards, E. A. Growth of Dehalobacter and Dehalococcoides spp. during degradation of chlorinated ethanes. *Applied and Environmental Microbiology* **72**, 428–436 (2006).
23. Moe, W. M., Yan, J., Nobre, M. F., da Costa, M. S. & Rainey, F. A. *Dehalogenimonas lykanthroporepellens* gen. nov., sp. nov., a reductively dehalogenating bacterium isolated from chlorinated solvent-contaminated groundwater. *International Journal of Systematic and Evolutionary Microbiology* **59**, 2692–2697 (2009).
24. Yan, J., Rash, B., Rainey, F. & Moe, W. Isolation of novel bacteria within the Chloroflexi capable of reductive dechlorination of 1, 2, 3-trichloropropane. *Environmental Microbiology* **11**, 833–843 (2009).
25. De Wildeman, S., Diekert, G., Van Langenhove, H. & Verstraete, W. Stereoselective microbial dehalorespiration with vicinal dichlorinated alkanes. *Applied and Environmental Microbiology* **69**, 5643–5647 (2003).
26. Tang, S. & Edwards, E. A. Identification of *Dehalobacter* reductive dehalogenases that catalyse dechlorination of chloroform, 1,1,1-trichloroethane and 1,1-dichloroethane. *Phil. Trans. R. Soc. B* **368**, 20120318 (2013).
27. Grostern, A., Duhamel, M., Dworatzek, S. & Edwards, E. A. Chloroform respiration to dichloromethane by a *Dehalobacter* population. *Environmental Microbiology* **12**, 1053–1060 (2010).
28. Justicia-Leon, S. D., Ritalahti, K. M., Mack, E. E. & Löffler, F. E. Dichloromethane fermentation by a *Dehalobacter* sp. in an enrichment culture derived from pristine river sediment. *Applied and Environmental Microbiology* **78**, 1288–1291 (2012).
29. Field, J. A. & Sierra-Alvarez, R. Microbial degradation of chlorinated benzenes. *Biodegradation* **19**, 463–480 (2008).
30. Jayachandran, G., Görisch, H. & Adrian, L. Dehalorespiration with hexachlorobenzene and pentachlorobenzene by *Dehalococcoides* sp. strain CBDB1. *Archives of Microbiology* **180**, 411–416 (2003).
31. Wu, Q. *et al.* Dechlorination of chlorobenzenes by a culture containing bacterium DF-1, a PCB dechlorinating microorganism. *Environmental Science & Technology* **36**, 3290–3294 (2002).
32. Fung, J. M. *et al.* Reductive dehalogenation of dichlorobenzenes and monochlorobenzene to benzene in microcosms. *Environmental Science & Technology* **43**, 2302–2307 (2009).
33. Nelson, J. L., Fung, J. M., Cadillo-Quiroz, H., Cheng, X. & Zinder, S. H. A role for *Dehalobacter* spp. in the reductive dehalogenation of dichlorobenzenes and monochlorobenzene. *Environmental Science & Technology* **45**, 6806–6813 (2011).
34. Adrian, L., Hansen, S. K., Fung, J. M., Görisch, H. & Zinder, S. H. Growth of *Dehalococcoides* strains with chlorophenols as electron acceptors. *Environmental Science & Technology* **41**, 2318–2323 (2007).
35. Bouchard, B. *et al.* Isolation and characterization of *Desulfitobacterium frappieri* sp. nov., an anaerobic bacterium which reductively dechlorinates pentachlorophenol to 3-chlorophenol. *International Journal of Systematic and Evolutionary Microbiology* **46**, 1010–1015 (1996).
36. Sanford, R. A., Cole, J. R., Löffler, F. & Tiedje, J. M. Characterization of *Desulfitobacterium chlororespirans* sp. nov., which grows by coupling the oxidation of lactate to the reductive dechlorination of 3-chloro-4-hydroxybenzoate. *Applied and Environmental Microbiology* **62**, 3800–3808 (1996).
37. Field, J. & Sierra-Alvarez, R. Biodegradability of chlorinated solvents and related chlorinated aliphatic compounds. *Reviews in Environmental Science and Biotechnology* **3**, 185–254 (2004).

38. Chang, H.-L. & Alvarez-Cohen, L. Biodegradation of individual and multiple chlorinated aliphatic hydrocarbons by methane-oxidizing cultures. *Applied and Environmental Microbiology* **62**, 3371–3377 (1996).
39. Colby, J., Stirling, D. I. & Dalton, H. The soluble methane mono-oxygenase of *Methylococcus capsulatus* (Bath). Its ability to oxygenate n-alkanes, n-alkenes, ethers, and alicyclic, aromatic and heterocyclic compounds. *Biochemical Journal* **165**, 395–402 (1977).
40. Oldenhuis, R., Oedzes, J. Y., Van der Waarde, J. & Janssen, D. B. Kinetics of chlorinated hydrocarbon degradation by *Methylosinus trichosporium* OB3b and toxicity of trichloroethylene. *Applied and Environmental Microbiology* **57**, 7–14 (1991).
41. Van Hylckama, V. J., De Koning, W. & Janssen, D. B. Transformation kinetics of chlorinated ethenes by *Methylosinus trichosporium* OB3b and detection of unstable epoxides by on-line gas chromatography. *Applied and Environmental Microbiology* **62**, 3304–3312 (1996).
42. Futamata, H., Harayama, S. & Watanabe, K. Group-specific monitoring of phenol hydroxylase genes for a functional assessment of phenol-stimulated trichloroethylene bioremediation. *Applied and Environmental Microbiology* **67**, 4671–4677 (2001).
43. McClay, K., Streger, S. H. & Steffan, R. J. Induction of toluene oxidation activity in *Pseudomonas mendocina* KR1 and *Pseudomonas* sp. strain ENVPC5 by chlorinated solvents and alkanes. *Applied and Environmental Microbiology* **61**, 3479–3481 (1995).
44. Newman, L. M. & Wackett, L. P. Trichloroethylene oxidation by purified toluene 2-monooxygenase: products, kinetics, and turnover-dependent inactivation. *Journal of Bacteriology* **179**, 90–96 (1997).
45. Byrne, A. M. & Olsen, R. H. Cascade regulation of the toluene-3-monooxygenase operon (*tbuA1UBVA2C*) of *Burkholderia pickettii* PKO1: role of the *tbuA1* promoter (*PtbuA1*) in the expression of its cognate activator, *TbuT*. *Journal of Bacteriology* **178**, 6327–6337 (1996).
46. Wackett, L. P. & Gibson, D. T. Degradation of trichloroethylene by toluene dioxygenase in whole-cell studies with *Pseudomonas putida* F1. *Applied and Environmental Microbiology* **54**, 1703–1708 (1988).
47. Leahy, J. G., Byrne, A. M. & Olsen, R. H. Comparison of factors influencing trichloroethylene degradation by toluene-oxidizing bacteria. *Applied and Environmental Microbiology* **62**, 825–833 (1996).
48. Wiedemeier, T. H., Wilson, J. T., Freedman, D. L. & Lee, B. *Providing Additional Support for MNA by Including Quantitative Lines of Evidence for Abiotic Degradation and Co-metabolic Oxidation of Chlorinated Ethylenes* tech. rep. (TH Wiedemeier and Associates, Inc. Sedalia United States, 2017).
49. Mattes, T. E., Alexander, A. K. & Coleman, N. V. Aerobic biodegradation of the chloroethenes: pathways, enzymes, ecology, and evolution. *FEMS Microbiology Reviews* **34**, 445–475 (2010).
50. Coleman, N. V. & Spain, J. C. Epoxyalkane: coenzyme M transferase in the ethene and vinyl chloride biodegradation pathways of *Mycobacterium* strain JS60. *Journal of Bacteriology* **185**, 5536–5545 (2003).
51. Dominguez, R. F. *et al.* Aerobic bioremediation of chlorobenzene source-zone soil in flow-through columns: performance assessment using quantitative PCR. *Biodegradation* **19**, 545–553 (2008).
52. La Roche, S. D. & Leisinger, T. Sequence analysis and expression of the bacterial dichloromethane dehalogenase structural gene, a member of the glutathione S-transferase supergene family. *Journal of Bacteriology* **172**, 164–171 (1990).



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Client Project Name: Signify North America

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Sample Information

Client Sample ID:	MW-10	ERD-OBSW-1S	MW-10I	ERD-OBSW-1I
Sample Date:	12/19/2022	12/19/2022	12/19/2022	12/19/2022
Units:	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	OR/CS	OR/CS	OR/CS	OR/CS

Dechlorinating Bacteria

<i>Dehalococcoides</i>	<i>DHC</i>	<1.40E+00	<5.00E-01	<7.00E-01	<7.70E+00
tceA Reductase	TCE	<1.40E+00	<5.00E-01	<7.00E-01	<7.70E+00
BAV1 Vinyl Chloride Reductase	BVC	<1.40E+00	<5.00E-01	<7.00E-01	<7.70E+00
Vinyl Chloride Reductase	VCR	<1.40E+00	<5.00E-01	<7.00E-01	<7.70E+00
<i>Dehalobacter spp.</i>	<i>DHBt</i>	<1.43E+01	1.17E+04	1.24E+03	<7.69E+01

Legend:

NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
 < = Result not detected

Quality Assurance/Quality Control Data

Samples Received 12/20/2022

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	12/20/2022	12/29/2022	0 °C	93%	non-detect	non-detect
DHC	12/20/2022	12/29/2022	0 °C	107%	non-detect	non-detect
TCE	12/20/2022	12/29/2022	0 °C	96%	non-detect	non-detect
VCR	12/20/2022	12/29/2022	0 °C	99%	non-detect	non-detect
DHBt	12/20/2022	12/29/2022	0 °C	106%	non-detect	non-detect



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 No Additional Samples

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Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information				Analyses				CENSUS: Please select the target organism/gene																												
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	Total Number of Containers	PLFA	NGS	QuantArray Chlor	QuantArray Petro	QuantArray NSZD	QuantArray BGC	DHC (Dehalococoides)	DHC Functional genes (bvc, tcc, vcr)	DHB1 (Dehalobacter)	DHG (Dehalogenimonas)	DSM (Desulfurimonas)	DSB (Desulfobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nrfs and nrk)	AMC (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Naphthalene-aerobic)	BSSA (Toluene/Xylene-Aerobic)	add. qPCR:	RNA (Expression Option)*	Other:			
0987L 1	MW-10	12-9-22	1130	WT	1							X	X	X																						
2	ERA-085W-15		1250	WT	1							X	X	X																						
3	MUS-10T		1410	WT	1							X	X	X																						
4	ERA-085W-1T		1515	WT	1							X	X	X																						

Relinquished by: [Signature] Date: 12-19-22 Received by: [Signature] Date: 12-20/22

It is vital that chain of custody is filled out correctly & that all relative information is provided.

Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

* additional cost and sample preservation are associated with RNA samples.

**Saturday delivery: See sampling protocol for alternate shipping address.

Attachment G

Laboratory Reports of Analysis and Chain-of-Custody Records for VOCs and Other Parameters



Report of Analysis

AECOM

101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Shakespeare - Signify

Project Number: 60635197

Lot Number: **WH20094**

Date Completed: 09/07/2021

Revision Date: 09/14/2021

Hannah K Lucas

09/14/2021 10:01 AM

Approved and released by:

Project Manager I: **Hannah K. Lucas**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: WH20094

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

This report supersedes and replaces any prior reports issued under this lot number. The volatiles list was updated per client request.

GC/MS Volatiles: No issues

Dissolve Gases: No issues

Metals: No issues

Inorganic Non-metals:

- Nitrate was detected in the method blank just above the detection limit. Associated results are qualified "B".
- Recoveries of several anions were below limits in the matrix spike/matrix spike duplicate performed on sample WH20094-004. As all relative percent differences were within limits, this is attributed to the sample matrix. Associated results are qualified "S".

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: WH20094

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-2	Aqueous	08/19/2021 1630	08/20/2021
002	TMW-31	Aqueous	08/20/2021 0950	08/20/2021
003	TMW-29	Aqueous	08/20/2021 1040	08/20/2021
004	MW-10I	Aqueous	08/20/2021 1145	08/20/2021
005	ERD-OBSW-1I	Aqueous	08/20/2021 1235	08/20/2021
006	MW-10	Aqueous	08/20/2021 1355	08/20/2021
007	MW-10-DUP	Aqueous	08/20/2021 1355	08/20/2021
008	ERD-OBSW-1S	Aqueous	08/20/2021 1500	08/20/2021
009	ISCO-OBWS-1S	Aqueous	08/20/2021 1620	08/20/2021

(9 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: WH20094

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-2	Aqueous	Chloride	300.0	2.3		mg/L	8
001	MW-2	Aqueous	Nitrate - N	300.0	0.078	B	mg/L	8
001	MW-2	Aqueous	Dissolved Iron	6010D	0.050	J	mg/L	12
002	TMW-31	Aqueous	Chloride	300.0	6.1		mg/L	14
002	TMW-31	Aqueous	TDS	SM 2540C-	41		mg/L	14
002	TMW-31	Aqueous	cis-1,2-Dichloroethene	8260D	8.5		ug/L	15
002	TMW-31	Aqueous	Trichloroethene	8260D	920		ug/L	16
003	TMW-29	Aqueous	Chloride	300.0	3.1		mg/L	17
003	TMW-29	Aqueous	Acetone	8260D	24		ug/L	18
003	TMW-29	Aqueous	Styrene	8260D	50		ug/L	18
003	TMW-29	Aqueous	Trichloroethene	8260D	12		ug/L	19
004	MW-10I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	24		mg CaCO3/L	20
004	MW-10I	Aqueous	Bicarbonate Alkalinity	SM 2320B-	24		mg/L	20
004	MW-10I	Aqueous	Chloride	300.0	9.2	S	mg/L	20
004	MW-10I	Aqueous	Nitrate - N	300.0	1.1	BS	mg/L	20
004	MW-10I	Aqueous	Trichloroethene	8260D	870		ug/L	22
005	ERD-OBSW-1I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	24		mg CaCO3/L	26
005	ERD-OBSW-1I	Aqueous	Bicarbonate Alkalinity	SM 2320B-	24		mg/L	26
005	ERD-OBSW-1I	Aqueous	Chloride	300.0	8.1		mg/L	26
005	ERD-OBSW-1I	Aqueous	Nitrate - N	300.0	0.98	B	mg/L	26
005	ERD-OBSW-1I	Aqueous	Nitrite - N	300.0	0.0098	J	mg/L	26
005	ERD-OBSW-1I	Aqueous	Chlorobenzene	8260D	4.9	J	ug/L	27
005	ERD-OBSW-1I	Aqueous	Trichloroethene	8260D	1000		ug/L	28
005	ERD-OBSW-1I	Aqueous	Methane	RSK - 175	2.9	J	ug/L	29
005	ERD-OBSW-1I	Aqueous	Iron	6010D	0.48		mg/L	31
006	MW-10	Aqueous	Chloride	300.0	37		mg/L	32
006	MW-10	Aqueous	Nitrate - N	300.0	1.2	B	mg/L	32
006	MW-10	Aqueous	Sulfate	300.0	0.25	J	mg/L	32
006	MW-10	Aqueous	1,2-Dichloroethane	8260D	3.6		ug/L	33
006	MW-10	Aqueous	cis-1,2-Dichloroethene	8260D	2.9		ug/L	33
006	MW-10	Aqueous	Trichloroethene	8260D	740		ug/L	34
006	MW-10	Aqueous	Iron	6010D	0.087	J	mg/L	37
007	MW-10-DUP	Aqueous	Chlorobenzene	8260D	3.5		ug/L	38
007	MW-10-DUP	Aqueous	1,2-Dichloroethane	8260D	3.5		ug/L	38
007	MW-10-DUP	Aqueous	cis-1,2-Dichloroethene	8260D	2.5		ug/L	38
007	MW-10-DUP	Aqueous	Trichloroethene	8260D	790		ug/L	39
008	ERD-OBSW-1S	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	21		mg CaCO3/L	40
008	ERD-OBSW-1S	Aqueous	Bicarbonate Alkalinity	SM 2320B-	21		mg/L	40
008	ERD-OBSW-1S	Aqueous	Chloride	300.0	69		mg/L	40
008	ERD-OBSW-1S	Aqueous	Nitrate - N	300.0	1.8	B	mg/L	40
008	ERD-OBSW-1S	Aqueous	Sulfate	300.0	1.4		mg/L	40
008	ERD-OBSW-1S	Aqueous	Chlorobenzene	8260D	0.97		ug/L	41
008	ERD-OBSW-1S	Aqueous	1,4-Dichlorobenzene	8260D	0.45	J	ug/L	41
008	ERD-OBSW-1S	Aqueous	1,2-Dichloroethane	8260D	0.51		ug/L	41
008	ERD-OBSW-1S	Aqueous	cis-1,2-Dichloroethene	8260D	0.65		ug/L	41

Detection Summary (Continued)

Lot Number: WH20094

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
008	ERD-OBSW-1S	Aqueous	Trichloroethene	8260D	240		ug/L	42
008	ERD-OBSW-1S	Aqueous	Methane	RSK - 175	3.1	J	ug/L	43
008	ERD-OBSW-1S	Aqueous	Dissolved Iron	6010D	0.13		mg/L	44
008	ERD-OBSW-1S	Aqueous	Iron	6010D	0.21		mg/L	45
009	ISCO-OBWS-1S	Aqueous	Chloride	300.0	5.7		mg/L	46
009	ISCO-OBWS-1S	Aqueous	TDS	SM 2540C-	67		mg/L	46
009	ISCO-OBWS-1S	Aqueous	Chloroform	8260D	5.9		ug/L	47
009	ISCO-OBWS-1S	Aqueous	cis-1,2-Dichloroethene	8260D	6.7		ug/L	47
009	ISCO-OBWS-1S	Aqueous	Trichloroethene	8260D	960		ug/L	48

(54 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Alkalinity @) SM 2320B-2011	1	08/27/2021 0127	AAB		13519
1		(Bicarbonate) SM 2320B-2011	1	08/27/2021 0127	AAB		
1		(Carbonate Al) SM 2320B-2011	1	08/27/2021 0127	AAB		
1		(Chloride) 300.0	1	08/21/2021 1319	AMR		13032
1		(Nitrate - N) 300.0	1	08/21/2021 1319	AMR		13034
1		(Nitrite - N) 300.0	1	08/21/2021 1319	AMR		13036
1		(Sulfate) 300.0	1	08/21/2021 1319	AMR		13037
1		(TDS) SM 2540C-2011	1	08/26/2021 2308	SJL		13498
1		(TOC) SM 5310C-2011	1	08/27/2021 0017	GDC		13440

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	ND		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	2.3		1.0	0.25	mg/L	1
Nitrate - N		300.0	0.078	B	0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TDS		SM 2540C-2011	ND		25	25	mg/L	1
TOC		SM 5310C-2011	ND		1.0	1.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1806	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1806	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		98	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	08/27/2021 1011	TML		13554

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1418	KSH2	08/25/2021 0320	13075

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.050	J	0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-001
Description: MW-2	Matrix: Aqueous
Date Sampled: 08/19/2021 1630	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1002	JMH	08/24/2021 1053	13076

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-002
Description: TMW-31	Matrix: Aqueous
Date Sampled: 08/20/2021 0950	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	08/24/2021 1836	AMR		13243
1		(TDS) SM 2540C-2011	1	08/27/2021 2252	SJL		13648

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	6.1		1.0	0.25	mg/L	1
TDS		SM 2540C-2011	41		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-002
Description: TMW-31	Matrix: Aqueous
Date Sampled: 08/20/2021 0950	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1855	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	8.5		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND		5.0	4.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-002
Description: TMW-31	Matrix: Aqueous
Date Sampled: 08/20/2021 0950	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1855	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	920		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		92	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-003
Description: TMW-29	Matrix: Aqueous
Date Sampled: 08/20/2021 1040	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	08/24/2021 1933	AMR		13243
1		(TDS) SM 2540C-2011	1	08/27/2021 2252	SJL		13648

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	3.1		1.0	0.25	mg/L	1
TDS		SM 2540C-2011	ND		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-003
Description: TMW-29	Matrix: Aqueous
Date Sampled: 08/20/2021 1040	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1831	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	24		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	50		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-003
Description: TMW-29	Matrix: Aqueous
Date Sampled: 08/20/2021 1040	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1831	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	12		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		97	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Alkalinity @) SM 2320B-2011	1	08/27/2021 0142	AAB		13519
1		(Bicarbonate) SM 2320B-2011	1	08/27/2021 0142	AAB		
1		(Carbonate Al) SM 2320B-2011	1	08/27/2021 0142	AAB		
1		(Chloride) 300.0	1	08/21/2021 1338	AMR		13032
1		(Nitrate - N) 300.0	1	08/21/2021 1338	AMR		13034
1		(Nitrite - N) 300.0	1	08/21/2021 1338	AMR		13036
1		(Sulfate) 300.0	1	08/21/2021 1338	AMR		13037
1		(TOC) SM 5310C-2011	1	08/27/2021 0031	GDC		13440

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	24		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	24		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	9.2	S	1.0	0.25	mg/L	1
Nitrate - N		300.0	1.1	BS	0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	ND	S	1.0	0.25	mg/L	1
TOC		SM 5310C-2011	ND		1.0	1.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1920	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND		5.0	4.1	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1920	ECB		15202

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	870		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		98	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Dissolved Gases

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	08/27/2021 1027	TML		13554

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1436	KSH2	08/25/2021 0320	13075

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-004
Description: MW-10I	Matrix: Aqueous
Date Sampled: 08/20/2021 1145	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1006	JMH	08/24/2021 1053	13076

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	08/27/2021 0147	AAB		13519
1	(Bicarbonate)	SM 2320B-2011	1	08/27/2021 0147	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	08/27/2021 0147	AAB		
1	(Chloride)	300.0	1	08/21/2021 1435	AMR		13032
1	(Nitrate - N)	300.0	1	08/21/2021 1435	AMR		13034
1	(Nitrite - N)	300.0	1	08/21/2021 1435	AMR		13036
1	(Sulfate)	300.0	1	08/21/2021 1435	AMR		13037
1	(TOC)	SM 5310C-2011	1	08/27/2021 0044	GDC		13440

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	24		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	24		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	8.1		1.0	0.25	mg/L	1
Nitrate - N		300.0	0.98	B	0.020	0.0050	mg/L	1
Nitrite - N		300.0	0.0098	J	0.020	0.0050	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	ND		1.0	1.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1733	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	4.9	J	5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND		5.0	4.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1733	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	1000		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		90	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		101	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	08/27/2021 1043	TML		13554

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	2.9	J	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1439	KSH2	08/25/2021 0320	13075

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-005
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 08/20/2021 1235	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1017	JMH	08/24/2021 1053	13076

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	0.48		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Alkalinity @) SM 2320B-2011	1	08/27/2021 0154	AAB		13519
1		(Bicarbonate) SM 2320B-2011	1	08/27/2021 0154	AAB		
1		(Carbonate Al) SM 2320B-2011	1	08/27/2021 0154	AAB		
1		(Chloride) 300.0	1	08/21/2021 1454	AMR		13032
1		(Nitrate - N) 300.0	1	08/21/2021 1454	AMR		13034
1		(Nitrite - N) 300.0	1	08/21/2021 1454	AMR		13036
1		(Sulfate) 300.0	1	08/21/2021 1454	AMR		13037
1		(TOC) SM 5310C-2011	1	08/27/2021 0057	GDC		13440

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	ND		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	37		1.0	0.25	mg/L	1
Nitrate - N		300.0	1.2	B	0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	0.25	J	1.0	0.25	mg/L	1
TOC		SM 5310C-2011	ND		1.0	1.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260D	5	08/31/2021 1651	ECB		15206

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		50	20	ug/L	2
Benzene	71-43-2	8260D	ND		2.5	2.0	ug/L	2
Bromodichloromethane	75-27-4	8260D	ND		2.5	2.0	ug/L	2
Bromoform	75-25-2	8260D	ND		2.5	2.0	ug/L	2
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		2.5	2.0	ug/L	2
2-Butanone (MEK)	78-93-3	8260D	ND		50	10	ug/L	2
Carbon disulfide	75-15-0	8260D	ND		2.5	2.0	ug/L	2
Carbon tetrachloride	56-23-5	8260D	ND		2.5	2.0	ug/L	2
Chlorobenzene	108-90-7	8260D	ND		2.5	2.0	ug/L	2
Chloroethane	75-00-3	8260D	ND		2.5	2.0	ug/L	2
Chloroform	67-66-3	8260D	ND		2.5	2.0	ug/L	2
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		2.5	2.0	ug/L	2
Cyclohexane	110-82-7	8260D	ND		2.5	2.0	ug/L	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		2.5	2.0	ug/L	2
Dibromochloromethane	124-48-1	8260D	ND		2.5	2.0	ug/L	2
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		2.5	2.0	ug/L	2
1,2-Dichlorobenzene	95-50-1	8260D	ND		2.5	2.0	ug/L	2
1,3-Dichlorobenzene	541-73-1	8260D	ND		2.5	2.0	ug/L	2
1,4-Dichlorobenzene	106-46-7	8260D	ND		2.5	2.0	ug/L	2
Dichlorodifluoromethane	75-71-8	8260D	ND		2.5	2.0	ug/L	2
1,1-Dichloroethane	75-34-3	8260D	ND		2.5	2.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260D	3.6		2.5	2.0	ug/L	2
1,1-Dichloroethene	75-35-4	8260D	ND		2.5	2.0	ug/L	2
cis-1,2-Dichloroethene	156-59-2	8260D	2.9		2.5	2.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	ND		2.5	2.0	ug/L	2
1,2-Dichloropropane	78-87-5	8260D	ND		2.5	2.0	ug/L	2
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		2.5	2.0	ug/L	2
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		2.5	2.0	ug/L	2
Ethylbenzene	100-41-4	8260D	ND		2.5	2.0	ug/L	2
2-Hexanone	591-78-6	8260D	ND		50	10	ug/L	2
Isopropylbenzene	98-82-8	8260D	ND		2.5	2.0	ug/L	2
Methyl acetate	79-20-9	8260D	ND		5.0	2.0	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		2.5	2.0	ug/L	2
4-Methyl-2-pentanone	108-10-1	8260D	ND		50	10	ug/L	2
Methylcyclohexane	108-87-2	8260D	ND		25	2.0	ug/L	2
Methylene chloride	75-09-2	8260D	ND		2.5	2.0	ug/L	2
Styrene	100-42-5	8260D	ND		2.5	2.1	ug/L	2
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		2.5	2.0	ug/L	2
Tetrachloroethene	127-18-4	8260D	ND		2.5	2.0	ug/L	2
Toluene	108-88-3	8260D	ND		2.5	2.0	ug/L	2
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		5.0	2.1	ug/L	2
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		2.5	2.0	ug/L	2
1,1,1-Trichloroethane	71-55-6	8260D	ND		2.5	2.0	ug/L	2
1,1,2-Trichloroethane	79-00-5	8260D	ND		2.5	2.0	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260D	5	08/31/2021 1651	ECB		15206

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	740		2.5	2.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND		2.5	2.0	ug/L	2
Vinyl chloride	75-01-4	8260D	ND		2.5	2.0	ug/L	2
Xylenes (total)	1330-20-7	8260D	ND		5.0	2.0	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		109	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		103	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	08/27/2021 1108	TML		13554

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1451	KSH2	08/25/2021 0320	13075

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-006
Description: MW-10	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1020	JMH	08/24/2021 1053	13076

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	0.087	J	0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-007
Description: MW-10-DUP	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	08/27/2021 1707	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		50	20	ug/L	1
Benzene	71-43-2	8260D	ND		2.5	2.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		2.5	2.0	ug/L	1
Bromoform	75-25-2	8260D	ND		2.5	2.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		2.5	2.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		50	10	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		2.5	2.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		2.5	2.0	ug/L	1
Chlorobenzene	108-90-7	8260D	3.5		2.5	2.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		2.5	2.0	ug/L	1
Chloroform	67-66-3	8260D	ND		2.5	2.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		2.5	2.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		2.5	2.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		2.5	2.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		2.5	2.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		2.5	2.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	3.5		2.5	2.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		2.5	2.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	2.5		2.5	2.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		2.5	2.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		2.5	2.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		2.5	2.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		2.5	2.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		50	10	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		2.5	2.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		5.0	2.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		2.5	2.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		50	10	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		25	2.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		2.5	2.0	ug/L	1
Styrene	100-42-5	8260D	ND		2.5	2.1	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		2.5	2.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		2.5	2.0	ug/L	1
Toluene	108-88-3	8260D	ND		2.5	2.0	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		5.0	2.1	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		2.5	2.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		2.5	2.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		2.5	2.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-007
Description: MW-10-DUP	Matrix: Aqueous
Date Sampled: 08/20/2021 1355	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	08/27/2021 1707	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	790		2.5	2.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		2.5	2.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		2.5	2.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		5.0	2.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		90	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		101	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	08/27/2021 0200	AAB		13519
1	(Bicarbonate)	SM 2320B-2011	1	08/27/2021 0200	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	08/27/2021 0200	AAB		
1	(Chloride)	300.0	1	08/21/2021 1513	AMR		13032
1	(Nitrate - N)	300.0	1	08/21/2021 1513	AMR		13034
1	(Nitrite - N)	300.0	1	08/21/2021 1513	AMR		13036
1	(Sulfate)	300.0	1	08/21/2021 1513	AMR		13037
1	(TOC)	SM 5310C-2011	1	08/27/2021 0136	GDC		13440

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	21		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	21		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	69		1.0	0.25	mg/L	1
Nitrate - N		300.0	1.8	B	0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	1.4		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	ND		1.0	1.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1641	ECB		15201
2	5030B	8260D	5	08/31/2021 1716	ECB		15206

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	0.97		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	0.45	J	0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.51		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	0.65		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	08/27/2021 1641	ECB		15201
2	5030B	8260D	5	08/31/2021 1716	ECB		15206

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	240		2.5	2.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		88	70-130		104	70-130
1,2-Dichloroethane-d4		98	70-130		101	70-130
Toluene-d8		101	70-130		100	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	08/27/2021 1124	TML		13554

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	3.1	J	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1454	KSH2	08/25/2021 0320	13075

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.13		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH20094-008
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1500	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/25/2021 1024	JMH	08/24/2021 1053	13076

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	0.21		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WH20094-009
Description: ISCO-OBWS-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1620	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	08/24/2021 1952	AMR		13243
1		(TDS) SM 2540C-2011	1	08/27/2021 2252	SJL		13648

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	5.7		1.0	0.25	mg/L	1
TDS		SM 2540C-2011	67		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-009
Description: ISCO-OBWS-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1620	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1824	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	5.9		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	6.7		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND		5.0	4.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH20094-009
Description: ISCO-OBWS-1S	Matrix: Aqueous
Date Sampled: 08/20/2021 1620	
Date Received: 08/20/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	08/27/2021 1824	ECB		15201

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	960		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		91	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		102	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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QC Summary

Inorganic non-metals - MB

Sample ID: WQ13032-001

Matrix: Aqueous

Batch: 13032

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	08/21/2021 1223

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13032-002

Matrix: Aqueous

Batch: 13032

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	103	90-110	08/21/2021 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WH20094-004MS

Matrix: Aqueous

Batch: 13032

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	9.2	10	16	N	1	68	90-110	08/21/2021 1357

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WH20094-004MD

Matrix: Aqueous

Batch: 13032

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	9.2	10	16	N	1	69	0.70	90-110	20	08/21/2021 1416

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13034-001

Matrix: Aqueous

Batch: 13034

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	0.0056	J	1	0.020	0.0050	mg/L	08/21/2021 1223

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13034-002

Matrix: Aqueous

Batch: 13034

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.80	0.85		1	106	90-110	08/21/2021 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WH20094-004MS

Matrix: Aqueous

Batch: 13034

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	1.1	0.40	1.4	N	1	70	90-110	08/21/2021 1357

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WH20094-004MD

Matrix: Aqueous

Batch: 13034

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	1.1	0.40	1.4	N	1	69	0.20	90-110	20	08/21/2021 1416

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13036-001

Matrix: Aqueous

Batch: 13036

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.0050	mg/L	08/21/2021 1223

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13036-002

Matrix: Aqueous

Batch: 13036

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.80	0.81		1	102	90-110	08/21/2021 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WH20094-004MS

Matrix: Aqueous

Batch: 13036

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	ND	0.40	0.42		1	106	90-110	08/21/2021 1357

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WH20094-004MD

Matrix: Aqueous

Batch: 13036

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	ND	0.40	0.43		1	107	1.1	90-110	20	08/21/2021 1416

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13037-001

Matrix: Aqueous

Batch: 13037

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	08/21/2021 1223

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13037-002

Matrix: Aqueous

Batch: 13037

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	21		1	106	90-110	08/21/2021 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: WH20094-004MS

Matrix: Aqueous

Batch: 13037

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	ND	10	7.1	N	1	71	90-110	08/21/2021 1357

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WH20094-004MD

Matrix: Aqueous

Batch: 13037

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Sulfate	ND	10	6.9	N	1	69	3.7	90-110	20	08/21/2021 1416

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13243-001

Matrix: Aqueous

Batch: 13243

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	08/24/2021 1159

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13243-002

Matrix: Aqueous

Batch: 13243

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	103	90-110	08/24/2021 1237

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Inorganic non-metals - MS

Sample ID: WH20094-009MS

Matrix: Aqueous

Batch: 13243

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	5.7	10	16		1	102	90-110	08/24/2021 2011

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: WH20094-009MD

Matrix: Aqueous

Batch: 13243

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	5.7	10	16		1	102	0.25	90-110	20	08/24/2021 2030

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13440-001

Matrix: Aqueous

Batch: 13440

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	08/26/2021 1916

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Inorganic non-metals - LCS

Sample ID: WQ13440-002

Matrix: Aqueous

Batch: 13440

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	19		1	97	90-110	08/26/2021 1929

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13498-001

Matrix: Aqueous

Batch: 13498

Analytical Method: SM 2540C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TDS	ND		1	25	25	mg/L	08/26/2021 2308

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13498-002

Matrix: Aqueous

Batch: 13498

Analytical Method: SM 2540C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TDS	1500	1500		1	100	90-110	08/26/2021 2308

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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Inorganic non-metals - Duplicate

Sample ID: WH20094-001DU

Matrix: Aqueous

Batch: 13498

Analytical Method: SM 2540C-2011

Parameter	Sample Amount (mg/L)	Result (mg/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
TDS	ND	ND		1	0.00	20	08/26/2021 2308

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13519-002

Matrix: Aqueous

Batch: 13519

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	98	1	98	90-110	08/27/2021 0029

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ13648-001

Matrix: Aqueous

Batch: 13648

Analytical Method: SM 2540C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TDS	ND		1	25	25	mg/L	08/27/2021 2114

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ13648-002

Matrix: Aqueous

Batch: 13648

Analytical Method: SM 2540C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TDS	1500	1500		1	100	90-110	08/27/2021 2114

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15201-001

Matrix: Aqueous

Batch: 15201

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	08/27/2021 1125
Benzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Bromodichloromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Bromoform	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	08/27/2021 1125
2-Butanone (MEK)	ND		1	10	2.0	ug/L	08/27/2021 1125
Carbon disulfide	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Chlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Chloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Chloroform	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Cyclohexane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Dibromochloromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Ethylbenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
2-Hexanone	ND		1	10	2.0	ug/L	08/27/2021 1125
Isopropylbenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Methyl acetate	ND		1	1.0	0.40	ug/L	08/27/2021 1125
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	08/27/2021 1125
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	08/27/2021 1125
Methylcyclohexane	ND		1	5.0	0.40	ug/L	08/27/2021 1125
Methylene chloride	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Styrene	ND		1	0.50	0.41	ug/L	08/27/2021 1125
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Tetrachloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Toluene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	08/27/2021 1125
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15201-001

Matrix: Aqueous

Batch: 15201

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Vinyl chloride	ND		1	0.50	0.40	ug/L	08/27/2021 1125
Xylenes (total)	ND		1	1.0	0.40	ug/L	08/27/2021 1125
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		88	70-130				
1,2-Dichloroethane-d4		99	70-130				
Toluene-d8		100	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15201-002

Matrix: Aqueous

Batch: 15201

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	100		1	102	60-140	08/27/2021 1025
Benzene	50	49		1	99	70-130	08/27/2021 1025
Bromodichloromethane	50	50		1	100	70-130	08/27/2021 1025
Bromoform	50	48		1	96	70-130	08/27/2021 1025
Bromomethane (Methyl bromide)	50	46		1	91	70-130	08/27/2021 1025
2-Butanone (MEK)	100	110		1	112	70-130	08/27/2021 1025
Carbon disulfide	50	49		1	97	70-130	08/27/2021 1025
Carbon tetrachloride	50	49		1	97	70-130	08/27/2021 1025
Chlorobenzene	50	50		1	100	70-130	08/27/2021 1025
Chloroethane	50	40		1	80	70-130	08/27/2021 1025
Chloroform	50	51		1	102	70-130	08/27/2021 1025
Chloromethane (Methyl chloride)	50	40		1	80	60-140	08/27/2021 1025
Cyclohexane	50	41		1	83	70-130	08/27/2021 1025
1,2-Dibromo-3-chloropropane (DBCP)	50	52		1	104	70-130	08/27/2021 1025
Dibromochloromethane	50	55		1	110	70-130	08/27/2021 1025
1,2-Dibromoethane (EDB)	50	51		1	103	70-130	08/27/2021 1025
1,2-Dichlorobenzene	50	51		1	102	70-130	08/27/2021 1025
1,3-Dichlorobenzene	50	51		1	101	70-130	08/27/2021 1025
1,4-Dichlorobenzene	50	49		1	97	70-130	08/27/2021 1025
Dichlorodifluoromethane	50	40		1	81	60-140	08/27/2021 1025
1,1-Dichloroethane	50	49		1	99	70-130	08/27/2021 1025
1,2-Dichloroethane	50	49		1	98	70-130	08/27/2021 1025
1,1-Dichloroethene	50	51		1	101	70-130	08/27/2021 1025
cis-1,2-Dichloroethene	50	53		1	107	70-130	08/27/2021 1025
trans-1,2-Dichloroethene	50	52		1	104	70-130	08/27/2021 1025
1,2-Dichloropropane	50	47		1	94	70-130	08/27/2021 1025
cis-1,3-Dichloropropene	50	53		1	107	70-130	08/27/2021 1025
trans-1,3-Dichloropropene	50	46		1	92	70-130	08/27/2021 1025
Ethylbenzene	50	52		1	105	70-130	08/27/2021 1025
2-Hexanone	100	89		1	89	70-130	08/27/2021 1025
Isopropylbenzene	50	56		1	112	70-130	08/27/2021 1025
Methyl acetate	50	48		1	97	70-130	08/27/2021 1025
Methyl tertiary butyl ether (MTBE)	50	54		1	107	70-130	08/27/2021 1025
4-Methyl-2-pentanone	100	88		1	88	70-130	08/27/2021 1025
Methylcyclohexane	50	50		1	99	70-130	08/27/2021 1025
Methylene chloride	50	51		1	101	70-130	08/27/2021 1025
Styrene	50	50		1	100	70-130	08/27/2021 1025
1,1,2,2-Tetrachloroethane	50	48		1	96	70-130	08/27/2021 1025
Tetrachloroethene	50	49		1	99	70-130	08/27/2021 1025
Toluene	50	51		1	102	70-130	08/27/2021 1025
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	49		1	98	70-130	08/27/2021 1025
1,2,4-Trichlorobenzene	50	54		1	107	70-130	08/27/2021 1025
1,1,1-Trichloroethane	50	49		1	99	70-130	08/27/2021 1025
1,1,2-Trichloroethane	50	49		1	98	70-130	08/27/2021 1025

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ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15201-002

Matrix: Aqueous

Batch: 15201

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	50		1	100	70-130	08/27/2021 1025
Trichlorofluoromethane	50	44		1	88	70-130	08/27/2021 1025
Vinyl chloride	50	41		1	82	70-130	08/27/2021 1025
Xylenes (total)	100	110		1	109	70-130	08/27/2021 1025
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		89			70-130		
1,2-Dichloroethane-d4		89			70-130		
Toluene-d8		85			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15202-001

Matrix: Aqueous

Batch: 15202

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	08/27/2021 1041
Benzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Bromodichloromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Bromoform	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	08/27/2021 1041
2-Butanone (MEK)	ND		1	10	2.0	ug/L	08/27/2021 1041
Carbon disulfide	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Chlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Chloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Chloroform	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Cyclohexane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Dibromochloromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Ethylbenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
2-Hexanone	ND		1	10	2.0	ug/L	08/27/2021 1041
Isopropylbenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Methyl acetate	ND		1	1.0	0.40	ug/L	08/27/2021 1041
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	08/27/2021 1041
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	08/27/2021 1041
Methylcyclohexane	ND		1	5.0	0.40	ug/L	08/27/2021 1041
Methylene chloride	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Styrene	ND		1	0.50	0.41	ug/L	08/27/2021 1041
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Tetrachloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Toluene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	08/27/2021 1041
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15202-001

Matrix: Aqueous

Batch: 15202

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Vinyl chloride	ND		1	0.50	0.40	ug/L	08/27/2021 1041
Xylenes (total)	ND		1	1.0	0.40	ug/L	08/27/2021 1041
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		104	70-130				
1,2-Dichloroethane-d4		103	70-130				
Toluene-d8		101	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15202-002

Matrix: Aqueous

Batch: 15202

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	79		1	79	60-140	08/27/2021 0938
Benzene	50	47		1	94	70-130	08/27/2021 0938
Bromodichloromethane	50	48		1	97	70-130	08/27/2021 0938
Bromoform	50	47		1	94	70-130	08/27/2021 0938
Bromomethane (Methyl bromide)	50	49		1	98	70-130	08/27/2021 0938
2-Butanone (MEK)	100	110		1	113	70-130	08/27/2021 0938
Carbon disulfide	50	44		1	88	70-130	08/27/2021 0938
Carbon tetrachloride	50	47		1	93	70-130	08/27/2021 0938
Chlorobenzene	50	46		1	93	70-130	08/27/2021 0938
Chloroethane	50	52		1	104	70-130	08/27/2021 0938
Chloroform	50	49		1	98	70-130	08/27/2021 0938
Chloromethane (Methyl chloride)	50	52		1	104	60-140	08/27/2021 0938
Cyclohexane	50	44		1	88	70-130	08/27/2021 0938
1,2-Dibromo-3-chloropropane (DBCP)	50	48		1	96	70-130	08/27/2021 0938
Dibromochloromethane	50	48		1	96	70-130	08/27/2021 0938
1,2-Dibromoethane (EDB)	50	49		1	98	70-130	08/27/2021 0938
1,2-Dichlorobenzene	50	46		1	91	70-130	08/27/2021 0938
1,3-Dichlorobenzene	50	45		1	90	70-130	08/27/2021 0938
1,4-Dichlorobenzene	50	45		1	90	70-130	08/27/2021 0938
Dichlorodifluoromethane	50	61		1	122	60-140	08/27/2021 0938
1,1-Dichloroethane	50	48		1	96	70-130	08/27/2021 0938
1,2-Dichloroethane	50	49		1	98	70-130	08/27/2021 0938
1,1-Dichloroethene	50	47		1	93	70-130	08/27/2021 0938
cis-1,2-Dichloroethene	50	48		1	95	70-130	08/27/2021 0938
trans-1,2-Dichloroethene	50	46		1	93	70-130	08/27/2021 0938
1,2-Dichloropropane	50	49		1	99	70-130	08/27/2021 0938
cis-1,3-Dichloropropene	50	50		1	100	70-130	08/27/2021 0938
trans-1,3-Dichloropropene	50	49		1	98	70-130	08/27/2021 0938
Ethylbenzene	50	47		1	94	70-130	08/27/2021 0938
2-Hexanone	100	110		1	105	70-130	08/27/2021 0938
Isopropylbenzene	50	46		1	93	70-130	08/27/2021 0938
Methyl acetate	50	51		1	103	70-130	08/27/2021 0938
Methyl tertiary butyl ether (MTBE)	50	46		1	92	70-130	08/27/2021 0938
4-Methyl-2-pentanone	100	110		1	107	70-130	08/27/2021 0938
Methylcyclohexane	50	47		1	94	70-130	08/27/2021 0938
Methylene chloride	50	47		1	95	70-130	08/27/2021 0938
Styrene	50	50		1	100	70-130	08/27/2021 0938
1,1,2,2-Tetrachloroethane	50	50		1	100	70-130	08/27/2021 0938
Tetrachloroethene	50	45		1	89	70-130	08/27/2021 0938
Toluene	50	47		1	93	70-130	08/27/2021 0938
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	48		1	95	70-130	08/27/2021 0938
1,2,4-Trichlorobenzene	50	44		1	88	70-130	08/27/2021 0938
1,1,1-Trichloroethane	50	48		1	95	70-130	08/27/2021 0938
1,1,2-Trichloroethane	50	50		1	99	70-130	08/27/2021 0938

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DL = Detection Limit

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15202-002

Matrix: Aqueous

Batch: 15202

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	45		1	91	70-130	08/27/2021 0938
Trichlorofluoromethane	50	51		1	102	70-130	08/27/2021 0938
Vinyl chloride	50	50		1	99	70-130	08/27/2021 0938
Xylenes (total)	100	94		1	94	70-130	08/27/2021 0938
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		96			70-130		
1,2-Dichloroethane-d4		99			70-130		
Toluene-d8		93			70-130		

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15206-001

Matrix: Aqueous

Batch: 15206

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	08/31/2021 0925
Benzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Bromodichloromethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Bromoform	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	08/31/2021 0925
2-Butanone (MEK)	ND		1	10	2.0	ug/L	08/31/2021 0925
Carbon disulfide	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Chlorobenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Chloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Chloroform	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Cyclohexane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Dibromochloromethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Ethylbenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
2-Hexanone	ND		1	10	2.0	ug/L	08/31/2021 0925
Isopropylbenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Methyl acetate	ND		1	1.0	0.40	ug/L	08/31/2021 0925
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	08/31/2021 0925
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	08/31/2021 0925
Methylcyclohexane	ND		1	5.0	0.40	ug/L	08/31/2021 0925
Methylene chloride	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Styrene	ND		1	0.50	0.41	ug/L	08/31/2021 0925
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Tetrachloroethene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Toluene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	08/31/2021 0925
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925

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J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15206-001

Matrix: Aqueous

Batch: 15206

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Vinyl chloride	ND		1	0.50	0.40	ug/L	08/31/2021 0925
Xylenes (total)	ND		1	1.0	0.40	ug/L	08/31/2021 0925
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		101	70-130				
1,2-Dichloroethane-d4		93	70-130				
Toluene-d8		95	70-130				

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15206-002

Matrix: Aqueous

Batch: 15206

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	130		1	127	60-140	08/31/2021 0825
Benzene	50	46		1	91	70-130	08/31/2021 0825
Bromodichloromethane	50	46		1	93	70-130	08/31/2021 0825
Bromoform	50	43		1	86	70-130	08/31/2021 0825
Bromomethane (Methyl bromide)	50	50		1	100	70-130	08/31/2021 0825
2-Butanone (MEK)	100	120		1	116	70-130	08/31/2021 0825
Carbon disulfide	50	46		1	92	70-130	08/31/2021 0825
Carbon tetrachloride	50	48		1	95	70-130	08/31/2021 0825
Chlorobenzene	50	44		1	88	70-130	08/31/2021 0825
Chloroethane	50	49		1	97	70-130	08/31/2021 0825
Chloroform	50	48		1	96	70-130	08/31/2021 0825
Chloromethane (Methyl chloride)	50	50		1	100	60-140	08/31/2021 0825
Cyclohexane	50	44		1	89	70-130	08/31/2021 0825
1,2-Dibromo-3-chloropropane (DBCP)	50	43		1	87	70-130	08/31/2021 0825
Dibromochloromethane	50	45		1	91	70-130	08/31/2021 0825
1,2-Dibromoethane (EDB)	50	45		1	90	70-130	08/31/2021 0825
1,2-Dichlorobenzene	50	45		1	89	70-130	08/31/2021 0825
1,3-Dichlorobenzene	50	43		1	86	70-130	08/31/2021 0825
1,4-Dichlorobenzene	50	43		1	85	70-130	08/31/2021 0825
Dichlorodifluoromethane	50	64		1	127	60-140	08/31/2021 0825
1,1-Dichloroethane	50	48		1	96	70-130	08/31/2021 0825
1,2-Dichloroethane	50	47		1	93	70-130	08/31/2021 0825
1,1-Dichloroethene	50	48		1	97	70-130	08/31/2021 0825
cis-1,2-Dichloroethene	50	47		1	94	70-130	08/31/2021 0825
trans-1,2-Dichloroethene	50	47		1	95	70-130	08/31/2021 0825
1,2-Dichloropropane	50	47		1	93	70-130	08/31/2021 0825
cis-1,3-Dichloropropene	50	47		1	95	70-130	08/31/2021 0825
trans-1,3-Dichloropropene	50	46		1	92	70-130	08/31/2021 0825
Ethylbenzene	50	45		1	90	70-130	08/31/2021 0825
2-Hexanone	100	95		1	95	70-130	08/31/2021 0825
Isopropylbenzene	50	47		1	94	70-130	08/31/2021 0825
Methyl acetate	50	48		1	97	70-130	08/31/2021 0825
Methyl tertiary butyl ether (MTBE)	50	44		1	89	70-130	08/31/2021 0825
4-Methyl-2-pentanone	100	92		1	92	70-130	08/31/2021 0825
Methylcyclohexane	50	47		1	94	70-130	08/31/2021 0825
Methylene chloride	50	47		1	95	70-130	08/31/2021 0825
Styrene	50	47		1	94	70-130	08/31/2021 0825
1,1,2,2-Tetrachloroethane	50	47		1	94	70-130	08/31/2021 0825
Tetrachloroethene	50	44		1	87	70-130	08/31/2021 0825
Toluene	50	45		1	90	70-130	08/31/2021 0825
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	50		1	99	70-130	08/31/2021 0825
1,2,4-Trichlorobenzene	50	44		1	89	70-130	08/31/2021 0825
1,1,1-Trichloroethane	50	49		1	97	70-130	08/31/2021 0825
1,1,2-Trichloroethane	50	46		1	93	70-130	08/31/2021 0825

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+ = RPD is out of criteria

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15206-002

Matrix: Aqueous

Batch: 15206

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	45		1	89	70-130	08/31/2021 0825
Trichlorofluoromethane	50	55		1	109	70-130	08/31/2021 0825
Vinyl chloride	50	52		1	103	70-130	08/31/2021 0825
Xylenes (total)	100	93		1	93	70-130	08/31/2021 0825
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		91			70-130		
1,2-Dichloroethane-d4		96			70-130		
Toluene-d8		92			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Dissolved Gases - MB

Sample ID: WQ13554-001

Matrix: Aqueous

Batch: 13554

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	08/27/2021 0952
Ethene	ND		1	10	2.5	ug/L	08/27/2021 0952
Methane	ND		1	10	2.5	ug/L	08/27/2021 0952

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N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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Dissolved Gases - LCS

Sample ID: WQ13554-002

Matrix: Aqueous

Batch: 13554

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	560		1	101	70-130	08/27/2021 0920
Ethene	520	530		1	102	70-130	08/27/2021 0920
Methane	300	290		1	100	70-130	08/27/2021 0920

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Dissolved Gases - LCSD

Sample ID: WQ13554-003

Matrix: Aqueous

Batch: 13554

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	550	570		1	103	1.4	70-130	30	08/27/2021 0938
Ethene	520	530		1	104	1.2	70-130	30	08/27/2021 0938
Methane	300	300		1	101	1.6	70-130	30	08/27/2021 0938

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: WQ13075-001

Matrix: Aqueous

Batch: 13075

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/25/2021 0320

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	08/26/2021 1017

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: WQ13075-002

Matrix: Aqueous

Batch: 13075

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/25/2021 0320

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	21		1	104	80-120	08/26/2021 1021

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: WH20094-001MS

Matrix: Aqueous

Batch: 13075

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/25/2021 0320

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	0.050	20	20		1	99	75-125	08/25/2021 1421

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MSD

Sample ID: WH20094-001MD

Matrix: Aqueous

Batch: 13075

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/25/2021 0320

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	0.050	20	20		1	100	0.42	75-125	20	08/25/2021 1425

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: WQ13076-001

Matrix: Aqueous

Batch: 13076

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/24/2021 1053

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	08/25/2021 0911

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: WQ13076-002

Matrix: Aqueous

Batch: 13076

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 08/24/2021 1053

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	21		1	105	80-120	08/25/2021 0914

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents



PACE ANALYTICAL SERVICES, LLC
 106 Vantage Point Drive • West Columbia, SC 29172
 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.pacelabs.com

Number 124410

Client GEOM		Report to Contact Scott Coles		Telephone No. / E-mail 803-791-9700 / scoles@pacelabs.com		Quote No.	
Address 101 Research Drive		Sampler's Signature <i>[Signature]</i>		Analysis (Attach list if more space is needed)		Page 1 of 1	
City Columbia		Project Name Shakespeare - Signify		VOC		Diss Metals Fe	
State SC		Project No. 60635197		TDS		Dissolved Gases MET	
Zip Code 29203		Collection Date(s)		Chloride		100 mg/L SO ₄ /BULK	
Project Name Shakespeare - Signify		Calculation Time (Min/Sec)		TOC		Remarks / Cooter I.D.	
Sample ID / Description MW-2		Collection Date(s)		VOC		IHL	
P.O. No.		Collection Date(s)		X		WH20094	
Sample ID / Description TMW-31		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description TMW-29		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description MW-10I		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description ERD-OB5W-1E		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description MW-10		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description MW-10-DUP		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description ERD-OB5W-1S		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	
Sample ID / Description ISO-OBWS-1S		Collection Date(s)		X		Remarks / Cooter I.D.	
P.O. No.		Collection Date(s)		X		IHL	

Sample ID / Description	Collection Date(s)	Calculation Time (Min/Sec)	Monitor	No. of Containers by Preservative Type	Agencies	Sample Disposal	Releasable / Hazard Identification	CC Requirements (Specify)
MW-2	8/19/24	1630	4	1 1 5	6 X	1. Return to Client	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	Date: 8/20/24 Time: 1715
TMW-31	8/20/24	0930	2	3	6 X	2. Received by		Date: 8/20/24 Time: 1715
TMW-29	8/20/24	1040	2	3	6 X	3. Received by		Date: 8/20/24 Time: 1715
MW-10I	8/20/24	1145	3	1 1 5	6 X	4. Laboratory received by		Date: 8/20/24 Time: 1715
ERD-OB5W-1E	8/20/24	1235	3	1 1 5	6 X			Date: 8/20/24 Time: 1715
MW-10	8/20/24	1355	3	1 1 5	6 X			Date: 8/20/24 Time: 1715
MW-10-DUP	8/20/24	1355	3	1 1 5	6 X			Date: 8/20/24 Time: 1715
ERD-OB5W-1S	8/20/24	1500	3	1 1 5	6 X			Date: 8/20/24 Time: 1715
ISO-OBWS-1S	8/20/24	1620	2	3	6 X			Date: 8/20/24 Time: 1715

1. Requisitioned by <i>[Signature]</i>	Date: 8/20/24 Time: 1715
2. Requisitioned by <i>[Signature]</i>	Date: 8/20/24 Time: 1842
3. Requisitioned by	Date: Time:
4. Requisitioned by	Date: Time:

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

Document Number: M500002-01

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Samples; PINK-Field/Cuent Copy

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: AECOM Cooler Inspected by/date: JSM / 08/20/2021 Lot #: WH20094

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: 21-852 Chlorine Strip ID: NA Tested by: JSM	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA 2.8 / 2.8 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # 24900
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: JSM Date: 08/20/2021	

Comments:



Report of Analysis

AECOM

101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Shakespeare

Project Number: 60635197

Lot Number: **WJ29086**

Date Completed: 11/30/2021

Hannah K Lucas

12/01/2021 4:05 PM

Approved and released by:
Project Manager I: **Hannah K. Lucas**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: WJ29086

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Volatiles

The laboratory control sample (LCS) associated with batch 22389 had 1,2,4-trichlorobenzene recovered below the acceptance limits.

The continuing calibration verification (CCV) associated with samples -001, -002, -003 and -004 recovered below acceptance limits. There were no detections for this compound in the associated samples. A LOQ standard was analyzed and the compound was detected, demonstrating there was adequate sensitivity to identify the analyte if it were present.

Sample -002 had trichloroethene recovered above the instrument's calibration range in the initial analysis. The sample was analyzed at a dilution outside of the 14-day holding time and the detections were confirmed. The initial results have been reported.

Samples -003 and -004 were diluted due to the sample matrix. The reporting limit has been raised accordingly. The samples were analyzed outside of analytical holding time due to instrumentation malfunction that did not inject samples in initial analysis.

Dissolved Gases

The laboratory control sample (LCS) associated with batch 22265 had methane and ethane recovered above the acceptance limits. This could potentially result in a high bias on analytical results. There were no detections for this compound in the samples associated with this batch; therefore, data quality is not impacted.

Inorganic non-metals

Sample -002 and -003 were diluted 5X due to the sample matrix. The reporting limit has been raised accordingly.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: WJ29086

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-10I	Aqueous	10/29/2021 1050	10/29/2021
002	ISERD-OBSW-10I	Aqueous	10/29/2021 1150	10/29/2021
003	MW-10	Aqueous	10/29/2021 1310	10/29/2021
004	ISERD-OBSW-10	Aqueous	10/29/2021 1405	10/29/2021

(4 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: WJ29086

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-10I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	36		mg CaCO3/L	14
001	MW-10I	Aqueous	Bicarbonate Alkalinity	SM 2320B-	36		mg/L	14
001	MW-10I	Aqueous	Chloride	300.0	39		mg/L	14
001	MW-10I	Aqueous	Sulfate	300.0	0.32	J	mg/L	14
001	MW-10I	Aqueous	TOC	SM 5310C-	13		mg/L	14
001	MW-10I	Aqueous	Acetone	8260D	8.9	J	ug/L	15
001	MW-10I	Aqueous	Chloroform	8260D	0.67		ug/L	15
001	MW-10I	Aqueous	1,2-Dichloroethane	8260D	0.95		ug/L	15
001	MW-10I	Aqueous	cis-1,2-Dichloroethene	8260D	1.8		ug/L	15
001	MW-10I	Aqueous	Trichloroethene	8260D	1100	E	ug/L	16
001	MW-10I	Aqueous	Dissolved Iron	6010D	0.79		mg/L	18
001	MW-10I	Aqueous	Iron	6010D	6.4		mg/L	19
002	ISERD-OBSW-10I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	180		mg CaCO3/L	20
002	ISERD-OBSW-10I	Aqueous	Bicarbonate Alkalinity	SM 2320B-	170		mg/L	20
002	ISERD-OBSW-10I	Aqueous	Chloride	300.0	9.0		mg/L	20
002	ISERD-OBSW-10I	Aqueous	TOC	SM 5310C-	460		mg/L	20
002	ISERD-OBSW-10I	Aqueous	Acetone	8260D	7.3	J	ug/L	21
002	ISERD-OBSW-10I	Aqueous	Chloroform	8260D	1.1		ug/L	21
002	ISERD-OBSW-10I	Aqueous	1,2-Dichloroethane	8260D	0.61		ug/L	21
002	ISERD-OBSW-10I	Aqueous	cis-1,2-Dichloroethene	8260D	1.6		ug/L	21
002	ISERD-OBSW-10I	Aqueous	Methyl acetate	8260D	2.2		ug/L	21
002	ISERD-OBSW-10I	Aqueous	Methylene chloride	8260D	2.3		ug/L	21
002	ISERD-OBSW-10I	Aqueous	Trichloroethene	8260D	520	E	ug/L	22
002	ISERD-OBSW-10I	Aqueous	Methane	RSK - 175	15	L	ug/L	23
002	ISERD-OBSW-10I	Aqueous	Dissolved Iron	6010D	0.70		mg/L	24
002	ISERD-OBSW-10I	Aqueous	Iron	6010D	1.2		mg/L	25
003	MW-10	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	190		mg CaCO3/L	26
003	MW-10	Aqueous	Bicarbonate Alkalinity	SM 2320B-	160		mg/L	26
003	MW-10	Aqueous	Carbonate Alkalinity	SM 2320B-	25		mg/L	26
003	MW-10	Aqueous	Chloride	300.0	29		mg/L	26
003	MW-10	Aqueous	Sulfate	300.0	2.5	J	mg/L	26
003	MW-10	Aqueous	TOC	SM 5310C-	4800		mg/L	26
003	MW-10	Aqueous	Trichloroethene	8260D	600	H	ug/L	28
003	MW-10	Aqueous	Methane	RSK - 175	9.1	JL	ug/L	29
003	MW-10	Aqueous	Dissolved Iron	6010D	0.46		mg/L	30
003	MW-10	Aqueous	Iron	6010D	1.2		mg/L	31
004	ISERD-OBSW-10	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	54		mg CaCO3/L	32
004	ISERD-OBSW-10	Aqueous	Bicarbonate Alkalinity	SM 2320B-	54		mg/L	32
004	ISERD-OBSW-10	Aqueous	Chloride	300.0	83		mg/L	32
004	ISERD-OBSW-10	Aqueous	Nitrate - N	300.0	0.026		mg/L	32
004	ISERD-OBSW-10	Aqueous	Sulfate	300.0	0.29	J	mg/L	32
004	ISERD-OBSW-10	Aqueous	TOC	SM 5310C-	71		mg/L	32
004	ISERD-OBSW-10	Aqueous	Trichloroethene	8260D	410	H	ug/L	34
004	ISERD-OBSW-10	Aqueous	Dissolved Iron	6010D	0.68		mg/L	36
004	ISERD-OBSW-10	Aqueous	Iron	6010D	1.1		mg/L	37

Detection Summary (Continued)

Lot Number: WJ29086

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
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(45 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	11/07/2021 0259	AAB		21750
1	(Bicarbonate)	SM 2320B-2011	1	11/07/2021 0259	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	11/07/2021 0259	AAB		
1	(Chloride)	300.0	1	10/31/2021 0055	AMR		21283
1	(Nitrate - N)	300.0	1	10/31/2021 0055	AMR		21286
1	(Nitrite - N)	300.0	1	10/31/2021 0055	AMR		21288
1	(Sulfate)	300.0	1	10/31/2021 0055	AMR		21284
3	(TOC)	SM 5310C-2011	1	11/19/2021 0300	AAB		23034

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	36		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	36		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	39		1.0	0.25	mg/L	1
Nitrate - N		300.0	ND		0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	0.32	J	1.0	0.25	mg/L	1
TOC		SM 5310C-2011	13		1.0	1.0	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	11/12/2021 1552	CAW		22328

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	8.9	J	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	0.67		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.95		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	1.8		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	11/12/2021 1552	CAW		22328

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	1100	E	0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		101	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	11/12/2021 0826	TML		22265

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND	L	10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND	L	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1204	KSH2	11/04/2021 0914	21232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.79		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-001
Description: MW-10I	Matrix: Aqueous
Date Sampled: 10/29/2021 1050	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1247	KSH2	11/04/2021 0914	21231

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	6.4		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	11/07/2021 0306	AAB		21750
1	(Bicarbonate)	SM 2320B-2011	1	11/07/2021 0306	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	11/07/2021 0306	AAB		
1	(Chloride)	300.0	5	10/31/2021 0114	AMR		21283
1	(Nitrate - N)	300.0	5	10/31/2021 0114	AMR		21286
1	(Nitrite - N)	300.0	5	10/31/2021 0114	AMR		21288
1	(Sulfate)	300.0	5	10/31/2021 0114	AMR		21284
3	(TOC)	SM 5310C-2011	25	11/19/2021 0313	AAB		23034

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	180		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	170		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	9.0		5.0	1.3	mg/L	1
Nitrate - N		300.0	ND		0.10	0.025	mg/L	1
Nitrite - N		300.0	ND		0.10	0.025	mg/L	1
Sulfate		300.0	ND		5.0	1.3	mg/L	1
TOC		SM 5310C-2011	460		25	25	mg/L	3

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	11/12/2021 1615	CAW		22328

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	7.3	J	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	1.1		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.61		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	1.6		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	2.2		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	2.3		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	11/12/2021 1615	CAW		22328

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	520	E	0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		101	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	11/12/2021 0840	TML		22265

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND	L	10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	15	L	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1229	KSH2	11/04/2021 0914	21232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.70		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-002
Description: ISERD-OBSW-101	Matrix: Aqueous
Date Sampled: 10/29/2021 1150	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1313	KSH2	11/04/2021 0914	21231

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	1.2		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	11/07/2021 0321	AAB		21752
1	(Bicarbonate)	SM 2320B-2011	1	11/07/2021 0321	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	11/07/2021 0321	AAB		
2	(Chloride)	300.0	10	11/03/2021 1818	AMR		21361
1	(Nitrate - N)	300.0	50	10/31/2021 0133	AMR		21286
1	(Nitrite - N)	300.0	50	10/31/2021 0133	AMR		21288
2	(Sulfate)	300.0	10	11/03/2021 1818	AMR		21362
2	(TOC)	SM 5310C-2011	300	11/18/2021 1150	AAB		22867

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	190		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	160		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	25		20	20	mg/L	1
Chloride		300.0	29		10	2.5	mg/L	2
Nitrate - N		300.0	ND		1.0	0.25	mg/L	1
Nitrite - N		300.0	ND		1.0	0.25	mg/L	1
Sulfate		300.0	2.5	J	10	2.5	mg/L	2
TOC		SM 5310C-2011	4800		300	300	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	100	11/13/2021 0515	BBW		22389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	H	1000	400	ug/L	1
Benzene	71-43-2	8260D	ND	H	50	40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND	H	50	40	ug/L	1
Bromoform	75-25-2	8260D	ND	H	50	40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	H	50	40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND	H	1000	200	ug/L	1
Carbon disulfide	75-15-0	8260D	ND	H	50	40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND	H	50	40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND	H	50	40	ug/L	1
Chloroethane	75-00-3	8260D	ND	H	50	40	ug/L	1
Chloroform	67-66-3	8260D	ND	H	50	40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND	H	50	40	ug/L	1
Cyclohexane	110-82-7	8260D	ND	H	50	40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND	H	50	40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND	H	50	40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND	H	50	40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND	H	50	40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND	H	50	40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND	H	50	40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND	H	50	40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND	H	50	40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND	H	50	40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND	H	50	40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND	H	50	40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND	H	50	40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND	H	50	40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND	H	50	40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND	H	50	40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND	H	50	40	ug/L	1
2-Hexanone	591-78-6	8260D	ND	H	1000	200	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND	H	50	40	ug/L	1
Methyl acetate	79-20-9	8260D	ND	H	100	40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND	H	50	40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND	H	1000	200	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND	H	500	40	ug/L	1
Methylene chloride	75-09-2	8260D	ND	H	50	40	ug/L	1
Styrene	100-42-5	8260D	ND	H	50	41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND	H	50	40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND	H	50	40	ug/L	1
Toluene	108-88-3	8260D	ND	H	50	40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND	H	100	42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND	HL	50	40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND	H	50	40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND	H	50	40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	100	11/13/2021 0515	BBW		22389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	600	H	50	40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND	H	50	40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND	H	50	40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND	H	100	40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene	H	91	70-130
1,2-Dichloroethane-d4	H	104	70-130
Toluene-d8	H	99	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	11/12/2021 0856	TML		22265

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND	L	10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	9.1	JL	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1233	KSH2	11/04/2021 0914	21232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.46		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-003
Description: MW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1310	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1316	KSH2	11/04/2021 0914	21231

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	1.2		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	11/07/2021 0326	AAB		21752
1	(Bicarbonate)	SM 2320B-2011	1	11/07/2021 0326	AAB		
1	(Carbonate Al)	SM 2320B-2011	1	11/07/2021 0326	AAB		
1	(Chloride)	300.0	1	10/31/2021 0152	AMR		21283
1	(Nitrate - N)	300.0	1	10/31/2021 0152	AMR		21286
1	(Nitrite - N)	300.0	1	10/31/2021 0152	AMR		21288
1	(Sulfate)	300.0	1	10/31/2021 0152	AMR		21284
3	(TOC)	SM 5310C-2011	5	11/19/2021 0326	AAB		23034

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	54		20	20	mg CaCO3/L	1
Bicarbonate Alkalinity		SM 2320B-2011	54		20	20	mg/L	1
Carbonate Alkalinity		SM 2320B-2011	ND		20	20	mg/L	1
Chloride		300.0	83		1.0	0.25	mg/L	1
Nitrate - N		300.0	0.026		0.020	0.0050	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	0.29	J	1.0	0.25	mg/L	1
TOC		SM 5310C-2011	71		5.0	5.0	mg/L	3

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	11/13/2021 0538	BBW		22389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	H	100	40	ug/L	1
Benzene	71-43-2	8260D	ND	H	5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND	H	5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND	H	5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	H	5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND	H	100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND	H	5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND	H	5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND	H	5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND	H	5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND	H	5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND	H	5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND	H	5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND	H	5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND	H	5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND	H	5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND	H	5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND	H	5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND	H	5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND	H	5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND	H	5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND	H	5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND	H	5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND	H	5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND	H	5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND	H	5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND	H	5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND	H	5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND	H	5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND	H	100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND	H	5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND	H	10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND	H	5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND	H	100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND	H	50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND	H	5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND	H	5.0	4.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND	H	5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND	H	5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND	H	5.0	4.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND	H	10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND	HL	5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND	H	5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND	H	5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	11/13/2021 0538	BBW		22389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	410	H	5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND	H	5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND	H	5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND	H	10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene	H	94	70-130
1,2-Dichloroethane-d4	H	103	70-130
Toluene-d8	H	97	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	11/12/2021 0909	TML		22265

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND	L	10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND	L	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1236	KSH2	11/04/2021 0914	21232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.68		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: WJ29086-004
Description: ISERD-OBSW-10	Matrix: Aqueous
Date Sampled: 10/29/2021 1405	
Date Received: 10/29/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	11/05/2021 1320	KSH2	11/04/2021 0914	21231

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	1.1		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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QC Summary

Inorganic non-metals - MB

Sample ID: WQ21283-001

Matrix: Aqueous

Batch: 21283

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	10/30/2021 2358

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21283-002

Matrix: Aqueous

Batch: 21283

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	104	90-110	10/31/2021 0036

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ21284-001

Matrix: Aqueous

Batch: 21284

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	10/30/2021 2358

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21284-002

Matrix: Aqueous

Batch: 21284

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	101	90-110	10/31/2021 0036

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Inorganic non-metals - MB

Sample ID: WQ21286-001

Matrix: Aqueous

Batch: 21286

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.0050	mg/L	10/30/2021 2358

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21286-002

Matrix: Aqueous

Batch: 21286

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.80	0.77		1	96	90-110	10/31/2021 0036

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ21288-001

Matrix: Aqueous

Batch: 21288

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.0050	mg/L	10/30/2021 2358

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21288-002

Matrix: Aqueous

Batch: 21288

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.80	0.73		1	91	90-110	10/31/2021 0036

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ21361-001

Matrix: Aqueous

Batch: 21361

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	11/03/2021 1605

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21361-002

Matrix: Aqueous

Batch: 21361

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	104	90-110	11/03/2021 1643

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ21362-001

Matrix: Aqueous

Batch: 21362

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	11/03/2021 1605

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21362-002

Matrix: Aqueous

Batch: 21362

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	101	90-110	11/03/2021 1643

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ21750-002

Matrix: Aqueous

Batch: 21750

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	97	1	97	90-110	11/07/2021 0145

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Inorganic non-metals - LCS

Sample ID: WQ21752-002

Matrix: Aqueous

Batch: 21752

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	99	1	99	90-110	11/07/2021 0313

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - Duplicate

Sample ID: WJ29086-004DU

Matrix: Aqueous

Batch: 21752

Analytical Method: SM 2320B-2011

Parameter	Sample Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% RPD	%RPD Limit	Analysis Date
Alkalinity @ pH 4.5 su	54	54	1	0.15	20	11/07/2021 0331

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ22867-001

Matrix: Aqueous

Batch: 22867

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	11/18/2021 0500

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ22867-002

Matrix: Aqueous

Batch: 22867

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	20		1	99	90-110	11/18/2021 0513

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: WQ23034-001

Matrix: Aqueous

Batch: 23034

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	11/18/2021 2039

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: WQ23034-002

Matrix: Aqueous

Batch: 23034

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	19		1	97	90-110	11/18/2021 2052

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ22328-001

Matrix: Aqueous

Batch: 22328

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	11/12/2021 1055
Benzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Bromodichloromethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Bromoform	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	11/12/2021 1055
2-Butanone (MEK)	ND		1	10	2.0	ug/L	11/12/2021 1055
Carbon disulfide	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Chlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Chloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Chloroform	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Cyclohexane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Dibromochloromethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Ethylbenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
2-Hexanone	ND		1	10	2.0	ug/L	11/12/2021 1055
Isopropylbenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Methyl acetate	ND		1	1.0	0.40	ug/L	11/12/2021 1055
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	11/12/2021 1055
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	11/12/2021 1055
Methylcyclohexane	ND		1	5.0	0.40	ug/L	11/12/2021 1055
Methylene chloride	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Styrene	ND		1	0.50	0.41	ug/L	11/12/2021 1055
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Tetrachloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Toluene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	11/12/2021 1055
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ22328-001

Matrix: Aqueous

Batch: 22328

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Vinyl chloride	ND		1	0.50	0.40	ug/L	11/12/2021 1055
Xylenes (total)	ND		1	1.0	0.40	ug/L	11/12/2021 1055
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		98	70-130				
1,2-Dichloroethane-d4		105	70-130				
Toluene-d8		99	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ22328-002

Matrix: Aqueous

Batch: 22328

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	120		1	118	60-140	11/12/2021 0953
Benzene	50	48		1	95	70-130	11/12/2021 0953
Bromodichloromethane	50	49		1	99	70-130	11/12/2021 0953
Bromoform	50	38		1	76	70-130	11/12/2021 0953
Bromomethane (Methyl bromide)	50	45		1	90	70-130	11/12/2021 0953
2-Butanone (MEK)	100	110		1	109	70-130	11/12/2021 0953
Carbon disulfide	50	50		1	100	70-130	11/12/2021 0953
Carbon tetrachloride	50	52		1	103	70-130	11/12/2021 0953
Chlorobenzene	50	46		1	91	70-130	11/12/2021 0953
Chloroethane	50	46		1	91	70-130	11/12/2021 0953
Chloroform	50	50		1	100	70-130	11/12/2021 0953
Chloromethane (Methyl chloride)	50	49		1	99	60-140	11/12/2021 0953
Cyclohexane	50	54		1	109	70-130	11/12/2021 0953
1,2-Dibromo-3-chloropropane (DBCP)	50	52		1	103	70-130	11/12/2021 0953
Dibromochloromethane	50	48		1	96	70-130	11/12/2021 0953
1,2-Dibromoethane (EDB)	50	48		1	95	70-130	11/12/2021 0953
1,2-Dichlorobenzene	50	45		1	91	70-130	11/12/2021 0953
1,3-Dichlorobenzene	50	46		1	91	70-130	11/12/2021 0953
1,4-Dichlorobenzene	50	44		1	88	70-130	11/12/2021 0953
Dichlorodifluoromethane	50	47		1	94	60-140	11/12/2021 0953
1,1-Dichloroethane	50	49		1	99	70-130	11/12/2021 0953
1,2-Dichloroethane	50	50		1	101	70-130	11/12/2021 0953
1,1-Dichloroethene	50	50		1	101	70-130	11/12/2021 0953
cis-1,2-Dichloroethene	50	47		1	94	70-130	11/12/2021 0953
trans-1,2-Dichloroethene	50	48		1	95	70-130	11/12/2021 0953
1,2-Dichloropropane	50	48		1	96	70-130	11/12/2021 0953
cis-1,3-Dichloropropene	50	52		1	105	70-130	11/12/2021 0953
trans-1,3-Dichloropropene	50	46		1	91	70-130	11/12/2021 0953
Ethylbenzene	50	47		1	94	70-130	11/12/2021 0953
2-Hexanone	100	110		1	109	70-130	11/12/2021 0953
Isopropylbenzene	50	50		1	99	70-130	11/12/2021 0953
Methyl acetate	50	52		1	104	70-130	11/12/2021 0953
Methyl tertiary butyl ether (MTBE)	50	50		1	99	70-130	11/12/2021 0953
4-Methyl-2-pentanone	100	110		1	107	70-130	11/12/2021 0953
Methylcyclohexane	50	48		1	97	70-130	11/12/2021 0953
Methylene chloride	50	46		1	91	70-130	11/12/2021 0953
Styrene	50	50		1	99	70-130	11/12/2021 0953
1,1,2,2-Tetrachloroethane	50	48		1	96	70-130	11/12/2021 0953
Tetrachloroethene	50	46		1	92	70-130	11/12/2021 0953
Toluene	50	49		1	97	70-130	11/12/2021 0953
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	53		1	106	70-130	11/12/2021 0953
1,2,4-Trichlorobenzene	50	44		1	87	70-130	11/12/2021 0953
1,1,1-Trichloroethane	50	52		1	104	70-130	11/12/2021 0953
1,1,2-Trichloroethane	50	46		1	91	70-130	11/12/2021 0953

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ22328-002

Matrix: Aqueous

Batch: 22328

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	47		1	93	70-130	11/12/2021 0953
Trichlorofluoromethane	50	47		1	95	70-130	11/12/2021 0953
Vinyl chloride	50	54		1	107	70-130	11/12/2021 0953
Xylenes (total)	100	96		1	96	70-130	11/12/2021 0953
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		92			70-130		
1,2-Dichloroethane-d4		95			70-130		
Toluene-d8		88			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ22389-001

Matrix: Aqueous

Batch: 22389

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	11/12/2021 2120
Benzene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Bromodichloromethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Bromoform	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	11/12/2021 2120
2-Butanone (MEK)	ND		1	10	2.0	ug/L	11/12/2021 2120
Carbon disulfide	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Chlorobenzene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Chloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Chloroform	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Cyclohexane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,2-Dibromo-3-chloropropane (DBCP)	12		1	0.50	0.40	ug/L	11/12/2021 2120
Dibromochloromethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,2-Dichlorobenzene	2.6		1	0.50	0.40	ug/L	11/12/2021 2120
1,3-Dichlorobenzene	1.5		1	0.50	0.40	ug/L	11/12/2021 2120
1,4-Dichlorobenzene	1.8		1	0.50	0.40	ug/L	11/12/2021 2120
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Ethylbenzene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
2-Hexanone	ND		1	10	2.0	ug/L	11/12/2021 2120
Isopropylbenzene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Methyl acetate	ND		1	1.0	0.40	ug/L	11/12/2021 2120
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	11/12/2021 2120
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	11/12/2021 2120
Methylcyclohexane	ND		1	5.0	0.40	ug/L	11/12/2021 2120
Methylene chloride	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Styrene	ND		1	0.50	0.41	ug/L	11/12/2021 2120
1,1,2,2-Tetrachloroethane	0.51		1	0.50	0.40	ug/L	11/12/2021 2120
Tetrachloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Toluene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	11/12/2021 2120
1,2,4-Trichlorobenzene	17		1	0.50	0.40	ug/L	11/12/2021 2120
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ22389-001

Matrix: Aqueous

Batch: 22389

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Vinyl chloride	ND		1	0.50	0.40	ug/L	11/12/2021 2120
Xylenes (total)	ND		1	1.0	0.40	ug/L	11/12/2021 2120
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		99	70-130				
1,2-Dichloroethane-d4		105	70-130				
Toluene-d8		98	70-130				

LOQ = Limit of Quantitation

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ22389-002

Matrix: Aqueous

Batch: 22389

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	120		1	118	60-140	11/12/2021 2019
Benzene	50	48		1	97	70-130	11/12/2021 2019
Bromodichloromethane	50	51		1	101	70-130	11/12/2021 2019
Bromoform	50	36		1	73	70-130	11/12/2021 2019
Bromomethane (Methyl bromide)	50	48		1	97	70-130	11/12/2021 2019
2-Butanone (MEK)	100	110		1	108	70-130	11/12/2021 2019
Carbon disulfide	50	52		1	104	70-130	11/12/2021 2019
Carbon tetrachloride	50	56		1	113	70-130	11/12/2021 2019
Chlorobenzene	50	47		1	93	70-130	11/12/2021 2019
Chloroethane	50	47		1	95	70-130	11/12/2021 2019
Chloroform	50	51		1	102	70-130	11/12/2021 2019
Chloromethane (Methyl chloride)	50	48		1	96	60-140	11/12/2021 2019
Cyclohexane	50	56		1	113	70-130	11/12/2021 2019
1,2-Dibromo-3-chloropropane (DBCP)	50	35		1	70	70-130	11/12/2021 2019
Dibromochloromethane	50	50		1	99	70-130	11/12/2021 2019
1,2-Dibromoethane (EDB)	50	49		1	98	70-130	11/12/2021 2019
1,2-Dichlorobenzene	50	45		1	90	70-130	11/12/2021 2019
1,3-Dichlorobenzene	50	46		1	92	70-130	11/12/2021 2019
1,4-Dichlorobenzene	50	44		1	89	70-130	11/12/2021 2019
Dichlorodifluoromethane	50	46		1	92	60-140	11/12/2021 2019
1,1-Dichloroethane	50	51		1	102	70-130	11/12/2021 2019
1,2-Dichloroethane	50	52		1	104	70-130	11/12/2021 2019
1,1-Dichloroethene	50	53		1	107	70-130	11/12/2021 2019
cis-1,2-Dichloroethene	50	48		1	97	70-130	11/12/2021 2019
trans-1,2-Dichloroethene	50	50		1	99	70-130	11/12/2021 2019
1,2-Dichloropropane	50	48		1	96	70-130	11/12/2021 2019
cis-1,3-Dichloropropene	50	52		1	103	70-130	11/12/2021 2019
trans-1,3-Dichloropropene	50	46		1	92	70-130	11/12/2021 2019
Ethylbenzene	50	48		1	96	70-130	11/12/2021 2019
2-Hexanone	100	100		1	104	70-130	11/12/2021 2019
Isopropylbenzene	50	49		1	99	70-130	11/12/2021 2019
Methyl acetate	50	51		1	102	70-130	11/12/2021 2019
Methyl tertiary butyl ether (MTBE)	50	51		1	101	70-130	11/12/2021 2019
4-Methyl-2-pentanone	100	100		1	101	70-130	11/12/2021 2019
Methylcyclohexane	50	46		1	93	70-130	11/12/2021 2019
Methylene chloride	50	47		1	95	70-130	11/12/2021 2019
Styrene	50	50		1	99	70-130	11/12/2021 2019
1,1,2,2-Tetrachloroethane	50	48		1	95	70-130	11/12/2021 2019
Tetrachloroethene	50	48		1	95	70-130	11/12/2021 2019
Toluene	50	49		1	99	70-130	11/12/2021 2019
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	58		1	115	70-130	11/12/2021 2019
1,2,4-Trichlorobenzene	50	22	N	1	45	70-130	11/12/2021 2019
1,1,1-Trichloroethane	50	55		1	110	70-130	11/12/2021 2019
1,1,2-Trichloroethane	50	48		1	96	70-130	11/12/2021 2019

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ22389-002

Matrix: Aqueous

Batch: 22389

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	47		1	95	70-130	11/12/2021 2019
Trichlorofluoromethane	50	50		1	100	70-130	11/12/2021 2019
Vinyl chloride	50	55		1	109	70-130	11/12/2021 2019
Xylenes (total)	100	96		1	96	70-130	11/12/2021 2019
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		92			70-130		
1,2-Dichloroethane-d4		96			70-130		
Toluene-d8		91			70-130		

LOQ = Limit of Quantitation

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J = Estimated result < LOQ and \geq DL

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Dissolved Gases - MB

Sample ID: WQ22265-001

Matrix: Aqueous

Batch: 22265

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	11/12/2021 0816
Ethene	ND		1	10	2.5	ug/L	11/12/2021 0816
Methane	ND		1	10	2.5	ug/L	11/12/2021 0816

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Dissolved Gases - LCS

Sample ID: WQ22265-002

Matrix: Aqueous

Batch: 22265

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	280	360		1	128	70-130	11/12/2021 0752
Ethene	260	330		1	126	70-130	11/12/2021 0752
Methane	150	230	N	1	149	70-130	11/12/2021 0752

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: WQ22265-003

Matrix: Aqueous

Batch: 22265

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	280	380	N	1	133	3.2	70-130	30	11/12/2021 0802
Ethene	260	340		1	130	2.8	70-130	30	11/12/2021 0802
Methane	150	230	N	1	153	2.5	70-130	30	11/12/2021 0802

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: WQ21231-001

Matrix: Aqueous

Batch: 21231

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	11/05/2021 1240

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: WQ21231-002

Matrix: Aqueous

Batch: 21231

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	20		1	100	80-120	11/05/2021 1244

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: WJ29086-001MS

Matrix: Aqueous

Batch: 21231

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	6.4	20	25		1	93	75-125	11/05/2021 1251

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

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ICP-AES Metals - MSD

Sample ID: WJ29086-001MD

Matrix: Aqueous

Batch: 21231

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Iron	6.4	20	25		1	95	1.4	75-125	20	11/05/2021 1254

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

ICP-AES Metals - MB

Sample ID: WQ21232-001

Matrix: Aqueous

Batch: 21232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	11/05/2021 1156

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: WQ21232-002

Matrix: Aqueous

Batch: 21232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	21		1	106	80-120	11/05/2021 1200

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: WJ29086-001MS

Matrix: Aqueous

Batch: 21232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	0.79	20	20		1	95	75-125	11/05/2021 1207

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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ICP-AES Metals - MSD

Sample ID: WJ29086-001MD

Matrix: Aqueous

Batch: 21232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 11/04/2021 0914

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	0.79	20	20		1	95	0.35	75-125	20	11/05/2021 1211

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents



Samples Receipt Checklist (SRC) (ME0018C-15)
 Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
 Page 1 of 1

Sample Receipt Checklist (SRC)

Client: Accom

Cooler Inspected by/date: KDRW / 10/29/2021

Lot #: WJ29086

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>21-852</u> Chlorine Strip ID: <u>NA</u> Tested by: <u>KDRW</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>NA</u> <u>3.0 / 3.0</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/pheno/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # <u>24900</u>
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # <u>NA</u>	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Samples(s) <u>NA</u> were received with TRC > 0.5 mg/L (If #19 is <i>no</i>) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: <u>NA</u>	
SR barcode labels applied by: <u>JRG2</u> Date: <u>10/29/2021</u>	
Comments: _____ _____ _____ _____ _____	



Report of Analysis

AECOM

101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Signify Shakespeare

Project Number: 60635197

Lot Number: **XC08061**

Date Completed: 03/30/2022

04/07/2022 9:27 AM

Approved and released by:
Project Manager II: **Cathy S. Dover**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: XC08061

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

VOA 8260D

The laboratory control sample (LCS) for analytical batch 34980 exceeded acceptance criteria for Acetone (156%) This analyte was biased high and was not detected in the associated samples:XC08061-001 (ERD-OBSW-1I) and XC08061-002 (MW-10I). Associated samples XC08061-003 (ERD-OBSW-1) and XC08061-005 (TB-10) had a low level (J flagged) detect for acetone. The data has been reported.

Sample XC08061-004 (MW-10) was diluted due to the nature of the sample matrix. The LOQ has been elevated to reflect the dilution.

Nitrate 300.0

The LCS associated with the following samples was analyzed after the samples: XC08061-001 (ERD-OBSW-1I), XC08061-002 (MW-10I), XC08061-003 (ERD-OBSW-1) and XC08061-004 (MW-10). The SOP specifies that the QC must be analyzed before the samples. The samples were reanalyzed for confirmation.

Reanalysis of the following samples was performed outside of the analytical holding time: XC08061-001 (ERD-OBSW-1I), XC08061-002 (MW-10I), XC08061-003 (ERD-OBSW-1) and XC08061-004 (MW-10). Due to batch and instrument failures as well as matrix interference, all samples were reanalyzed outside of holding time. Samples XC08061-003 and XC08061-004 confirm original analysis and Run 1 has been reported. XC08061-001 and XC08061-002 contained significant matrix interference in the original analysis and the reanalysis was done within 24 hours outside holding time. Both runs have been reported for these two samples.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Nitrite 300.0

Samples XC08061-001 (ERD-OBSW-1I) and XC08061-002 (MW-10I) ran before the LOQ. Additionally, sample XC08061-001 contained a significant amount of matrix that interferes with the ability to determine the presence of nitrite. Because of this, XC08061-001 was reanalyzed outside of holding time and both runs have been reported.

Samples XC08061-001 (ERD-OBSW-1I), XC08061-002 (MW-10I), XC08061-003 (ERD-OBSW-1) and XC08061-004 (MW-10) ran before the LCS. The LCS is passing criteria. The data has been reported.

Reanalysis of the following samples was performed outside of the analytical holding time: XC08061-001 (ERD-OBSW-1I), XC08061-002 (MW-10I), XC08061-003 (ERD-OBSW-1) and XC08061-004 (MW-10). Due to batch and instrument failures as well as matrix interference, all samples were reanalyzed outside of holding time. Samples XC08061-002, XC08061-003 and XC08061-004 confirm original analysis is below the LOQ so the original Run 1 has been reported. XC08061-001 contained matrix in the original analysis and Run 2 was outside holding time; therefore, both runs have been reported.

TOC SM5310C

The continuing calibration blank (CCB) for analytical batch 34637 contained the analyte total organic carbon (TOC) greater than the SOP acceptance criteria. The associated sample, XC08061-001 (ERD-OBSW-1I), contained detections for this analyte at a concentration greater than 10X the value found in the CCB; therefore sample results are not impacted. The data has been reported.

The following samples were diluted due to the nature of the sample matrix: XC08061-002 (MW-10I), XC08061-003 (ERD-OBSW-1), and XC08061-004 (MW-10). The LOQ has been elevated to reflect the dilution.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: XC08061

Project Name: Signify Shakespeare

Project Number: 60635197

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	ERD-OBSW-1I	Aqueous	03/08/2022 1010	03/08/2022
002	MW-10I	Aqueous	03/08/2022 1110	03/08/2022
003	ERD-OBSW-1	Aqueous	03/08/2022 1335	03/08/2022
004	MW-10	Aqueous	03/08/2022 1435	03/08/2022
005	TB-10	Aqueous	03/08/2022	03/08/2022

(5 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: XC08061

Project Name: Signify Shakespeare

Project Number: 60635197

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	ERD-OBSW-11	Aqueous	Chloride	300.0	10		mg/L	7
001	ERD-OBSW-11	Aqueous	TOC	SM 5310C-	140		mg/L	7
001	ERD-OBSW-11	Aqueous	2-Butanone (MEK)	8260D	22	J	ug/L	8
001	ERD-OBSW-11	Aqueous	1,1-Dichloroethene	8260D	2.5		ug/L	8
001	ERD-OBSW-11	Aqueous	cis-1,2-Dichloroethene	8260D	53		ug/L	8
001	ERD-OBSW-11	Aqueous	trans-1,2-Dichloroethene	8260D	3.1		ug/L	8
001	ERD-OBSW-11	Aqueous	Methyl acetate	8260D	3.7	J	ug/L	8
001	ERD-OBSW-11	Aqueous	Trichloroethene	8260D	590		ug/L	9
001	ERD-OBSW-11	Aqueous	Vinyl chloride	8260D	2.5		ug/L	9
001	ERD-OBSW-11	Aqueous	Ethane	RSK - 175	5.7	J	ug/L	10
001	ERD-OBSW-11	Aqueous	Ethene	RSK - 175	14		ug/L	10
001	ERD-OBSW-11	Aqueous	Methane	RSK - 175	4500		ug/L	10
001	ERD-OBSW-11	Aqueous	Dissolved Manganese	6010D	0.68		mg/L	11
001	ERD-OBSW-11	Aqueous	Iron	6010D	5.0		mg/L	12
001	ERD-OBSW-11	Aqueous	Manganese	6010D	1.7		mg/L	12
002	MW-10I	Aqueous	Chloride	300.0	8.2		mg/L	13
002	MW-10I	Aqueous	Nitrate - N	300.0	0.0099	HJ	mg/L	13
002	MW-10I	Aqueous	TOC	SM 5310C-	16		mg/L	13
002	MW-10I	Aqueous	cis-1,2-Dichloroethene	8260D	690		ug/L	14
002	MW-10I	Aqueous	Trichloroethene	8260D	50		ug/L	15
002	MW-10I	Aqueous	Methane	RSK - 175	1400		ug/L	16
002	MW-10I	Aqueous	Dissolved Iron	6010D	11		mg/L	17
002	MW-10I	Aqueous	Dissolved Manganese	6010D	1.0		mg/L	17
002	MW-10I	Aqueous	Iron	6010D	12		mg/L	18
002	MW-10I	Aqueous	Manganese	6010D	0.98		mg/L	18
003	ERD-OBSW-1	Aqueous	Chloride	300.0	94	S	mg/L	19
003	ERD-OBSW-1	Aqueous	Nitrate - N	300.0	0.24		mg/L	19
003	ERD-OBSW-1	Aqueous	Nitrite - N	300.0	0.012	J	mg/L	19
003	ERD-OBSW-1	Aqueous	TOC	SM 5310C-	21		mg/L	19
003	ERD-OBSW-1	Aqueous	Acetone	8260D	5.7	JL	ug/L	20
003	ERD-OBSW-1	Aqueous	1,2-Dichloroethane	8260D	0.82		ug/L	20
003	ERD-OBSW-1	Aqueous	cis-1,2-Dichloroethene	8260D	86		ug/L	20
003	ERD-OBSW-1	Aqueous	Methyl acetate	8260D	0.60	J	ug/L	20
003	ERD-OBSW-1	Aqueous	Trichloroethene	8260D	180		ug/L	21
003	ERD-OBSW-1	Aqueous	Methane	RSK - 175	150		ug/L	22
003	ERD-OBSW-1	Aqueous	Dissolved Manganese	6010D	0.064		mg/L	23
003	ERD-OBSW-1	Aqueous	Iron	6010D	3.4		mg/L	24
003	ERD-OBSW-1	Aqueous	Manganese	6010D	0.060		mg/L	24
004	MW-10	Aqueous	Chloride	300.0	28		mg/L	25
004	MW-10	Aqueous	Nitrate - N	300.0	0.17		mg/L	25
004	MW-10	Aqueous	Nitrite - N	300.0	0.015	J	mg/L	25
004	MW-10	Aqueous	Sulfate	300.0	0.58	J	mg/L	25
004	MW-10	Aqueous	TOC	SM 5310C-	920		mg/L	25

Detection Summary (Continued)

Lot Number: XC08061

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	MW-10	Aqueous	Trichloroethene	8260D	590		ug/L	27
004	MW-10	Aqueous	Ethene	RSK - 175	2.8	J	ug/L	28
004	MW-10	Aqueous	Methane	RSK - 175	2600		ug/L	28
004	MW-10	Aqueous	Dissolved Iron	6010D	1.9		mg/L	29
004	MW-10	Aqueous	Dissolved Manganese	6010D	0.052		mg/L	29
004	MW-10	Aqueous	Iron	6010D	5.9		mg/L	30
004	MW-10	Aqueous	Manganese	6010D	0.18		mg/L	30
005	TB-10	Aqueous	Acetone	8260D	4.0	JL	ug/L	31

(51 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	03/10/2022 2203	YCB		34642
1		(Nitrate - N) 300.0	1	03/10/2022 0545	YCB		34754
2		(Nitrate - N) 300.0	1	03/10/2022 2203	SLP		34948
1		(Nitrite - N) 300.0	1	03/10/2022 0545	YCB		34752
2		(Nitrite - N) 300.0	1	03/10/2022 2203	SLP		34946
1		(Sulfate) 300.0	1	03/10/2022 2203	YCB		34641
1		(TOC) SM 5310C-2014	5	03/12/2022 2101	DMA		34637

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	10		1.0	0.25	mg/L	1
Nitrate - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
Nitrite - N		300.0	ND	B	0.020	0.0050	mg/L	1
Nitrate - N		300.0	ND	H	0.020	0.0050	mg/L	2
TOC		SM 5310C-2014	140		5.0	5.0	mg/L	1
Nitrite - N		300.0	ND	H	0.020	0.0050	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	03/16/2022 0505	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	50	20	ug/L	1
Benzene	71-43-2	8260D	ND		2.5	2.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		2.5	2.0	ug/L	1
Bromoform	75-25-2	8260D	ND		2.5	2.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		2.5	2.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	22	J	50	10	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		2.5	2.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		2.5	2.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		2.5	2.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		2.5	2.0	ug/L	1
Chloroform	67-66-3	8260D	ND		2.5	2.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		2.5	2.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		2.5	2.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		2.5	2.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		2.5	2.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		2.5	2.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	2.5		2.5	2.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	53		2.5	2.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	3.1		2.5	2.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		2.5	2.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		2.5	2.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		2.5	2.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		2.5	2.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		50	10	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		2.5	2.0	ug/L	1
Methyl acetate	79-20-9	8260D	3.7	J	5.0	2.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		2.5	2.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		50	10	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		25	2.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		2.5	2.0	ug/L	1
Styrene	100-42-5	8260D	ND		2.5	2.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		2.5	2.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		2.5	2.0	ug/L	1
Toluene	108-88-3	8260D	ND		2.5	2.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		5.0	2.1	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		2.5	2.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		2.5	2.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		2.5	2.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	03/16/2022 0505	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	590		2.5	2.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		2.5	2.0	ug/L	1
Vinyl chloride	75-01-4	8260D	2.5		2.5	2.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		5.0	2.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		93	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	03/15/2022 1621	JM1		34890
2		RSK - 175	5	03/21/2022 1235	JM1		35565

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	5.7	J	10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	14		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	4500		50	13	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/18/2022 2219	KSH2	03/18/2022 0946	35213

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1
Dissolved Manganese	7439-96-5	6010D	0.68		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Metals

Client: AECOM	Laboratory ID: XC08061-001
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 03/08/2022 1010	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/11/2022 2154	KSH2	03/10/2022 1012	34232
2	3005A	6010D	1	03/14/2022 1846	KSH2	03/10/2022 1012	34232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	5.0		0.10	0.040	mg/L	2
Manganese	7439-96-5	6010D	1.7		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-10I	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	03/10/2022 2222	YCB		34642
1		(Nitrate - N) 300.0	1	03/10/2022 0603	YCB		34754
2		(Nitrate - N) 300.0	1	03/10/2022 2222	SLP		34948
1		(Nitrite - N) 300.0	1	03/10/2022 0603	YCB		34752
1		(Sulfate) 300.0	1	03/10/2022 2222	YCB		34641
3		(TOC) SM 5310C-2014	5	03/29/2022 0210	DMA		36304

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	8.2		1.0	0.25	mg/L	1
Nitrite - N		300.0	ND		0.020	0.0050	mg/L	1
Nitrate - N		300.0	ND		0.020	0.0050	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
Nitrate - N		300.0	0.0099	HJ	0.020	0.0050	mg/L	2
TOC		SM 5310C-2014	16		5.0	5.0	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-101	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	03/16/2022 0528	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	50	20	ug/L	1
Benzene	71-43-2	8260D	ND		2.5	2.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		2.5	2.0	ug/L	1
Bromoform	75-25-2	8260D	ND	S	2.5	2.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		2.5	2.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		50	10	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		2.5	2.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		2.5	2.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		2.5	2.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		2.5	2.0	ug/L	1
Chloroform	67-66-3	8260D	ND		2.5	2.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		2.5	2.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND	S	2.5	2.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		2.5	2.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		2.5	2.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		2.5	2.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		2.5	2.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		2.5	2.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	690		2.5	2.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		2.5	2.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		2.5	2.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		2.5	2.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		2.5	2.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		50	10	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		2.5	2.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		5.0	2.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		2.5	2.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		50	10	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		25	2.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		2.5	2.0	ug/L	1
Styrene	100-42-5	8260D	ND		2.5	2.1	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		2.5	2.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		2.5	2.0	ug/L	1
Toluene	108-88-3	8260D	ND		2.5	2.0	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		5.0	2.1	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		2.5	2.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		2.5	2.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		2.5	2.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-10I	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	03/16/2022 0528	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	50		2.5	2.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		2.5	2.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		2.5	2.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		5.0	2.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		93	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-10I	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	03/15/2022 1637	JM1		34890

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	1400		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-10I	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/18/2022 2250	KSH2	03/18/2022 0946	35213

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	11		0.10	0.040	mg/L	1
Dissolved Manganese	7439-96-5	6010D	1.0		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Metals

Client: AECOM	Laboratory ID: XC08061-002
Description: MW-10I	Matrix: Aqueous
Date Sampled: 03/08/2022 1110	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/11/2022 2158	KSH2	03/10/2022 1012	34232
2	3005A	6010D	1	03/14/2022 1859	KSH2	03/10/2022 1012	34232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	12		0.10	0.040	mg/L	2
Manganese	7439-96-5	6010D	0.98		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	03/10/2022 2241	YCB		34642
1		(Nitrate - N) 300.0	1	03/10/2022 0719	YCB		34754
1		(Nitrite - N) 300.0	1	03/10/2022 0719	YCB		34752
1		(Sulfate) 300.0	1	03/10/2022 2241	YCB		34641
3		(TOC) SM 5310C-2014	10	03/29/2022 0223	DMA		36304

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	94	S	1.0	0.25	mg/L	1
Nitrate - N		300.0	0.24		0.020	0.0050	mg/L	1
Nitrite - N		300.0	0.012	J	0.020	0.0050	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2014	21		10	10	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	03/16/2022 0354	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	5.7	JL	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.82		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	86		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	0.60	J	1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	03/16/2022 0354	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	180		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		93	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	03/15/2022 1653	JM1		34890

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	150		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/18/2022 2255	KSH2	03/18/2022 0946	35213

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1
Dissolved Manganese	7439-96-5	6010D	0.064		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Metals

Client: AECOM	Laboratory ID: XC08061-003
Description: ERD-OBSW-1	Matrix: Aqueous
Date Sampled: 03/08/2022 1335	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/11/2022 2202	KSH2	03/10/2022 1012	34232
2	3005A	6010D	1	03/14/2022 1903	KSH2	03/10/2022 1012	34232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	3.4		0.10	0.040	mg/L	2
Manganese	7439-96-5	6010D	0.060		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	03/10/2022 2338	YCB		34642
1		(Nitrate - N) 300.0	1	03/10/2022 0738	YCB		34754
1		(Nitrite - N) 300.0	1	03/10/2022 0738	YCB		34752
1		(Sulfate) 300.0	1	03/10/2022 2338	YCB		34641
3		(TOC) SM 5310C-2014	500	03/29/2022 0237	DMA		36304

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	28		1.0	0.25	mg/L	1
Nitrate - N		300.0	0.17		0.020	0.0050	mg/L	1
Nitrite - N		300.0	0.015	J	0.020	0.0050	mg/L	1
Sulfate		300.0	0.58	J	1.0	0.25	mg/L	1
TOC		SM 5310C-2014	920		500	500	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260D	20	03/19/2022 0449	BBW		35438

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		200	80	ug/L	2
Benzene	71-43-2	8260D	ND		10	8.0	ug/L	2
Bromodichloromethane	75-27-4	8260D	ND		10	8.0	ug/L	2
Bromoform	75-25-2	8260D	ND		10	8.0	ug/L	2
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		10	8.0	ug/L	2
2-Butanone (MEK)	78-93-3	8260D	ND		200	40	ug/L	2
Carbon disulfide	75-15-0	8260D	ND		10	8.0	ug/L	2
Carbon tetrachloride	56-23-5	8260D	ND		10	8.0	ug/L	2
Chlorobenzene	108-90-7	8260D	ND		10	8.0	ug/L	2
Chloroethane	75-00-3	8260D	ND		10	8.0	ug/L	2
Chloroform	67-66-3	8260D	ND		10	8.0	ug/L	2
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		10	8.0	ug/L	2
Cyclohexane	110-82-7	8260D	ND		10	8.0	ug/L	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		10	8.0	ug/L	2
Dibromochloromethane	124-48-1	8260D	ND		10	8.0	ug/L	2
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		10	8.0	ug/L	2
1,2-Dichlorobenzene	95-50-1	8260D	ND		10	8.0	ug/L	2
1,3-Dichlorobenzene	541-73-1	8260D	ND		10	8.0	ug/L	2
1,4-Dichlorobenzene	106-46-7	8260D	ND		10	8.0	ug/L	2
Dichlorodifluoromethane	75-71-8	8260D	ND		10	8.0	ug/L	2
1,1-Dichloroethane	75-34-3	8260D	ND		10	8.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260D	ND		10	8.0	ug/L	2
1,1-Dichloroethene	75-35-4	8260D	ND		10	8.0	ug/L	2
cis-1,2-Dichloroethene	156-59-2	8260D	ND		10	8.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	ND		10	8.0	ug/L	2
1,2-Dichloropropane	78-87-5	8260D	ND		10	8.0	ug/L	2
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		10	8.0	ug/L	2
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		10	8.0	ug/L	2
Ethylbenzene	100-41-4	8260D	ND		10	8.0	ug/L	2
2-Hexanone	591-78-6	8260D	ND		200	40	ug/L	2
Isopropylbenzene	98-82-8	8260D	ND		10	8.0	ug/L	2
Methyl acetate	79-20-9	8260D	ND		20	8.0	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		10	8.0	ug/L	2
4-Methyl-2-pentanone	108-10-1	8260D	ND		200	40	ug/L	2
Methylcyclohexane	108-87-2	8260D	ND		100	8.0	ug/L	2
Methylene chloride	75-09-2	8260D	ND		10	8.0	ug/L	2
Styrene	100-42-5	8260D	ND		10	8.2	ug/L	2
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		10	8.0	ug/L	2
Tetrachloroethene	127-18-4	8260D	ND		10	8.0	ug/L	2
Toluene	108-88-3	8260D	ND		10	8.0	ug/L	2
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		20	8.4	ug/L	2
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		10	8.0	ug/L	2
1,1,1-Trichloroethane	71-55-6	8260D	ND		10	8.0	ug/L	2
1,1,2-Trichloroethane	79-00-5	8260D	ND		10	8.0	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260D	20	03/19/2022 0449	BBW		35438

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	590		10	8.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND		10	8.0	ug/L	2
Vinyl chloride	75-01-4	8260D	ND		10	8.0	ug/L	2
Xylenes (total)	1330-20-7	8260D	ND		20	8.0	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		82	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		96	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	03/21/2022 1011	JM1		35565

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	2.8	J	10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	2600		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/18/2022 2259	KSH2	03/18/2022 0946	35213

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	1.9		0.10	0.040	mg/L	1
Dissolved Manganese	7439-96-5	6010D	0.052		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Metals

Client: AECOM	Laboratory ID: XC08061-004
Description: MW-10	Matrix: Aqueous
Date Sampled: 03/08/2022 1435	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	03/11/2022 2207	KSH2	03/10/2022 1012	34232
2	3005A	6010D	1	03/14/2022 1908	KSH2	03/10/2022 1012	34232

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	5.9		0.10	0.040	mg/L	2
Manganese	7439-96-5	6010D	0.18		0.015	0.0019	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-005
Description: TB-10	Matrix: Aqueous
Date Sampled: 03/08/2022	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	03/15/2022 2340	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	4.0	JL	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XC08061-005
Description: TB-10	Matrix: Aqueous
Date Sampled: 03/08/2022	Project Name: Signify Shakespeare
Date Received: 03/08/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	03/15/2022 2340	JWO		34980

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		91	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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QC Summary

Inorganic non-metals - MB

Sample ID: XQ34637-001

Matrix: Aqueous

Batch: 34637

Analytical Method: SM 5310C-2014

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	03/12/2022 1721

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34637-002

Matrix: Aqueous

Batch: 34637

Analytical Method: SM 5310C-2014

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	19		1	94	90-110	03/12/2022 1734

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34641-001

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	03/10/2022 1701

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34641-002

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	98	90-110	03/10/2022 1739

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-003MS

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	ND	10	10		1	102	90-110	03/10/2022 2300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-003MD

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Sulfate	ND	10	10		1	101	1.3	90-110	20	03/10/2022 2319

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-004MS

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	0.58	10	9.8		1	92	90-110	03/11/2022 0035

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-004MD

Matrix: Aqueous

Batch: 34641

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Sulfate	0.58	10	9.9		1	94	1.3	90-110	20	03/11/2022 0054

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34642-001

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	03/10/2022 1701

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34642-002

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	20		1	99	90-110	03/10/2022 1739

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-003MS

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	94	10	100	N	1	77	90-110	03/10/2022 2300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-003MD

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	94	10	100	N	1	88	1.1	90-110	20	03/10/2022 2319

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-004MS

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	28	10	37		1	91	90-110	03/11/2022 0035

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-004MD

Matrix: Aqueous

Batch: 34642

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	28	10	38		1	96	1.2	90-110	20	03/11/2022 0054

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34752-001

Matrix: Aqueous

Batch: 34752

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.0050	mg/L	03/10/2022 0332

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34752-002

Matrix: Aqueous

Batch: 34752

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.80	0.78		1	98	90-110	03/10/2022 0854

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34754-001

Matrix: Aqueous

Batch: 34754

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.0050	mg/L	03/10/2022 0332

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34754-002

Matrix: Aqueous

Batch: 34754

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.80	0.81		1	102	90-110	03/10/2022 0854

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34946-001

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.0050	mg/L	03/10/2022 1701

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34946-002

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.80	0.76		1	95	90-110	03/10/2022 1739

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-003MS

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.012	0.40	0.42		1	101	90-110	03/10/2022 2300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-003MD

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	0.012	0.40	0.42		1	102	0.64	90-110	20	03/10/2022 2319

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-004MS

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	ND	0.40	0.40		1	100	90-110	03/11/2022 0035

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Inorganic non-metals - MSD

Sample ID: XC08061-004MD

Matrix: Aqueous

Batch: 34946

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	ND	0.40	0.40		1	99	0.58	90-110	20	03/11/2022 0054

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ34948-001

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.0050	mg/L	03/10/2022 1701

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ34948-002

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.80	0.81		1	101	90-110	03/10/2022 1739

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XC08061-003MS

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.23	0.40	0.61		1	95	90-110	03/10/2022 2300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-003MD

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	0.23	0.40	0.62		1	97	1.1	90-110	20	03/10/2022 2319

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

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Inorganic non-metals - MS

Sample ID: XC08061-004MS

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.077	0.40	0.45		1	93	90-110	03/11/2022 0035

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XC08061-004MD

Matrix: Aqueous

Batch: 34948

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	0.077	0.40	0.46		1	96	2.9	90-110	20	03/11/2022 0054

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ36304-001

Matrix: Aqueous

Batch: 36304

Analytical Method: SM 5310C-2014

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	03/28/2022 2003

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ36304-002

Matrix: Aqueous

Batch: 36304

Analytical Method: SM 5310C-2014

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	19		1	94	90-110	03/28/2022 2015

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ34980-001

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	03/15/2022 2147
Benzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Bromodichloromethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Bromoform	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	03/15/2022 2147
2-Butanone (MEK)	ND		1	10	2.0	ug/L	03/15/2022 2147
Carbon disulfide	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Chlorobenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Chloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Chloroform	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Cyclohexane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Dibromochloromethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Ethylbenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
2-Hexanone	ND		1	10	2.0	ug/L	03/15/2022 2147
Isopropylbenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Methyl acetate	ND		1	1.0	0.40	ug/L	03/15/2022 2147
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	03/15/2022 2147
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	03/15/2022 2147
Methylcyclohexane	ND		1	5.0	0.40	ug/L	03/15/2022 2147
Methylene chloride	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Styrene	ND		1	0.50	0.41	ug/L	03/15/2022 2147
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Tetrachloroethene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Toluene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	03/15/2022 2147
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ34980-001

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Vinyl chloride	ND		1	0.50	0.40	ug/L	03/15/2022 2147
Xylenes (total)	ND		1	1.0	0.40	ug/L	03/15/2022 2147
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		89	70-130				
1,2-Dichloroethane-d4		102	70-130				
Toluene-d8		91	70-130				

LOQ = Limit of Quantitation

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ34980-002

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	160	N	1	156	60-140	03/15/2022 2044
Benzene	50	53		1	106	70-130	03/15/2022 2044
Bromodichloromethane	50	50		1	99	70-130	03/15/2022 2044
Bromoform	50	42		1	84	70-130	03/15/2022 2044
Bromomethane (Methyl bromide)	50	50		1	100	70-130	03/15/2022 2044
2-Butanone (MEK)	100	120		1	123	70-130	03/15/2022 2044
Carbon disulfide	50	56		1	113	70-130	03/15/2022 2044
Carbon tetrachloride	50	53		1	107	70-130	03/15/2022 2044
Chlorobenzene	50	49		1	97	70-130	03/15/2022 2044
Chloroethane	50	50		1	99	70-130	03/15/2022 2044
Chloroform	50	54		1	109	70-130	03/15/2022 2044
Chloromethane (Methyl chloride)	50	48		1	96	60-140	03/15/2022 2044
Cyclohexane	50	63		1	127	70-130	03/15/2022 2044
1,2-Dibromo-3-chloropropane (DBCP)	50	48		1	95	70-130	03/15/2022 2044
Dibromochloromethane	50	44		1	88	70-130	03/15/2022 2044
1,2-Dibromoethane (EDB)	50	47		1	95	70-130	03/15/2022 2044
1,2-Dichlorobenzene	50	49		1	97	70-130	03/15/2022 2044
1,3-Dichlorobenzene	50	48		1	96	70-130	03/15/2022 2044
1,4-Dichlorobenzene	50	47		1	95	70-130	03/15/2022 2044
Dichlorodifluoromethane	50	49		1	98	60-140	03/15/2022 2044
1,1-Dichloroethane	50	55		1	110	70-130	03/15/2022 2044
1,2-Dichloroethane	50	55		1	111	70-130	03/15/2022 2044
1,1-Dichloroethene	50	55		1	109	70-130	03/15/2022 2044
cis-1,2-Dichloroethene	50	53		1	106	70-130	03/15/2022 2044
trans-1,2-Dichloroethene	50	52		1	105	70-130	03/15/2022 2044
1,2-Dichloropropane	50	50		1	101	70-130	03/15/2022 2044
cis-1,3-Dichloropropene	50	51		1	102	70-130	03/15/2022 2044
trans-1,3-Dichloropropene	50	48		1	97	70-130	03/15/2022 2044
Ethylbenzene	50	50		1	100	70-130	03/15/2022 2044
2-Hexanone	100	110		1	106	70-130	03/15/2022 2044
Isopropylbenzene	50	51		1	101	70-130	03/15/2022 2044
Methyl acetate	50	59		1	117	70-130	03/15/2022 2044
Methyl tertiary butyl ether (MTBE)	50	56		1	112	70-130	03/15/2022 2044
4-Methyl-2-pentanone	100	110		1	111	70-130	03/15/2022 2044
Methylcyclohexane	50	54		1	108	70-130	03/15/2022 2044
Methylene chloride	50	53		1	106	70-130	03/15/2022 2044
Styrene	50	49		1	98	70-130	03/15/2022 2044
1,1,2,2-Tetrachloroethane	50	49		1	98	70-130	03/15/2022 2044
Tetrachloroethene	50	48		1	96	70-130	03/15/2022 2044
Toluene	50	51		1	101	70-130	03/15/2022 2044
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	55		1	110	70-130	03/15/2022 2044
1,2,4-Trichlorobenzene	50	46		1	93	70-130	03/15/2022 2044
1,1,1-Trichloroethane	50	54		1	108	70-130	03/15/2022 2044
1,1,2-Trichloroethane	50	47		1	95	70-130	03/15/2022 2044

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ34980-002

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	48		1	96	70-130	03/15/2022 2044
Trichlorofluoromethane	50	51		1	101	70-130	03/15/2022 2044
Vinyl chloride	50	50		1	100	70-130	03/15/2022 2044
Xylenes (total)	100	100		1	101	70-130	03/15/2022 2044
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		98			70-130		
1,2-Dichloroethane-d4		103			70-130		
Toluene-d8		93			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MS

Sample ID: XC08061-002MS

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	ND	500	610		5	121	60-140	03/16/2022 0638
Benzene	ND	250	270		5	109	70-130	03/16/2022 0638
Bromodichloromethane	ND	250	230		5	93	70-130	03/16/2022 0638
Bromoform	ND	250	160	N	5	65	70-130	03/16/2022 0638
Bromomethane (Methyl bromide)	ND	250	220		5	87	70-130	03/16/2022 0638
2-Butanone (MEK)	ND	500	580		5	116	70-130	03/16/2022 0638
Carbon disulfide	ND	250	250		5	99	70-130	03/16/2022 0638
Carbon tetrachloride	ND	250	270		5	107	70-130	03/16/2022 0638
Chlorobenzene	ND	250	250		5	99	70-130	03/16/2022 0638
Chloroethane	ND	250	220		5	88	70-130	03/16/2022 0638
Chloroform	ND	250	270		5	108	70-130	03/16/2022 0638
Chloromethane (Methyl chloride)	ND	250	220		5	89	60-140	03/16/2022 0638
Cyclohexane	ND	250	330	N	5	131	70-130	03/16/2022 0638
1,2-Dibromo-3-chloropropane (DBCP)	ND	250	210		5	82	70-130	03/16/2022 0638
Dibromochloromethane	ND	250	190		5	77	70-130	03/16/2022 0638
1,2-Dibromoethane (EDB)	ND	250	230		5	93	70-130	03/16/2022 0638
1,2-Dichlorobenzene	ND	250	240		5	96	70-130	03/16/2022 0638
1,3-Dichlorobenzene	ND	250	240		5	97	70-130	03/16/2022 0638
1,4-Dichlorobenzene	ND	250	240		5	95	70-130	03/16/2022 0638
Dichlorodifluoromethane	ND	250	210		5	83	60-140	03/16/2022 0638
1,1-Dichloroethane	ND	250	270		5	110	70-130	03/16/2022 0638
1,2-Dichloroethane	ND	250	270		5	110	70-130	03/16/2022 0638
1,1-Dichloroethene	ND	250	270		5	108	70-130	03/16/2022 0638
cis-1,2-Dichloroethene	690	250	900		5	85	70-130	03/16/2022 0638
trans-1,2-Dichloroethene	ND	250	260		5	105	70-130	03/16/2022 0638
1,2-Dichloropropane	ND	250	250		5	101	70-130	03/16/2022 0638
cis-1,3-Dichloropropene	ND	250	240		5	96	70-130	03/16/2022 0638
trans-1,3-Dichloropropene	ND	250	230		5	90	70-130	03/16/2022 0638
Ethylbenzene	ND	250	250		5	102	70-130	03/16/2022 0638
2-Hexanone	ND	500	540		5	108	70-130	03/16/2022 0638
Isopropylbenzene	ND	250	260		5	103	70-130	03/16/2022 0638
Methyl acetate	ND	250	270		5	110	70-130	03/16/2022 0638
Methyl tertiary butyl ether (MTBE)	ND	250	270		5	106	70-130	03/16/2022 0638
4-Methyl-2-pentanone	ND	500	550		5	111	70-130	03/16/2022 0638
Methylcyclohexane	ND	250	280		5	112	70-130	03/16/2022 0638
Methylene chloride	ND	250	250		5	101	70-130	03/16/2022 0638
Styrene	ND	250	250		5	98	70-130	03/16/2022 0638
1,1,2,2-Tetrachloroethane	ND	250	240		5	97	70-130	03/16/2022 0638
Tetrachloroethene	ND	250	240		5	98	70-130	03/16/2022 0638
Toluene	ND	250	260		5	102	70-130	03/16/2022 0638
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250	280		5	110	70-130	03/16/2022 0638
1,2,4-Trichlorobenzene	ND	250	210		5	83	70-130	03/16/2022 0638
1,1,1-Trichloroethane	ND	250	270		5	109	70-130	03/16/2022 0638
1,1,2-Trichloroethane	ND	250	240		5	95	70-130	03/16/2022 0638

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MS

Sample ID: XC08061-002MS

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	250	290		5	97	70-130	03/16/2022 0638
Trichlorofluoromethane	ND	250	230		5	93	70-130	03/16/2022 0638
Vinyl chloride	ND	250	240		5	95	70-130	03/16/2022 0638
Xylenes (total)	ND	500	510		5	102	70-130	03/16/2022 0638
Surrogate	Q	% Rec	Acceptance Limit					
Bromofluorobenzene		96	70-130					
1,2-Dichloroethane-d4		100	70-130					
Toluene-d8		92	70-130					

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MSD

Sample ID: XC08061-002MD

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	500	610		5	121	0.0021	60-140	20	03/16/2022 0701
Benzene	ND	250	270		5	110	0.63	70-130	20	03/16/2022 0701
Bromodichloromethane	ND	250	240		5	95	2.5	70-130	20	03/16/2022 0701
Bromoform	ND	250	160	N	5	65	0.71	70-130	20	03/16/2022 0701
Bromomethane (Methyl bromide)	ND	250	200		5	79	8.8	70-130	20	03/16/2022 0701
2-Butanone (MEK)	ND	500	590		5	117	1.2	70-130	20	03/16/2022 0701
Carbon disulfide	ND	250	250		5	101	2.6	70-130	20	03/16/2022 0701
Carbon tetrachloride	ND	250	280		5	110	2.7	70-130	20	03/16/2022 0701
Chlorobenzene	ND	250	250		5	99	0.25	70-130	20	03/16/2022 0701
Chloroethane	ND	250	200		5	81	9.1	70-130	20	03/16/2022 0701
Chloroform	ND	250	270		5	109	1.4	70-130	20	03/16/2022 0701
Chloromethane (Methyl chloride)	ND	250	210		5	83	6.9	60-140	20	03/16/2022 0701
Cyclohexane	ND	250	330	N	5	133	1.2	70-130	20	03/16/2022 0701
1,2-Dibromo-3-chloropropane (DBCP)	ND	250	210		5	82	0.10	70-130	20	03/16/2022 0701
Dibromochloromethane	ND	250	190		5	77	0.50	70-130	20	03/16/2022 0701
1,2-Dibromoethane (EDB)	ND	250	240		5	94	1.0	70-130	20	03/16/2022 0701
1,2-Dichlorobenzene	ND	250	230		5	94	2.0	70-130	20	03/16/2022 0701
1,3-Dichlorobenzene	ND	250	240		5	96	1.9	70-130	20	03/16/2022 0701
1,4-Dichlorobenzene	ND	250	230		5	94	1.5	70-130	20	03/16/2022 0701
Dichlorodifluoromethane	ND	250	190		5	77	6.5	60-140	20	03/16/2022 0701
1,1-Dichloroethane	ND	250	280		5	111	1.0	70-130	20	03/16/2022 0701
1,2-Dichloroethane	ND	250	280		5	110	0.42	70-130	20	03/16/2022 0701
1,1-Dichloroethene	ND	250	280		5	111	2.8	70-130	20	03/16/2022 0701
cis-1,2-Dichloroethene	690	250	910		5	90	1.4	70-130	20	03/16/2022 0701
trans-1,2-Dichloroethene	ND	250	270		5	108	2.8	70-130	20	03/16/2022 0701
1,2-Dichloropropane	ND	250	260		5	104	2.3	70-130	20	03/16/2022 0701
cis-1,3-Dichloropropene	ND	250	240		5	98	2.4	70-130	20	03/16/2022 0701
trans-1,3-Dichloropropene	ND	250	230		5	91	0.62	70-130	20	03/16/2022 0701
Ethylbenzene	ND	250	250		5	102	0.20	70-130	20	03/16/2022 0701
2-Hexanone	ND	500	540		5	108	0.17	70-130	20	03/16/2022 0701
Isopropylbenzene	ND	250	260		5	104	0.98	70-130	20	03/16/2022 0701
Methyl acetate	ND	250	280		5	112	2.6	70-130	20	03/16/2022 0701
Methyl tertiary butyl ether (MTBE)	ND	250	270		5	108	1.5	70-130	20	03/16/2022 0701
4-Methyl-2-pentanone	ND	500	550		5	110	0.28	70-130	20	03/16/2022 0701
Methylcyclohexane	ND	250	290		5	114	2.0	70-130	20	03/16/2022 0701
Methylene chloride	ND	250	260		5	103	1.5	70-130	20	03/16/2022 0701
Styrene	ND	250	240		5	98	0.64	70-130	20	03/16/2022 0701
1,1,2,2-Tetrachloroethane	ND	250	240		5	96	0.95	70-130	20	03/16/2022 0701
Tetrachloroethene	ND	250	250		5	99	1.6	70-130	20	03/16/2022 0701
Toluene	ND	250	260		5	103	0.90	70-130	20	03/16/2022 0701
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250	280		5	113	2.6	70-130	20	03/16/2022 0701
1,2,4-Trichlorobenzene	ND	250	200		5	82	1.3	70-130	20	03/16/2022 0701
1,1,1-Trichloroethane	ND	250	280		5	111	2.1	70-130	20	03/16/2022 0701
1,1,2-Trichloroethane	ND	250	240		5	94	0.075	70-130	20	03/16/2022 0701

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P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MSD

Sample ID: XC08061-002MD

Matrix: Aqueous

Batch: 34980

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	50	250	300		5	99	1.5	70-130	20	03/16/2022 0701
Trichlorofluoromethane	ND	250	220		5	87	6.6	70-130	20	03/16/2022 0701
Vinyl chloride	ND	250	220		5	88	8.3	70-130	20	03/16/2022 0701
Xylenes (total)	ND	500	510		5	102	0.46	70-130	20	03/16/2022 0701
Surrogate	Q	% Rec	Acceptance Limit							
Bromofluorobenzene		96	70-130							
1,2-Dichloroethane-d4		100	70-130							
Toluene-d8		92	70-130							

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ35438-001

Matrix: Aqueous

Batch: 35438

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	03/18/2022 2059
Benzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Bromodichloromethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Bromoform	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	03/18/2022 2059
2-Butanone (MEK)	ND		1	10	2.0	ug/L	03/18/2022 2059
Carbon disulfide	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Chlorobenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Chloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Chloroform	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Cyclohexane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Dibromochloromethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Ethylbenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
2-Hexanone	ND		1	10	2.0	ug/L	03/18/2022 2059
Isopropylbenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Methyl acetate	ND		1	1.0	0.40	ug/L	03/18/2022 2059
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	03/18/2022 2059
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	03/18/2022 2059
Methylcyclohexane	ND		1	5.0	0.40	ug/L	03/18/2022 2059
Methylene chloride	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Styrene	ND		1	0.50	0.41	ug/L	03/18/2022 2059
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Tetrachloroethene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Toluene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	03/18/2022 2059
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ35438-001

Matrix: Aqueous

Batch: 35438

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Vinyl chloride	ND		1	0.50	0.40	ug/L	03/18/2022 2059
Xylenes (total)	ND		1	1.0	0.40	ug/L	03/18/2022 2059
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		81	70-130				
1,2-Dichloroethane-d4		101	70-130				
Toluene-d8		97	70-130				

LOQ = Limit of Quantitation

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ35438-002

Matrix: Aqueous

Batch: 35438

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	100		1	104	60-140	03/18/2022 1953
Benzene	50	49		1	97	70-130	03/18/2022 1953
Bromodichloromethane	50	44		1	88	70-130	03/18/2022 1953
Bromoform	50	48		1	96	70-130	03/18/2022 1953
Bromomethane (Methyl bromide)	50	52		1	105	70-130	03/18/2022 1953
2-Butanone (MEK)	100	100		1	102	70-130	03/18/2022 1953
Carbon disulfide	50	47		1	94	70-130	03/18/2022 1953
Carbon tetrachloride	50	44		1	88	70-130	03/18/2022 1953
Chlorobenzene	50	49		1	97	70-130	03/18/2022 1953
Chloroethane	50	46		1	92	70-130	03/18/2022 1953
Chloroform	50	41		1	83	70-130	03/18/2022 1953
Chloromethane (Methyl chloride)	50	47		1	94	60-140	03/18/2022 1953
Cyclohexane	50	45		1	91	70-130	03/18/2022 1953
1,2-Dibromo-3-chloropropane (DBCP)	50	41		1	83	70-130	03/18/2022 1953
Dibromochloromethane	50	47		1	95	70-130	03/18/2022 1953
1,2-Dibromoethane (EDB)	50	49		1	98	70-130	03/18/2022 1953
1,2-Dichlorobenzene	50	48		1	96	70-130	03/18/2022 1953
1,3-Dichlorobenzene	50	49		1	98	70-130	03/18/2022 1953
1,4-Dichlorobenzene	50	47		1	94	70-130	03/18/2022 1953
Dichlorodifluoromethane	50	50		1	100	60-140	03/18/2022 1953
1,1-Dichloroethane	50	44		1	88	70-130	03/18/2022 1953
1,2-Dichloroethane	50	42		1	84	70-130	03/18/2022 1953
1,1-Dichloroethene	50	48		1	95	70-130	03/18/2022 1953
cis-1,2-Dichloroethene	50	45		1	90	70-130	03/18/2022 1953
trans-1,2-Dichloroethene	50	47		1	94	70-130	03/18/2022 1953
1,2-Dichloropropane	50	47		1	95	70-130	03/18/2022 1953
cis-1,3-Dichloropropene	50	49		1	97	70-130	03/18/2022 1953
trans-1,3-Dichloropropene	50	47		1	95	70-130	03/18/2022 1953
Ethylbenzene	50	52		1	104	70-130	03/18/2022 1953
2-Hexanone	100	88		1	88	70-130	03/18/2022 1953
Isopropylbenzene	50	45		1	90	70-130	03/18/2022 1953
Methyl acetate	50	44		1	87	70-130	03/18/2022 1953
Methyl tertiary butyl ether (MTBE)	50	45		1	90	70-130	03/18/2022 1953
4-Methyl-2-pentanone	100	87		1	87	70-130	03/18/2022 1953
Methylcyclohexane	50	56		1	112	70-130	03/18/2022 1953
Methylene chloride	50	41		1	83	70-130	03/18/2022 1953
Styrene	50	50		1	99	70-130	03/18/2022 1953
1,1,2,2-Tetrachloroethane	50	46		1	91	70-130	03/18/2022 1953
Tetrachloroethene	50	54		1	108	70-130	03/18/2022 1953
Toluene	50	53		1	106	70-130	03/18/2022 1953
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	52		1	103	70-130	03/18/2022 1953
1,2,4-Trichlorobenzene	50	46		1	93	70-130	03/18/2022 1953
1,1,1-Trichloroethane	50	46		1	92	70-130	03/18/2022 1953
1,1,2-Trichloroethane	50	47		1	95	70-130	03/18/2022 1953

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ35438-002

Matrix: Aqueous

Batch: 35438

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	48		1	97	70-130	03/18/2022 1953
Trichlorofluoromethane	50	51		1	103	70-130	03/18/2022 1953
Vinyl chloride	50	47		1	93	70-130	03/18/2022 1953
Xylenes (total)	100	96		1	96	70-130	03/18/2022 1953
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		99			70-130		
1,2-Dichloroethane-d4		85			70-130		
Toluene-d8		101			70-130		

LOQ = Limit of Quantitation

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J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Dissolved Gases - MB

Sample ID: XQ34890-001

Matrix: Aqueous

Batch: 34890

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	03/15/2022 1039
Ethene	ND		1	10	2.5	ug/L	03/15/2022 1039
Methane	ND		1	10	2.5	ug/L	03/15/2022 1039

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Dissolved Gases - LCS

Sample ID: XQ34890-002

Matrix: Aqueous

Batch: 34890

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	580		1	106	70-130	03/15/2022 0954
Ethene	520	550		1	107	70-130	03/15/2022 0954
Methane	300	320		1	107	70-130	03/15/2022 0954

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Dissolved Gases - LCSD

Sample ID: XQ34890-003

Matrix: Aqueous

Batch: 34890

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	550	580		1	105	0.70	70-130	30	03/15/2022 1008
Ethene	520	550		1	106	0.81	70-130	30	03/15/2022 1008
Methane	300	310		1	107	0.44	70-130	30	03/15/2022 1008

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Dissolved Gases - MB

Sample ID: XQ35565-001

Matrix: Aqueous

Batch: 35565

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	03/21/2022 0955
Ethene	ND		1	10	2.5	ug/L	03/21/2022 0955
Methane	ND		1	10	2.5	ug/L	03/21/2022 0955

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Dissolved Gases - LCS

Sample ID: XQ35565-002

Matrix: Aqueous

Batch: 35565

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	590		1	107	70-130	03/21/2022 0918
Ethene	520	560		1	108	70-130	03/21/2022 0918
Methane	300	310		1	107	70-130	03/21/2022 0918

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Metals - MB

Sample ID: XQ34232-001

Matrix: Aqueous

Batch: 34232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/10/2022 1012

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	03/11/2022 2039
Manganese	ND		1	0.015	0.0019	mg/L	03/11/2022 2039

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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Metals - LCS

Sample ID: XQ34232-002

Matrix: Aqueous

Batch: 34232

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/10/2022 1012

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	18		1	91	80-120	03/11/2022 2043
Manganese	2.0	2.0		1	102	80-120	03/11/2022 2043

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: XQ35213-001

Matrix: Aqueous

Batch: 35213

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/18/2022 0946

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	03/18/2022 2210
Dissolved Manganese	ND		1	0.015	0.0019	mg/L	03/18/2022 2210

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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ICP-AES Metals - LCS

Sample ID: XQ35213-002

Matrix: Aqueous

Batch: 35213

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/18/2022 0946

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	21		1	104	80-120	03/18/2022 2215
Dissolved Manganese	2.0	2.1		1	105	80-120	03/18/2022 2215

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

ICP-AES Metals - MS

Sample ID: XC08061-001MS

Matrix: Aqueous

Batch: 35213

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/18/2022 0946

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	ND	20	21		1	103	75-125	03/18/2022 2224
Dissolved Manganese	0.68	2.0	2.7		1	104	75-125	03/18/2022 2224

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

ICP-AES Metals - MSD

Sample ID: XC08061-001MD

Matrix: Aqueous

Batch: 35213

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 03/18/2022 0946

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	ND	20	20		1	100	2.7	75-125	20	03/18/2022 2228
Dissolved Manganese	0.68	2.0	2.8		1	106	1.4	75-125	20	03/18/2022 2228

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Chain of Custody
and
Miscellaneous Documents



PACE ANALYTICAL SERVICES, LLC
 106 Vantage Point Drive • West Columbia, SC 29172
 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.pacelabs.com

Number 132115

PACE ANALYTICAL SERVICES, LLC

Client: **AECOM** Report to Contact: **Scott Ross** Telephone No. / E-mail: **Scott.Ross@AECOM.COM** Quote No. _____

Address: **101 Research Dr.** City: **Columbia** State: **SC** Zip Code: **29203** Sampler's Signature: *[Signature]* Analysis (check list if more space is needed): _____ Page **2** of **2**

Project Name: **Shakespeare Composite Structures** Project No.: **60635197** H.C. No.: _____ Pinned Name: **Justin Butler** Matrix: _____

Sample ID / Description (Containers for each sample may be combined on one list.)	Collection Time (Military)	Matrix	No. of Containers or Freezer/Matrix Type						Remarks / Cooler (ID)
			15907	15908	15909	15910	15911	15912	
ERD-08SW-1I	3/8/22 1010	6 X	2	1	1	5			VOC 226D
MW-10I	3/8/22 1110	6 X	2	1	1	5			VOC 226D
ERD-08SW-1	3/8/22 1335	6 X	2	1	1	5			VOC 226D
MW-10	3/8/22 1435	6 X	2	1	1	5			VOC 226D
TB-10		X					2		

Analysis: **PF-DES Metals 60D**, **UHF Metals**, **Asion - Noted**, **353-2/204/KM 300**, **TIC 3M 5310C**

CSO: **XC08061**

Turn Around Time Required (Prior to approval required by expedient TAT): Rush Standard

1. Requisitioned by: *[Signature]* Date: **3/8/22** Time: **1635**

2. Requisitioned by: _____ Date: _____ Time: _____

3. Requisitioned by: _____ Date: _____ Time: _____

4. Requisitioned by: _____ Date: _____ Time: _____

Sample Disposal: Return to Client Disposal by Lab

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison Unknown

1. Received by: _____ Date: _____ Time: _____

2. Received by: _____ Date: _____ Time: _____

3. Received by: _____ Date: _____ Time: _____

4. Laboratory received by: **Kathleen Carrans** Date: **3-8-22** Time: **1635**

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

Received on: **3-4** °C Receipt Temp: **3.4** °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Clean Copy Document Number: AFE003V2-01



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCCL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: AECOM

Cooler Inspected by/date: KDRW / 3/8/2022

Lot #: XC08061

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA	
3.4 / 3.4 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₄ /TKN/cyanide/pheno/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: KDRW Date: 3/8/2022	

Comments:



Report of Analysis

AECOM
101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Shakespeare - Signify

Project Number: 60635197

Lot Number: **XG20043**

Date Completed: 08/26/2022

08/28/2022 10:23 PM

Approved and released by:
Project Manager II: **Cathy S. Dover**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: XG20043

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

VOA 8260D

Samples XG20043-001 (MW-10) and XG20043-005 (ISCO-OBSW-1s) were diluted due to the nature of the sample matrix. The LOQ has been elevated to reflect the dilution.

The laboratory control sample (LCS) for analytical batch 48752 exceeded acceptance criteria for Acetone (166%). This analyte was biased high and was not detected in the associated samples: XG20043-001, XG20043-002, XG20043-003, XG20043-004, XG20043-006, XG20043-007, XG20043-008, and XG20043-009.

XG20043-001 (MW-10) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-002 (ERD-OBSW-1S) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-003 (MW-10 i) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-004 (ERD-OBSW-1i) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-006 (TMW-31) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-007 (MW-2) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-008 (DW-01) (Run 1) (Analysis Batch 48752) TCL VOC
XG20043-009 (TB-01) (Run 1) (Analysis Batch 48752) TCL VOC

Sample XG20043-007 (MW-2) was run out of a previously run headspace vial to reanalyze for cis-1,2-Dichloroethene due to suspected carryover.

The MSD for batch 48752 and parent sample XG20043-008 (DW-01), recovered outside the lower limit for Trichloroethene. The associated LCS passed for Trichloroethene.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Nitrate 353.2

The MS/MSD for batch 48599 and parent sample XG20043-003 (MW-10 i) was inadvertently spiked with nitrite spike only, which caused the nitrate recovery to be calculated as negative, but for nitrite spike recovery is 105% and RPD is within 20%; therefore, results have been reported. The associated nitrate LCS passed acceptance criteria.

Chloride 300.0

Sample XG20043-005 (ISCO-OBSW-1s) was diluted due to dark purple color. The LOQ has been elevated to reflect the dilution.

TOC SM5310C

Due to the lab TOC instrument being down and not being able to perform a good calibration within holding times, the TOC samples XG20043-001 (MW-10), XG20043-002 (ERD-OBSW-1S), XG20043-003 (MW-10 i) and XG20043-004 (ERD-OBSW-1i) were analyzed and reported outside holding time.

For the TOC Run 2, the closing/ opening continuing calibration verification (CCV) associated with sample XG20043-001 (MW-10) and XG20043-002 (ERD-OBSW-1S), did not meet criteria for TOC SM5310C. The associated samples were analyzed twice with similar results. Both runs have been reported.

Reanalysis of the following samples was performed outside of the analytical holding time and the associated with a CCV and CCB exceeded the upper limit: XG20043-003 (MW-10 i) and XG20043-004 (ERD-OBSW-1i). These samples were reanalyzed for Run 3. All three analyses are reported for these two samples.

The MS/MSD for 51457 and parent sample XF30066-004 (ERD-OBSW-11), recovered marginally outside the upper control limit. The associated LCS passed acceptance criteria.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: XG20043

Project Name: Shakespeare - Signify

Project Number: 60635197

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-10	Aqueous	07/19/2022 0930	07/20/2022
002	ERD-OBSW-1S	Aqueous	07/19/2022 1100	07/20/2022
003	MW-10 i	Aqueous	07/19/2022 1220	07/20/2022
004	ERD-OBSW-1i	Aqueous	07/19/2022 1420	07/20/2022
005	ISCO-OBSW-1s	Aqueous	07/20/2022 0840	07/20/2022
006	TMW-31	Aqueous	07/20/2022 0930	07/20/2022
007	MW-2	Aqueous	07/20/2022 1035	07/20/2022
008	DW-01	Aqueous	07/20/2022	07/20/2022
009	TB-01	Aqueous	07/20/2022	07/20/2022

(9 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: XG20043

Project Name: Shakespeare - Signify

Project Number: 60635197

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-10	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	330		mg CaCO3/L	7
001	MW-10	Aqueous	Chloride	300.0	25		mg/L	7
001	MW-10	Aqueous	Nitrite - N	353.2	0.72		mg/L	7
001	MW-10	Aqueous	Sulfate	300.0	1.3		mg/L	7
001	MW-10	Aqueous	TOC	SM 5310C-	360	H	mg/L	7
001	MW-10	Aqueous	Trichloroethene	8260D	760		ug/L	9
001	MW-10	Aqueous	Ethene	RSK - 175	8.0	J	ug/L	10
001	MW-10	Aqueous	Methane	RSK - 175	9100		ug/L	10
001	MW-10	Aqueous	Dissolved Iron	6010D	11		mg/L	11
001	MW-10	Aqueous	Iron	6010D	31		mg/L	12
002	ERD-OBSW-1S	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	33		mg CaCO3/L	13
002	ERD-OBSW-1S	Aqueous	Chloride	300.0	110		mg/L	13
002	ERD-OBSW-1S	Aqueous	Nitrate - N	353.2	0.29		mg/L	13
002	ERD-OBSW-1S	Aqueous	Nitrite - N	353.2	0.053		mg/L	13
002	ERD-OBSW-1S	Aqueous	TOC	SM 5310C-	5.9	H	mg/L	13
002	ERD-OBSW-1S	Aqueous	Acetone	8260D	5.8	JL	ug/L	14
002	ERD-OBSW-1S	Aqueous	1,2-Dichloroethane	8260D	0.92		ug/L	14
002	ERD-OBSW-1S	Aqueous	cis-1,2-Dichloroethene	8260D	110		ug/L	14
002	ERD-OBSW-1S	Aqueous	Styrene	8260D	0.45	J	ug/L	14
002	ERD-OBSW-1S	Aqueous	Trichloroethene	8260D	150		ug/L	15
002	ERD-OBSW-1S	Aqueous	Methane	RSK - 175	270		ug/L	16
002	ERD-OBSW-1S	Aqueous	Dissolved Iron	6010D	1.5		mg/L	17
002	ERD-OBSW-1S	Aqueous	Iron	6010D	1.8		mg/L	18
003	MW-10 i	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	39		mg CaCO3/L	19
003	MW-10 i	Aqueous	Chloride	300.0	8.7		mg/L	19
003	MW-10 i	Aqueous	Nitrate - N	353.2	0.070	S	mg/L	19
003	MW-10 i	Aqueous	Nitrite - N	353.2	0.025		mg/L	19
003	MW-10 i	Aqueous	TOC	SM 5310C-	7.1	H	mg/L	19
003	MW-10 i	Aqueous	1,2-Dichloroethane	8260D	1.1		ug/L	20
003	MW-10 i	Aqueous	1,1-Dichloroethene	8260D	1.4		ug/L	20
003	MW-10 i	Aqueous	cis-1,2-Dichloroethene	8260D	570		ug/L	20
003	MW-10 i	Aqueous	Methylene chloride	8260D	0.45	J	ug/L	20
003	MW-10 i	Aqueous	Trichloroethene	8260D	57		ug/L	21
003	MW-10 i	Aqueous	Vinyl chloride	8260D	0.49	J	ug/L	21
003	MW-10 i	Aqueous	Methane	RSK - 175	1700		ug/L	22
003	MW-10 i	Aqueous	Dissolved Iron	6010D	12		mg/L	23
003	MW-10 i	Aqueous	Iron	6010D	15		mg/L	24
004	ERD-OBSW-1i	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	320		mg CaCO3/L	25
004	ERD-OBSW-1i	Aqueous	Chloride	300.0	8.6		mg/L	25
004	ERD-OBSW-1i	Aqueous	Nitrate - N	353.2	0.21		mg/L	25
004	ERD-OBSW-1i	Aqueous	Nitrite - N	353.2	0.020		mg/L	25
004	ERD-OBSW-1i	Aqueous	TOC	SM 5310C-	89	H	mg/L	25
004	ERD-OBSW-1i	Aqueous	1,2-Dichloroethane	8260D	0.94		ug/L	26

Detection Summary (Continued)

Lot Number: XG20043

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	ERD-OBSW-1i	Aqueous	1,1-Dichloroethene	8260D	1.7		ug/L	26
004	ERD-OBSW-1i	Aqueous	cis-1,2-Dichloroethene	8260D	420		ug/L	26
004	ERD-OBSW-1i	Aqueous	trans-1,2-Dichloroethene	8260D	3.1		ug/L	26
004	ERD-OBSW-1i	Aqueous	Methyl acetate	8260D	5.7		ug/L	26
004	ERD-OBSW-1i	Aqueous	Methylene chloride	8260D	0.49	J	ug/L	26
004	ERD-OBSW-1i	Aqueous	Styrene	8260D	0.57		ug/L	26
004	ERD-OBSW-1i	Aqueous	Trichloroethene	8260D	180		ug/L	27
004	ERD-OBSW-1i	Aqueous	Vinyl chloride	8260D	4.5		ug/L	27
004	ERD-OBSW-1i	Aqueous	Ethene	RSK - 175	11		ug/L	28
004	ERD-OBSW-1i	Aqueous	Methane	RSK - 175	8700		ug/L	28
004	ERD-OBSW-1i	Aqueous	Dissolved Iron	6010D	0.049	J	mg/L	29
004	ERD-OBSW-1i	Aqueous	Iron	6010D	11		mg/L	30
005	ISCO-OBSW-1s	Aqueous	Chloride	300.0	7.0		mg/L	31
005	ISCO-OBSW-1s	Aqueous	Nitrate - N	353.2	2.4		mg/L	31
005	ISCO-OBSW-1s	Aqueous	Nitrite - N	353.2	0.37		mg/L	31
005	ISCO-OBSW-1s	Aqueous	TDS	SM 2540C-	340		mg/L	31
006	TMW-31	Aqueous	Chloride	300.0	5.6		mg/L	34
006	TMW-31	Aqueous	Nitrate - N	353.2	1.3		mg/L	34
006	TMW-31	Aqueous	Nitrite - N	353.2	0.011	J	mg/L	34
006	TMW-31	Aqueous	TDS	SM 2540C-	62		mg/L	34
006	TMW-31	Aqueous	cis-1,2-Dichloroethene	8260D	9.6		ug/L	35
006	TMW-31	Aqueous	Styrene	8260D	7.5		ug/L	35
006	TMW-31	Aqueous	Trichloroethene	8260D	860		ug/L	36
008	DW-01	Aqueous	cis-1,2-Dichloroethene	8260D	9.5		ug/L	39
008	DW-01	Aqueous	Styrene	8260D	5.0		ug/L	39
008	DW-01	Aqueous	Trichloroethene	8260D	1200		ug/L	40

(69 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	07/28/2022 1740	TAD		49627
1	(Chloride)	300.0	1	08/03/2022 2225	BMG2		50171
1	(Nitrate - N)	353.2	1	07/20/2022 2005	KKP		48599
1	(Nitrite - N)	353.2	1	07/20/2022 2005	KKP		48598
1	(Sulfate)	300.0	1	08/03/2022 2225	BMG2		50172
1	(TOC)	SM 5310C-2011	20	08/18/2022 1019	CMM		51457
2	(TOC)	SM 5310C-2011	20	08/23/2022 1121	CMM		51833

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	330		20	20	mg CaCO3/L	1
Chloride		300.0	25		1.0	0.25	mg/L	1
Nitrate - N		353.2	ND		0.020	0.010	mg/L	1
Nitrite - N		353.2	0.72		0.020	0.010	mg/L	1
Sulfate		300.0	1.3		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	390	H	20	20	mg/L	1
TOC		SM 5310C-2011	360	H	20	20	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	07/22/2022 0231	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	500	200	ug/L	1
Benzene	71-43-2	8260D	ND		25	20	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		25	20	ug/L	1
Bromoform	75-25-2	8260D	ND		25	20	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		25	20	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		500	100	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		25	20	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		25	20	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		25	20	ug/L	1
Chloroethane	75-00-3	8260D	ND		25	20	ug/L	1
Chloroform	67-66-3	8260D	ND		25	20	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		25	20	ug/L	1
Cyclohexane	110-82-7	8260D	ND		25	20	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		25	20	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		25	20	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		25	20	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		25	20	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		25	20	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		25	20	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		25	20	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		25	20	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		25	20	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		25	20	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		25	20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		25	20	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		25	20	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		25	20	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		25	20	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		25	20	ug/L	1
2-Hexanone	591-78-6	8260D	ND		500	100	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		25	20	ug/L	1
Methyl acetate	79-20-9	8260D	ND		50	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		25	20	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		500	100	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		250	20	ug/L	1
Methylene chloride	75-09-2	8260D	ND		25	20	ug/L	1
Styrene	100-42-5	8260D	ND		25	21	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		25	20	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		25	20	ug/L	1
Toluene	108-88-3	8260D	ND		25	20	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		50	21	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		25	20	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		25	20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		25	20	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	07/22/2022 0231	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	760		25	20	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		25	20	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		25	20	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		50	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		96	70-130

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Dissolved Gases

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	07/30/2022 1456	BBW		49598
2		RSK - 175	5	08/02/2022 1350	BBW		49868

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	8.0	J	10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	9100		50	13	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/02/2022 0513	JMH	07/30/2022 0755	49579

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	11		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 07/19/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/01/2022 1022	JMH	07/30/2022 0822	49580

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	31		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	07/25/2022 1833	TAD		49119
1	(Chloride)	300.0	1	08/03/2022 2244	BMG2		50171
1	(Nitrate - N)	353.2	1	07/20/2022 2006	KKP		48599
1	(Nitrite - N)	353.2	1	07/20/2022 2006	KKP		48598
1	(Sulfate)	300.0	1	08/03/2022 2244	BMG2		50172
1	(TOC)	SM 5310C-2011	1	08/18/2022 1031	CMM		51457
2	(TOC)	SM 5310C-2011	1	08/23/2022 1133	CMM		51833

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	33		20	20	mg CaCO3/L	1
Chloride		300.0	110		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.29		0.020	0.010	mg/L	1
Nitrite - N		353.2	0.053		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	6.3	H	1.0	1.0	mg/L	1
TOC		SM 5310C-2011	5.9	H	1.0	1.0	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2327	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	5.8	JL	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.92		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	110		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	0.45	J	0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2327	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	150		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		90	70-130
1,2-Dichloroethane-d4		109	70-130
Toluene-d8		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Dissolved Gases

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	07/30/2022 1511	BBW		49598

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	270		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/02/2022 0533	JMH	07/30/2022 0755	49579

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	1.5		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 07/19/2022 1100	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/01/2022 1025	JMH	07/30/2022 0822	49580

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	1.8		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	07/25/2022 1838	TAD		49119
1	(Chloride)	300.0	1	08/03/2022 2303	BMG2		50171
1	(Nitrate - N)	353.2	1	07/20/2022 2008	KKP		48599
1	(Nitrite - N)	353.2	1	07/20/2022 2008	KKP		48598
1	(Sulfate)	300.0	1	08/03/2022 2303	BMG2		50172
1	(TOC)	SM 5310C-2011	1	08/18/2022 1043	CMM		51457
2	(TOC)	SM 5310C-2011	1	08/23/2022 1209	CMM		51833
3	(TOC)	SM 5310C-2011	1	08/25/2022 1037	CMM		52067

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	39		20	20	mg CaCO3/L	1
Chloride		300.0	8.7		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.070	S	0.020	0.010	mg/L	1
Nitrite - N		353.2	0.025		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	10	H	1.0	1.0	mg/L	1
TOC		SM 5310C-2011	8.0	H	1.0	1.0	mg/L	2
TOC		SM 5310C-2011	7.1	H	1.0	1.0	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2353	JMM2		48752
2	5030B	8260D	10	07/24/2022 2019	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	1.1		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	1.4		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	570		5.0	4.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	0.45	J	0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2353	JMM2		48752
2	5030B	8260D	10	07/24/2022 2019	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	57		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	0.49	J	0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130		94	70-130
1,2-Dichloroethane-d4		109	70-130		93	70-130
Toluene-d8		99	70-130		100	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	07/30/2022 1527	BBW		49598

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	1700		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/02/2022 0556	JMH	07/30/2022 0755	49579

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	12		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-003
Description: MW-10 i	Matrix: Aqueous
Date Sampled: 07/19/2022 1220	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	3005A	6010D	1	08/02/2022 0325	JMH	07/30/2022 0822	49580

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	15		0.10	0.040	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	07/25/2022 1853	TAD		49119
1	(Chloride)	300.0	1	08/03/2022 2128	BMG2		50171
1	(Nitrate - N)	353.2	1	07/20/2022 2010	KKP		48599
1	(Nitrite - N)	353.2	1	07/20/2022 2010	KKP		48598
1	(Sulfate)	300.0	1	08/03/2022 2128	BMG2		50172
1	(TOC)	SM 5310C-2011	1	08/18/2022 1054	CMM		51457
2	(TOC)	SM 5310C-2011	2	08/23/2022 1220	CMM		51833
3	(TOC)	SM 5310C-2011	2	08/25/2022 1050	CMM		52067

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	320		20	20	mg CaCO3/L	1
Chloride		300.0	8.6		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.21		0.020	0.010	mg/L	1
Nitrite - N		353.2	0.020		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	96	HS	1.0	1.0	mg/L	1
TOC		SM 5310C-2011	89	H	2.0	2.0	mg/L	2
TOC		SM 5310C-2011	89	H	2.0	2.0	mg/L	3

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/22/2022 0018	JMM2		48752
2	5030B	8260D	10	07/24/2022 2044	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.94		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	1.7		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	420		5.0	4.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	3.1		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	5.7		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	0.49	J	0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	0.57		0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/22/2022 0018	JMM2		48752
2	5030B	8260D	10	07/24/2022 2044	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	180		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	4.5		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		93	70-130		92	70-130
1,2-Dichloroethane-d4		109	70-130		94	70-130
Toluene-d8		95	70-130		97	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	07/30/2022 1543	BBW		49598
2		RSK - 175	5	08/02/2022 1407	BBW		49868

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	11		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	8700		50	13	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	08/02/2022 0600	JMH	07/30/2022 0755	49579

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	0.049	J	0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XG20043-004
Description: ERD-OBSW-1i	Matrix: Aqueous
Date Sampled: 07/19/2022 1420	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	3005A	6010D	1	08/02/2022 0329	JMH	07/30/2022 0822	49580

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	11		0.10	0.040	mg/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-005
Description: ISCO-OBSW-1s	Matrix: Aqueous
Date Sampled: 07/20/2022 0840	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	5	08/06/2022 0049	BMG2		50778
1		(Nitrate - N) 353.2	2	07/20/2022 2036	KKP		48599
1		(Nitrite - N) 353.2	1	07/20/2022 2026	KKP		48598
1		(TDS) SM 2540C-2011	1	07/26/2022 1717	CVR		49131

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride			300.0	7.0	5.0	1.3	mg/L	1
Nitrate - N			353.2	2.4	0.040	0.020	mg/L	1
Nitrite - N			353.2	0.37	0.020	0.010	mg/L	1
TDS		SM 2540C-2011	340		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-005
Description: ISCO-OBSW-1s	Matrix: Aqueous
Date Sampled: 07/20/2022 0840	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	07/22/2022 1612	BWS		48797

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		500	200	ug/L	1
Benzene	71-43-2	8260D	ND		25	20	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		25	20	ug/L	1
Bromoform	75-25-2	8260D	ND		25	20	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		25	20	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		500	100	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		25	20	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		25	20	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		25	20	ug/L	1
Chloroethane	75-00-3	8260D	ND		25	20	ug/L	1
Chloroform	67-66-3	8260D	ND		25	20	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		25	20	ug/L	1
Cyclohexane	110-82-7	8260D	ND		25	20	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		25	20	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		25	20	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		25	20	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		25	20	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		25	20	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		25	20	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		25	20	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		25	20	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		25	20	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		25	20	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		25	20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		25	20	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		25	20	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		25	20	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		25	20	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		25	20	ug/L	1
2-Hexanone	591-78-6	8260D	ND		500	100	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		25	20	ug/L	1
Methyl acetate	79-20-9	8260D	ND		50	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		25	20	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		500	100	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		250	20	ug/L	1
Methylene chloride	75-09-2	8260D	ND		25	20	ug/L	1
Styrene	100-42-5	8260D	ND		25	21	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		25	20	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		25	20	ug/L	1
Toluene	108-88-3	8260D	ND		25	20	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		50	21	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		25	20	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		25	20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		25	20	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-005
Description: ISCO-OBSW-1s	Matrix: Aqueous
Date Sampled: 07/20/2022 0840	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	07/22/2022 1612	BWS		48797

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		25	20	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		25	20	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		25	20	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		50	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		88	70-130
1,2-Dichloroethane-d4		111	70-130
Toluene-d8		92	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XG20043-006
Description: TMW-31	Matrix: Aqueous
Date Sampled: 07/20/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	08/16/2022 0225	MSG		51293
1		(Nitrate - N) 353.2	1	07/20/2022 2016	KKP		48599
1		(Nitrite - N) 353.2	1	07/20/2022 2016	KKP		48598
1		(TDS) SM 2540C-2011	1	07/27/2022 1734	CVR		49287

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride			300.0		5.6	1.0	0.25	mg/L 1
Nitrate - N			353.2		1.3	0.020	0.010	mg/L 1
Nitrite - N			353.2	J	0.011	0.020	0.010	mg/L 1
TDS		SM 2540C-2011	62			25	25	mg/L 1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-006
Description: TMW-31	Matrix: Aqueous
Date Sampled: 07/20/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	07/22/2022 0140	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	9.6		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	7.5		5.0	4.1	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-006
Description: TMW-31	Matrix: Aqueous
Date Sampled: 07/20/2022 0930	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	07/22/2022 0140	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	860		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-007
Description: MW-2	Matrix: Aqueous
Date Sampled: 07/20/2022 1035	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/22/2022 0049	JMM2		48752
3	5030B	8260D	1	07/26/2022 1110	BBW		49080

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	3
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-007
Description: MW-2	Matrix: Aqueous
Date Sampled: 07/20/2022 1035	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/22/2022 0049	JMM2		48752
3	5030B	8260D	1	07/26/2022 1110	BBW		49080

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 3 % Recovery	Acceptance Limits
Bromofluorobenzene		89	70-130		88	70-130
1,2-Dichloroethane-d4		111	70-130		94	70-130
Toluene-d8		94	70-130		94	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-008
Description: DW-01	Matrix: Aqueous
Date Sampled: 07/20/2022	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	07/22/2022 0115	JMM2		48752
2	5030B	8260D	20	07/24/2022 2109	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	50	20	ug/L	1
Benzene	71-43-2	8260D	ND		2.5	2.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		2.5	2.0	ug/L	1
Bromoform	75-25-2	8260D	ND		2.5	2.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		2.5	2.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		50	10	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		2.5	2.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		2.5	2.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		2.5	2.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		2.5	2.0	ug/L	1
Chloroform	67-66-3	8260D	ND		2.5	2.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		2.5	2.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		2.5	2.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		2.5	2.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		2.5	2.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		2.5	2.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		2.5	2.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		2.5	2.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		2.5	2.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	9.5		2.5	2.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		2.5	2.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		2.5	2.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		2.5	2.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		2.5	2.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		2.5	2.0	ug/L	1
2-Hexanone	591-78-6	8260D	ND		50	10	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		2.5	2.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		5.0	2.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		2.5	2.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		50	10	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		25	2.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		2.5	2.0	ug/L	1
Styrene	100-42-5	8260D	5.0		2.5	2.1	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		2.5	2.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		2.5	2.0	ug/L	1
Toluene	108-88-3	8260D	ND		2.5	2.0	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		5.0	2.1	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		2.5	2.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		2.5	2.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-008
Description: DW-01	Matrix: Aqueous
Date Sampled: 07/20/2022	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	5	07/22/2022 0115	JMM2		48752
2	5030B	8260D	20	07/24/2022 2109	JMM2		48924

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		2.5	2.0	ug/L	1
Trichloroethene	79-01-6	8260D	1200		10	8.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND		2.5	2.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		2.5	2.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		5.0	2.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130		95	70-130
1,2-Dichloroethane-d4		109	70-130		94	70-130
Toluene-d8		94	70-130		99	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-009
Description: TB-01	Matrix: Aqueous
Date Sampled: 07/20/2022	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2302	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	L	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XG20043-009
Description: TB-01	Matrix: Aqueous
Date Sampled: 07/20/2022	Project Name: Shakespeare - Signify
Date Received: 07/20/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	07/21/2022 2302	JMM2		48752

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		109	70-130
Toluene-d8		96	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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QC Summary

Inorganic non-metals - MB

Sample ID: XQ48598-001

Matrix: Aqueous

Batch: 48598

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.010	mg/L	07/20/2022 2000

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ48598-002

Matrix: Aqueous

Batch: 48598

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.40	0.42		1	105	90-110	07/20/2022 2001

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XG20043-003MS

Matrix: Aqueous

Batch: 48598

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.025	0.40	0.44		1	105	90-110	07/20/2022 2018

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XG20043-003MD

Matrix: Aqueous

Batch: 48598

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	0.025	0.40	0.44		1	104	1.0	90-110	20	07/20/2022 2020

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ48599-001

Matrix: Aqueous

Batch: 48599

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.010	mg/L	07/20/2022 2000

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ48599-002

Matrix: Aqueous

Batch: 48599

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.40	0.38		1	94	90-110	07/20/2022 2001

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XG20043-003MS

Matrix: Aqueous

Batch: 48599

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.070	0.80	ND	N	1	-8.7	90-110	07/20/2022 2018

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XG20043-003MD

Matrix: Aqueous

Batch: 48599

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	0.070	0.80	ND	N	1	-8.7	0.00	90-110	20	07/20/2022 2020

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ49119-002

Matrix: Aqueous

Batch: 49119

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	110	1	105	90-110	07/25/2022 1743

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ49131-001

Matrix: Aqueous

Batch: 49131

Analytical Method: SM 2540C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TDS	ND		1	25	25	mg/L	07/26/2022 1717

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ49131-002

Matrix: Aqueous

Batch: 49131

Analytical Method: SM 2540C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TDS	50	47		1	94	90-110	07/26/2022 1717

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ49287-001

Matrix: Aqueous

Batch: 49287

Analytical Method: SM 2540C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TDS	ND		1	25	25	mg/L	07/27/2022 1734

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ49287-002

Matrix: Aqueous

Batch: 49287

Analytical Method: SM 2540C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TDS	50	46		1	92	90-110	07/27/2022 1734

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ49627-002

Matrix: Aqueous

Batch: 49627

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	100	1	104	90-110	07/28/2022 1716

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ50171-001

Matrix: Aqueous

Batch: 50171

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	08/03/2022 1819

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ50171-002

Matrix: Aqueous

Batch: 50171

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	20		1	102	90-110	08/03/2022 2031

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ50172-001

Matrix: Aqueous

Batch: 50172

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	08/03/2022 1819

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ50172-002

Matrix: Aqueous

Batch: 50172

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	98	90-110	08/03/2022 2031

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ50778-001

Matrix: Aqueous

Batch: 50778

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	08/05/2022 2203

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ50778-002

Matrix: Aqueous

Batch: 50778

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	105	90-110	08/06/2022 0011

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ51293-001

Matrix: Aqueous

Batch: 51293

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	08/15/2022 1837

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ51293-002

Matrix: Aqueous

Batch: 51293

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	20		1	99	90-110	08/15/2022 1915

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ51457-001

Matrix: Aqueous

Batch: 51457

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	08/18/2022 0920

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ51457-002

Matrix: Aqueous

Batch: 51457

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	20		1	100	90-110	08/18/2022 0931

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XG20043-004MS

Matrix: Aqueous

Batch: 51457

Analytical Method: SM 5310C-2011

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	96	50	160	N	1	134	70-130	08/18/2022 1106

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XG20043-004MD

Matrix: Aqueous

Batch: 51457

Analytical Method: SM 5310C-2011

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	96	50	160	N	1	131	1.1	70-130	20	08/18/2022 1142

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ52067-001

Matrix: Aqueous

Batch: 52067

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	08/25/2022 1014

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ52067-002

Matrix: Aqueous

Batch: 52067

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	20		1	102	90-110	08/25/2022 1026

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ48752-001

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	07/21/2022 2108
Benzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Bromodichloromethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Bromoform	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	07/21/2022 2108
2-Butanone (MEK)	ND		1	10	2.0	ug/L	07/21/2022 2108
Carbon disulfide	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Chlorobenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Chloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Chloroform	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Cyclohexane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Dibromochloromethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Ethylbenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
2-Hexanone	ND		1	10	2.0	ug/L	07/21/2022 2108
Isopropylbenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Methyl acetate	ND		1	1.0	0.40	ug/L	07/21/2022 2108
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	07/21/2022 2108
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	07/21/2022 2108
Methylcyclohexane	ND		1	5.0	0.40	ug/L	07/21/2022 2108
Methylene chloride	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Styrene	ND		1	0.50	0.41	ug/L	07/21/2022 2108
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Tetrachloroethene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Toluene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	07/21/2022 2108
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108

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P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ48752-001

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Vinyl chloride	ND		1	0.50	0.40	ug/L	07/21/2022 2108
Xylenes (total)	ND		1	1.0	0.40	ug/L	07/21/2022 2108
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		96	70-130				
1,2-Dichloroethane-d4		110	70-130				
Toluene-d8		97	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ48752-002

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	170	N	1	166	60-140	07/21/2022 2001
Benzene	50	51		1	101	70-130	07/21/2022 2001
Bromodichloromethane	50	50		1	99	70-130	07/21/2022 2001
Bromoform	50	45		1	91	70-130	07/21/2022 2001
Bromomethane (Methyl bromide)	50	52		1	105	70-130	07/21/2022 2001
2-Butanone (MEK)	100	100		1	104	70-130	07/21/2022 2001
Carbon disulfide	50	45		1	90	70-130	07/21/2022 2001
Carbon tetrachloride	50	47		1	93	70-130	07/21/2022 2001
Chlorobenzene	50	49		1	98	70-130	07/21/2022 2001
Chloroethane	50	54		1	107	70-130	07/21/2022 2001
Chloroform	50	49		1	97	70-130	07/21/2022 2001
Chloromethane (Methyl chloride)	50	58		1	116	60-140	07/21/2022 2001
Cyclohexane	50	52		1	103	70-130	07/21/2022 2001
1,2-Dibromo-3-chloropropane (DBCP)	50	51		1	103	70-130	07/21/2022 2001
Dibromochloromethane	50	48		1	96	70-130	07/21/2022 2001
1,2-Dibromoethane (EDB)	50	51		1	101	70-130	07/21/2022 2001
1,2-Dichlorobenzene	50	52		1	104	70-130	07/21/2022 2001
1,3-Dichlorobenzene	50	51		1	101	70-130	07/21/2022 2001
1,4-Dichlorobenzene	50	50		1	100	70-130	07/21/2022 2001
Dichlorodifluoromethane	50	57		1	114	60-140	07/21/2022 2001
1,1-Dichloroethane	50	51		1	101	70-130	07/21/2022 2001
1,2-Dichloroethane	50	52		1	104	70-130	07/21/2022 2001
1,1-Dichloroethene	50	47		1	93	70-130	07/21/2022 2001
cis-1,2-Dichloroethene	50	48		1	96	70-130	07/21/2022 2001
trans-1,2-Dichloroethene	50	48		1	95	70-130	07/21/2022 2001
1,2-Dichloropropane	50	50		1	100	70-130	07/21/2022 2001
cis-1,3-Dichloropropene	50	52		1	103	70-130	07/21/2022 2001
trans-1,3-Dichloropropene	50	51		1	102	70-130	07/21/2022 2001
Ethylbenzene	50	50		1	99	70-130	07/21/2022 2001
2-Hexanone	100	99		1	99	70-130	07/21/2022 2001
Isopropylbenzene	50	52		1	104	70-130	07/21/2022 2001
Methyl acetate	50	53		1	106	70-130	07/21/2022 2001
Methyl tertiary butyl ether (MTBE)	50	50		1	100	70-130	07/21/2022 2001
4-Methyl-2-pentanone	100	110		1	112	70-130	07/21/2022 2001
Methylcyclohexane	50	43		1	87	70-130	07/21/2022 2001
Methylene chloride	50	49		1	98	70-130	07/21/2022 2001
Styrene	50	47		1	93	70-130	07/21/2022 2001
1,1,2,2-Tetrachloroethane	50	53		1	106	70-130	07/21/2022 2001
Tetrachloroethene	50	46		1	93	70-130	07/21/2022 2001
Toluene	50	49		1	99	70-130	07/21/2022 2001
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	47		1	93	70-130	07/21/2022 2001
1,2,4-Trichlorobenzene	50	54		1	108	70-130	07/21/2022 2001
1,1,1-Trichloroethane	50	47		1	95	70-130	07/21/2022 2001
1,1,2-Trichloroethane	50	49		1	98	70-130	07/21/2022 2001

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ48752-002

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	47		1	94	70-130	07/21/2022 2001
Trichlorofluoromethane	50	51		1	103	70-130	07/21/2022 2001
Vinyl chloride	50	55		1	109	70-130	07/21/2022 2001
Xylenes (total)	100	100		1	101	70-130	07/21/2022 2001
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		88			70-130		
1,2-Dichloroethane-d4		97			70-130		
Toluene-d8		87			70-130		

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Volatile Organic Compounds by GC/MS - MS

Sample ID: XG20043-008MS

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	ND	500	610		5	123	60-140	07/22/2022 0256
Benzene	ND	250	280		5	110	70-130	07/22/2022 0256
Bromodichloromethane	ND	250	260		5	104	70-130	07/22/2022 0256
Bromoform	ND	250	230		5	94	70-130	07/22/2022 0256
Bromomethane (Methyl bromide)	ND	250	270		5	110	70-130	07/22/2022 0256
2-Butanone (MEK)	ND	500	480		5	95	70-130	07/22/2022 0256
Carbon disulfide	ND	250	260		5	102	70-130	07/22/2022 0256
Carbon tetrachloride	ND	250	270		5	109	70-130	07/22/2022 0256
Chlorobenzene	ND	250	260		5	103	70-130	07/22/2022 0256
Chloroethane	ND	250	280		5	111	70-130	07/22/2022 0256
Chloroform	ND	250	260		5	105	70-130	07/22/2022 0256
Chloromethane (Methyl chloride)	ND	250	300		5	120	60-140	07/22/2022 0256
Cyclohexane	ND	250	300		5	118	70-130	07/22/2022 0256
1,2-Dibromo-3-chloropropane (DBCP)	ND	250	240		5	94	70-130	07/22/2022 0256
Dibromochloromethane	ND	250	250		5	100	70-130	07/22/2022 0256
1,2-Dibromoethane (EDB)	ND	250	260		5	103	70-130	07/22/2022 0256
1,2-Dichlorobenzene	ND	250	260		5	103	70-130	07/22/2022 0256
1,3-Dichlorobenzene	ND	250	250		5	102	70-130	07/22/2022 0256
1,4-Dichlorobenzene	ND	250	250		5	100	70-130	07/22/2022 0256
Dichlorodifluoromethane	ND	250	290		5	118	60-140	07/22/2022 0256
1,1-Dichloroethane	ND	250	270		5	109	70-130	07/22/2022 0256
1,2-Dichloroethane	ND	250	260		5	105	70-130	07/22/2022 0256
1,1-Dichloroethene	ND	250	260		5	104	70-130	07/22/2022 0256
cis-1,2-Dichloroethene	9.5	250	260		5	102	70-130	07/22/2022 0256
trans-1,2-Dichloroethene	ND	250	260		5	102	70-130	07/22/2022 0256
1,2-Dichloropropane	ND	250	270		5	108	70-130	07/22/2022 0256
cis-1,3-Dichloropropene	ND	250	260		5	104	70-130	07/22/2022 0256
trans-1,3-Dichloropropene	ND	250	260		5	103	70-130	07/22/2022 0256
Ethylbenzene	ND	250	270		5	107	70-130	07/22/2022 0256
2-Hexanone	ND	500	500		5	100	70-130	07/22/2022 0256
Isopropylbenzene	ND	250	280		5	111	70-130	07/22/2022 0256
Methyl acetate	ND	250	250		5	101	70-130	07/22/2022 0256
Methyl tertiary butyl ether (MTBE)	ND	250	250		5	98	70-130	07/22/2022 0256
4-Methyl-2-pentanone	ND	500	570		5	113	70-130	07/22/2022 0256
Methylcyclohexane	ND	250	240		5	97	70-130	07/22/2022 0256
Methylene chloride	ND	250	250		5	100	70-130	07/22/2022 0256
Styrene	5.0	250	250		5	98	70-130	07/22/2022 0256
1,1,2,2-Tetrachloroethane	ND	250	260		5	104	70-130	07/22/2022 0256
Tetrachloroethene	ND	250	260		5	104	70-130	07/22/2022 0256
Toluene	ND	250	260		5	105	70-130	07/22/2022 0256
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250	260		5	104	70-130	07/22/2022 0256
1,2,4-Trichlorobenzene	ND	250	250		5	99	70-130	07/22/2022 0256
1,1,1-Trichloroethane	ND	250	270		5	107	70-130	07/22/2022 0256
1,1,2-Trichloroethane	ND	250	250		5	101	70-130	07/22/2022 0256

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DL = Detection Limit

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P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MS

Sample ID: XG20043-008MS

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	1000	250	1300	E	5	90	70-130	07/22/2022 0256
Trichlorofluoromethane	ND	250	280		5	112	70-130	07/22/2022 0256
Vinyl chloride	ND	250	290		5	117	70-130	07/22/2022 0256
Xylenes (total)	ND	500	530		5	107	70-130	07/22/2022 0256
Surrogate	Q	% Rec	Acceptance Limit					
Bromofluorobenzene		89	70-130					
1,2-Dichloroethane-d4		96	70-130					
Toluene-d8		91	70-130					

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MSD

Sample ID: XG20043-008MD

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	500	580	5	116	5.4	60-140	20	07/22/2022 0321	
Benzene	ND	250	270	5	108	1.6	70-130	20	07/22/2022 0321	
Bromodichloromethane	ND	250	260	5	104	0.23	70-130	20	07/22/2022 0321	
Bromoform	ND	250	230	5	93	0.17	70-130	20	07/22/2022 0321	
Bromomethane (Methyl bromide)	ND	250	260	5	105	4.5	70-130	20	07/22/2022 0321	
2-Butanone (MEK)	ND	500	470	5	93	2.5	70-130	20	07/22/2022 0321	
Carbon disulfide	ND	250	250	5	100	1.9	70-130	20	07/22/2022 0321	
Carbon tetrachloride	ND	250	260	5	105	3.1	70-130	20	07/22/2022 0321	
Chlorobenzene	ND	250	260	5	103	0.077	70-130	20	07/22/2022 0321	
Chloroethane	ND	250	270	5	106	4.5	70-130	20	07/22/2022 0321	
Chloroform	ND	250	260	5	103	2.5	70-130	20	07/22/2022 0321	
Chloromethane (Methyl chloride)	ND	250	290	5	116	3.4	60-140	20	07/22/2022 0321	
Cyclohexane	ND	250	290	5	116	2.0	70-130	20	07/22/2022 0321	
1,2-Dibromo-3-chloropropane (DBCP)	ND	250	240	5	95	0.45	70-130	20	07/22/2022 0321	
Dibromochloromethane	ND	250	250	5	99	0.37	70-130	20	07/22/2022 0321	
1,2-Dibromoethane (EDB)	ND	250	260	5	103	0.0018	70-130	20	07/22/2022 0321	
1,2-Dichlorobenzene	ND	250	250	5	102	0.73	70-130	20	07/22/2022 0321	
1,3-Dichlorobenzene	ND	250	250	5	101	0.71	70-130	20	07/22/2022 0321	
1,4-Dichlorobenzene	ND	250	250	5	99	0.92	70-130	20	07/22/2022 0321	
Dichlorodifluoromethane	ND	250	280	5	112	4.6	60-140	20	07/22/2022 0321	
1,1-Dichloroethane	ND	250	270	5	107	1.6	70-130	20	07/22/2022 0321	
1,2-Dichloroethane	ND	250	260	5	106	0.33	70-130	20	07/22/2022 0321	
1,1-Dichloroethene	ND	250	250	5	101	3.4	70-130	20	07/22/2022 0321	
cis-1,2-Dichloroethene	9.5	250	260	5	99	2.8	70-130	20	07/22/2022 0321	
trans-1,2-Dichloroethene	ND	250	250	5	102	0.64	70-130	20	07/22/2022 0321	
1,2-Dichloropropane	ND	250	260	5	106	2.1	70-130	20	07/22/2022 0321	
cis-1,3-Dichloropropene	ND	250	260	5	104	0.54	70-130	20	07/22/2022 0321	
trans-1,3-Dichloropropene	ND	250	260	5	103	0.093	70-130	20	07/22/2022 0321	
Ethylbenzene	ND	250	270	5	107	0.18	70-130	20	07/22/2022 0321	
2-Hexanone	ND	500	500	5	100	0.10	70-130	20	07/22/2022 0321	
Isopropylbenzene	ND	250	280	5	110	0.98	70-130	20	07/22/2022 0321	
Methyl acetate	ND	250	270	5	108	6.7	70-130	20	07/22/2022 0321	
Methyl tertiary butyl ether (MTBE)	ND	250	240	5	97	1.0	70-130	20	07/22/2022 0321	
4-Methyl-2-pentanone	ND	500	550	5	110	2.8	70-130	20	07/22/2022 0321	
Methylcyclohexane	ND	250	240	5	97	0.51	70-130	20	07/22/2022 0321	
Methylene chloride	ND	250	240	5	97	2.7	70-130	20	07/22/2022 0321	
Styrene	5.0	250	250	5	98	0.25	70-130	20	07/22/2022 0321	
1,1,2,2-Tetrachloroethane	ND	250	260	5	104	0.16	70-130	20	07/22/2022 0321	
Tetrachloroethene	ND	250	260	5	103	0.62	70-130	20	07/22/2022 0321	
Toluene	ND	250	260	5	105	0.25	70-130	20	07/22/2022 0321	
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	250	250	5	101	2.9	70-130	20	07/22/2022 0321	
1,2,4-Trichlorobenzene	ND	250	250	5	98	1.1	70-130	20	07/22/2022 0321	
1,1,1-Trichloroethane	ND	250	260	5	105	1.5	70-130	20	07/22/2022 0321	
1,1,2-Trichloroethane	ND	250	250	5	102	0.25	70-130	20	07/22/2022 0321	

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P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MSD

Sample ID: XG20043-008MD

Matrix: Aqueous

Batch: 48752

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	1000	250	1200	N	5	60	6.0	70-130	20	07/22/2022 0321
Trichlorofluoromethane	ND	250	270		5	106	5.5	70-130	20	07/22/2022 0321
Vinyl chloride	ND	250	280		5	113	4.0	70-130	20	07/22/2022 0321
Xylenes (total)	ND	500	530		5	106	1.2	70-130	20	07/22/2022 0321
Surrogate	Q	% Rec	Acceptance Limit							
Bromofluorobenzene		88	70-130							
1,2-Dichloroethane-d4		96	70-130							
Toluene-d8		91	70-130							

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ48797-001

Matrix: Aqueous

Batch: 48797

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	07/22/2022 0947
Benzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Bromodichloromethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Bromoform	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	07/22/2022 0947
2-Butanone (MEK)	ND		1	10	2.0	ug/L	07/22/2022 0947
Carbon disulfide	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Chlorobenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Chloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Chloroform	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Cyclohexane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Dibromochloromethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Ethylbenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
2-Hexanone	ND		1	10	2.0	ug/L	07/22/2022 0947
Isopropylbenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Methyl acetate	ND		1	1.0	0.40	ug/L	07/22/2022 0947
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	07/22/2022 0947
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	07/22/2022 0947
Methylcyclohexane	ND		1	5.0	0.40	ug/L	07/22/2022 0947
Methylene chloride	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Styrene	ND		1	0.50	0.41	ug/L	07/22/2022 0947
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Tetrachloroethene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Toluene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	07/22/2022 0947
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ48797-001

Matrix: Aqueous

Batch: 48797

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Vinyl chloride	ND		1	0.50	0.40	ug/L	07/22/2022 0947
Xylenes (total)	ND		1	1.0	0.40	ug/L	07/22/2022 0947
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		89	70-130				
1,2-Dichloroethane-d4		106	70-130				
Toluene-d8		93	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ48797-002

Matrix: Aqueous

Batch: 48797

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	120		1	125	60-140	07/22/2022 0856
Benzene	50	52		1	104	70-130	07/22/2022 0856
Bromodichloromethane	50	51		1	102	70-130	07/22/2022 0856
Bromoform	50	47		1	93	70-130	07/22/2022 0856
Bromomethane (Methyl bromide)	50	53		1	106	70-130	07/22/2022 0856
2-Butanone (MEK)	100	91		1	91	70-130	07/22/2022 0856
Carbon disulfide	50	47		1	94	70-130	07/22/2022 0856
Carbon tetrachloride	50	49		1	98	70-130	07/22/2022 0856
Chlorobenzene	50	49		1	99	70-130	07/22/2022 0856
Chloroethane	50	52		1	104	70-130	07/22/2022 0856
Chloroform	50	50		1	100	70-130	07/22/2022 0856
Chloromethane (Methyl chloride)	50	58		1	115	60-140	07/22/2022 0856
Cyclohexane	50	52		1	104	70-130	07/22/2022 0856
1,2-Dibromo-3-chloropropane (DBCP)	50	49		1	97	70-130	07/22/2022 0856
Dibromochloromethane	50	50		1	100	70-130	07/22/2022 0856
1,2-Dibromoethane (EDB)	50	51		1	102	70-130	07/22/2022 0856
1,2-Dichlorobenzene	50	52		1	103	70-130	07/22/2022 0856
1,3-Dichlorobenzene	50	50		1	100	70-130	07/22/2022 0856
1,4-Dichlorobenzene	50	50		1	99	70-130	07/22/2022 0856
Dichlorodifluoromethane	50	54		1	107	60-140	07/22/2022 0856
1,1-Dichloroethane	50	51		1	103	70-130	07/22/2022 0856
1,2-Dichloroethane	50	53		1	106	70-130	07/22/2022 0856
1,1-Dichloroethene	50	48		1	95	70-130	07/22/2022 0856
cis-1,2-Dichloroethene	50	49		1	97	70-130	07/22/2022 0856
trans-1,2-Dichloroethene	50	49		1	97	70-130	07/22/2022 0856
1,2-Dichloropropane	50	51		1	102	70-130	07/22/2022 0856
cis-1,3-Dichloropropene	50	52		1	105	70-130	07/22/2022 0856
trans-1,3-Dichloropropene	50	52		1	104	70-130	07/22/2022 0856
Ethylbenzene	50	49		1	99	70-130	07/22/2022 0856
2-Hexanone	100	96		1	96	70-130	07/22/2022 0856
Isopropylbenzene	50	53		1	105	70-130	07/22/2022 0856
Methyl acetate	50	52		1	104	70-130	07/22/2022 0856
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	07/22/2022 0856
4-Methyl-2-pentanone	100	110		1	107	70-130	07/22/2022 0856
Methylcyclohexane	50	44		1	88	70-130	07/22/2022 0856
Methylene chloride	50	50		1	101	70-130	07/22/2022 0856
Styrene	50	47		1	94	70-130	07/22/2022 0856
1,1,2,2-Tetrachloroethane	50	53		1	106	70-130	07/22/2022 0856
Tetrachloroethene	50	47		1	95	70-130	07/22/2022 0856
Toluene	50	50		1	99	70-130	07/22/2022 0856
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	47		1	95	70-130	07/22/2022 0856
1,2,4-Trichlorobenzene	50	53		1	106	70-130	07/22/2022 0856
1,1,1-Trichloroethane	50	49		1	98	70-130	07/22/2022 0856
1,1,2-Trichloroethane	50	50		1	100	70-130	07/22/2022 0856

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ48797-002

Matrix: Aqueous

Batch: 48797

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	49		1	97	70-130	07/22/2022 0856
Trichlorofluoromethane	50	51		1	103	70-130	07/22/2022 0856
Vinyl chloride	50	55		1	109	70-130	07/22/2022 0856
Xylenes (total)	100	100		1	101	70-130	07/22/2022 0856
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		87			70-130		
1,2-Dichloroethane-d4		94			70-130		
Toluene-d8		87			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ48924-001

Matrix: Aqueous

Batch: 48924

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/24/2022 1446
Trichloroethene	ND		1	0.50	0.40	ug/L	07/24/2022 1446
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		93	70-130				
1,2-Dichloroethane-d4		92	70-130				
Toluene-d8		98	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ48924-002

Matrix: Aqueous

Batch: 48924

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
cis-1,2-Dichloroethene	50	49		1	97	70-130	07/24/2022 1342
Trichloroethene	50	47		1	94	70-130	07/24/2022 1342
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		98			70-130		
1,2-Dichloroethane-d4		95			70-130		
Toluene-d8		101			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ49080-001

Matrix: Aqueous

Batch: 49080

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	07/26/2022 0956
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		92	70-130				
1,2-Dichloroethane-d4		96	70-130				
Toluene-d8		98	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ49080-002

Matrix: Aqueous

Batch: 49080

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
cis-1,2-Dichloroethene	50	46		1	93	70-130	07/26/2022 0853
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		96			70-130		
1,2-Dichloroethane-d4		88			70-130		
Toluene-d8		98			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - MB

Sample ID: XQ49598-001

Matrix: Aqueous

Batch: 49598

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	07/30/2022 1327
Ethene	ND		1	10	2.5	ug/L	07/30/2022 1327
Methane	ND		1	10	2.5	ug/L	07/30/2022 1327

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCS

Sample ID: XQ49598-002

Matrix: Aqueous

Batch: 49598

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	500		1	90	70-130	07/30/2022 1241
Ethene	520	480		1	92	70-130	07/30/2022 1241
Methane	300	310		1	104	70-130	07/30/2022 1241

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: XQ49598-003

Matrix: Aqueous

Batch: 49598

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	550	480		1	87	3.4	70-130	30	07/30/2022 1255
Ethene	520	460		1	89	3.4	70-130	30	07/30/2022 1255
Methane	300	290		1	99	4.3	70-130	30	07/30/2022 1255

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - MB

Sample ID: XQ49868-001

Matrix: Aqueous

Batch: 49868

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Methane	ND		1	10	2.5	ug/L	08/02/2022 1134

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCS

Sample ID: XQ49868-002

Matrix: Aqueous

Batch: 49868

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Methane	300	260		1	90	70-130	08/02/2022 1026

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: XQ49868-003

Matrix: Aqueous

Batch: 49868

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Methane	300	310		1	106	16	70-130	30	08/02/2022 1040

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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+ = RPD is out of criteria

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ICP-AES Metals - MB

Sample ID: XQ49579-001

Matrix: Aqueous

Batch: 49579

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0755

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	08/02/2022 0549

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

ICP-AES Metals - LCS

Sample ID: XQ49579-002

Matrix: Aqueous

Batch: 49579

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0755

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	21		1	105	80-120	08/02/2022 0509

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: XG20043-002MS

Matrix: Aqueous

Batch: 49579

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0755

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	1.5	20	23		1	107	75-125	08/02/2022 0537

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MSD

Sample ID: XG20043-002MD

Matrix: Aqueous

Batch: 49579

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0755

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	1.5	20	23		1	108	0.79	75-125	20	08/02/2022 0541

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: XQ49580-001

Matrix: Aqueous

Batch: 49580

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0822

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	08/01/2022 0937

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: XQ49580-002

Matrix: Aqueous

Batch: 49580

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 07/30/2022 0822

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	20		1	101	80-120	08/01/2022 0949

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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Chain of Custody
and
Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised: 9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: AECOM

Cooler Inspected by/date: CBP / 07/20/2022

Lot #: XG20043

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: 21-832 Chlorine Strip ID: NA Tested by: CBP	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA	
2.4 / 1.4 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: -1 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pca-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: CBP Date: 07/20/2022	

Comments:



Report of Analysis

AECOM
101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Shakespeare - Signify

Project Number: 60675505

Lot Number: **XL19029**

Date Completed: 02/09/2023

02/10/2023 12:45 PM

Approved and released by:
Project Manager II: **Cathy S. Dover**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: XL19029

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

VOA 8260D

Due to a power outage in the lab, an MS/MSD was not analyzed with the sequence. Since opening QC passes, data has been reported. Associated batch samples:

XL19029-001 (MW-10) (Run 1) (Analysis Batch 63526)
XL19029-002 (ERD-OBSW-1S) (Run 1) (Analysis Batch 63526)
XL19029-003 (MW-10I) (Run 1) (Analysis Batch 63526)
XL19029-004 (ERD-OBSW-1I) (Run 1) (Analysis Batch 63526)
XL19029-005 (TB-01) (Run 1) (Analysis Batch 63526)

Insufficient sample volume was provided to perform matrix spike/matrix spike duplicate (MS/MSD) for analytical batch 64027. An LCS/LCSD was run in lieu of an MS/MSD. Associated batch sample: XL19029-003 (MW-10I) (Run 2) (Analysis Batch 64027)

The following samples required a dilution for cis-1,2-DCE, which was performed outside of the analytical holding time: XL19029-003 and XL19029-004. Both analytical runs have been reported.

XL19029-003 (MW-10I) (Run 2) (Analysis Batch 64027)
XL19029-004 (ERD-OBSW-1I) (Run 2) (Analysis Batch 64061)

Dissolved Gases RSK175

The method blank associated with batch 63257 had Methane detected at a concentration that was above the DL but below the LOQ. All samples associated with this method blank that have detections for Methane have been flagged with a "B".

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Nitrite 353.2

The reanalysis for sample XL19029-002 (ERD-OBSW-1S) was performed outside of the analytical holding time. The original analysis (Run 1) was inside holding time. Run 1 analysis yielded a result of 0.022mg/L, which is qualified with a J and has an elevated LOQ. Reanalysis outside of holding time (Run 2) was analyzed undiluted and the result was 0.06mg/L, which is above the LOQ. Both runs have been reported.

Nitrate 353.2

The MS/MSD for batch 63431 and parent sample XL19029-003 (MW-10I), recovered outside the lower control limit. The associated LCS passed acceptance criteria.

TOC SM5310C

The following samples: XL19029-001, XL19029-002, XL19029-003, and XL19029-004 associated with batch 63400 had failing instrument QC and were scheduled for reanalysis. One CCV exceeded the upper limit of 110% recovery and one CCB exceeded 1/2 LOQ. Due to the instrument issues, the first reanalysis data was lost during the instrument and computer trouble shooting. Due to instrument issues, the samples could not be reanalyzed within holding time again. The client was contacted and we have reported the original analysis.

XL19029-001 (MW-10) (Run 1) (Analysis Batch 63400) TOC

XL19029-002 (ERD-OBSW-1S) (Run 1) (Analysis Batch 63400) TOC

XL19029-003 (MW-10I) (Run 1) (Analysis Batch 63400) TOC

XL19029-004 (ERD-OBSW-1I) (Run 1) (Analysis Batch 63400) TOC

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: XL19029

Project Name: Shakespeare - Signify

Project Number: 60675505

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-10	Aqueous	12/19/2022 1130	12/19/2022
002	ERD-OBSW-1S	Aqueous	12/19/2022 1250	12/19/2022
003	MW-10I	Aqueous	12/19/2022 1410	12/19/2022
004	ERD-OBSW-1I	Aqueous	12/19/2022 1515	12/19/2022
005	TB-01	Aqueous	12/19/2022	12/19/2022

(5 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: XL19029

Project Name: Shakespeare - Signify

Project Number: 60675505

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-10	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	110		mg CaCO3/L	7
001	MW-10	Aqueous	Chloride	300.0	20		mg/L	7
001	MW-10	Aqueous	Nitrate - N	353.2	0.12		mg/L	7
001	MW-10	Aqueous	TOC	SM 5310C-	250		mg/L	7
001	MW-10	Aqueous	1,2-Dichloroethane	8260D	5.7		ug/L	8
001	MW-10	Aqueous	cis-1,2-Dichloroethene	8260D	15		ug/L	8
001	MW-10	Aqueous	2-Hexanone	8260D	28	J	ug/L	8
001	MW-10	Aqueous	Trichloroethene	8260D	500		ug/L	9
001	MW-10	Aqueous	Xylenes (total)	8260D	4.3	J	ug/L	9
001	MW-10	Aqueous	Methane	RSK - 175	7500		ug/L	10
001	MW-10	Aqueous	Dissolved Iron	6010D	14		mg/L	11
001	MW-10	Aqueous	Iron	6010D	43		mg/L	12
002	ERD-OBSW-1S	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	24		mg CaCO3/L	13
002	ERD-OBSW-1S	Aqueous	Chloride	300.0	87		mg/L	13
002	ERD-OBSW-1S	Aqueous	Nitrate - N	353.2	0.71		mg/L	13
002	ERD-OBSW-1S	Aqueous	TOC	SM 5310C-	3.1		mg/L	13
002	ERD-OBSW-1S	Aqueous	Nitrite - N	353.2	0.060	H	mg/L	13
002	ERD-OBSW-1S	Aqueous	Acetone	8260D	7.9	J	ug/L	14
002	ERD-OBSW-1S	Aqueous	1,2-Dichloroethane	8260D	1.2		ug/L	14
002	ERD-OBSW-1S	Aqueous	cis-1,2-Dichloroethene	8260D	110		ug/L	14
002	ERD-OBSW-1S	Aqueous	Styrene	8260D	0.48	J	ug/L	14
002	ERD-OBSW-1S	Aqueous	Trichloroethene	8260D	240		ug/L	15
002	ERD-OBSW-1S	Aqueous	Xylenes (total)	8260D	0.43	J	ug/L	15
002	ERD-OBSW-1S	Aqueous	Methane	RSK - 175	200	B	ug/L	16
002	ERD-OBSW-1S	Aqueous	Dissolved Iron	6010D	0.98		mg/L	17
002	ERD-OBSW-1S	Aqueous	Iron	6010D	1.2		mg/L	18
003	MW-10I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	41		mg CaCO3/L	19
003	MW-10I	Aqueous	Chloride	300.0	8.4		mg/L	19
003	MW-10I	Aqueous	Nitrate - N	353.2	0.078	S	mg/L	19
003	MW-10I	Aqueous	TOC	SM 5310C-	3.7		mg/L	19
003	MW-10I	Aqueous	1,2-Dichloroethane	8260D	1.1		ug/L	20
003	MW-10I	Aqueous	1,1-Dichloroethene	8260D	1.3		ug/L	20
003	MW-10I	Aqueous	Trichloroethene	8260D	55		ug/L	21
003	MW-10I	Aqueous	cis-1,2-Dichloroethene	8260D	550	H	ug/L	22
003	MW-10I	Aqueous	Methane	RSK - 175	1500	B	ug/L	24
003	MW-10I	Aqueous	Dissolved Iron	6010D	12		mg/L	25
003	MW-10I	Aqueous	Iron	6010D	12		mg/L	26
004	ERD-OBSW-1I	Aqueous	Alkalinity @ pH 4.5 su	SM 2320B-	280		mg CaCO3/L	27
004	ERD-OBSW-1I	Aqueous	Chloride	300.0	7.9		mg/L	27
004	ERD-OBSW-1I	Aqueous	Nitrate - N	353.2	0.59		mg/L	27
004	ERD-OBSW-1I	Aqueous	Nitrite - N	353.2	0.022		mg/L	27
004	ERD-OBSW-1I	Aqueous	TOC	SM 5310C-	150		mg/L	27
004	ERD-OBSW-1I	Aqueous	Benzene	8260D	0.42	J	ug/L	28

Detection Summary (Continued)

Lot Number: XL19029

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	ERD-OBSW-1I	Aqueous	Chloroethane	8260D	0.42	J	ug/L	28
004	ERD-OBSW-1I	Aqueous	1,2-Dichloroethane	8260D	0.70		ug/L	28
004	ERD-OBSW-1I	Aqueous	1,1-Dichloroethene	8260D	0.93		ug/L	28
004	ERD-OBSW-1I	Aqueous	trans-1,2-Dichloroethene	8260D	1.0		ug/L	28
004	ERD-OBSW-1I	Aqueous	Methyl acetate	8260D	3.5		ug/L	28
004	ERD-OBSW-1I	Aqueous	Toluene	8260D	0.45	J	ug/L	28
004	ERD-OBSW-1I	Aqueous	Trichloroethene	8260D	83		ug/L	29
004	ERD-OBSW-1I	Aqueous	Vinyl chloride	8260D	4.6		ug/L	29
004	ERD-OBSW-1I	Aqueous	Xylenes (total)	8260D	0.55	J	ug/L	29
004	ERD-OBSW-1I	Aqueous	cis-1,2-Dichloroethene	8260D	340	H	ug/L	30
004	ERD-OBSW-1I	Aqueous	Ethene	RSK - 175	9.6	J	ug/L	32
004	ERD-OBSW-1I	Aqueous	Methane	RSK - 175	8300		ug/L	32
004	ERD-OBSW-1I	Aqueous	Dissolved Iron	6010D	2.6		mg/L	33
004	ERD-OBSW-1I	Aqueous	Iron	6010D	14		mg/L	34

(57 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	12/27/2022 1031	JJM		63686
1		(Chloride) 300.0	1	12/22/2022 2331	SJL		63989
1		(Nitrate - N) 353.2	1	12/20/2022 1544	CMM		63431
1		(Nitrite - N) 353.2	1	12/20/2022 1544	CMM		63430
1		(Sulfate) 300.0	1	12/22/2022 2331	SJL		63988
1		(TOC) SM 5310C-2011	20	12/22/2022 1644	CMM		63400

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	110		20	20	mg CaCO3/L	1
Chloride		300.0	20		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.12		0.020	0.010	mg/L	1
Nitrite - N		353.2	ND		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	250		20	20	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	12/23/2022 0431	BBW		63526

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		100	40	ug/L	1
Benzene	71-43-2	8260D	ND		5.0	4.0	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		5.0	4.0	ug/L	1
Bromoform	75-25-2	8260D	ND		5.0	4.0	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		5.0	4.0	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		100	20	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		5.0	4.0	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		5.0	4.0	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		5.0	4.0	ug/L	1
Chloroethane	75-00-3	8260D	ND		5.0	4.0	ug/L	1
Chloroform	67-66-3	8260D	ND		5.0	4.0	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		5.0	4.0	ug/L	1
Cyclohexane	110-82-7	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		5.0	4.0	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		5.0	4.0	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		5.0	4.0	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		5.0	4.0	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		5.0	4.0	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		5.0	4.0	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	5.7		5.0	4.0	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		5.0	4.0	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	15		5.0	4.0	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		5.0	4.0	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		5.0	4.0	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		5.0	4.0	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		5.0	4.0	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		5.0	4.0	ug/L	1
2-Hexanone	591-78-6	8260D	28	J	100	20	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		5.0	4.0	ug/L	1
Methyl acetate	79-20-9	8260D	ND		10	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		5.0	4.0	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		100	20	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		50	4.0	ug/L	1
Methylene chloride	75-09-2	8260D	ND		5.0	4.0	ug/L	1
Styrene	100-42-5	8260D	ND		5.0	4.1	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		5.0	4.0	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		5.0	4.0	ug/L	1
Toluene	108-88-3	8260D	ND		5.0	4.0	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		10	4.2	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		5.0	4.0	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		5.0	4.0	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		5.0	4.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	10	12/23/2022 0431	BBW		63526

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	500		5.0	4.0	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		5.0	4.0	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		5.0	4.0	ug/L	1
Xylenes (total)	1330-20-7	8260D	4.3	J	10	4.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		115	70-130
Toluene-d8		102	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	12/20/2022 1405	JM1		63257
2		RSK - 175	5	12/29/2022 1411	JWG		63821

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	7500		50	13	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1	3005A	6010D	1	12/30/2022 0246	JMH	12/28/2022 0912	63404	Dissolved Iron	7439-89-6	6010D	14		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-001
Description: MW-10	Matrix: Aqueous
Date Sampled: 12/19/2022 1130	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/22/2022 1247	JAB2	12/21/2022 0911	63212

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	43		0.10	0.040	mg/L	1

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Inorganic non-metals

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	12/27/2022 1036	JJM		63686
1		(Chloride) 300.0	1	12/22/2022 2350	SJL		63989
1		(Nitrate - N) 353.2	2	12/20/2022 1546	CMM		63431
1		(Nitrite - N) 353.2	2	12/20/2022 1546	CMM		63430
2		(Nitrite - N) 353.2	1	12/24/2022 1040	CMM		63613
1		(Sulfate) 300.0	1	12/22/2022 2350	SJL		63988
1		(TOC) SM 5310C-2011	1	12/22/2022 1656	CMM		63400

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	24		20	20	mg CaCO3/L	1
Chloride		300.0	87		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.71		0.040	0.020	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
Nitrite - N		353.2	0.022	J	0.040	0.020	mg/L	1
TOC		SM 5310C-2011	3.1		1.0	1.0	mg/L	1
Nitrite - N		353.2	0.060	H	0.020	0.010	mg/L	2

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0252	BBW		63526
2	5030B	8260D	5	12/31/2022 0634	BBW		63947

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	7.9	J	10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	1.2		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	110		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	0.48	J	0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0252	BBW		63526
2	5030B	8260D	5	12/31/2022 0634	BBW		63947

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	240		2.5	2.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	0.43	J	1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130		107	70-130
1,2-Dichloroethane-d4		109	70-130		112	70-130
Toluene-d8		107	70-130		115	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	12/20/2022 1421	JM1		63257

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	200	B	10	2.5	ug/L	1

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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1	3005A	6010D	1	12/30/2022 0249	JMH	12/28/2022 0912	63404	Dissolved Iron	7439-89-6	6010D	0.98		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-002
Description: ERD-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/19/2022 1250	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/22/2022 1306	JAB2	12/21/2022 0911	63212

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	1.2		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	12/27/2022 1040	JJM		63686
1		(Chloride) 300.0	1	12/23/2022 0047	SJL		63989
1		(Nitrate - N) 353.2	1	12/20/2022 1548	CMM		63431
1		(Nitrite - N) 353.2	1	12/20/2022 1548	CMM		63430
1		(Sulfate) 300.0	1	12/23/2022 0047	SJL		63988
1		(TOC) SM 5310C-2011	1	12/22/2022 1708	CMM		63400

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	41		20	20	mg CaCO3/L	1
Chloride		300.0	8.4		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.078	S	0.020	0.010	mg/L	1
Nitrite - N		353.2	ND		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	3.7		1.0	1.0	mg/L	1

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0317	BBW		63526
2	5030B	8260D	10	01/03/2023 1856	CDA		64027

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	1.1		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	1.3		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	680 E		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0317	BBW		63526
2	5030B	8260D	10	01/03/2023 1856	CDA		64027

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	55		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130	H	109	70-130
1,2-Dichloroethane-d4		108	70-130	H	106	70-130
Toluene-d8		108	70-130	H	111	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0317	BBW		63526
2	5030B	8260D	10	01/03/2023 1856	CDA		64027

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	HL	100	40	ug/L	2
Benzene	71-43-2	8260D	ND	H	5.0	4.0	ug/L	2
Bromodichloromethane	75-27-4	8260D	ND	H	5.0	4.0	ug/L	2
Bromoform	75-25-2	8260D	ND	H	5.0	4.0	ug/L	2
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	H	5.0	4.0	ug/L	2
2-Butanone (MEK)	78-93-3	8260D	ND	H	100	20	ug/L	2
Carbon disulfide	75-15-0	8260D	ND	H	5.0	4.0	ug/L	2
Carbon tetrachloride	56-23-5	8260D	ND	H	5.0	4.0	ug/L	2
Chlorobenzene	108-90-7	8260D	ND	H	5.0	4.0	ug/L	2
Chloroethane	75-00-3	8260D	ND	H	5.0	4.0	ug/L	2
Chloroform	67-66-3	8260D	ND	H	5.0	4.0	ug/L	2
Chloromethane (Methyl chloride)	74-87-3	8260D	ND	H	5.0	4.0	ug/L	2
Cyclohexane	110-82-7	8260D	ND	H	5.0	4.0	ug/L	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND	H	5.0	4.0	ug/L	2
Dibromochloromethane	124-48-1	8260D	ND	H	5.0	4.0	ug/L	2
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND	H	5.0	4.0	ug/L	2
1,2-Dichlorobenzene	95-50-1	8260D	ND	H	5.0	4.0	ug/L	2
1,3-Dichlorobenzene	541-73-1	8260D	ND	H	5.0	4.0	ug/L	2
1,4-Dichlorobenzene	106-46-7	8260D	ND	H	5.0	4.0	ug/L	2
Dichlorodifluoromethane	75-71-8	8260D	ND	H	5.0	4.0	ug/L	2
1,1-Dichloroethane	75-34-3	8260D	ND	H	5.0	4.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260D	ND	H	5.0	4.0	ug/L	2
1,1-Dichloroethene	75-35-4	8260D	ND	H	5.0	4.0	ug/L	2
cis-1,2-Dichloroethene	156-59-2	8260D	550	H	5.0	4.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	ND	H	5.0	4.0	ug/L	2
1,2-Dichloropropane	78-87-5	8260D	ND	H	5.0	4.0	ug/L	2
cis-1,3-Dichloropropene	10061-01-5	8260D	ND	H	5.0	4.0	ug/L	2
trans-1,3-Dichloropropene	10061-02-6	8260D	ND	H	5.0	4.0	ug/L	2
Ethylbenzene	100-41-4	8260D	ND	H	5.0	4.0	ug/L	2
2-Hexanone	591-78-6	8260D	ND	H	100	20	ug/L	2
Isopropylbenzene	98-82-8	8260D	ND	H	5.0	4.0	ug/L	2
Methyl acetate	79-20-9	8260D	ND	H	10	4.0	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND	H	5.0	4.0	ug/L	2
4-Methyl-2-pentanone	108-10-1	8260D	ND	H	100	20	ug/L	2
Methylcyclohexane	108-87-2	8260D	ND	H	50	4.0	ug/L	2
Methylene chloride	75-09-2	8260D	ND	H	5.0	4.0	ug/L	2
Styrene	100-42-5	8260D	ND	H	5.0	4.1	ug/L	2
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND	H	5.0	4.0	ug/L	2
Tetrachloroethene	127-18-4	8260D	ND	H	5.0	4.0	ug/L	2
Toluene	108-88-3	8260D	ND	H	5.0	4.0	ug/L	2
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND	H	10	4.2	ug/L	2
1,2,4-Trichlorobenzene	120-82-1	8260D	ND	H	5.0	4.0	ug/L	2
1,1,1-Trichloroethane	71-55-6	8260D	ND	H	5.0	4.0	ug/L	2

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0317	BBW		63526
2	5030B	8260D	10	01/03/2023 1856	CDA		64027

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND	H	5.0	4.0	ug/L	2
Trichloroethene	79-01-6	8260D	46	H	5.0	4.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND	H	5.0	4.0	ug/L	2
Vinyl chloride	75-01-4	8260D	ND	H	5.0	4.0	ug/L	2
Xylenes (total)	1330-20-7	8260D	ND	H	10	4.0	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		92	70-130	H	109	70-130
1,2-Dichloroethane-d4		108	70-130	H	106	70-130
Toluene-d8		108	70-130	H	111	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	12/20/2022 1437	JM1		63257

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	1500	B	10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/30/2022 0253	JMH	12/28/2022 0912	63404

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	12		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-003
Description: MW-10I	Matrix: Aqueous
Date Sampled: 12/19/2022 1410	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/22/2022 1310	JAB2	12/21/2022 0911	63212

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	12		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	12/27/2022 1048	JJM		63686
1		(Chloride) 300.0	1	12/23/2022 0144	SJL		63989
1		(Nitrate - N) 353.2	1	12/20/2022 1558	CMM		63431
1		(Nitrite - N) 353.2	1	12/20/2022 1558	CMM		63430
1		(Sulfate) 300.0	1	12/23/2022 0144	SJL		63988
1		(TOC) SM 5310C-2011	2	12/22/2022 1744	CMM		63400

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	280		20	20	mg CaCO3/L	1
Chloride		300.0	7.9		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.59		0.020	0.010	mg/L	1
Nitrite - N		353.2	0.022		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TOC		SM 5310C-2011	150		2.0	2.0	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0406	BBW		63526
2	5030B	8260D	5	01/04/2023 0453	JMM2		64061

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	0.42	J	0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	0.42	J	0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	0.70		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	0.93		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	440	E	0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	1.0		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	3.5		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	0.45	J	0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0406	BBW		63526
2	5030B	8260D	5	01/04/2023 0453	JMM2		64061

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	83		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	4.6		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	0.55	J	1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		93	70-130	H	104	70-130
1,2-Dichloroethane-d4		110	70-130	H	106	70-130
Toluene-d8		100	70-130	H	111	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0406	BBW		63526
2	5030B	8260D	5	01/04/2023 0453	JMM2		64061

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND	H	50	20	ug/L	2
Benzene	71-43-2	8260D	ND	H	2.5	2.0	ug/L	2
Bromodichloromethane	75-27-4	8260D	ND	H	2.5	2.0	ug/L	2
Bromoform	75-25-2	8260D	ND	H	2.5	2.0	ug/L	2
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	H	2.5	2.0	ug/L	2
2-Butanone (MEK)	78-93-3	8260D	ND	H	50	10	ug/L	2
Carbon disulfide	75-15-0	8260D	ND	H	2.5	2.0	ug/L	2
Carbon tetrachloride	56-23-5	8260D	ND	H	2.5	2.0	ug/L	2
Chlorobenzene	108-90-7	8260D	ND	H	2.5	2.0	ug/L	2
Chloroethane	75-00-3	8260D	ND	H	2.5	2.0	ug/L	2
Chloroform	67-66-3	8260D	ND	H	2.5	2.0	ug/L	2
Chloromethane (Methyl chloride)	74-87-3	8260D	ND	H	2.5	2.0	ug/L	2
Cyclohexane	110-82-7	8260D	ND	H	2.5	2.0	ug/L	2
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND	H	2.5	2.0	ug/L	2
Dibromochloromethane	124-48-1	8260D	ND	H	2.5	2.0	ug/L	2
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND	H	2.5	2.0	ug/L	2
1,2-Dichlorobenzene	95-50-1	8260D	ND	H	2.5	2.0	ug/L	2
1,3-Dichlorobenzene	541-73-1	8260D	ND	H	2.5	2.0	ug/L	2
1,4-Dichlorobenzene	106-46-7	8260D	ND	H	2.5	2.0	ug/L	2
Dichlorodifluoromethane	75-71-8	8260D	ND	H	2.5	2.0	ug/L	2
1,1-Dichloroethane	75-34-3	8260D	ND	H	2.5	2.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260D	ND	H	2.5	2.0	ug/L	2
1,1-Dichloroethene	75-35-4	8260D	ND	H	2.5	2.0	ug/L	2
cis-1,2-Dichloroethene	156-59-2	8260D	340	H	2.5	2.0	ug/L	2
trans-1,2-Dichloroethene	156-60-5	8260D	ND	H	2.5	2.0	ug/L	2
1,2-Dichloropropane	78-87-5	8260D	ND	H	2.5	2.0	ug/L	2
cis-1,3-Dichloropropene	10061-01-5	8260D	ND	H	2.5	2.0	ug/L	2
trans-1,3-Dichloropropene	10061-02-6	8260D	ND	H	2.5	2.0	ug/L	2
Ethylbenzene	100-41-4	8260D	ND	H	2.5	2.0	ug/L	2
2-Hexanone	591-78-6	8260D	ND	H	50	10	ug/L	2
Isopropylbenzene	98-82-8	8260D	ND	H	2.5	2.0	ug/L	2
Methyl acetate	79-20-9	8260D	ND	H	5.0	2.0	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND	H	2.5	2.0	ug/L	2
4-Methyl-2-pentanone	108-10-1	8260D	ND	H	50	10	ug/L	2
Methylcyclohexane	108-87-2	8260D	ND	H	25	2.0	ug/L	2
Methylene chloride	75-09-2	8260D	ND	H	2.5	2.0	ug/L	2
Styrene	100-42-5	8260D	ND	H	2.5	2.1	ug/L	2
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND	H	2.5	2.0	ug/L	2
Tetrachloroethene	127-18-4	8260D	ND	H	2.5	2.0	ug/L	2
Toluene	108-88-3	8260D	ND	H	2.5	2.0	ug/L	2
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND	H	5.0	2.1	ug/L	2
1,2,4-Trichlorobenzene	120-82-1	8260D	ND	H	2.5	2.0	ug/L	2
1,1,1-Trichloroethane	71-55-6	8260D	ND	H	2.5	2.0	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0406	BBW		63526
2	5030B	8260D	5	01/04/2023 0453	JMM2		64061

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,1,2-Trichloroethane	79-00-5	8260D	ND	H	2.5	2.0	ug/L	2
Trichloroethene	79-01-6	8260D	64	H	2.5	2.0	ug/L	2
Trichlorofluoromethane	75-69-4	8260D	ND	H	2.5	2.0	ug/L	2
Vinyl chloride	75-01-4	8260D	3.6	H	2.5	2.0	ug/L	2
Xylenes (total)	1330-20-7	8260D	ND	H	5.0	2.0	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		93	70-130	H	104	70-130
1,2-Dichloroethane-d4		110	70-130	H	106	70-130
Toluene-d8		100	70-130	H	111	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Dissolved Gases

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	12/20/2022 1453	JM1		63257
2		RSK - 175	10	12/29/2022 1427	JWG		63821

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	9.6	J	10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	8300		100	25	ug/L	2

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/30/2022 0312	JMH	12/28/2022 0912	63404

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Dissolved Iron	7439-89-6	6010D	2.6		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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ICP-AES Metals

Client: AECOM	Laboratory ID: XL19029-004
Description: ERD-OBSW-11	Matrix: Aqueous
Date Sampled: 12/19/2022 1515	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	12/22/2022 1314	JAB2	12/21/2022 0911	63212

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	14		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-005
Description: TB-01	Matrix: Aqueous
Date Sampled: 12/19/2022	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0024	BBW		63526

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL19029-005
Description: TB-01	Matrix: Aqueous
Date Sampled: 12/19/2022	Project Name: Shakespeare - Signify
Date Received: 12/19/2022	Project Number: 60675505

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	12/23/2022 0024	BBW		63526

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		91	70-130
1,2-Dichloroethane-d4		113	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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QC Summary

Inorganic non-metals - MB

Sample ID: XQ63400-001

Matrix: Aqueous

Batch: 63400

Analytical Method: SM 5310C-2011

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TOC	ND		1	1.0	1.0	mg/L	12/22/2022 1557

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63400-002

Matrix: Aqueous

Batch: 63400

Analytical Method: SM 5310C-2011

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	20	19		1	94	90-110	12/22/2022 1608

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL19029-003MS

Matrix: Aqueous

Batch: 63400

Analytical Method: SM 5310C-2011

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TOC	3.7	50	50		1	92	70-130	12/22/2022 1719

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL19029-003MD

Matrix: Aqueous

Batch: 63400

Analytical Method: SM 5310C-2011

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
TOC	3.7	50	47		1	86	5.9	70-130	20	12/22/2022 1731

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ63430-001

Matrix: Aqueous

Batch: 63430

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.010	mg/L	12/20/2022 1541

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63430-002

Matrix: Aqueous

Batch: 63430

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.40	0.37		1	92	90-110	12/20/2022 1543

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL19029-003MS

Matrix: Aqueous

Batch: 63430

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	ND	0.40	0.37		1	93	90-110	12/20/2022 1549

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL19029-003MD

Matrix: Aqueous

Batch: 63430

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	ND	0.40	0.37		1	93	0.27	90-110	20	12/20/2022 1551

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ63431-001

Matrix: Aqueous

Batch: 63431

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.010	mg/L	12/20/2022 1541

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63431-002

Matrix: Aqueous

Batch: 63431

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.40	0.42		1	105	90-110	12/20/2022 1543

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL19029-003MS

Matrix: Aqueous

Batch: 63431

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.078	0.40	0.042	N	1	-9.0	90-110	12/20/2022 1549

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL19029-003MD

Matrix: Aqueous

Batch: 63431

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	0.078	0.40	0.033	N,+	1	-11	23	90-110	20	12/20/2022 1551

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: XQ63613-001

Matrix: Aqueous

Batch: 63613

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.010	mg/L	12/24/2022 1030

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63613-002

Matrix: Aqueous

Batch: 63613

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.40	0.36		1	90	90-110	12/24/2022 1031

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63686-002

Matrix: Aqueous

Batch: 63686

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	98	1	98	90-110	12/27/2022 1025

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: YQ63988-001

Matrix: Aqueous

Batch: 63988

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	12/22/2022 1751

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ63988-002

Matrix: Aqueous

Batch: 63988

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	101	90-110	12/22/2022 1829

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL19029-002MS

Matrix: Aqueous

Batch: 63988

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	ND	10	9.9		1	99	90-110	12/23/2022 0009

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL19029-002MD

Matrix: Aqueous

Batch: 63988

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Sulfate	ND	10	9.9		1	99	0.17	90-110	20	12/23/2022 0028

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: YQ63989-001

Matrix: Aqueous

Batch: 63989

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	12/22/2022 1751

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ63989-002

Matrix: Aqueous

Batch: 63989

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	21		1	104	90-110	12/22/2022 1829

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL19029-002MS

Matrix: Aqueous

Batch: 63989

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	87	10	96		1	97	90-110	12/23/2022 0009

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL19029-002MD

Matrix: Aqueous

Batch: 63989

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	87	10	96		1	94	0.34	90-110	20	12/23/2022 0028

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ63526-001

Matrix: Aqueous

Batch: 63526

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	12/22/2022 2244
Benzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Bromodichloromethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Bromoform	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	12/22/2022 2244
2-Butanone (MEK)	ND		1	10	2.0	ug/L	12/22/2022 2244
Carbon disulfide	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Chlorobenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Chloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Chloroform	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Cyclohexane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Dibromochloromethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Ethylbenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
2-Hexanone	ND		1	10	2.0	ug/L	12/22/2022 2244
Isopropylbenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Methyl acetate	ND		1	1.0	0.40	ug/L	12/22/2022 2244
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	12/22/2022 2244
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	12/22/2022 2244
Methylcyclohexane	ND		1	5.0	0.40	ug/L	12/22/2022 2244
Methylene chloride	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Styrene	ND		1	0.50	0.41	ug/L	12/22/2022 2244
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Tetrachloroethene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Toluene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	12/22/2022 2244
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ63526-001

Matrix: Aqueous

Batch: 63526

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Vinyl chloride	ND		1	0.50	0.40	ug/L	12/22/2022 2244
Xylenes (total)	ND		1	1.0	0.40	ug/L	12/22/2022 2244
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		89	70-130				
1,2-Dichloroethane-d4		112	70-130				
Toluene-d8		106	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ63526-002

Matrix: Aqueous

Batch: 63526

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	99		1	99	60-140	12/22/2022 2109
Benzene	50	51		1	102	70-130	12/22/2022 2109
Bromodichloromethane	50	51		1	103	70-130	12/22/2022 2109
Bromoform	50	54		1	107	70-130	12/22/2022 2109
Bromomethane (Methyl bromide)	50	60		1	119	70-130	12/22/2022 2109
2-Butanone (MEK)	100	97		1	97	70-130	12/22/2022 2109
Carbon disulfide	50	50		1	99	70-130	12/22/2022 2109
Carbon tetrachloride	50	50		1	101	70-130	12/22/2022 2109
Chlorobenzene	50	51		1	103	70-130	12/22/2022 2109
Chloroethane	50	50		1	101	70-130	12/22/2022 2109
Chloroform	50	49		1	98	70-130	12/22/2022 2109
Chloromethane (Methyl chloride)	50	54		1	109	60-140	12/22/2022 2109
Cyclohexane	50	54		1	107	70-130	12/22/2022 2109
1,2-Dibromo-3-chloropropane (DBCP)	50	50		1	101	70-130	12/22/2022 2109
Dibromochloromethane	50	54		1	109	70-130	12/22/2022 2109
1,2-Dibromoethane (EDB)	50	52		1	104	70-130	12/22/2022 2109
1,2-Dichlorobenzene	50	52		1	104	70-130	12/22/2022 2109
1,3-Dichlorobenzene	50	52		1	104	70-130	12/22/2022 2109
1,4-Dichlorobenzene	50	49		1	99	70-130	12/22/2022 2109
Dichlorodifluoromethane	50	62		1	125	60-140	12/22/2022 2109
1,1-Dichloroethane	50	49		1	97	70-130	12/22/2022 2109
1,2-Dichloroethane	50	50		1	99	70-130	12/22/2022 2109
1,1-Dichloroethene	50	50		1	99	70-130	12/22/2022 2109
cis-1,2-Dichloroethene	50	50		1	99	70-130	12/22/2022 2109
trans-1,2-Dichloroethene	50	50		1	101	70-130	12/22/2022 2109
1,2-Dichloropropane	50	50		1	101	70-130	12/22/2022 2109
cis-1,3-Dichloropropene	50	53		1	106	70-130	12/22/2022 2109
trans-1,3-Dichloropropene	50	54		1	108	70-130	12/22/2022 2109
Ethylbenzene	50	54		1	107	70-130	12/22/2022 2109
2-Hexanone	100	100		1	100	70-130	12/22/2022 2109
Isopropylbenzene	50	56		1	111	70-130	12/22/2022 2109
Methyl acetate	50	54		1	109	70-130	12/22/2022 2109
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	12/22/2022 2109
4-Methyl-2-pentanone	100	97		1	97	70-130	12/22/2022 2109
Methylcyclohexane	50	54		1	108	70-130	12/22/2022 2109
Methylene chloride	50	51		1	102	70-130	12/22/2022 2109
Styrene	50	57		1	114	70-130	12/22/2022 2109
1,1,2,2-Tetrachloroethane	50	54		1	108	70-130	12/22/2022 2109
Tetrachloroethene	50	51		1	103	70-130	12/22/2022 2109
Toluene	50	55		1	110	70-130	12/22/2022 2109
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	54		1	108	70-130	12/22/2022 2109
1,2,4-Trichlorobenzene	50	53		1	106	70-130	12/22/2022 2109
1,1,1-Trichloroethane	50	50		1	100	70-130	12/22/2022 2109
1,1,2-Trichloroethane	50	52		1	103	70-130	12/22/2022 2109

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ63526-002

Matrix: Aqueous

Batch: 63526

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	48		1	95	70-130	12/22/2022 2109
Trichlorofluoromethane	50	59		1	118	70-130	12/22/2022 2109
Vinyl chloride	50	55		1	111	70-130	12/22/2022 2109
Xylenes (total)	100	110		1	110	70-130	12/22/2022 2109
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		97			70-130		
1,2-Dichloroethane-d4		94			70-130		
Toluene-d8		103			70-130		

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: XQ63947-001

Matrix: Aqueous

Batch: 63947

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	12/30/2022 2203
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		110	70-130				
1,2-Dichloroethane-d4		100	70-130				
Toluene-d8		108	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: XQ63947-002

Matrix: Aqueous

Batch: 63947

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	49		1	98	70-130	12/30/2022 2035
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		106			70-130		
1,2-Dichloroethane-d4		103			70-130		
Toluene-d8		106			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MS

Sample ID: XL19029-002MS

Matrix: Aqueous

Batch: 63947

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	240	250	500		5	105	70-130	12/31/2022 0657
Surrogate	Q	% Rec	Acceptance Limit					
Bromofluorobenzene		112	70-130					
1,2-Dichloroethane-d4		112	70-130					
Toluene-d8		118	70-130					

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MSD

Sample ID: XL19029-002MD

Matrix: Aqueous

Batch: 63947

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	240	250	500		5	102	1.8	70-130	20	12/31/2022 0720
Surrogate	Q	% Rec	Acceptance Limit							
Bromofluorobenzene		115	70-130							
1,2-Dichloroethane-d4		111	70-130							
Toluene-d8		118	70-130							

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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+ = RPD is out of criteria

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64027-001

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	01/03/2023 1401
Benzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Bromodichloromethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Bromoform	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	01/03/2023 1401
2-Butanone (MEK)	ND		1	10	2.0	ug/L	01/03/2023 1401
Carbon disulfide	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Chlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Chloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Chloroform	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Cyclohexane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Dibromochloromethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Ethylbenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
2-Hexanone	ND		1	10	2.0	ug/L	01/03/2023 1401
Isopropylbenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Methyl acetate	ND		1	1.0	0.40	ug/L	01/03/2023 1401
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	01/03/2023 1401
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	01/03/2023 1401
Methylcyclohexane	ND		1	5.0	0.40	ug/L	01/03/2023 1401
Methylene chloride	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Styrene	ND		1	0.50	0.41	ug/L	01/03/2023 1401
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Tetrachloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Toluene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	01/03/2023 1401
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64027-001

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Vinyl chloride	ND		1	0.50	0.40	ug/L	01/03/2023 1401
Xylenes (total)	ND		1	1.0	0.40	ug/L	01/03/2023 1401
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		108	70-130				
1,2-Dichloroethane-d4		105	70-130				
Toluene-d8		111	70-130				

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64027-002

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	110		1	110	60-140	01/03/2023 1032
Benzene	50	43		1	86	70-130	01/03/2023 1032
Bromodichloromethane	50	44		1	88	70-130	01/03/2023 1032
Bromoform	50	45		1	90	70-130	01/03/2023 1032
Bromomethane (Methyl bromide)	50	47		1	93	70-130	01/03/2023 1032
2-Butanone (MEK)	100	92		1	92	70-130	01/03/2023 1032
Carbon disulfide	50	42		1	84	70-130	01/03/2023 1032
Carbon tetrachloride	50	44		1	87	70-130	01/03/2023 1032
Chlorobenzene	50	43		1	87	70-130	01/03/2023 1032
Chloroethane	50	42		1	84	70-130	01/03/2023 1032
Chloroform	50	43		1	86	70-130	01/03/2023 1032
Chloromethane (Methyl chloride)	50	40		1	81	60-140	01/03/2023 1032
Cyclohexane	50	42		1	85	70-130	01/03/2023 1032
1,2-Dibromo-3-chloropropane (DBCP)	50	43		1	86	70-130	01/03/2023 1032
Dibromochloromethane	50	45		1	90	70-130	01/03/2023 1032
1,2-Dibromoethane (EDB)	50	44		1	88	70-130	01/03/2023 1032
1,2-Dichlorobenzene	50	43		1	87	70-130	01/03/2023 1032
1,3-Dichlorobenzene	50	44		1	88	70-130	01/03/2023 1032
1,4-Dichlorobenzene	50	43		1	86	70-130	01/03/2023 1032
Dichlorodifluoromethane	50	35		1	71	60-140	01/03/2023 1032
1,1-Dichloroethane	50	43		1	87	70-130	01/03/2023 1032
1,2-Dichloroethane	50	45		1	89	70-130	01/03/2023 1032
1,1-Dichloroethene	50	43		1	87	70-130	01/03/2023 1032
cis-1,2-Dichloroethene	50	45		1	90	70-130	01/03/2023 1032
trans-1,2-Dichloroethene	50	45		1	90	70-130	01/03/2023 1032
1,2-Dichloropropane	50	44		1	88	70-130	01/03/2023 1032
cis-1,3-Dichloropropene	50	45		1	91	70-130	01/03/2023 1032
trans-1,3-Dichloropropene	50	44		1	89	70-130	01/03/2023 1032
Ethylbenzene	50	44		1	88	70-130	01/03/2023 1032
2-Hexanone	100	78		1	78	70-130	01/03/2023 1032
Isopropylbenzene	50	44		1	88	70-130	01/03/2023 1032
Methyl acetate	50	48		1	95	70-130	01/03/2023 1032
Methyl tertiary butyl ether (MTBE)	50	45		1	89	70-130	01/03/2023 1032
4-Methyl-2-pentanone	100	89		1	89	70-130	01/03/2023 1032
Methylcyclohexane	50	42		1	85	70-130	01/03/2023 1032
Methylene chloride	50	45		1	89	70-130	01/03/2023 1032
Styrene	50	45		1	89	70-130	01/03/2023 1032
1,1,2,2-Tetrachloroethane	50	42		1	84	70-130	01/03/2023 1032
Tetrachloroethene	50	43		1	86	70-130	01/03/2023 1032
Toluene	50	43		1	87	70-130	01/03/2023 1032
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	41		1	83	70-130	01/03/2023 1032
1,2,4-Trichlorobenzene	50	46		1	91	70-130	01/03/2023 1032
1,1,1-Trichloroethane	50	43		1	85	70-130	01/03/2023 1032
1,1,2-Trichloroethane	50	44		1	88	70-130	01/03/2023 1032

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64027-002

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	43		1	87	70-130	01/03/2023 1032
Trichlorofluoromethane	50	47		1	94	70-130	01/03/2023 1032
Vinyl chloride	50	44		1	89	70-130	01/03/2023 1032
Xylenes (total)	100	85		1	85	70-130	01/03/2023 1032
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		92			70-130		
1,2-Dichloroethane-d4		86			70-130		
Toluene-d8		90			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCSD

Sample ID: YQ64027-003

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acetone	100	160	N _i +	1	164	39	60-140	20	01/03/2023 1230
Benzene	50	47		1	94	9.1	70-130	20	01/03/2023 1230
Bromodichloromethane	50	51		1	102	15	70-130	20	01/03/2023 1230
Bromoform	50	52		1	105	16	70-130	20	01/03/2023 1230
Bromomethane (Methyl bromide)	50	47		1	95	1.6	70-130	20	01/03/2023 1230
2-Butanone (MEK)	100	130	+	1	126	32	70-130	20	01/03/2023 1230
Carbon disulfide	50	46		1	92	9.5	70-130	20	01/03/2023 1230
Carbon tetrachloride	50	53		1	107	20	70-130	20	01/03/2023 1230
Chlorobenzene	50	51		1	103	17	70-130	20	01/03/2023 1230
Chloroethane	50	42		1	84	0.80	70-130	20	01/03/2023 1230
Chloroform	50	50		1	100	15	70-130	20	01/03/2023 1230
Chloromethane (Methyl chloride)	50	36		1	71	13	60-140	20	01/03/2023 1230
Cyclohexane	50	51		1	103	19	70-130	20	01/03/2023 1230
1,2-Dibromo-3-chloropropane (DBCP)	50	50		1	100	15	70-130	20	01/03/2023 1230
Dibromochloromethane	50	52		1	103	14	70-130	20	01/03/2023 1230
1,2-Dibromoethane (EDB)	50	52		1	103	15	70-130	20	01/03/2023 1230
1,2-Dichlorobenzene	50	50		1	101	15	70-130	20	01/03/2023 1230
1,3-Dichlorobenzene	50	51		1	103	16	70-130	20	01/03/2023 1230
1,4-Dichlorobenzene	50	51		1	101	17	70-130	20	01/03/2023 1230
Dichlorodifluoromethane	50	41		1	82	14	60-140	20	01/03/2023 1230
1,1-Dichloroethane	50	51		1	103	17	70-130	20	01/03/2023 1230
1,2-Dichloroethane	50	55	+	1	111	21	70-130	20	01/03/2023 1230
1,1-Dichloroethene	50	49		1	97	12	70-130	20	01/03/2023 1230
cis-1,2-Dichloroethene	50	52		1	104	14	70-130	20	01/03/2023 1230
trans-1,2-Dichloroethene	50	52		1	103	14	70-130	20	01/03/2023 1230
1,2-Dichloropropane	50	53		1	106	18	70-130	20	01/03/2023 1230
cis-1,3-Dichloropropene	50	55		1	109	18	70-130	20	01/03/2023 1230
trans-1,3-Dichloropropene	50	54	+	1	109	21	70-130	20	01/03/2023 1230
Ethylbenzene	50	52		1	104	17	70-130	20	01/03/2023 1230
2-Hexanone	100	110	+	1	106	30	70-130	20	01/03/2023 1230
Isopropylbenzene	50	54		1	108	20	70-130	20	01/03/2023 1230
Methyl acetate	50	55		1	110	14	70-130	20	01/03/2023 1230
Methyl tertiary butyl ether (MTBE)	50	51		1	102	13	70-130	20	01/03/2023 1230
4-Methyl-2-pentanone	100	120	+	1	124	33	70-130	20	01/03/2023 1230
Methylcyclohexane	50	51		1	102	18	70-130	20	01/03/2023 1230
Methylene chloride	50	52		1	104	15	70-130	20	01/03/2023 1230
Styrene	50	51		1	103	14	70-130	20	01/03/2023 1230
1,1,2,2-Tetrachloroethane	50	49		1	98	15	70-130	20	01/03/2023 1230
Tetrachloroethene	50	51		1	102	18	70-130	20	01/03/2023 1230
Toluene	50	50		1	100	14	70-130	20	01/03/2023 1230
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	56	+	1	112	30	70-130	20	01/03/2023 1230
1,2,4-Trichlorobenzene	50	52		1	104	13	70-130	20	01/03/2023 1230
1,1,1-Trichloroethane	50	50		1	101	16	70-130	20	01/03/2023 1230
1,1,2-Trichloroethane	50	52		1	103	16	70-130	20	01/03/2023 1230

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCSD

Sample ID: YQ64027-003

Matrix: Aqueous

Batch: 64027

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Trichloroethene	50	54	+	1	108	22	70-130	20	01/03/2023 1230
Trichlorofluoromethane	50	45		1	90	4.8	70-130	20	01/03/2023 1230
Vinyl chloride	50	44		1	88	1.1	70-130	20	01/03/2023 1230
Xylenes (total)	100	100		1	101	17	70-130	20	01/03/2023 1230
Surrogate	Q	% Rec	Acceptance Limit						
Bromofluorobenzene		104	70-130						
1,2-Dichloroethane-d4		100	70-130						
Toluene-d8		107	70-130						

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64061-001

Matrix: Aqueous

Batch: 64061

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	01/03/2023 2311
Benzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Bromodichloromethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Bromoform	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	01/03/2023 2311
2-Butanone (MEK)	ND		1	10	2.0	ug/L	01/03/2023 2311
Carbon disulfide	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Chlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Chloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Chloroform	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Cyclohexane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Dibromochloromethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Ethylbenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
2-Hexanone	ND		1	10	2.0	ug/L	01/03/2023 2311
Isopropylbenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Methyl acetate	ND		1	1.0	0.40	ug/L	01/03/2023 2311
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	01/03/2023 2311
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	01/03/2023 2311
Methylcyclohexane	ND		1	5.0	0.40	ug/L	01/03/2023 2311
Methylene chloride	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Styrene	ND		1	0.50	0.41	ug/L	01/03/2023 2311
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Tetrachloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Toluene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	01/03/2023 2311
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64061-001

Matrix: Aqueous

Batch: 64061

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Vinyl chloride	ND		1	0.50	0.40	ug/L	01/03/2023 2311
Xylenes (total)	ND		1	1.0	0.40	ug/L	01/03/2023 2311
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		103	70-130				
1,2-Dichloroethane-d4		105	70-130				
Toluene-d8		107	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64061-002

Matrix: Aqueous

Batch: 64061

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	83		1	83	60-140	01/03/2023 2012
Benzene	50	46		1	91	70-130	01/03/2023 2012
Bromodichloromethane	50	46		1	92	70-130	01/03/2023 2012
Bromoform	50	46		1	92	70-130	01/03/2023 2012
Bromomethane (Methyl bromide)	50	49		1	97	70-130	01/03/2023 2012
2-Butanone (MEK)	100	99		1	99	70-130	01/03/2023 2012
Carbon disulfide	50	42		1	85	70-130	01/03/2023 2012
Carbon tetrachloride	50	46		1	91	70-130	01/03/2023 2012
Chlorobenzene	50	47		1	94	70-130	01/03/2023 2012
Chloroethane	50	44		1	87	70-130	01/03/2023 2012
Chloroform	50	46		1	91	70-130	01/03/2023 2012
Chloromethane (Methyl chloride)	50	41		1	81	60-140	01/03/2023 2012
Cyclohexane	50	39		1	78	70-130	01/03/2023 2012
1,2-Dibromo-3-chloropropane (DBCP)	50	42		1	84	70-130	01/03/2023 2012
Dibromochloromethane	50	47		1	94	70-130	01/03/2023 2012
1,2-Dibromoethane (EDB)	50	47		1	94	70-130	01/03/2023 2012
1,2-Dichlorobenzene	50	46		1	92	70-130	01/03/2023 2012
1,3-Dichlorobenzene	50	47		1	94	70-130	01/03/2023 2012
1,4-Dichlorobenzene	50	46		1	92	70-130	01/03/2023 2012
Dichlorodifluoromethane	50	39		1	78	60-140	01/03/2023 2012
1,1-Dichloroethane	50	45		1	91	70-130	01/03/2023 2012
1,2-Dichloroethane	50	49		1	97	70-130	01/03/2023 2012
1,1-Dichloroethene	50	45		1	90	70-130	01/03/2023 2012
cis-1,2-Dichloroethene	50	48		1	96	70-130	01/03/2023 2012
trans-1,2-Dichloroethene	50	48		1	96	70-130	01/03/2023 2012
1,2-Dichloropropane	50	47		1	94	70-130	01/03/2023 2012
cis-1,3-Dichloropropene	50	47		1	94	70-130	01/03/2023 2012
trans-1,3-Dichloropropene	50	47		1	93	70-130	01/03/2023 2012
Ethylbenzene	50	48		1	95	70-130	01/03/2023 2012
2-Hexanone	100	110		1	109	70-130	01/03/2023 2012
Isopropylbenzene	50	46		1	92	70-130	01/03/2023 2012
Methyl acetate	50	49		1	98	70-130	01/03/2023 2012
Methyl tertiary butyl ether (MTBE)	50	45		1	90	70-130	01/03/2023 2012
4-Methyl-2-pentanone	100	94		1	94	70-130	01/03/2023 2012
Methylcyclohexane	50	46		1	91	70-130	01/03/2023 2012
Methylene chloride	50	46		1	92	70-130	01/03/2023 2012
Styrene	50	47		1	95	70-130	01/03/2023 2012
1,1,2,2-Tetrachloroethane	50	45		1	90	70-130	01/03/2023 2012
Tetrachloroethene	50	47		1	94	70-130	01/03/2023 2012
Toluene	50	47		1	94	70-130	01/03/2023 2012
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	43		1	85	70-130	01/03/2023 2012
1,2,4-Trichlorobenzene	50	48		1	96	70-130	01/03/2023 2012
1,1,1-Trichloroethane	50	44		1	89	70-130	01/03/2023 2012
1,1,2-Trichloroethane	50	48		1	96	70-130	01/03/2023 2012

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64061-002

Matrix: Aqueous

Batch: 64061

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	46		1	92	70-130	01/03/2023 2012
Trichlorofluoromethane	50	50		1	101	70-130	01/03/2023 2012
Vinyl chloride	50	45		1	90	70-130	01/03/2023 2012
Xylenes (total)	100	91		1	91	70-130	01/03/2023 2012
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		100			70-130		
1,2-Dichloroethane-d4		92			70-130		
Toluene-d8		98			70-130		

LOQ = Limit of Quantitation

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N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Dissolved Gases - MB

Sample ID: XQ63257-001

Matrix: Aqueous

Batch: 63257

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	12/20/2022 1038
Ethene	ND		1	10	2.5	ug/L	12/20/2022 1038
Methane	2.8	J	1	10	2.5	ug/L	12/20/2022 1038

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Dissolved Gases - LCS

Sample ID: XQ63257-002

Matrix: Aqueous

Batch: 63257

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	690		1	125	70-130	12/20/2022 0931
Ethene	520	620		1	120	70-130	12/20/2022 0931
Methane	300	330		1	111	70-130	12/20/2022 0931

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: XQ63257-003

Matrix: Aqueous

Batch: 63257

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	550	700		1	126	0.82	70-130	30	12/20/2022 0945
Ethene	520	620		1	121	0.75	70-130	30	12/20/2022 0945
Methane	300	330		1	112	1.1	70-130	30	12/20/2022 0945

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - MB

Sample ID: XQ63821-001

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Methane	ND		1	10	2.5	ug/L	12/29/2022 1338

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCS

Sample ID: XQ63821-002

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Methane	300	300		1	102	70-130	12/29/2022 1247

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: XQ63821-003

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Methane	300	310		1	104	1.5	70-130	30	12/29/2022 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

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ICP-AES Metals - MB

Sample ID: XQ63212-001

Matrix: Aqueous

Batch: 63212

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/21/2022 0911

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	12/22/2022 1201

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: XQ63212-002

Matrix: Aqueous

Batch: 63212

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/21/2022 0911

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	22		1	108	80-120	12/22/2022 1205

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: XL19029-001MS

Matrix: Aqueous

Batch: 63212

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/21/2022 0911

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	43	20	64		1	106	75-125	12/22/2022 1251

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MSD

Sample ID: XL19029-001MD

Matrix: Aqueous

Batch: 63212

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/21/2022 0911

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Iron	43	20	64		1	105	0.26	75-125	20	12/22/2022 1255

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: XQ63404-001

Matrix: Aqueous

Batch: 63404

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/28/2022 0912

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	12/30/2022 0225

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: XQ63404-002

Matrix: Aqueous

Batch: 63404

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/28/2022 0912

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	21		1	107	80-120	12/30/2022 0242

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: XL19029-003MS

Matrix: Aqueous

Batch: 63404

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/28/2022 0912

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	12	20	34		1	110	75-125	12/30/2022 0257

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MSD

Sample ID: XL19029-003MD

Matrix: Aqueous

Batch: 63404

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 12/28/2022 0912

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	12	20	35		1	113	1.9	75-125	20	12/30/2022 0301

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents



PACE ANALYTICAL SERVICES, LLC
 106 Vantage Point Drive • West Columbia, SC 29172
 Telephone No. 803-791-9700 Fax No. 803-791-9111
 www.pacelabs.com

Number 140607

Client: AECOM		Report to Contact: SCOTT ROSS		Telephone No. / E-mail: SCOTT.ROSS@AECOM.COM		Order No.:	
Address: 101 RESEARCH DR		Samples & Signatures: <i>[Signature]</i>		Analysis (Match list if more space is needed)		Page 1 of 1	
City: COLUMBIA		Printed Name: JAMES LEAPHANT		Lot # Bar Code (add use only): XL19029		CSID	
State: SC		Zip Code: 29203		Matrix		No. of Containers by Preservative Type	
Project Name: SIGNFY		Project No.: 60435197		Collection Time (M:SS)		<input type="checkbox"/> NONE <input type="checkbox"/> ACID <input type="checkbox"/> ALK <input type="checkbox"/> AM <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H <input type="checkbox"/> I <input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> L <input type="checkbox"/> M <input type="checkbox"/> N <input type="checkbox"/> O <input type="checkbox"/> P <input type="checkbox"/> Q <input type="checkbox"/> R <input type="checkbox"/> S <input type="checkbox"/> T <input type="checkbox"/> U <input type="checkbox"/> V <input type="checkbox"/> W <input type="checkbox"/> X <input type="checkbox"/> Y <input type="checkbox"/> Z	
Samples ID / Description (Containers for each sample may be combined on one line.)		Collection Date (M/D/YY)		Collection Time (M:SS)		Matrix	
MW-10		12-19-22		1130		3 1 1 5	
ERD-OBW-1S				1250		3 1 1 5	
MW-10 I				1410		3 1 1 5	
ERD-OBW-1I				1515		3 1 1 5	
TB-01		A		-		2	

Turn Around Time Required (Prior lab approval required for expedited TAT)		Sample Disposal		Possible Hazard Identification		GC Requirements (Specify)	
<input checked="" type="checkbox"/> Rush (Specify)	<input type="checkbox"/> Return to Client	<input checked="" type="checkbox"/> Biodegradable	<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison	<input type="checkbox"/> Uniqueness	
1. Requisitioned by: <i>[Signature]</i>	Date: 12-19-22	Time: 1705	1. Received by:	Date:	Time:		
2. Requisitioned by:	Date:	Time:	2. Received by:	Date:	Time:		
3. Requisitioned by:	Date:	Time:	3. Received by:	Date:	Time:		
4. Requisitioned by:	Date:	Time:	4. Received by:	Date:	Time:		

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

Received on ice (Circle) No Ice Pack Purina Temp °C

Received on ice (Circle) No Ice Pack Purina Temp °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy Document Number: ME00342-01

PACE ANALYTICAL SERVICES, LLC

DC# Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
 Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: AECOM

Cooler Inspected by/date: BRB / 12/19/12

Lot #: XL19029

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: 22-1949 Chlorine Strip ID: 22-1698 Tested by: BRB	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA	
1.5 / 1.5 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C	
Method of coolant: <input type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input checked="" type="checkbox"/> None	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Were all samples containers accounted for? (No missing/excess)
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/l) samples free of residual chlorine?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	18. Was the quote number listed on the container label? If yes, Quote #
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (if #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₄) with Unique ID: NA	
Comments:	



Report of Analysis

AECOM

101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Signify

Project Number: 60635197

Lot Number: **XL28017**

Date Completed: 02/09/2023

02/10/2023 1:15 PM

Approved and released by:
Project Manager II: **Cathy S. Dover**



The electronic signature above is the equivalent of a handwritten signature.
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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: XL28017

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

VOA 8260D

Sample XL28017-002 (ISCO-OBSW-1S) was diluted due to the nature of the sample matrix. The LOQ has been elevated to reflect the dilution.

Nitrite 353.2

The MS/MSD for batch 63917 and parent sample XL28017-003 (MW-2), recovered marginally outside the lower control limit. The associated LCS passed acceptance criteria.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: XL28017

Project Name: Signify

Project Number: 60635197

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	TMW-31	Aqueous	12/28/2022 0950	12/28/2022
002	ISCO-OBSW-1S	Aqueous	12/28/2022 1050	12/28/2022
003	MW-2	Aqueous	12/28/2022 1150	12/28/2022

(3 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: XL28017

Project Name: Signify

Project Number: 60635197

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	TMW-31	Aqueous	Chloride	300.0	3.2		mg/L	5
001	TMW-31	Aqueous	TDS	SM 2540C-	55		mg/L	5
001	TMW-31	Aqueous	cis-1,2-Dichloroethene	8260D	32		ug/L	6
001	TMW-31	Aqueous	Trichloroethene	8260D	3600		ug/L	7
002	ISCO-OBSW-1S	Aqueous	Chloride	300.0	6.1		mg/L	8
002	ISCO-OBSW-1S	Aqueous	TDS	SM 2540C-	110		mg/L	8
003	MW-2	Aqueous	Chloride	300.0	2.2		mg/L	11
003	MW-2	Aqueous	Nitrate - N	353.2	0.074		mg/L	11
003	MW-2	Aqueous	TDS	SM 2540C-	26		mg/L	11
003	MW-2	Aqueous	Acetone	8260D	11		ug/L	12

(10 detections)

Inorganic non-metals

Client: AECOM	Laboratory ID: XL28017-001
Description: TMW-31	Matrix: Aqueous
Date Sampled: 12/28/2022 0950	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	01/04/2023 1733	SJL		64171
1		(TDS) SM 2540C-2015	1	01/02/2023 0924	CBP		64041

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	3.2		1.0	0.25	mg/L	1
TDS		SM 2540C-2015	55		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-001
Description: TMW-31	Matrix: Aqueous
Date Sampled: 12/28/2022 0950	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	01/05/2023 0506	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		500	200	ug/L	1
Benzene	71-43-2	8260D	ND		25	20	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		25	20	ug/L	1
Bromoform	75-25-2	8260D	ND		25	20	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		25	20	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		500	100	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		25	20	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		25	20	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		25	20	ug/L	1
Chloroethane	75-00-3	8260D	ND		25	20	ug/L	1
Chloroform	67-66-3	8260D	ND		25	20	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		25	20	ug/L	1
Cyclohexane	110-82-7	8260D	ND		25	20	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		25	20	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		25	20	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		25	20	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		25	20	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		25	20	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		25	20	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		25	20	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		25	20	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		25	20	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		25	20	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	32		25	20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		25	20	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		25	20	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		25	20	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		25	20	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		25	20	ug/L	1
2-Hexanone	591-78-6	8260D	ND		500	100	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		25	20	ug/L	1
Methyl acetate	79-20-9	8260D	ND		50	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		25	20	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		500	100	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		250	20	ug/L	1
Methylene chloride	75-09-2	8260D	ND		25	20	ug/L	1
Styrene	100-42-5	8260D	ND		25	21	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		25	20	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		25	20	ug/L	1
Toluene	108-88-3	8260D	ND		25	20	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		50	21	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		25	20	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		25	20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		25	20	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-001
Description: TMW-31	Matrix: Aqueous
Date Sampled: 12/28/2022 0950	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	01/05/2023 0506	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	3600		25	20	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		25	20	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		25	20	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		50	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		110	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Inorganic non-metals

Client: AECOM	Laboratory ID: XL28017-002
Description: ISCO-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/28/2022 1050	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		(Chloride) 300.0	1	01/04/2023 1848	SJL		64171
1		(TDS) SM 2540C-2015	1	01/02/2023 0924	CBP		64041

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Chloride		300.0	6.1		1.0	0.25	mg/L	1
TDS		SM 2540C-2015	110		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-002
Description: ISCO-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/28/2022 1050	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	01/05/2023 0530	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		500	200	ug/L	1
Benzene	71-43-2	8260D	ND		25	20	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		25	20	ug/L	1
Bromoform	75-25-2	8260D	ND		25	20	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		25	20	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		500	100	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		25	20	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		25	20	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		25	20	ug/L	1
Chloroethane	75-00-3	8260D	ND		25	20	ug/L	1
Chloroform	67-66-3	8260D	ND		25	20	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		25	20	ug/L	1
Cyclohexane	110-82-7	8260D	ND		25	20	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		25	20	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		25	20	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		25	20	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		25	20	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		25	20	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		25	20	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		25	20	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		25	20	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		25	20	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		25	20	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		25	20	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		25	20	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		25	20	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		25	20	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		25	20	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		25	20	ug/L	1
2-Hexanone	591-78-6	8260D	ND		500	100	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		25	20	ug/L	1
Methyl acetate	79-20-9	8260D	ND		50	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		25	20	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		500	100	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		250	20	ug/L	1
Methylene chloride	75-09-2	8260D	ND		25	20	ug/L	1
Styrene	100-42-5	8260D	ND		25	21	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		25	20	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		25	20	ug/L	1
Toluene	108-88-3	8260D	ND		25	20	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		50	21	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		25	20	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		25	20	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		25	20	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-002
Description: ISCO-OBSW-1S	Matrix: Aqueous
Date Sampled: 12/28/2022 1050	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	50	01/05/2023 0530	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		25	20	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		25	20	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		25	20	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		50	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		110	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Inorganic non-metals

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	(Alkalinity @)	SM 2320B-2011	1	01/10/2023 1902	JJM		64598
1		(Chloride) 300.0	1	01/04/2023 2004	SJL		64171
1		(Nitrate - N) 353.2	1	12/30/2022 1113	MSG		63892
1		(Nitrite - N) 353.2	1	12/30/2022 1113	MSG		63917
1		(Sulfate) 300.0	1	01/04/2023 2004	SJL		64177
1		(TDS) SM 2540C-2015	1	01/02/2023 0924	CBP		64041

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Alkalinity @ pH 4.5 su		SM 2320B-2011	ND		20	20	mg CaCO3/L	1
Chloride		300.0	2.2		1.0	0.25	mg/L	1
Nitrate - N		353.2	0.074		0.020	0.010	mg/L	1
Nitrite - N		353.2	ND S		0.020	0.010	mg/L	1
Sulfate		300.0	ND		1.0	0.25	mg/L	1
TDS		SM 2540C-2015	26		25	25	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	01/05/2023 0327	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	11		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
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 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	01/05/2023 0327	BBW		64150

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		107	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		114	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Dissolved Gases

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1		RSK - 175	1	12/29/2022 1354	JWG		63821

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Ethane	74-84-0	RSK - 175	ND		10	2.5	ug/L	1
Ethene	74-85-1	RSK - 175	ND		10	2.5	ug/L	1
Methane	74-82-8	RSK - 175	ND		10	2.5	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1	3005A	6010D	1	01/09/2023 0330	JMH	01/07/2023 0942	64324	Dissolved Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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ICP-AES Metals

Client: AECOM	Laboratory ID: XL28017-003
Description: MW-2	Matrix: Aqueous
Date Sampled: 12/28/2022 1150	Project Name: Signify
Date Received: 12/28/2022	Project Number: 60635197

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	01/03/2023 2312	JMH	01/03/2023 1009	63799

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Iron	7439-89-6	6010D	ND		0.10	0.040	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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QC Summary

Inorganic non-metals - MB

Sample ID: XQ63892-001

Matrix: Aqueous

Batch: 63892

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrate - N	ND		1	0.020	0.010	mg/L	12/30/2022 1110

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63892-002

Matrix: Aqueous

Batch: 63892

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.40	0.44		1	110	90-110	12/30/2022 1111

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL28017-003MS

Matrix: Aqueous

Batch: 63892

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrate - N	0.074	0.40	0.50		1	107	90-110	12/30/2022 1115

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL28017-003MD

Matrix: Aqueous

Batch: 63892

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrate - N	0.074	0.40	0.50		1	108	0.60	90-110	20	12/30/2022 1116

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Inorganic non-metals - MB

Sample ID: XQ63917-001

Matrix: Aqueous

Batch: 63917

Analytical Method: 353.2

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Nitrite - N	ND		1	0.020	0.010	mg/L	12/30/2022 1110

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: XQ63917-002

Matrix: Aqueous

Batch: 63917

Analytical Method: 353.2

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	0.40	0.36		1	91	90-110	12/30/2022 1111

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

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Inorganic non-metals - MS

Sample ID: XL28017-003MS

Matrix: Aqueous

Batch: 63917

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Nitrite - N	ND	0.40	0.35	N	1	88	90-110	12/30/2022 1115

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

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Inorganic non-metals - MSD

Sample ID: XL28017-003MD

Matrix: Aqueous

Batch: 63917

Analytical Method: 353.2

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Nitrite - N	ND	0.40	0.35	N	1	88	0.63	90-110	20	12/30/2022 1116

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: YQ64041-001

Matrix: Aqueous

Batch: 64041

Analytical Method: SM 2540C-2015

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
TDS	ND		1	25	25	mg/L	01/02/2023 0924

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ64041-002

Matrix: Aqueous

Batch: 64041

Analytical Method: SM 2540C-2015

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
TDS	50	51		1	102	90-110	01/02/2023 0924

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: YQ64171-001

Matrix: Aqueous

Batch: 64171

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Chloride	ND		1	1.0	0.25	mg/L	01/04/2023 1211

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ64171-002

Matrix: Aqueous

Batch: 64171

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	20	20		1	102	90-110	01/04/2023 1249

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MS

Sample ID: XL28017-001MS

Matrix: Aqueous

Batch: 64171

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Chloride	3.2	10	13		1	99	90-110	01/04/2023 1752

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MSD

Sample ID: XL28017-001MD

Matrix: Aqueous

Batch: 64171

Analytical Method: 300.0

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Chloride	3.2	10	13		1	99	0.36	90-110	20	01/04/2023 1811

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - MB

Sample ID: YQ64177-001

Matrix: Aqueous

Batch: 64177

Analytical Method: 300.0

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Sulfate	ND		1	1.0	0.25	mg/L	01/04/2023 1211

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ64177-002

Matrix: Aqueous

Batch: 64177

Analytical Method: 300.0

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Sulfate	20	20		1	99	90-110	01/04/2023 1249

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Inorganic non-metals - LCS

Sample ID: YQ64598-002

Matrix: Aqueous

Batch: 64598

Analytical Method: SM 2320B-2011

Parameter	Spike Amount (mg CaCO3/L)	Result (mg CaCO3/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
Alkalinity @ pH 4.5 su	100	100	1	100	90-110	01/10/2023 1857

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64150-001

Matrix: Aqueous

Batch: 64150

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	01/04/2023 2321
Benzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Bromodichloromethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Bromoform	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	01/04/2023 2321
2-Butanone (MEK)	ND		1	10	2.0	ug/L	01/04/2023 2321
Carbon disulfide	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Chlorobenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Chloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Chloroform	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Cyclohexane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Dibromochloromethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Ethylbenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
2-Hexanone	ND		1	10	2.0	ug/L	01/04/2023 2321
Isopropylbenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Methyl acetate	ND		1	1.0	0.40	ug/L	01/04/2023 2321
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	01/04/2023 2321
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	01/04/2023 2321
Methylcyclohexane	ND		1	5.0	0.40	ug/L	01/04/2023 2321
Methylene chloride	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Styrene	ND		1	0.50	0.41	ug/L	01/04/2023 2321
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Tetrachloroethene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Toluene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	01/04/2023 2321
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: YQ64150-001

Matrix: Aqueous

Batch: 64150

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Vinyl chloride	ND		1	0.50	0.40	ug/L	01/04/2023 2321
Xylenes (total)	ND		1	1.0	0.40	ug/L	01/04/2023 2321
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		107	70-130				
1,2-Dichloroethane-d4		108	70-130				
Toluene-d8		112	70-130				

LOQ = Limit of Quantitation

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J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64150-002

Matrix: Aqueous

Batch: 64150

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	110		1	110	60-140	01/04/2023 2212
Benzene	50	47		1	93	70-130	01/04/2023 2212
Bromodichloromethane	50	46		1	92	70-130	01/04/2023 2212
Bromoform	50	43		1	85	70-130	01/04/2023 2212
Bromomethane (Methyl bromide)	50	59		1	118	70-130	01/04/2023 2212
2-Butanone (MEK)	100	120		1	119	70-130	01/04/2023 2212
Carbon disulfide	50	46		1	91	70-130	01/04/2023 2212
Carbon tetrachloride	50	47		1	94	70-130	01/04/2023 2212
Chlorobenzene	50	47		1	94	70-130	01/04/2023 2212
Chloroethane	50	49		1	99	70-130	01/04/2023 2212
Chloroform	50	45		1	90	70-130	01/04/2023 2212
Chloromethane (Methyl chloride)	50	51		1	102	60-140	01/04/2023 2212
Cyclohexane	50	40		1	79	70-130	01/04/2023 2212
1,2-Dibromo-3-chloropropane (DBCP)	50	41		1	82	70-130	01/04/2023 2212
Dibromochloromethane	50	46		1	92	70-130	01/04/2023 2212
1,2-Dibromoethane (EDB)	50	47		1	93	70-130	01/04/2023 2212
1,2-Dichlorobenzene	50	46		1	93	70-130	01/04/2023 2212
1,3-Dichlorobenzene	50	47		1	94	70-130	01/04/2023 2212
1,4-Dichlorobenzene	50	46		1	91	70-130	01/04/2023 2212
Dichlorodifluoromethane	50	52		1	104	60-140	01/04/2023 2212
1,1-Dichloroethane	50	45		1	91	70-130	01/04/2023 2212
1,2-Dichloroethane	50	50		1	99	70-130	01/04/2023 2212
1,1-Dichloroethene	50	47		1	94	70-130	01/04/2023 2212
cis-1,2-Dichloroethene	50	49		1	97	70-130	01/04/2023 2212
trans-1,2-Dichloroethene	50	48		1	97	70-130	01/04/2023 2212
1,2-Dichloropropane	50	48		1	95	70-130	01/04/2023 2212
cis-1,3-Dichloropropene	50	46		1	92	70-130	01/04/2023 2212
trans-1,3-Dichloropropene	50	44		1	88	70-130	01/04/2023 2212
Ethylbenzene	50	47		1	95	70-130	01/04/2023 2212
2-Hexanone	100	110		1	115	70-130	01/04/2023 2212
Isopropylbenzene	50	46		1	93	70-130	01/04/2023 2212
Methyl acetate	50	48		1	95	70-130	01/04/2023 2212
Methyl tertiary butyl ether (MTBE)	50	45		1	90	70-130	01/04/2023 2212
4-Methyl-2-pentanone	100	90		1	90	70-130	01/04/2023 2212
Methylcyclohexane	50	47		1	93	70-130	01/04/2023 2212
Methylene chloride	50	48		1	96	70-130	01/04/2023 2212
Styrene	50	46		1	93	70-130	01/04/2023 2212
1,1,2,2-Tetrachloroethane	50	45		1	89	70-130	01/04/2023 2212
Tetrachloroethene	50	48		1	95	70-130	01/04/2023 2212
Toluene	50	47		1	94	70-130	01/04/2023 2212
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	46		1	92	70-130	01/04/2023 2212
1,2,4-Trichlorobenzene	50	46		1	93	70-130	01/04/2023 2212
1,1,1-Trichloroethane	50	45		1	90	70-130	01/04/2023 2212
1,1,2-Trichloroethane	50	47		1	94	70-130	01/04/2023 2212

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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+ = RPD is out of criteria

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: YQ64150-002

Matrix: Aqueous

Batch: 64150

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	47		1	95	70-130	01/04/2023 2212
Trichlorofluoromethane	50	55		1	110	70-130	01/04/2023 2212
Vinyl chloride	50	56		1	113	70-130	01/04/2023 2212
Xylenes (total)	100	91		1	91	70-130	01/04/2023 2212
Surrogate	Q	% Rec			Acceptance Limit		
Bromofluorobenzene		97			70-130		
1,2-Dichloroethane-d4		96			70-130		
Toluene-d8		100			70-130		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - MB

Sample ID: XQ63821-001

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Ethane	ND		1	10	2.5	ug/L	12/29/2022 1338
Ethene	ND		1	10	2.5	ug/L	12/29/2022 1338
Methane	ND		1	10	2.5	ug/L	12/29/2022 1338

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Dissolved Gases - LCS

Sample ID: XQ63821-002

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Ethane	550	550		1	100	70-130	12/29/2022 1247
Ethene	520	510		1	98	70-130	12/29/2022 1247
Methane	300	300		1	102	70-130	12/29/2022 1247

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Dissolved Gases - LCSD

Sample ID: XQ63821-003

Matrix: Aqueous

Batch: 63821

Analytical Method: RSK - 175

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Ethane	550	580		1	104	4.1	70-130	30	12/29/2022 1300
Ethene	520	530		1	103	4.4	70-130	30	12/29/2022 1300
Methane	300	310		1	104	1.5	70-130	30	12/29/2022 1300

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: XQ63799-001

Matrix: Aqueous

Batch: 63799

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/03/2023 1009

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Iron	ND		1	0.10	0.040	mg/L	01/03/2023 2305

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: XQ63799-002

Matrix: Aqueous

Batch: 63799

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/03/2023 1009

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Iron	20	17		1	85	80-120	01/03/2023 2309

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MB

Sample ID: YQ64324-001

Matrix: Aqueous

Batch: 64324

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/07/2023 0942

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Dissolved Iron	ND		1	0.10	0.040	mg/L	01/09/2023 0322

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: YQ64324-002

Matrix: Aqueous

Batch: 64324

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/07/2023 0942

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	20	22		1	109	80-120	01/09/2023 0326

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MS

Sample ID: XL28017-003MS

Matrix: Aqueous

Batch: 64324

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/07/2023 0942

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Dissolved Iron	ND	20	22		1	109	75-125	01/09/2023 0334

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - MSD

Sample ID: XL28017-003MD

Matrix: Aqueous

Batch: 64324

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 01/07/2023 0942

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Dissolved Iron	ND	20	22		1	109	0.092	75-125	20	01/09/2023 0338

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Chain of Custody
and
Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
 Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: AECOM Cooler Inspected by/date: KNR / 12/28/2022 Lot #: XL28017

Means of receipt: <input type="checkbox"/> Pace <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: 22-1949 Chlorine Strip ID: NA Tested by: KNR	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA 1.8 / 1.8 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Were all samples containers accounted for? (No missing/excess)
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	18. Was the quote number listed on the container label? If yes, Quote # _____

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # _____.

Time of preservation _____. If more than one preservative is needed, please note in the comments below.

Sample(s) _____ were received with bubbles >6 mm in diameter.

Samples(s) ^{NA} _____ were received with TRC > 0.5 mg/L (if #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na₂S₂O₃) with Unique ID: NA

Comments:

Attachment H

Data Validation Reports

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project analytical Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific analytical DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected, and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and ID, cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific analytical DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific analytical DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the analytical DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014) are also evaluated during the validation process. This validation process has been adapted to meet the analytical DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data (see associated COCs) were collected from August 19-20, 2021 for Shakespeare. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/”:

Volatile Organic Compounds by Method 8260D

Results of the validation process indicate the data analyzed for this method are acceptable for their intended use and no data flags are required.

Data Summary and Usability

No QC excursions were encountered during the validation of this data set. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), February 2014. *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014).

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project analytical Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific analytical DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected, and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and ID, cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
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Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the analytical DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014) are also evaluated during the validation process. This validation process has been adapted to meet the analytical DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data (see associated COCs) were collected on October 29, 2021 for Shakespeare. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/”:

Volatile Organic Compounds by Method 8260D

Results of VOCs in samples MW-10 and ISERD-OBSW-10 were qualified “/h” due the holding time being exceeded by less than two times.

Data Summary and Usability

The QC excursions encountered during the validation of this data set did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), February 2014. *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014).

Site Name: Shakespeare
Laboratory Batch Number: WH29086
Date Collected: October 29, 2021

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project analytical Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific analytical DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

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Data Assessment Procedures

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Data Validation Results

The analytical data (see associated COCs) were collected from February 21, 2022 – March 8, 2022 for Shakespeare. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/”:

Volatile Organic Compounds by Method 8260D

In package XB22075, detections of acetone in any sample (excluding sample TB-02) were qualified “/B/T” due to the presence of the analyte in the associated trip blank sample.

In package XB24099, detections of acetone and styrene in any sample (excluding sample FB-01) were qualified “/B/F” due to the presence of the analyte in the associated field blank sample.

In package XC08059, detections of acetone associated with batch 34828 were flagged “/J/C” due to recovery above the established limit (168% > 50-150%). These qualifiers indicate the results are over-estimations and should be considered biased high.

In package XC08061, detections of acetone in any sample (excluding sample TB-10) were qualified “/B/T” due to the presence of the analyte in the associated trip blank sample.

Site Name: Shakespeare
Laboratory Batch Number: Various – February – March 2022
Date Collected: February 21, 2022 - March 8, 2022

In package XC08061, detections of acetone associated with batch 34980 were flagged “/J/C” due to recovery above the established limit (156% > 50-150%). These qualifiers indicate the results are over-estimations and should be considered biased high.

Data Summary and Usability

The QC excursions encountered during the validation of this data set did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

References

United States Environmental Protection Agency (USEPA), February 2014. *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014).

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

DATA ASSESSMENT REPORT

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- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
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Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the analytical DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, January 2017). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014) are also evaluated during the validation process. This validation process has been adapted to meet the analytical DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data (see associated COCs) were collected on July 19-20, 2022, for Signify. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/”:

Volatile Organic Compounds by Method 8260D

Detections of acetone associated with batch 48752 were qualified “/J/C” due to recovery in the associated laboratory control sample above the established limit of 50 - 150% (166%). These qualifiers indicate the results are over-estimations and should be considered biased high.

Results of styrene in samples TMW-31 and its field duplicate, Dup-01, were qualified “/J/A” due to the relative percent difference between the two samples exceeding the established criteria of 35% (40%). These qualifiers indicate imprecision with field sampling techniques, laboratory methodology, or instrumentation and the results should be considered estimated.

Data Summary and Usability

The QC excursions encountered during the validation of this data set did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

Site Name: Signify
Laboratory Batch Number: XG20043
Date Collected: July 19-20, 2022

References

United States Environmental Protection Agency (USEPA), February 2014. *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014).

United States Environmental Protection Agency (USEPA), January 2017. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-2017-002.

DATA ASSESSMENT REPORT

Data assessment is a systematic process for reviewing a body of data against a predefined set of criteria to provide assurance that the data meet project analytical Data Quality Objective (DQO) requirements. The purpose of the data assessment process is to determine if and how the usability of the analytical data is affected by the overall analytical processes and sample collection and handling procedures. If specific analytical DQOs are not met, the data are qualified (i.e., data flags are assigned to sample results) in accordance with guidelines established by the United States Environmental Protection Agency (USEPA). Data assessment allows the data user to adequately determine if the data can be used for its intended purpose. The data acceptance criteria are established according to Standard Operating Procedures (SOPs) and Statements of Work (SOWs) provided to the contracted analytical laboratory. The assessment of data quality and usability involves five components, as described below.

- 1) **Field Sampling Check** is a process to ensure that all samples were collected, and the laboratory analyses were performed as stipulated in the applicable site-specific Work Plan or Field Sampling Plan (FSP). Inspection of sample preservation procedures, sample handling, analysis requested, sample description and ID, cooler receipt forms, holding time evaluation, and Chain of Custody procedures are all evaluated to ensure that the evidentiary nature of the samples and the resulting analytical data have not been compromised.
- 2) **Data Verification** is a process for determining the completeness, correctness, consistency, and compliance of a data package in accordance with requirements contained in the applicable SOW and/or contract-specific requirements. This is a review of the data package, electronic data deliverable (EDD), and invoice received from the contract laboratory to ensure that the contract required information is present and complete prior to data validation.
- 3) **Data Review** is a process of reviewing the primary quality control (QC) data provided by the laboratory and the results of any internal quality assurance (QA)/QC samples, such as field blanks, trip blanks, equipment blanks or ambient blanks, field split samples, and duplicate samples, to ascertain any effect the laboratory's procedures or the sample collection process has on the data.
- 4) **Data Evaluation** is a process to determine if the data meet project-specific analytical DQOs and contract requirements. This evaluation may involve a review of field sampling and sample management procedures, laboratory audits, Performance Evaluation (PE) sample results, and any other data quality indicators that are available.
- 5) **Data Validation** is a process to determine the accuracy and precision of analytical data generated and to identify any anomalies encountered. The validation process is performed in accordance with USEPA regional or national functional guidelines, project-specific guidelines, and

compliance with the requirements of each analytical method. Two major components of data validation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance for each analytical method to determine if the samples were analyzed within the prescribed acceptance criteria of the method. Evaluation of matrix interferences involves the analysis of surrogate spike recoveries, matrix spike recoveries, and duplicate sample results. Data not meeting project-specific analytical DQOs or the requirements of the analytical method are qualified with data flags according to referenced guidelines.

Data Assessment Procedures

AECOM performed independent QC checks of field and laboratory procedures that were used in collecting and analyzing the data. The QC checks verify that the data collected are of appropriate quality for the intended data use and that the analytical DQOs were met. The steps and guidelines followed during the data validation process were modeled on the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, November 2020). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014) are also evaluated during the validation process. This validation process has been adapted to meet the analytical DQO requirements for generation of definitive critical data.

Data Validation Results

The analytical data (see associated COCs) were collected on December 19 and 28, 2022 for Signify. The analytical data were validated according to the procedures outlined above. Where data flags have been applied to this data set, they are separated by a slash “/”:

Volatile Organic Compounds by Method 8260D

In package XL19029, results of acetone, 2-butanone, 2-hexanone, 4-methyl-2-pentanone, and 1,1,2-trichloro-1,2,2-trifluoroethane were qualified “/J/E” due to the relative percent difference between the laboratory control sample and laboratory control sample duplicate exceeded the established criteria of 25% (39, 32, 30,33, and 30%, respectively). These qualifiers indicate imprecision with laboratory methodology, instrumentation, or matrix interference.

In package XL19029, results from Run 2 in samples MW-10I and ERD-OBSW-1I were qualified “/h” due to a holding time exceedance of less than two times (15 days and 16 days, respectively > 14 day holding time).

Data Summary and Usability

The QC excursions encountered during the validation of this data set did not result in the rejection of any data. Therefore, the data associated with this laboratory batch should be considered compliant and adequate for its intended use.

Site Name: Signify
Laboratory Batch Number: Various – December 2022
Date Collected: December 19 and 28, 2022

References

United States Environmental Protection Agency (USEPA), February 2014. *Test Methods for Evaluation Solid Waste: Physical/Chemical Methods Compendium (SW-846), Update V* (USEPA, July 2014).

United States Environmental Protection Agency (USEPA), November 2020. *USEPA National Functional Guidelines for Organic Superfund Methods Data Review*. Publication #EPA-540-R-20-005.

Attachment I

**Lab Data and Bill of Lading/Material Manifest for Pilot Study Remedial Action Derived
Waste**



Report of Analysis

AECOM

101 Research Drive
Columbia, SC 29203
Attention: Scott Ross

Project Name: Shakespeare - Signify

Project Number: 60635197

Lot Number: **WH26123**

Date Completed: 09/13/2021

Hannah K Lucas

09/14/2021 10:43 AM

Approved and released by:

Project Manager I: **Hannah K. Lucas**



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PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative AECOM Lot Number: WH26123

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Semivolatiles

The method blank associated with batch 14073 had caprolactam detected at a concentration that was below ½ the LOQ. All samples associated with this method blank that have detections for caprolactam have been flagged with a "B" qualifier.

PACE ANALYTICAL SERVICES, LLC

Sample Summary

AECOM

Lot Number: WH26123

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Soil IDW	Solid	08/26/2021 1100	08/26/2021
002	Liquid IDW	Aqueous	08/26/2021 1120	08/26/2021

(2 samples)

PACE ANALYTICAL SERVICES, LLC

Detection Summary

AECOM

Lot Number: WH26123

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	Soil IDW	Solid	Pyridine	8270E	0.010	J	mg/L	6
001	Soil IDW	Solid	Barium	6010D	0.52		mg/L	7
001	Soil IDW	Solid	Chromium	6010D	0.020	J	mg/L	7
002	Liquid IDW	Aqueous	Bromodichloromethane	8260D	1.0		ug/L	8
002	Liquid IDW	Aqueous	Carbon disulfide	8260D	2.7		ug/L	8
002	Liquid IDW	Aqueous	Chloroform	8260D	8.1		ug/L	8
002	Liquid IDW	Aqueous	Dibromochloromethane	8260D	0.41	J	ug/L	8
002	Liquid IDW	Aqueous	Methylene chloride	8260D	0.41	J	ug/L	8
002	Liquid IDW	Aqueous	Trichloroethene	8260D	100		ug/L	9
002	Liquid IDW	Aqueous	Aluminum	6010D	0.12	J	mg/L	12
002	Liquid IDW	Aqueous	Barium	6010D	0.044		mg/L	12
002	Liquid IDW	Aqueous	Calcium	6010D	5.9		mg/L	12
002	Liquid IDW	Aqueous	Iron	6010D	0.45		mg/L	12
002	Liquid IDW	Aqueous	Magnesium	6010D	1.0	J	mg/L	12
002	Liquid IDW	Aqueous	Manganese	6010D	0.18		mg/L	12
002	Liquid IDW	Aqueous	Potassium	6010D	3.4	J	mg/L	12
002	Liquid IDW	Aqueous	Sodium	6010D	16		mg/L	12
002	Liquid IDW	Aqueous	Zinc	6010D	0.012	J	mg/L	12

(18 detections)

TCLP Volatiles

Client: AECOM	Laboratory ID: WH26123-001
Description: Soil IDW	Matrix: Solid
Date Sampled: 08/26/2021 1100	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Leachate Date
1	1311/5030B	8260D	10	09/10/2021 0244	JDF		14928	09/07/2021 1804

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Benzene	71-43-2	8260D	ND		0.050	0.0040	mg/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		0.10	0.020	mg/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.050	0.0040	mg/L	1
Chlorobenzene	108-90-7	8260D	ND		0.050	0.0040	mg/L	1
Chloroform	67-66-3	8260D	ND		0.050	0.0040	mg/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.050	0.0040	mg/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.050	0.0040	mg/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.050	0.0040	mg/L	1
Trichloroethene	79-01-6	8260D	ND		0.050	0.0040	mg/L	1
Vinyl chloride	75-01-4	8260D	ND		0.010	0.0040	mg/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		97	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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TCLP Semivolatiles

Client: AECOM	Laboratory ID: WH26123-001
Description: Soil IDW	Matrix: Solid
Date Sampled: 08/26/2021 1100	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Leachate Date
1	1311/3520C	8270E	1	09/10/2021 1935	SCD	09/08/2021 1830	14793	09/02/2021 0041

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dichlorobenzene	106-46-7	8270E	ND		0.040	0.0050	mg/L	1
2,4-Dinitrotoluene	121-14-2	8270E	ND		0.080	0.0050	mg/L	1
Hexachlorobenzene	118-74-1	8270E	ND		0.040	0.0050	mg/L	1
Hexachlorobutadiene	87-68-3	8270E	ND		0.040	0.0050	mg/L	1
Hexachloroethane	67-72-1	8270E	ND		0.040	0.010	mg/L	1
2-Methylphenol	95-48-7	8270E	ND		0.040	0.010	mg/L	1
3+4-Methylphenol	106-44-5	8270E	ND		0.040	0.015	mg/L	1
Nitrobenzene	98-95-3	8270E	ND		0.040	0.015	mg/L	1
Pentachlorophenol	87-86-5	8270E	ND		0.20	0.020	mg/L	1
Pyridine	110-86-1	8270E	0.010	J	0.040	0.0050	mg/L	1
2,4,5-Trichlorophenol	95-95-4	8270E	ND		0.040	0.0050	mg/L	1
2,4,6-Trichlorophenol	88-06-2	8270E	ND		0.040	0.0050	mg/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		75	37-129
2-Fluorophenol		46	24-127
Nitrobenzene-d5		75	38-127
Phenol-d5		69	28-128
Terphenyl-d14		87	10-148
2,4,6-Tribromophenol		82	41-144

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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TCLP Metals

Client: AECOM	Laboratory ID: WH26123-001
Description: Soil IDW	Matrix: Solid
Date Sampled: 08/26/2021 1100	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Leachate Date
1	1311/3010A	6010D	1	09/03/2021 1054	JMH	09/03/2021 0121	14330	09/02/2021 0041
1	1311/7470A	7470A	1	09/03/2021 1833	CMS2	09/03/2021 1427	14392	09/02/2021 0041

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Arsenic	7440-38-2	6010D	ND		0.15	0.025	mg/L	1
Barium	7440-39-3	6010D	0.52		0.25	0.031	mg/L	1
Cadmium	7440-43-9	6010D	ND		0.050	0.0060	mg/L	1
Chromium	7440-47-3	6010D	0.020	J	0.10	0.013	mg/L	1
Lead	7439-92-1	6010D	ND		0.10	0.047	mg/L	1
Mercury	7439-97-6	7470A	ND		0.0020	0.00091	mg/L	1
Selenium	7782-49-2	6010D	ND		0.20	0.085	mg/L	1
Silver	7440-22-4	6010D	ND		0.10	0.021	mg/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH26123-002
Description: Liquid IDW	Matrix: Aqueous
Date Sampled: 08/26/2021 1120	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	09/03/2021 1744	ECB		15210

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	1.0		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
Carbon disulfide	75-15-0	8260D	2.7		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	8.1		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	0.41	J	0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	0.41	J	0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
1,1,1,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH26123-002
Description: Liquid IDW	Matrix: Aqueous
Date Sampled: 08/26/2021 1120	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	09/03/2021 1744	ECB		15210

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Trichloroethene	79-01-6	8260D	100		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		89	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		98	70-130

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
 H = Out of holding time W = Reported on wet weight basis S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH26123-002
Description: Liquid IDW	Matrix: Aqueous
Date Sampled: 08/26/2021 1120	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E	1	09/05/2021 2103	STM	09/01/2021 1328	14073

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acenaphthene	83-32-9	8270E	ND		0.80	0.20	ug/L	1
Acenaphthylene	208-96-8	8270E	ND		0.80	0.20	ug/L	1
Acetophenone	98-86-2	8270E	ND		4.0	0.50	ug/L	1
Anthracene	120-12-7	8270E	ND		0.80	0.20	ug/L	1
Atrazine	1912-24-9	8270E	ND		4.0	0.50	ug/L	1
Benzaldehyde	100-52-7	8270E	ND		8.0	0.50	ug/L	1
Benzo(a)anthracene	56-55-3	8270E	ND		0.80	0.20	ug/L	1
Benzo(a)pyrene	50-32-8	8270E	ND		0.80	0.20	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270E	ND		0.80	0.20	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270E	ND		0.80	0.20	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270E	ND		0.80	0.20	ug/L	1
1,1'-Biphenyl	92-52-4	8270E	ND		4.0	0.50	ug/L	1
4-Bromophenyl phenyl ether	101-55-3	8270E	ND		4.0	0.50	ug/L	1
Butyl benzyl phthalate	85-68-7	8270E	ND		4.0	0.50	ug/L	1
Caprolactam	105-60-2	8270E	ND		8.0	1.0	ug/L	1
Carbazole	86-74-8	8270E	ND		4.0	0.50	ug/L	1
bis (2-Chloro-1-methylethyl) ether	108-60-1	8270E	ND		4.0	0.50	ug/L	1
4-Chloro-3-methyl phenol	59-50-7	8270E	ND		4.0	0.50	ug/L	1
4-Chloroaniline	106-47-8	8270E	ND		8.0	0.50	ug/L	1
bis(2-Chloroethoxy)methane	111-91-1	8270E	ND		4.0	0.50	ug/L	1
bis(2-Chloroethyl)ether	111-44-4	8270E	ND		4.0	0.50	ug/L	1
2-Chloronaphthalene	91-58-7	8270E	ND		4.0	0.50	ug/L	1
2-Chlorophenol	95-57-8	8270E	ND		4.0	0.50	ug/L	1
4-Chlorophenyl phenyl ether	7005-72-3	8270E	ND		4.0	0.50	ug/L	1
Chrysene	218-01-9	8270E	ND		0.80	0.20	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270E	ND		0.80	0.20	ug/L	1
Dibenzofuran	132-64-9	8270E	ND		4.0	0.50	ug/L	1
3,3'-Dichlorobenzidine	91-94-1	8270E	ND		4.0	1.8	ug/L	1
2,4-Dichlorophenol	120-83-2	8270E	ND		8.0	1.0	ug/L	1
Diethylphthalate	84-66-2	8270E	ND		4.0	0.50	ug/L	1
Dimethyl phthalate	131-11-3	8270E	ND		4.0	0.50	ug/L	1
2,4-Dimethylphenol	105-67-9	8270E	ND		4.0	1.0	ug/L	1
Di-n-butyl phthalate	84-74-2	8270E	ND		4.0	0.50	ug/L	1
4,6-Dinitro-2-methylphenol	534-52-1	8270E	ND		20	1.0	ug/L	1
2,4-Dinitrophenol	51-28-5	8270E	ND		20	1.0	ug/L	1
2,4-Dinitrotoluene	121-14-2	8270E	ND		8.0	0.50	ug/L	1
2,6-Dinitrotoluene	606-20-2	8270E	ND		8.0	0.50	ug/L	1
Di-n-octylphthalate	117-84-0	8270E	ND		4.0	0.50	ug/L	1
bis(2-Ethylhexyl)phthalate	117-81-7	8270E	ND		4.0	0.50	ug/L	1
Fluoranthene	206-44-0	8270E	ND		0.80	0.20	ug/L	1
Fluorene	86-73-7	8270E	ND		0.80	0.20	ug/L	1
Hexachlorobenzene	118-74-1	8270E	ND		4.0	0.50	ug/L	1
Hexachlorobutadiene	87-68-3	8270E	ND		4.0	0.50	ug/L	1
Hexachlorocyclopentadiene	77-47-4	8270E	ND		20	2.0	ug/L	1

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit Q = Surrogate failure
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL L = LCS/LCSD failure
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Semivolatile Organic Compounds by GC/MS

Client: AECOM	Laboratory ID: WH26123-002
Description: Liquid IDW	Matrix: Aqueous
Date Sampled: 08/26/2021 1120	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E	1	09/05/2021 2103	STM	09/01/2021 1328	14073

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Hexachloroethane	67-72-1	8270E	ND		4.0	1.0	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270E	ND		0.80	0.20	ug/L	1
Isophorone	78-59-1	8270E	ND		4.0	0.50	ug/L	1
2-Methylnaphthalene	91-57-6	8270E	ND		0.80	0.20	ug/L	1
2-Methylphenol	95-48-7	8270E	ND		4.0	1.0	ug/L	1
3+4-Methylphenol	106-44-5	8270E	ND		4.0	1.5	ug/L	1
Naphthalene	91-20-3	8270E	ND		0.80	0.20	ug/L	1
2-Nitroaniline	88-74-4	8270E	ND		8.0	0.50	ug/L	1
3-Nitroaniline	99-09-2	8270E	ND		8.0	1.0	ug/L	1
4-Nitroaniline	100-01-6	8270E	ND		8.0	1.5	ug/L	1
Nitrobenzene	98-95-3	8270E	ND		4.0	1.5	ug/L	1
2-Nitrophenol	88-75-5	8270E	ND		4.0	1.0	ug/L	1
4-Nitrophenol	100-02-7	8270E	ND		20	2.0	ug/L	1
N-Nitrosodi-n-propylamine	621-64-7	8270E	ND		4.0	0.50	ug/L	1
N-Nitrosodiphenylamine (Diphenylamine)	86-30-6	8270E	ND		4.0	0.50	ug/L	1
Pentachlorophenol	87-86-5	8270E	ND		20	2.0	ug/L	1
Phenanthrene	85-01-8	8270E	ND		0.80	0.20	ug/L	1
Phenol	108-95-2	8270E	ND		4.0	0.50	ug/L	1
Pyrene	129-00-0	8270E	ND		0.80	0.20	ug/L	1
2,4,5-Trichlorophenol	95-95-4	8270E	ND		4.0	0.50	ug/L	1
2,4,6-Trichlorophenol	88-06-2	8270E	ND		4.0	0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
2-Fluorobiphenyl		86	37-129
2-Fluorophenol		55	24-127
Nitrobenzene-d5		73	38-127
Phenol-d5		79	28-128
Terphenyl-d14		100	10-148
2,4,6-Tribromophenol		63	35-144

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ICP-AES Metals

Client: AECOM	Laboratory ID: WH26123-002
Description: Liquid IDW	Matrix: Aqueous
Date Sampled: 08/26/2021 1120	
Date Received: 08/26/2021	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6010D	1	09/02/2021 2000	JMH	09/02/2021 0627	14155
2	3005A	6010D	1	09/03/2021 1211	JMH	09/02/2021 0627	14155

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Aluminum	7429-90-5	6010D	0.12	J	0.40	0.10	mg/L	1
Antimony	7440-36-0	6010D	ND		0.020	0.0070	mg/L	1
Arsenic	7440-38-2	6010D	ND		0.015	0.0025	mg/L	1
Barium	7440-39-3	6010D	0.044		0.025	0.0031	mg/L	2
Beryllium	7440-41-7	6010D	ND		0.0050	0.00060	mg/L	1
Boron	7440-42-8	6010D	ND		0.050	0.020	mg/L	2
Cadmium	7440-43-9	6010D	ND		0.0050	0.00060	mg/L	1
Calcium	7440-70-2	6010D	5.9		5.0	0.63	mg/L	1
Chromium	7440-47-3	6010D	ND		0.010	0.0013	mg/L	1
Cobalt	7440-48-4	6010D	ND		0.025	0.0031	mg/L	1
Copper	7440-50-8	6010D	ND		0.010	0.0020	mg/L	1
Iron	7439-89-6	6010D	0.45		0.10	0.040	mg/L	1
Lead	7439-92-1	6010D	ND		0.010	0.0047	mg/L	1
Magnesium	7439-95-4	6010D	1.0	J	5.0	0.63	mg/L	1
Manganese	7439-96-5	6010D	0.18		0.015	0.0019	mg/L	1
Molybdenum	7439-98-7	6010D	ND		0.040	0.0050	mg/L	1
Nickel	7440-02-0	6010D	ND		0.040	0.0050	mg/L	2
Potassium	7440-09-7	6010D	3.4	J	5.0	0.63	mg/L	1
Selenium	7782-49-2	6010D	ND		0.020	0.0085	mg/L	1
Silver	7440-22-4	6010D	ND		0.010	0.0021	mg/L	1
Sodium	7440-23-5	6010D	16		5.0	0.63	mg/L	1
Thallium	7440-28-0	6010D	ND		0.050	0.0063	mg/L	1
Tin	7440-31-5	6010D	ND		0.050	0.0063	mg/L	1
Titanium	7440-32-6	6010D	ND		0.050	0.0063	mg/L	1
Vanadium	7440-62-2	6010D	ND		0.050	0.0063	mg/L	1
Zinc	7440-66-6	6010D	0.012	J	0.020	0.0025	mg/L	1

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QC Summary

TCLP Volatiles - MB

Sample ID: WQ14928-001

Matrix: Solid

Batch: 14928

Prep Method: 1311/5030B

Analytical Method: 8260D

Leachate Date: 09/07/2021 1804

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Benzene	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
2-Butanone (MEK)	ND		10	0.10	0.020	mg/L	09/10/2021 0058
Carbon tetrachloride	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
Chlorobenzene	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
Chloroform	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
1,2-Dichloroethane	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
1,1-Dichloroethene	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
Tetrachloroethene	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
Trichloroethene	ND		10	0.050	0.0040	mg/L	09/10/2021 0058
Vinyl chloride	ND		10	0.010	0.0040	mg/L	09/10/2021 0058
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		95	70-130				
1,2-Dichloroethane-d4		95	70-130				
Toluene-d8		95	70-130				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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TCLP Volatiles - LCS

Sample ID: WQ14928-002

Matrix: Solid

Batch: 14928

Prep Method: 1311/5030B

Analytical Method: 8260D

Leachate Date: 09/07/2021 1804

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Benzene	0.50	0.48		10	96	70-130	09/09/2021 2229
2-Butanone (MEK)	1.0	0.86		10	86	70-130	09/09/2021 2229
Carbon tetrachloride	0.50	0.52		10	104	70-130	09/09/2021 2229
Chlorobenzene	0.50	0.47		10	95	70-130	09/09/2021 2229
Chloroform	0.50	0.47		10	95	70-130	09/09/2021 2229
1,2-Dichloroethane	0.50	0.46		10	93	70-130	09/09/2021 2229
1,1-Dichloroethene	0.50	0.51		10	102	70-130	09/09/2021 2229
Tetrachloroethene	0.50	0.50		10	101	70-130	09/09/2021 2229
Trichloroethene	0.50	0.50		10	99	70-130	09/09/2021 2229
Vinyl chloride	0.50	0.46		10	93	70-130	09/09/2021 2229
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		90	70-130				
1,2-Dichloroethane-d4		86	70-130				
Toluene-d8		90	70-130				

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15210-001

Matrix: Aqueous

Batch: 15210

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	09/03/2021 1201
Benzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Bromodichloromethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Bromoform	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	09/03/2021 1201
2-Butanone (MEK)	ND		1	10	2.0	ug/L	09/03/2021 1201
Carbon disulfide	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Chlorobenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Chloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Chloroform	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Cyclohexane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Dibromochloromethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Ethylbenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
2-Hexanone	ND		1	10	2.0	ug/L	09/03/2021 1201
Isopropylbenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Methyl acetate	ND		1	1.0	0.40	ug/L	09/03/2021 1201
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	09/03/2021 1201
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	09/03/2021 1201
Methylcyclohexane	ND		1	5.0	0.40	ug/L	09/03/2021 1201
Methylene chloride	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Styrene	ND		1	0.50	0.41	ug/L	09/03/2021 1201
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Tetrachloroethene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Toluene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	09/03/2021 1201
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ15210-001

Matrix: Aqueous

Batch: 15210

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Trichloroethene	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Vinyl chloride	ND		1	0.50	0.40	ug/L	09/03/2021 1201
Xylenes (total)	ND		1	1.0	0.40	ug/L	09/03/2021 1201
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		92	70-130				
1,2-Dichloroethane-d4		102	70-130				
Toluene-d8		98	70-130				

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

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+ = RPD is out of criteria

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15210-002

Matrix: Aqueous

Batch: 15210

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	130		1	132	60-140	09/03/2021 1055
Benzene	50	47		1	94	70-130	09/03/2021 1055
Bromodichloromethane	50	46		1	93	70-130	09/03/2021 1055
Bromoform	50	46		1	93	70-130	09/03/2021 1055
Bromomethane (Methyl bromide)	50	47		1	94	70-130	09/03/2021 1055
2-Butanone (MEK)	100	110		1	108	70-130	09/03/2021 1055
Carbon disulfide	50	47		1	93	70-130	09/03/2021 1055
Carbon tetrachloride	50	47		1	94	70-130	09/03/2021 1055
Chlorobenzene	50	45		1	90	70-130	09/03/2021 1055
Chloroethane	50	46		1	91	70-130	09/03/2021 1055
Chloroform	50	46		1	92	70-130	09/03/2021 1055
Chloromethane (Methyl chloride)	50	50		1	99	60-140	09/03/2021 1055
Cyclohexane	50	48		1	96	70-130	09/03/2021 1055
1,2-Dibromo-3-chloropropane (DBCP)	50	46		1	92	70-130	09/03/2021 1055
Dibromochloromethane	50	48		1	96	70-130	09/03/2021 1055
1,2-Dibromoethane (EDB)	50	46		1	92	70-130	09/03/2021 1055
1,2-Dichlorobenzene	50	47		1	93	70-130	09/03/2021 1055
1,3-Dichlorobenzene	50	46		1	92	70-130	09/03/2021 1055
1,4-Dichlorobenzene	50	43		1	86	70-130	09/03/2021 1055
Dichlorodifluoromethane	50	49		1	98	60-140	09/03/2021 1055
1,1-Dichloroethane	50	46		1	93	70-130	09/03/2021 1055
1,2-Dichloroethane	50	45		1	90	70-130	09/03/2021 1055
1,1-Dichloroethene	50	50		1	99	70-130	09/03/2021 1055
cis-1,2-Dichloroethene	50	48		1	97	70-130	09/03/2021 1055
trans-1,2-Dichloroethene	50	48		1	97	70-130	09/03/2021 1055
1,2-Dichloropropane	50	44		1	89	70-130	09/03/2021 1055
cis-1,3-Dichloropropene	50	49		1	99	70-130	09/03/2021 1055
trans-1,3-Dichloropropene	50	49		1	99	70-130	09/03/2021 1055
Ethylbenzene	50	50		1	100	70-130	09/03/2021 1055
2-Hexanone	100	85		1	85	70-130	09/03/2021 1055
Isopropylbenzene	50	55		1	109	70-130	09/03/2021 1055
Methyl acetate	50	42		1	85	70-130	09/03/2021 1055
Methyl tertiary butyl ether (MTBE)	50	48		1	97	70-130	09/03/2021 1055
4-Methyl-2-pentanone	100	95		1	95	70-130	09/03/2021 1055
Methylcyclohexane	50	52		1	104	70-130	09/03/2021 1055
Methylene chloride	50	49		1	97	70-130	09/03/2021 1055
Styrene	50	47		1	95	70-130	09/03/2021 1055
1,1,2,2-Tetrachloroethane	50	42		1	85	70-130	09/03/2021 1055
Tetrachloroethene	50	48		1	96	70-130	09/03/2021 1055
Toluene	50	49		1	99	70-130	09/03/2021 1055
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	47		1	93	70-130	09/03/2021 1055
1,2,4-Trichlorobenzene	50	48		1	96	70-130	09/03/2021 1055
1,1,1-Trichloroethane	50	48		1	96	70-130	09/03/2021 1055
1,1,2-Trichloroethane	50	45		1	90	70-130	09/03/2021 1055

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ15210-002

Matrix: Aqueous

Batch: 15210

Prep Method: 5030B

Analytical Method: 8260D

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Trichloroethene	50	49		1	97	70-130	09/03/2021 1055
Trichlorofluoromethane	50	52		1	104	70-130	09/03/2021 1055
Vinyl chloride	50	47		1	94	70-130	09/03/2021 1055
Xylenes (total)	100	100		1	103	70-130	09/03/2021 1055
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		96	70-130				
1,2-Dichloroethane-d4		91	70-130				
Toluene-d8		93	70-130				

LOQ = Limit of Quantitation

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Semivolatile Organic Compounds by GC/MS - MB

Sample ID: WQ14073-001

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acenaphthene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Acenaphthylene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Acetophenone	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Anthracene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Atrazine	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Benzaldehyde	ND		1	8.0	0.50	ug/L	09/05/2021 2014
Benzo(a)anthracene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Benzo(a)pyrene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Benzo(b)fluoranthene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Benzo(g,h,i)perylene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Benzo(k)fluoranthene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
1,1'-Biphenyl	ND		1	4.0	0.50	ug/L	09/05/2021 2014
4-Bromophenyl phenyl ether	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Butyl benzyl phthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Caprolactam	2.3	J	1	8.0	1.0	ug/L	09/05/2021 2014
Carbazole	ND		1	4.0	0.50	ug/L	09/05/2021 2014
bis (2-Chloro-1-methylethyl) ether	ND		1	4.0	0.50	ug/L	09/05/2021 2014
4-Chloro-3-methyl phenol	ND		1	4.0	0.50	ug/L	09/05/2021 2014
4-Chloroaniline	ND		1	8.0	0.50	ug/L	09/05/2021 2014
bis(2-Chloroethoxy)methane	ND		1	4.0	0.50	ug/L	09/05/2021 2014
bis(2-Chloroethyl)ether	ND		1	4.0	0.50	ug/L	09/05/2021 2014
2-Chloronaphthalene	ND		1	4.0	0.50	ug/L	09/05/2021 2014
2-Chlorophenol	ND		1	4.0	0.50	ug/L	09/05/2021 2014
4-Chlorophenyl phenyl ether	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Chrysene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Dibenzo(a,h)anthracene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Dibenzofuran	ND		1	4.0	0.50	ug/L	09/05/2021 2014
3,3'-Dichlorobenzidine	ND		1	4.0	1.8	ug/L	09/05/2021 2014
2,4-Dichlorophenol	ND		1	8.0	1.0	ug/L	09/05/2021 2014
Diethylphthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Dimethyl phthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
2,4-Dimethylphenol	ND		1	4.0	1.0	ug/L	09/05/2021 2014
Di-n-butyl phthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
4,6-Dinitro-2-methylphenol	ND		1	20	1.0	ug/L	09/05/2021 2014
2,4-Dinitrophenol	ND		1	20	1.0	ug/L	09/05/2021 2014
2,4-Dinitrotoluene	ND		1	8.0	0.50	ug/L	09/05/2021 2014
2,6-Dinitrotoluene	ND		1	8.0	0.50	ug/L	09/05/2021 2014
Di-n-octylphthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
bis(2-Ethylhexyl)phthalate	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Fluoranthene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Fluorene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Hexachlorobenzene	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Hexachlorobutadiene	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Hexachlorocyclopentadiene	ND		1	20	2.0	ug/L	09/05/2021 2014

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Semivolatile Organic Compounds by GC/MS - MB

Sample ID: WQ14073-001

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Hexachloroethane	ND		1	4.0	1.0	ug/L	09/05/2021 2014
Indeno(1,2,3-c,d)pyrene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Isophorone	ND		1	4.0	0.50	ug/L	09/05/2021 2014
2-Methylnaphthalene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
2-Methylphenol	ND		1	4.0	1.0	ug/L	09/05/2021 2014
3+4-Methylphenol	ND		1	4.0	1.5	ug/L	09/05/2021 2014
Naphthalene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
2-Nitroaniline	ND		1	8.0	0.50	ug/L	09/05/2021 2014
3-Nitroaniline	ND		1	8.0	1.0	ug/L	09/05/2021 2014
4-Nitroaniline	ND		1	8.0	1.5	ug/L	09/05/2021 2014
Nitrobenzene	ND		1	4.0	1.5	ug/L	09/05/2021 2014
2-Nitrophenol	ND		1	4.0	1.0	ug/L	09/05/2021 2014
4-Nitrophenol	ND		1	20	2.0	ug/L	09/05/2021 2014
N-Nitrosodi-n-propylamine	ND		1	4.0	0.50	ug/L	09/05/2021 2014
N-Nitrosodiphenylamine (Diphenylamine)	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Pentachlorophenol	ND		1	20	2.0	ug/L	09/05/2021 2014
Phenanthrene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
Phenol	ND		1	4.0	0.50	ug/L	09/05/2021 2014
Pyrene	ND		1	0.80	0.20	ug/L	09/05/2021 2014
2,4,5-Trichlorophenol	ND		1	4.0	0.50	ug/L	09/05/2021 2014
2,4,6-Trichlorophenol	ND		1	4.0	0.50	ug/L	09/05/2021 2014

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		90	37-129
2-Fluorophenol		60	24-127
Nitrobenzene-d5		75	38-127
Phenol-d5		77	28-128
Terphenyl-d14		100	10-148
2,4,6-Tribromophenol		63	35-144

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Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: WQ14073-002

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acenaphthene	40	34		1	84	30-122	09/05/2021 2038
Acenaphthylene	40	37		1	93	30-130	09/05/2021 2038
Acetophenone	40	40		1	101	30-130	09/05/2021 2038
Anthracene	40	35		1	87	30-123	09/05/2021 2038
Atrazine	40	30		1	74	30-130	09/05/2021 2038
Benzaldehyde	40	21		1	52	20-115	09/05/2021 2038
Benzo(a)anthracene	40	34		1	85	40-125	09/05/2021 2038
Benzo(a)pyrene	40	35		1	87	40-128	09/05/2021 2038
Benzo(b)fluoranthene	40	37		1	93	30-130	09/05/2021 2038
Benzo(g,h,i)perylene	40	36		1	89	30-130	09/05/2021 2038
Benzo(k)fluoranthene	40	38		1	96	30-130	09/05/2021 2038
1,1'-Biphenyl	40	36		1	90	30-130	09/05/2021 2038
4-Bromophenyl phenyl ether	40	35		1	86	30-124	09/05/2021 2038
Butyl benzyl phthalate	40	37		1	92	30-130	09/05/2021 2038
Caprolactam	40	32		1	79	30-130	09/05/2021 2038
Carbazole	40	35		1	87	30-130	09/05/2021 2038
bis (2-Chloro-1-methylethyl) ether	40	39		1	97	30-130	09/05/2021 2038
4-Chloro-3-methyl phenol	40	39		1	97	30-123	09/05/2021 2038
4-Chloroaniline	40	34		1	86	12-157	09/05/2021 2038
bis(2-Chloroethoxy)methane	40	35		1	87	30-130	09/05/2021 2038
bis(2-Chloroethyl)ether	40	38		1	94	30-130	09/05/2021 2038
2-Chloronaphthalene	40	36		1	89	30-130	09/05/2021 2038
2-Chlorophenol	40	39		1	98	30-130	09/05/2021 2038
4-Chlorophenyl phenyl ether	40	34		1	86	30-121	09/05/2021 2038
Chrysene	40	36		1	90	30-130	09/05/2021 2038
Dibenzo(a,h)anthracene	40	36		1	90	30-130	09/05/2021 2038
Dibenzofuran	40	33		1	83	30-118	09/05/2021 2038
3,3'-Dichlorobenzidine	40	21		1	52	10-126	09/05/2021 2038
2,4-Dichlorophenol	40	34		1	84	30-121	09/05/2021 2038
Diethylphthalate	40	36		1	90	40-125	09/05/2021 2038
Dimethyl phthalate	40	36		1	91	40-127	09/05/2021 2038
2,4-Dimethylphenol	40	31		1	78	20-125	09/05/2021 2038
Di-n-butyl phthalate	40	35		1	87	40-127	09/05/2021 2038
4,6-Dinitro-2-methylphenol	40	33		1	83	30-130	09/05/2021 2038
2,4-Dinitrophenol	80	57		1	71	11-126	09/05/2021 2038
2,4-Dinitrotoluene	40	35		1	88	30-130	09/05/2021 2038
2,6-Dinitrotoluene	40	35		1	88	30-130	09/05/2021 2038
Di-n-octylphthalate	40	37		1	92	30-130	09/05/2021 2038
bis(2-Ethylhexyl)phthalate	40	38		1	96	30-130	09/05/2021 2038
Fluoranthene	40	34		1	85	40-128	09/05/2021 2038
Fluorene	40	33		1	83	30-124	09/05/2021 2038
Hexachlorobenzene	40	35		1	89	30-125	09/05/2021 2038
Hexachlorobutadiene	40	33		1	82	24-110	09/05/2021 2038
Hexachlorocyclopentadiene	200	99		1	49	22-122	09/05/2021 2038

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Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: WQ14073-002

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Hexachloroethane	40	36		1	91	30-130	09/05/2021 2038
Indeno(1,2,3-c,d)pyrene	40	34		1	86	30-130	09/05/2021 2038
Isophorone	40	32		1	81	30-130	09/05/2021 2038
2-Methylnaphthalene	40	36		1	89	40-132	09/05/2021 2038
2-Methylphenol	40	41		1	102	30-130	09/05/2021 2038
3+4-Methylphenol	40	41		1	102	30-130	09/05/2021 2038
Naphthalene	40	36		1	90	30-130	09/05/2021 2038
2-Nitroaniline	40	30		1	75	30-130	09/05/2021 2038
3-Nitroaniline	40	22		1	54	30-130	09/05/2021 2038
4-Nitroaniline	40	25		1	64	30-135	09/05/2021 2038
Nitrobenzene	40	35		1	87	30-130	09/05/2021 2038
2-Nitrophenol	40	37		1	91	30-130	09/05/2021 2038
4-Nitrophenol	80	67		1	84	30-130	09/05/2021 2038
N-Nitrosodi-n-propylamine	40	39		1	97	30-130	09/05/2021 2038
N-Nitrosodiphenylamine (Diphenylamine)	40	36		1	90	30-123	09/05/2021 2038
Pentachlorophenol	80	57		1	71	30-130	09/05/2021 2038
Phenanthrene	40	33		1	84	40-123	09/05/2021 2038
Phenol	40	39		1	97	30-130	09/05/2021 2038
Pyrene	40	37		1	92	40-126	09/05/2021 2038
2,4,5-Trichlorophenol	40	37		1	92	30-123	09/05/2021 2038
2,4,6-Trichlorophenol	40	37		1	93	30-130	09/05/2021 2038

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		92	37-129
2-Fluorophenol		93	24-127
Nitrobenzene-d5		82	38-127
Phenol-d5		103	28-128
Terphenyl-d14		95	10-148
2,4,6-Tribromophenol		79	35-144

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J = Estimated result < LOQ and \geq DL

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Semivolatile Organic Compounds by GC/MS - MS

Sample ID: WH26123-002MS

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acenaphthene	ND	80	66		1	83	30-122	09/05/2021 2128
Acenaphthylene	ND	80	71		1	89	30-130	09/05/2021 2128
Acetophenone	ND	80	76		1	96	30-130	09/05/2021 2128
Anthracene	ND	80	69		1	86	30-123	09/05/2021 2128
Atrazine	ND	80	59		1	74	30-130	09/05/2021 2128
Benzaldehyde	ND	80	40		1	50	20-115	09/05/2021 2128
Benzo(a)anthracene	ND	80	67		1	84	40-125	09/05/2021 2128
Benzo(a)pyrene	ND	80	66		1	82	40-128	09/05/2021 2128
Benzo(b)fluoranthene	ND	80	72		1	90	30-130	09/05/2021 2128
Benzo(g,h,i)perylene	ND	80	70		1	87	30-130	09/05/2021 2128
Benzo(k)fluoranthene	ND	80	73		1	91	30-130	09/05/2021 2128
1,1'-Biphenyl	ND	80	71		1	89	30-130	09/05/2021 2128
4-Bromophenyl phenyl ether	ND	80	69		1	86	30-124	09/05/2021 2128
Butyl benzyl phthalate	ND	80	73		1	91	30-130	09/05/2021 2128
Caprolactam	ND	80	59		1	74	30-130	09/05/2021 2128
Carbazole	ND	80	68		1	85	30-130	09/05/2021 2128
bis (2-Chloro-1-methylethyl) ether	ND	80	77		1	97	30-130	09/05/2021 2128
4-Chloro-3-methyl phenol	ND	80	74		1	92	30-123	09/05/2021 2128
4-Chloroaniline	ND	80	65		1	81	10-130	09/05/2021 2128
bis(2-Chloroethoxy)methane	ND	80	67		1	84	30-130	09/05/2021 2128
bis(2-Chloroethyl)ether	ND	80	74		1	92	30-130	09/05/2021 2128
2-Chloronaphthalene	ND	80	72		1	89	30-130	09/05/2021 2128
2-Chlorophenol	ND	80	74		1	93	30-130	09/05/2021 2128
4-Chlorophenyl phenyl ether	ND	80	67		1	84	30-121	09/05/2021 2128
Chrysene	ND	80	71		1	88	30-130	09/05/2021 2128
Dibenzo(a,h)anthracene	ND	80	69		1	87	30-130	09/05/2021 2128
Dibenzofuran	ND	80	65		1	81	30-118	09/05/2021 2128
3,3'-Dichlorobenzidine	ND	80	41		1	51	10-126	09/05/2021 2128
2,4-Dichlorophenol	ND	80	64		1	81	30-121	09/05/2021 2128
Diethylphthalate	ND	80	70		1	88	40-125	09/05/2021 2128
Dimethyl phthalate	ND	80	70		1	88	40-127	09/05/2021 2128
2,4-Dimethylphenol	ND	80	72		1	89	20-125	09/05/2021 2128
Di-n-butyl phthalate	ND	80	69		1	86	40-127	09/05/2021 2128
4,6-Dinitro-2-methylphenol	ND	80	67		1	84	30-130	09/05/2021 2128
2,4-Dinitrophenol	ND	160	110		1	71	30-130	09/05/2021 2128
2,4-Dinitrotoluene	ND	80	70		1	88	30-130	09/05/2021 2128
2,6-Dinitrotoluene	ND	80	69		1	87	30-130	09/05/2021 2128
Di-n-octylphthalate	ND	80	70		1	88	30-130	09/05/2021 2128
bis(2-Ethylhexyl)phthalate	ND	80	74		1	92	70-131	09/05/2021 2128
Fluoranthene	ND	80	67		1	83	40-128	09/05/2021 2128
Fluorene	ND	80	65		1	82	30-124	09/05/2021 2128
Hexachlorobenzene	ND	80	69		1	87	30-125	09/05/2021 2128
Hexachlorobutadiene	ND	80	64		1	80	24-110	09/05/2021 2128
Hexachlorocyclopentadiene	ND	400	210		1	53	22-122	09/05/2021 2128

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Semivolatile Organic Compounds by GC/MS - MS

Sample ID: WH26123-002MS

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Hexachloroethane	ND	80	69		1	87	30-130	09/05/2021 2128
Indeno(1,2,3-c,d)pyrene	ND	80	67		1	83	30-130	09/05/2021 2128
Isophorone	ND	80	64		1	80	30-130	09/05/2021 2128
2-Methylnaphthalene	ND	80	69		1	87	40-132	09/05/2021 2128
2-Methylphenol	ND	80	79		1	98	30-130	09/05/2021 2128
3+4-Methylphenol	ND	80	80		1	99	30-130	09/05/2021 2128
Naphthalene	ND	80	69		1	86	30-130	09/05/2021 2128
2-Nitroaniline	ND	80	59		1	73	30-130	09/05/2021 2128
3-Nitroaniline	ND	80	43		1	54	30-130	09/05/2021 2128
4-Nitroaniline	ND	80	53		1	66	30-135	09/05/2021 2128
Nitrobenzene	ND	80	68		1	85	30-130	09/05/2021 2128
2-Nitrophenol	ND	80	71		1	88	30-130	09/05/2021 2128
4-Nitrophenol	ND	160	130		1	83	30-130	09/05/2021 2128
N-Nitrosodi-n-propylamine	ND	80	77		1	96	30-130	09/05/2021 2128
N-Nitrosodiphenylamine (Diphenylamine)	ND	80	70		1	88	30-123	09/05/2021 2128
Pentachlorophenol	ND	160	110		1	71	30-130	09/05/2021 2128
Phenanthrene	ND	80	66		1	83	40-123	09/05/2021 2128
Phenol	ND	80	75		1	94	30-130	09/05/2021 2128
Pyrene	ND	80	72		1	90	40-126	09/05/2021 2128
2,4,5-Trichlorophenol	ND	80	65		1	81	30-123	09/05/2021 2128
2,4,6-Trichlorophenol	ND	80	73		1	92	30-130	09/05/2021 2128

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		91	37-129
2-Fluorophenol		89	24-127
Nitrobenzene-d5		80	38-127
Phenol-d5		98	28-128
Terphenyl-d14		93	10-148
2,4,6-Tribromophenol		78	35-144

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: WH26123-002MD

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acenaphthene	ND	80	68		1	85	2.1	30-122	40	09/05/2021 2152
Acenaphthylene	ND	80	74		1	92	3.2	30-130	40	09/05/2021 2152
Acetophenone	ND	80	76		1	96	0.057	30-130	40	09/05/2021 2152
Anthracene	ND	80	70		1	88	2.1	30-123	40	09/05/2021 2152
Atrazine	ND	80	60		1	75	2.4	30-130	40	09/05/2021 2152
Benzaldehyde	ND	80	39		1	48	3.2	20-115	40	09/05/2021 2152
Benzo(a)anthracene	ND	80	68		1	86	2.1	40-125	40	09/05/2021 2152
Benzo(a)pyrene	ND	80	70		1	88	6.7	40-128	40	09/05/2021 2152
Benzo(b)fluoranthene	ND	80	75		1	94	4.5	30-130	40	09/05/2021 2152
Benzo(g,h,i)perylene	ND	80	72		1	90	3.2	30-130	40	09/05/2021 2152
Benzo(k)fluoranthene	ND	80	76		1	95	4.4	30-130	40	09/05/2021 2152
1,1'-Biphenyl	ND	80	71		1	89	0.0052	30-130	40	09/05/2021 2152
4-Bromophenyl phenyl ether	ND	80	71		1	89	3.3	30-124	40	09/05/2021 2152
Butyl benzyl phthalate	ND	80	74		1	92	0.81	30-130	40	09/05/2021 2152
Caprolactam	ND	80	61		1	76	2.7	30-130	40	09/05/2021 2152
Carbazole	ND	80	70		1	87	2.5	30-130	40	09/05/2021 2152
bis (2-Chloro-1-methylethyl) ether	ND	80	84		1	105	8.2	30-130	40	09/05/2021 2152
4-Chloro-3-methyl phenol	ND	80	74		1	92	0.24	30-123	40	09/05/2021 2152
4-Chloroaniline	ND	80	65		1	81	0.39	10-130	40	09/05/2021 2152
bis(2-Chloroethoxy)methane	ND	80	71		1	88	4.9	30-130	40	09/05/2021 2152
bis(2-Chloroethyl)ether	ND	80	82		1	103	11	30-130	40	09/05/2021 2152
2-Chloronaphthalene	ND	80	70		1	87	2.5	30-130	40	09/05/2021 2152
2-Chlorophenol	ND	80	75		1	94	0.93	30-130	40	09/05/2021 2152
4-Chlorophenyl phenyl ether	ND	80	67		1	84	0.66	30-121	40	09/05/2021 2152
Chrysene	ND	80	72		1	90	1.8	30-130	40	09/05/2021 2152
Dibenzo(a,h)anthracene	ND	80	72		1	90	3.6	30-130	40	09/05/2021 2152
Dibenzofuran	ND	80	65		1	81	0.70	30-118	40	09/05/2021 2152
3,3'-Dichlorobenzidine	ND	80	42		1	53	4.4	10-126	40	09/05/2021 2152
2,4-Dichlorophenol	ND	80	67		1	84	3.9	30-121	40	09/05/2021 2152
Diethylphthalate	ND	80	73		1	92	4.2	40-125	40	09/05/2021 2152
Dimethyl phthalate	ND	80	71		1	89	0.94	40-127	40	09/05/2021 2152
2,4-Dimethylphenol	ND	80	76		1	95	6.1	20-125	40	09/05/2021 2152
Di-n-butyl phthalate	ND	80	69		1	87	1.1	40-127	40	09/05/2021 2152
4,6-Dinitro-2-methylphenol	ND	80	70		1	87	4.0	30-130	40	09/05/2021 2152
2,4-Dinitrophenol	ND	160	120		1	73	2.7	30-130	40	09/05/2021 2152
2,4-Dinitrotoluene	ND	80	71		1	89	1.6	30-130	40	09/05/2021 2152
2,6-Dinitrotoluene	ND	80	70		1	87	0.51	30-130	40	09/05/2021 2152
Di-n-octylphthalate	ND	80	72		1	91	3.3	30-130	40	09/05/2021 2152
bis(2-Ethylhexyl)phthalate	ND	80	75		1	94	2.2	70-131	40	09/05/2021 2152
Fluoranthene	ND	80	69		1	87	4.3	40-128	40	09/05/2021 2152
Fluorene	ND	80	66		1	82	0.72	30-124	40	09/05/2021 2152
Hexachlorobenzene	ND	80	74		1	92	5.7	30-125	40	09/05/2021 2152
Hexachlorobutadiene	ND	80	67		1	83	4.5	24-110	40	09/05/2021 2152
Hexachlorocyclopentadiene	ND	400	230		1	57	8.0	22-122	40	09/05/2021 2152

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: WH26123-002MD

Matrix: Aqueous

Batch: 14073

Prep Method: 3520C

Analytical Method: 8270E

Prep Date: 09/01/2021 1328

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Hexachloroethane	ND	80	69	1		87	0.34	30-130	40	09/05/2021 2152
Indeno(1,2,3-c,d)pyrene	ND	80	70	1		88	5.5	30-130	40	09/05/2021 2152
Isophorone	ND	80	68	1		85	6.8	30-130	40	09/05/2021 2152
2-Methylnaphthalene	ND	80	71	1		89	2.3	40-132	40	09/05/2021 2152
2-Methylphenol	ND	80	82	1		103	4.4	30-130	40	09/05/2021 2152
3+4-Methylphenol	ND	80	79	1		99	0.56	30-130	40	09/05/2021 2152
Naphthalene	ND	80	71	1		89	3.4	30-130	40	09/05/2021 2152
2-Nitroaniline	ND	80	61	1		76	3.4	30-130	40	09/05/2021 2152
3-Nitroaniline	ND	80	43	1		53	0.43	30-130	40	09/05/2021 2152
4-Nitroaniline	ND	80	52	1		65	2.3	30-135	40	09/05/2021 2152
Nitrobenzene	ND	80	74	1		92	8.9	30-130	40	09/05/2021 2152
2-Nitrophenol	ND	80	73	1		91	2.8	30-130	40	09/05/2021 2152
4-Nitrophenol	ND	160	140	1		87	5.1	30-130	40	09/05/2021 2152
N-Nitrosodi-n-propylamine	ND	80	84	1		104	8.7	30-130	40	09/05/2021 2152
N-Nitrosodiphenylamine (Diphenylamine)	ND	80	71	1		89	1.8	30-123	40	09/05/2021 2152
Pentachlorophenol	ND	160	120	1		74	3.4	30-130	40	09/05/2021 2152
Phenanthrene	ND	80	67	1		83	0.64	40-123	40	09/05/2021 2152
Phenol	ND	80	79	1		99	5.1	30-130	40	09/05/2021 2152
Pyrene	ND	80	74	1		92	2.3	40-126	40	09/05/2021 2152
2,4,5-Trichlorophenol	ND	80	67	1		83	3.0	30-123	40	09/05/2021 2152
2,4,6-Trichlorophenol	ND	80	73	1		91	0.14	30-130	40	09/05/2021 2152

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		92	37-129
2-Fluorophenol		88	24-127
Nitrobenzene-d5		86	38-127
Phenol-d5		104	28-128
Terphenyl-d14		94	10-148
2,4,6-Tribromophenol		83	35-144

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ND = Not detected at or above the DL

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J = Estimated result < LOQ and ≥ DL

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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TCLP Semivolatiles - MB

Sample ID: WQ14793-001

Matrix: Solid

Batch: 14793

Prep Method: 1311/3520C

Analytical Method: 8270E

Prep Date: 09/08/2021 1830 Leachate Date: 09/02/2021 0041

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,4-Dichlorobenzene	ND		1	0.040	0.0050	mg/L	09/10/2021 1703
2,4-Dinitrotoluene	ND		1	0.080	0.0050	mg/L	09/10/2021 1703
Hexachlorobenzene	ND		1	0.040	0.0050	mg/L	09/10/2021 1703
Hexachlorobutadiene	ND		1	0.040	0.0050	mg/L	09/10/2021 1703
Hexachloroethane	ND		1	0.040	0.010	mg/L	09/10/2021 1703
2-Methylphenol	ND		1	0.040	0.010	mg/L	09/10/2021 1703
3+4-Methylphenol	ND		1	0.040	0.015	mg/L	09/10/2021 1703
Nitrobenzene	ND		1	0.040	0.015	mg/L	09/10/2021 1703
Pentachlorophenol	ND		1	0.20	0.020	mg/L	09/10/2021 1703
Pyridine	ND		1	0.040	0.0050	mg/L	09/10/2021 1703
2,4,5-Trichlorophenol	ND		1	0.040	0.0050	mg/L	09/10/2021 1703
2,4,6-Trichlorophenol	ND		1	0.040	0.0050	mg/L	09/10/2021 1703

Surrogate	Q	% Rec	Acceptance Limit
2-Fluorobiphenyl		76	37-129
2-Fluorophenol		47	24-127
Nitrobenzene-d5		81	38-127
Phenol-d5		71	28-128
Terphenyl-d14		67	10-148
2,4,6-Tribromophenol		78	41-144

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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TCLP Semivolatiles - LCS

Sample ID: WQ14793-002

Matrix: Solid

Batch: 14793

Prep Method: 1311/3520C

Analytical Method: 8270E

Prep Date: 09/08/2021 1830 Leachate Date: 09/02/2021 0041

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
1,4-Dichlorobenzene	0.40	0.28		1	70	30-130	09/10/2021 1728
2,4-Dinitrotoluene	0.40	0.28		1	69	30-130	09/10/2021 1728
Hexachlorobenzene	0.40	0.31		1	78	30-130	09/10/2021 1728
Hexachlorobutadiene	0.40	0.24		1	61	30-130	09/10/2021 1728
Hexachloroethane	0.40	0.30		1	75	30-130	09/10/2021 1728
2-Methylphenol	0.40	0.36		1	91	30-130	09/10/2021 1728
3+4-Methylphenol	0.80	0.86		1	108	30-130	09/10/2021 1728
Nitrobenzene	0.40	0.33		1	81	30-130	09/10/2021 1728
Pentachlorophenol	0.40	0.33		1	82	30-130	09/10/2021 1728
Pyridine	0.40	0.45		1	112	30-130	09/10/2021 1728
2,4,5-Trichlorophenol	0.40	0.30		1	76	30-130	09/10/2021 1728
2,4,6-Trichlorophenol	0.40	0.28		1	71	30-130	09/10/2021 1728
Surrogate	Q	% Rec	Acceptance Limit				
2-Fluorobiphenyl		75	37-129				
2-Fluorophenol		43	24-127				
Nitrobenzene-d5		83	38-127				
Phenol-d5		77	28-128				
Terphenyl-d14		83	10-148				
2,4,6-Tribromophenol		74	41-144				

LOQ = Limit of Quantitation

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

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ICP-AES Metals - MB

Sample ID: WQ14155-001

Matrix: Aqueous

Batch: 14155

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 09/02/2021 0627

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Aluminum	ND		1	0.40	0.10	mg/L	09/02/2021 1508
Antimony	ND		1	0.020	0.0070	mg/L	09/02/2021 1508
Arsenic	ND		1	0.015	0.0025	mg/L	09/02/2021 1508
Barium	ND		1	0.025	0.0031	mg/L	09/03/2021 1204
Beryllium	ND		1	0.0050	0.00060	mg/L	09/02/2021 1508
Boron	ND		1	0.050	0.020	mg/L	09/02/2021 1508
Cadmium	ND		1	0.0050	0.00060	mg/L	09/02/2021 1508
Calcium	ND		1	5.0	0.63	mg/L	09/02/2021 1508
Chromium	ND		1	0.010	0.0013	mg/L	09/02/2021 1508
Cobalt	ND		1	0.025	0.0031	mg/L	09/02/2021 1508
Copper	ND		1	0.010	0.0020	mg/L	09/02/2021 1508
Iron	ND		1	0.10	0.040	mg/L	09/02/2021 1508
Lead	ND		1	0.010	0.0047	mg/L	09/02/2021 1508
Magnesium	ND		1	5.0	0.63	mg/L	09/02/2021 1508
Manganese	ND		1	0.015	0.0019	mg/L	09/02/2021 1508
Molybdenum	ND		1	0.040	0.0050	mg/L	09/02/2021 1508
Nickel	ND		1	0.040	0.0050	mg/L	09/02/2021 1508
Potassium	ND		1	5.0	0.63	mg/L	09/02/2021 1508
Selenium	ND		1	0.020	0.0085	mg/L	09/02/2021 1508
Silver	ND		1	0.010	0.0021	mg/L	09/02/2021 1508
Sodium	ND		1	5.0	0.63	mg/L	09/02/2021 1508
Thallium	ND		1	0.050	0.0063	mg/L	09/02/2021 1508
Tin	ND		1	0.050	0.0063	mg/L	09/02/2021 1508
Titanium	ND		1	0.050	0.0063	mg/L	09/02/2021 1508
Vanadium	ND		1	0.050	0.0063	mg/L	09/02/2021 1508
Zinc	ND		1	0.020	0.0025	mg/L	09/02/2021 1508

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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ICP-AES Metals - LCS

Sample ID: WQ14155-002

Matrix: Aqueous

Batch: 14155

Prep Method: 3005A

Analytical Method: 6010D

Prep Date: 09/02/2021 0627

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Aluminum	20	20		1	101	80-120	09/02/2021 1512
Antimony	0.40	0.35		1	88	80-120	09/02/2021 1512
Arsenic	0.40	0.39		1	97	80-120	09/02/2021 1512
Barium	2.0	2.0		1	98	80-120	09/03/2021 1208
Beryllium	2.0	2.0		1	99	80-120	09/02/2021 1512
Boron	0.40	0.35		1	88	80-120	09/02/2021 1512
Cadmium	0.40	0.36		1	90	80-120	09/02/2021 1512
Calcium	40	42		1	105	80-120	09/02/2021 1512
Chromium	2.0	2.0		1	100	80-120	09/02/2021 1512
Cobalt	2.0	1.9		1	95	80-120	09/02/2021 1512
Copper	2.0	2.0		1	98	80-120	09/02/2021 1512
Iron	20	21		1	105	80-120	09/02/2021 1512
Lead	0.40	0.37		1	93	80-120	09/02/2021 1512
Magnesium	40	41		1	102	80-120	09/02/2021 1512
Manganese	2.0	2.1		1	104	80-120	09/02/2021 1512
Molybdenum	2.0	1.8		1	92	80-120	09/02/2021 1512
Nickel	2.0	1.9		1	96	80-120	09/02/2021 1512
Potassium	40	41		1	101	80-120	09/02/2021 1512
Selenium	0.40	0.37		1	93	80-120	09/02/2021 1512
Silver	0.40	0.40		1	101	80-120	09/02/2021 1512
Sodium	40	41		1	102	80-120	09/02/2021 1512
Thallium	0.80	0.81		1	102	80-120	09/02/2021 1512
Tin	0.40	0.38		1	95	80-120	09/02/2021 1512
Titanium	0.40	0.40		1	99	80-120	09/02/2021 1512
Vanadium	2.0	2.0		1	100	80-120	09/02/2021 1512
Zinc	2.0	1.9		1	94	80-120	09/02/2021 1512

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - MB

Sample ID: WQ14330-001

Matrix: Solid

Batch: 14330

Prep Method: 1311/3010A

Analytical Method: 6010D

Prep Date: 09/03/2021 0121 Leachate Date: 09/02/2021 0041

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Arsenic	ND		1	0.15	0.025	mg/L	09/03/2021 1043
Barium	ND		1	0.25	0.031	mg/L	09/03/2021 1043
Cadmium	ND		1	0.050	0.0060	mg/L	09/03/2021 1043
Chromium	ND		1	0.10	0.013	mg/L	09/03/2021 1043
Lead	ND		1	0.10	0.047	mg/L	09/03/2021 1043
Selenium	ND		1	0.20	0.085	mg/L	09/03/2021 1043
Silver	ND		1	0.10	0.021	mg/L	09/03/2021 1043

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

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DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - LCS

Sample ID: WQ14330-002

Matrix: Solid

Batch: 14330

Prep Method: 1311/3010A

Analytical Method: 6010D

Prep Date: 09/03/2021 0121 Leachate Date: 09/02/2021 0041

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Arsenic	50	48		1	95	80-120	09/03/2021 1047
Barium	100	100		1	105	80-120	09/03/2021 1047
Cadmium	10	9.2		1	92	80-120	09/03/2021 1047
Chromium	50	46		1	92	80-120	09/03/2021 1047
Lead	50	45		1	90	80-120	09/03/2021 1047
Selenium	10	9.4		1	94	80-120	09/03/2021 1047
Silver	10	9.8		1	98	80-120	09/03/2021 1047

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - MS

Sample ID: WH26123-001MS

Matrix: Solid

Batch: 14330

Prep Method: 1311/3010A

Analytical Method: 6010D

Prep Date: 09/03/2021 0121 Leachate Date: 09/02/2021 0041

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Arsenic	ND	50	49		1	98	75-125	09/03/2021 1058
Barium	0.52	100	110		1	111	75-125	09/03/2021 1058
Cadmium	ND	10	9.3		1	93	75-125	09/03/2021 1058
Chromium	0.020	50	50		1	100	75-125	09/03/2021 1058
Lead	ND	50	47		1	93	75-125	09/03/2021 1058
Selenium	ND	10	9.7		1	97	75-125	09/03/2021 1058
Silver	ND	10	10		1	103	75-125	09/03/2021 1058

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - MSD

Sample ID: WH26123-001MD

Matrix: Solid

Batch: 14330

Prep Method: 1311/3010A

Analytical Method: 6010D

Prep Date: 09/03/2021 0121 Leachate Date: 09/02/2021 0041

Parameter	Sample Amount (mg/L)	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Arsenic	ND	50	50		1	99	1.0	75-125	20	09/03/2021 1120
Barium	0.52	100	100		1	103	7.9	75-125	20	09/03/2021 1120
Cadmium	ND	10	9.4		1	94	1.0	75-125	20	09/03/2021 1120
Chromium	0.020	50	48		1	95	4.5	75-125	20	09/03/2021 1120
Lead	ND	50	48		1	95	2.1	75-125	20	09/03/2021 1120
Selenium	ND	10	9.8		1	98	0.68	75-125	20	09/03/2021 1120
Silver	ND	10	9.8		1	98	5.3	75-125	20	09/03/2021 1120

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - MB

Sample ID: WQ14392-001

Matrix: Solid

Batch: 14392

Prep Method: 1311/7470A

Analytical Method: 7470A

Prep Date: 09/03/2021 1427 Leachate Date: 09/02/2021 0041

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Mercury	ND		1	0.0020	0.00091	mg/L	09/03/2021 1827

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

TCLP Metals - LCS

Sample ID: WQ14392-002

Matrix: Solid

Batch: 14392

Prep Method: 1311/7470A

Analytical Method: 7470A

Prep Date: 09/03/2021 1427 Leachate Date: 09/02/2021 0041

Parameter	Spike Amount (mg/L)	Result (mg/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Mercury	0.020	0.018		1	92	80-120	09/03/2021 1830

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

**Chain of Custody
and
Miscellaneous Documents**

PACE ANALYTICAL SERVICES, LLC



Samples Receipt Checklist (SRC) (ME0018C-15)

Issuing Authority: Pace ENV - WCCL

Revised: 9/29/2020

Page 1 of 1

Sample Receipt Checklist (SRC)

Client: AECOM

Cooler Inspected by/date: JSM / 08/26/2021

Lot #: WH26123

Means of receipt: <input checked="" type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: 21-852 Chlorine Strip ID: NA Tested by: JSM	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA 4.3 / 4.3 °C NA / NA °C NA / NA °C NA / NA °C	
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C	
Method of coolant: <input type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input checked="" type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # 28222
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA	
Time of preservation NA. If more than one preservative is needed, please note in the comments below.	
Sample(s) NA were received with bubbles >6 mm in diameter.	
Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA	
SR barcode labels applied by: JSM Date: 08/26/2021	

Comments:



A&D Environmental Services

Bill of Lading / Material Manifest

A&D Job No: 2301-0053	Generator ID Number	Page 1 of 1	Emergency Response Phone 800-255-3924-MIS0007851	Tracking Number 41776
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Generator's Name and Mailing Address Signify North America Corporation 937-241-1867 19845 US Hwy 73 Newberry, SC 29108	Generator's site address (if different from mailing address)
--	--

Transporter 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/>	Company Name A&D Environmental Services, Inc.	US EPA ID No: NCD986232221
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Transporter 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/>	Company Name	US EPA ID No:
Designated Facility A&D Environmental Services, Inc. 2718 Uwharrie Road Archdale, NC 27263 336-434-7750 NCD986232221	Designated Facility A&D Environmental Services, Inc. 3149 Lear Drive Burlington, NC 27215 336-229-0058 NCR000138628	Designated Facility (Please insert facility information below)

HM	Hazardous Materials Shipping Name and Description (if applicable)	No.	Type	QTY	Wt/Vol	Profile Number
	Non-Regulated Material (IDW-Liquids)	8	DM	3100	P	NC2022-0277
	Non-Regulated Material (IDW-Solids)	2	DM	600	P	NC2022-0280
Petroleum Products for Recycle						
X	NA1993, Diesel fuel, 3, III					EGR# 128
X	NA 1993, Fuel oil (No. 1,2,4,5 or 6), 3, III					EGR# 128
X	UN1203, Gasoline, 3, II					EGR# 128
	USED OIL (Not a USDOT Hazardous Material)					
	Petroleum Contact Water (Not a USDOT Hazardous Material)					

Universal Waste Lamps, Batteries, Ballasts, and Electronics for Recycle								
HM	No.	Type	Est. Wt.	Count	Shipping Name and Description (if applicable)	Common Name	Discrepancy	
X					RQ, UN3506, Mercury contained in manufactured articles, 8 (6.1)	ERG# 172 Mercury Devices		
X					RQ, UN3432, Polychlorinated biphenyls, solid, 9, II	ERG# 171 TSCA Exempt PCB Lamp Ballasts		
X					UN2800, Batteries, wet non-spillable, 8	ERG# 154 Sealed Lead Acid Batteries		
X					UN2794, Batteries, wet, filled with acid, 8	ERG# 154 Lead Acid Batteries		
X					UN2795, Batteries, wet, filled with alkali, 8	ERG# 154 Wet NiCad Batteries		
X					UN3090, Lithium metal batteries, 9	ERG# 138 Lithium Metal Batteries		
X					UN3480, Lithium ion batteries, 9	ERG# 147 Lithium Ion Batteries		
					Batteries, dry, sealed n.o.s.	Alkaline Batteries		
					Batteries, dry, sealed n.o.s.	Dry NiCad Batteries		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Florescent lamps (4-Ft. and Under)		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Florescent lamps (Over 4-Ft.)		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Circular/U-tube lamps		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Compact Lamps		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Shielded Lamps		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	HID/MV/UV Lamps		
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Incandescent Lamps		
					Non-PCB Light Ballasts for Recycle (Not DOT-Regulated)	Non-PCB Light Ballasts/Capacitors		
					Electronic Equipment for Recycle (Not DOT-Regulated)	e-Waste		

Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transport according to the applicable regulations of the Department of Transportation. I further certify that none of the materials described above are hazardous waste as defined by EPA 40CFR Part 261 or any applicable state law, and unless specifically identified above the materials contain less than 1,000 ppm total halogens and do not contain quantifiable levels (2ppm) of PCBs as defined by EPA 40 CFR Parts 279 and 761.

Shipper's/ Offeror's Printed/Typed Name JAMES LEADHART (ON BEHALF OF SIGNIFY)	Signature <i>[Signature]</i>	Month 01	Day 10	Year 23
Transporter 1 Printed/Typed Name Timothy DeMarw	Signature <i>[Signature]</i>	Month 01	Day 10	Year 23
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

Discrepancy Indication / Additional Information:

Designated Facility Certification: I hereby acknowledge receipt of the materials covered by this manifest except for any discrepancy indicated above.

Printed/Typed Name	Signature	Month	Day	Year
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DESIGNATED FACILITY TO GENERATOR



A&D Environmental Services

Bill of Lading / Material Manifest

A&D Job No: 2301-0129	Generator ID Number	Page 1 of 1	Emergency Response Phone 800-255-3024-M180007951	Tracking Number 41819
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Generator's Name and Mailing Address: **Signify North America Corp.**
937-241-1867
19845 US Hwy 73
Newberry, SC 29108

Generator's site address (if different from mailing address):

Generator's Phone:

Transporter <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> Company Name A&D Environmental Services, Inc.	US EPA ID No: NCD986232221
Transporter <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> Company Name	US EPA ID No:

<input checked="" type="checkbox"/> Designated Facility A&D Environmental Services, Inc. 2718 Uwharrie Road Archdale, NC 27263 336-434-7750 NCD986232221	<input type="checkbox"/> Designated Facility A&D Environmental Services, Inc. 3149 Lear Drive Burlington, NC 27215 336-229-0058 NCR000138628	<input type="checkbox"/> Designated Facility (Please insert facility information below)
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HM	Hazardous Materials Shipping Name and Description (if applicable)	No.	Type	QTY	Wt/Vol	Profile Number
	Non-Regulated Material (IDW-Solids)					
		01	DM	200	P	NC2022-0280
	<i>Non-Regulated Empty Drums</i>	02	Dm	100	P	NC2022-0280
	Petroleum Products for Recycle					
X	NA1993, Diesel fuel, 3, III		EGR# 128			
X	NA 1993, Fuel oil (No. 1,2,4,5 or 6), 3, III		EGR# 128			
X	UN1203, Gasoline, 3, II		EGR# 128			
	USED OIL (Not a USDOT Hazardous Material)					
	Petroleum Contact Water (Not a USDOT Hazardous Material)					

Universal Waste Lamps, Batteries, Ballasts, and Electronics for Recycle							
HM	No.	Type	Est. Wt.	Count	Shipping Name and Description (if applicable)	Common Name	Discrepancy
X					RQ, UN3506, Mercury contained in manufactured articles, 8 (6.1)	Mercury Devices	
X					RQ, UN3432, Polychlorinated biphenyls, solid, 9, II	TSCA Exempt PCB Lamp Ballasts	
X					UN2800, Batteries, wet non-spillable, 8	Sealed Lead Acid Batteries	
X					UN2794, Batteries, wet, filled with acid, 8	Lead Acid Batteries	
X					UN2795, Batteries, wet, filled with alkali, 8	Wet NiCad Batteries	
X					UN3090, Lithium metal batteries, 9	Lithium Metal Batteries	
X					UN3480, Lithium ion batteries, 9	Lithium Ion Batteries	
					Batteries, dry, sealed n.o.s.	Alkaline Batteries	
					Batteries, dry, sealed n.o.s.	Dry NiCad Batteries	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Florescent lamps (4-Ft. and Under)	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Florescent lamps (Over 4-Ft.)	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Circular/U-tube lamps	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Compact Lamps	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Shielded Lamps	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	HID/MV/UV Lamps	
					Universal Waste Lamps (Not DOT-Regulated per 49 CFR 173.164 (e))	Incandescent Lamps	
					Non-PCB Light Ballasts for Recycle (Not DOT-Regulated)	Non-PCB Light Ballasts/Capacitors	
					Electronic Equipment for Recycle (Not DOT-Regulated)	e-Waste	

Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transport according to the applicable regulations of the Department of Transportation. I further certify that none of the materials described above are hazardous waste as defined by EPA 40CFR Part 261 or any applicable state law, and unless specifically identified above the materials contain less than 1,000 ppm total halogens and do not contain quantifiable levels (2ppm) of PCBs as defined by EPA 40 CFR Parts 279 and 761.

Shipper's/ Offeror's Printed/Typed Name JAMES L. HART (ON BEHALF OF SIGNIFY)	Signature <i>[Signature]</i>	Month 1	Day 24	Year 23
Transporter 1 Printed/Typed Name Records Muro	Signature <i>[Signature]</i>	Month 1	Day 24	Year 23
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

Discrepancy Indication / Additional Information:

Designated Facility Certification: I hereby acknowledge receipt of the materials covered by this manifest except for any discrepancy indicated above.

Printed/Typed Name	Signature	Month	Day	Year
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About AECOM

AECOM (NYSE: ACM) is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries.

As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges.

From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM companies had revenue of approximately US\$19 billion during the 12 months ended June 30, 2015.

See how we deliver what others can only imagine at aecom.com and [@AECOM](https://twitter.com/AECOM).

Contact
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