

Enhanced Reductive Dechlorination Pilot Test Documentation Report

Former Kenosha Engine Plant
5555 30th Avenue, Kenosha, Wisconsin

City of Kenosha

Project reference: BRRTS No. 02-30-000327
FID No. 230004500
Project Number: 60518412

October 2, 2018

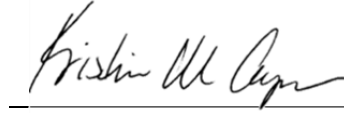
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In conformance with NR 712.09 submittal certification requirements:

I, Lanette Altenbach, hereby certify that I am a hydrogeologist as that term is defined ins. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, the information contained in this document is correct and the document was prepared in compliance with applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Lanette Altenbach, P.G.
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I, Kevin L. Brehm, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-ES, Wis. Adm. Code, and that, to the best of my knowledge, the information contained in this document is correct and the document was prepared in compliance with applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Kevin L. Brehm, P.E.
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List of Abbreviations & Acronyms

ABC [®]	Anaerobic BioChem, Redox Tech, LLC's proprietary substrate containing lactates, fatty acids, alcohols, and a phosphate buffer
ABC+	ABC [®] with added zero-valent iron
APS	adenylylsulfate (adenosine 5' phosphosulfate) reductase; functional gene in sulfate reduction
bgs	below ground surface
BOS	bottom of screen; sampling interval in temporary wells representing the deeper silt portion of the aquifer, above the clay aquitard
cm/sec	centimeters per second
bgs	below ground surface
cells/mL	cells per milliliter
c-DCE	<i>cis</i> -1,2-dichloroethene
COC(s)	contaminant(s) of concern
DCE	dichloroethene
DHC	<i>Dehalococcoides spp.</i> , dechlorinating bacteria
DO	dissolved oxygen
EOS [®]	Emulsified Oil Substrate, EOS Remediation, LLC's proprietary substrate containing soybean oil, nutrients, emulsifiers, and stabilizers
ERD	enhanced reductive dechlorination
ES	Enforcement Standard from Wisconsin Administrative Code NR140.10 Table 1 and NR140.12 Table 2 (February 2017)
gpm	gallons per minute
KEP	Kenosha Engine Plant
mg/L	Milligram(s) per liter
MGN	methanogens
mL/min	milliliter(s) per minute
mV	millivolts
ORP	oxidation-reduction potential
PAL	Preventive Action Limit from Wisconsin Administrative Code NR140.10 Table 1 and NR140.12 Table 2 (February 2017)
PID	photoionization detector
psi	pounds per square inch
RAOR	Remedial Action Options Report (AECOM, 2015-APR)
RTB-1	Redox Tech, LLC's dechlorinating culture
SRB	sulfate-reducing bacteria, characterized by the APS reductase functional gene
t-DCE	<i>trans</i> -1,2-dichloroethene
TCE	trichloroethene
TOC	total organic carbon
TOS	Top of screen; sampling interval in temporary wells representing the shallow sand (water table) portion of the aquifer
TWs	temporary monitoring wells
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VFAs	volatile fatty acids
VOCs	volatile organic compounds
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System

1. Introduction

AECOM Technical Services, Inc. (AECOM) has prepared this in-situ Enhanced Reductive Dechlorination (ERD) Pilot Test Documentation Report (Report) on behalf of the City of Kenosha (City) to summarize the methodology, procedures, and results of the ERD Pilot Test injection activities conducted at the former Kenosha Engine Plant (KEP). The groundwater contaminants of concern (COCs) include petroleum-related compounds and chlorinated volatile organic compounds (VOCs).

The KEP site includes approximately 100 acres of land (Figure 1). The property is currently vacant. Site-wide soil remediation (source removal) activities were initiated in October 2016 and additional activities are scheduled to occur in 2018. The site layout, investigation areas, monitoring well locations, and the pilot test study area are shown in Figure 2.

This report provides background information concerning the subject property, site conditions pertinent to groundwater remediation, and description of ERD pilot testing activities.

1.1 Project Information

Site Address:

5555 30th Avenue
Kenosha, Kenosha County, Wisconsin

Site Location:

Southeast ¼ of Section 36, Township 2 North, Range 22 East

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1.2 Purpose

The approved Remedial Action Options Report (RAOR, AECOM, 2015-APR) identified in-situ chemical reduction, using ERD, as one of the likely most technically and economically feasible alternatives to

address source-area groundwater impacts at the KEP¹. The RAOR further specified that additional data collection and testing was necessary to evaluate the anticipated effectiveness of in-situ chemical methods and to complete a full-scale remedial design. To address these data needs, laboratory bench-scale testing and in-field pilot testing were conducted. The purpose of this document is to present the methodologies and data collected as part of those testing activities.

1.3 Background

Historic operations at the KEP included complete automobile manufacturing and assembly, while more-recent operations focused on the manufacture of automotive engines. Historically, releases that occurred as a result of manufacturing operations were reported by the site operator at the time of the release(s). Specific areas of the KEP were investigated in the 1990's after auto assembly operations were discontinued and prior to demolition of buildings (known as the "main plant") that were not being used or reconfigured for on-going operations. Limited areas of remediation were also conducted immediately prior to or during the 1990's demolition activities. From 1999 to 2000, a new motor manufacturing facility was constructed in the southeastern portion of the KEP site over some portions of razed buildings. In 2009, the former owner declared bankruptcy and in 2010 engine manufacturing operations ceased. The facility was liquidated (equipment sold at auction) as part of the bankruptcy process and the remaining KEP buildings were demolished in 2013. The building floors were retained to act as a temporary cap. Phase I and Phase II Environmental Site Assessments were conducted by the City of Kenosha, prior to the site's abandonment to Kenosha County under the bankruptcy court order.

Subsequently, a site investigation was completed in 2014 in general conformance with NR 716, Wis. Adm. Code (AECOM, February 2015). In October 2016, site remedial activities were initiated with excavation of impacted soil. Portions of the former building floors or surface pavements were removed to facilitate access to impacted soils; however, the surface pavement in the ERD pilot test area was retained until after the pilot test was completed.

The KEP had five groundwater recovery remedial systems that pumped groundwater and maintained the contaminant plumes within the site boundaries. Two of the systems were discontinued in April 2015 because soil remediation was conducted in the areas and groundwater containment was no longer necessary. The remaining three systems are located in the northeast corner, the southeast corner, and in the center of the site (CS7, CS10, and CS4, respectively; see Figure 2). The two systems located near the site perimeters do not influence groundwater flow in the area of the ERD pilot test. The system located in the center of the site is within the immediate area of the ERD system. Operation of this system was suspended due to mechanical malfunction from October 2016 through December 2016. The system operated intermittently in January and February 2017 due to mechanical issues. System operations were suspended in March 2017 as part of the approved pilot test work plan. The operation of the system resumed in August 2018.

1.3.1 Geology

Fill material covers the entire site; the underlying native geology consists of glacio-lacustrine sand and silt that comprises the upper or shallow aquifer unit of the water table. Beneath the sand aquifer is a clay till soil unit. The clay till unit acts as an aquitard to the deeper bedrock aquifers due to its low permeability, low hydraulic conductivity, moderate thickness, density, and regional extent. A detailed description of the lithology encountered in the vicinity of the ERD pilot study area includes the following:

- The fill layer generally consists of gravelly sand over silt and/or silty clay. The fill thickness in the vicinity of the ERD pilot test is eight feet.
- Sand with trace silt that is grayish brown to dark gray, moist to wet, loose to dense, fine to medium grained sands and generally comprises the shallower portion of the unconsolidated aquifer. In some

¹ In-Situ Chemical Oxidation was also identified as a technically and economically-feasible alternative. A pilot study for this alternative was performed in another part of the KEP site and was reported separately (AECOM, 2018-MAR).

areas, there is a one-two foot thick silt interval approximately 19 feet bgs. The silt is discontinuous and found most continuously in the western side of the KEP (in the area of the ISCO pilot test, AECOM March 2018).

- Clay till with rounded gravel that is grey to dark grey, moist, cohesive, medium plastic, and firm to hard clay. As noted above, this unit comprises an aquitard, due to its low transmissivity.

1.3.2 Hydrogeology

The water table at KEP typically occurs at a depth of eight to 11 feet below ground surface (bgs). Groundwater flow across the site generally flows eastward. Variations of groundwater flow to the east-northeast and east-southeast in both the upper portion of the unconsolidated aquifer (water table) and lower portion of the unconsolidated aquifer (silt/sandy silt portion of the aquifer, just above the clay till aquitard) occur under the influence of the three operating groundwater recovery systems. Seasonal variation is generally not observed, likely due to the recovery systems having a greater local flow influence. Figure 3 shows the groundwater potentiometric surface (upper sand portion of the unconsolidated aquifer) and Figure 4 shows the potentiometric surface within the deeper silt portion of the unconsolidated aquifer, above the clay till aquitard. These figures are from the most recent site-wide data available. These interior wells were abandoned as part of site-wide soil remediation conducted in 2016 and 2017. Both figures show groundwater potentiometric surfaces during operation of the groundwater recovery systems, including the central system in the immediate vicinity of the ERD pilot test area. Since suspending operation of this system, natural groundwater flow patterns have resumed, and flow is generally east-northeast.

In 2014, from the site investigation, horizontal hydraulic gradients at the site ranged from 0.002 to 0.004 in the shallow sand portion of the aquifer and 0.002 to 0.007 in the deeper silt portion of the aquifer. The hydraulic conductivity (or ease with which a fluid can move through the subsurface materials) is approximately 10^{-2} centimeters/second (cm/sec) in the upper sand portion of the unconsolidated aquifer (water table) and 10^{-3} cm/sec to 10^{-4} cm/sec in the deeper silt portion of the unconsolidated aquifer. The average linear velocity of groundwater in the shallow sand portion of the aquifer (at the water table) ranged from 160 to 790 feet per year, and 2.4 to 9.6 feet per year near the clay till interface.

Calculated horizontal hydraulic gradients in the vicinity of the ERD pilot test for 2016 (after the groundwater recovery system operations were suspended in March 2017) were 0.0073 (westward) to 0.0015 (eastward) in the upper and lower portions of the aquifer, respectively. Similarly, the hydraulic conductivity was 10^{-4} to 10^{-5} cm/sec (45 to 124 feet per year) in the upper sand portion of the aquifer and 10^{-6} cm/sec (2.9 to 9.3 feet per year) in the lower silt portion of the aquifer. Due to the level topography and the multitude of subsurface foundations, piping and changes in the types of fill, the groundwater flow is actually very low to stagnant in the immediate vicinity of the ERD pilot test. Without the influence of the groundwater recovery systems the groundwater flow would be normally to the east, toward Lake Michigan.

Vertical gradients during operation of the groundwater recovery system in this area were consistently downward (0.005 to 0.01). After suspension of the groundwater recovery system, vertical gradients have been variable between 0.01 downward and 0.02 upward, likely due to recharge events and other natural influences.

Hydraulic conductivity testing was conducted at the well pair MW-61 and PZ-61 before and after the ERD pilot test was conducted. The well pair was in the center of a cluster of injection points with north and south injection points approximately 10 feet distant and east and west injection points 30 feet distant. A rising head slug test was conducted on the monitoring well and both a rising and falling head test was conducted on the piezometer. Copies of the input and data generated for the slug tests are included as Appendix A. The hydraulic conductivity of the monitoring well prior to the pilot test was approximately 10^{-2} cm/sec and after the pilot test was approximately 10^{-3} cm/sec. Similarly, the hydraulic conductivity of the piezometer prior to the pilot test averaged 10^{-4} cm/sec and after the pilot test averaged 10^{-6} cm/sec.

1.4 Extent of Groundwater Contamination

Groundwater impacts are present in the shallower sand (water table) portion of the aquifer as well as in the deeper silt portion of the aquifer, just above the clay till aquitard. Three source areas of trichloroethene (TCE) contamination have been identified in soil and groundwater in CS4 and CS8. Figure 3 illustrates the extent of chlorinated volatile organic compounds at the water table as of December 2014. Figure 4 depicts the extent of the deeper groundwater plume in the KEP piezometers (wells screen at the base of the sand/silt aquifer, just above the clay till aquitard) as of December 2014. Figure 5 depicts the extent of the groundwater CVOC impacts in both the shallower and deeper portions of the aquifer as well as TCE isoconcentrations in groundwater. The approximate location of the ERD pilot test area is depicted on each of these figures.

1.5 Potential Receptors

Potential exposure pathways to receptors include vapor intrusion, direct contact to contaminated soils, and inhalation of contaminated soil/dust. Residential properties located within 0.1 miles west of the site are hydraulically up-gradient of the area of known impact. Direct contact is not currently an exposure pathway of concern because site-wide soil remediation activities have been completed on the western portion of the site and areas with residual impacted have been temporarily capped with clean soil and/or crushed concrete. In addition, the eastern portion of the site is currently covered with concrete building floors and asphalt pavement. The entire site remains enclosed by a chain-link fence.

Potential contaminant migration pathways include vapor migration through the subsurface and via groundwater transport. The USEPA conducted a subsurface vapor migration study in September 2011, which was provided to the Wisconsin Department of Natural Resources (WDNR). The vapor study included collection of samples in the areas representing these potential pathways, as well as other areas surrounding the KEP. Impacts to the residents were not identified during the USEPA study.

Subsurface utilities, such as storm sewer and sanitary sewer lines, are also potential contaminant migration pathways for groundwater and where the utilities are above the water table, vapor migration. There are two main "artery" storm sewers on Site. The northern two-thirds of the KEP site drain into a 48-inch diameter storm sewer that runs north-south through the center of the Site. The sewer leaves the site at 52nd Street approximately mid-way between 26th and 28th Avenues, continues northward, and ultimately drains to a tributary to Pike Creek at 50th Street. Pike Creek flows east-southeast and eventually discharges into Lake Michigan. The southern one-third of the KEP site drains to a 42-inch storm sewer that drains southwest and leaves the site at the 2700 West 60th Street. A small portion of storm water flow drains to the east, down 56th Street.

The KEP is served by the City of Kenosha municipal water supply and sanitary sewer. The City uses water from Lake Michigan for its potable water supply.

2. ERD Microcosm Treatability Study

An in-situ microcosm study was conducted from May 2015 to July 2015 to evaluate the ability of carbon substrates to stimulate native bacteria capable of biodegrading chlorinated VOCs. The purpose of the microcosm study was to evaluate and select a substrate for use in pilot testing ERD at the KEP. Two carbon substrates were evaluated during this study: (1) Emulsified Oil Substrate (EOS[®]), which is a proprietary blend of plant-based fermentable carbon (soybean oil), nutrients, emulsifiers stabilizers; and (2) ABC[®]+, which contains a mixture of lactate, fatty acids, alcohols, phosphate buffer, and zero-valent iron. The result of the study was originally presented in the report, *Laboratory Scale Treatability Study Results* (AECOM, 2015-SEP), which is provided for reference in Appendix B (with copies of the laboratory analytical reports in electronic format).

2.1 Sample Collection

Bio-Trap[®] passive samplers were deployed on May 19, 2015 into several well locations at the KEP to collect microbes over time to study the biodegradation potential at the site. The following well locations were used: MW-65 and MW-82 at the southern property boundary and MW-302, PZ-301, and PZ-302 located on the central west side of the KEP, in known TCE source areas (see Figures 3 and 4). These well locations were selected to represent the chlorinated VOC concentrations indicative of the area identified in the RAOR for possible source-area groundwater treatment. Two to three Bio-Trap[®] samplers were deployed in each well, depending on the length of the water column present within the wells screened interval (*i.e.*, two Bio-Traps in piezometers with five-foot screens and three Bio-Traps in monitoring wells with ten-foot screens). One sampler in each well served as the control sample (*i.e.*, not amended). The other one or two samplers were amended with either EOS[®] or ABC+[®] to evaluate the substrates.

The samplers were suspended from the expandable caps of each monitoring well or piezometer such that they were completely submerged in water, with the control microcosm placed at a shallower depth than the amended microcosm(s). After incubating in the wells for approximately two months (May 19 through July 20, 2015), the samplers were removed and shipped on ice to Microbial Insights (MI) in Knoxville, Tennessee for analysis.

2.2 ERD Microcosm Study

MI extracted DNA from the growth media in the Bio-Traps and used molecular biological techniques to detect and quantify specific bacteria and functional genes involved in the biodegradation of chlorinated hydrocarbons. MI also analyzed water from the passive samplers for VOCs, anions (chloride, nitrate, nitrite, orthophosphate, and sulfate), volatile fatty acids (acetic, propionic, pyruvic, butyric, and lactic acid), and dissolved gases (methane, ethane, and ethane). The results of the molecular biological testing and analysis of VOCs, geochemistry, and dissolved gas analysis in substrate-amended microcosms were compared to the results in control microcosms to assess the level to which the substrates stimulated ERD.

2.3 Study Results

In general, addition of substrate provided minimal stimulation of the *Dehalococcoides spp.* (DHC) population size. The DHC population size in treated microcosms was generally less than an order of magnitude greater than in control microcosms, indicating a relatively low level of stimulation by the substrate provided. The DHC population size in control and treated microcosms ranged from below the detection limit of 2.5E+01 cells per bead (PZ-302 control microcosm) to 1.1E+04 cells per bead (PZ-301 control microcosm). This is generally below the DHC population of 1.0E+04 cells per milliliter (cells/mL) that is often cited as a criterion for providing “generally useful” rates of reductive dechlorination. Despite

the low numbers of DHC and functional genes, the populations of sulfate-reducing bacteria (SRB) and methanogens (MGN) in general increased in response to the addition of substrate.

Overall the presence of soluble substrate did promote establishment of anaerobic, reducing conditions as evidenced by stimulation of SRB and MGN populations. However, DHC populations (and the number of dechlorinating functional genes) did not increase in the presence of soluble substrate during the microcosm study. Based on the results of the microcosm study, bioaugmentation with a DHC culture was recommended to improve the likelihood of successful ERD.

3. ERD Pilot Testing Summary

The ERD pilot test activities were completed over approximately 18 months, with the collection of baseline groundwater data in September 2016, completion of ERD injections in March 2017, and collection of post injection groundwater samples in March, June, and September 2017 and March 2018. A summary of the pilot test activities including work planning and permitting are provided below with a detailed discussion in subsequent sections of this report.

3.1 Work Plan

A *Groundwater Pilot Test Work Plan* (Work Plan, AECOM, 2015-OCT) was prepared to provide details regarding the design and implementation of the ERD pilot study and the associated performance monitoring activities. The Work Plan was reviewed by the WDNR and EPA. As part of EPA's review, the Work Plan was forwarded to the EPA Ground Water Technical Support Center (Technical Support) for review and comments. Technical Support documented their technical review comments in a memorandum dated January 14, 2016. A response to comments letter with minor changes to the ERD portion of the pilot test was prepared and submitted to the WDNR and EPA on July 18, 2016. WDNR and EPA approved the Work Plan on August 18, 2016 and August 22, 2016, respectively. There were no deviations from the approved work plan except for post-pilot test sampling of MW-75. Monitoring well MW-75 was removed when a remedial soil excavation was extended westward into the pilot test area. Piezometer PZ-75 was retained and sampled as planned.

3.2 Permitting

A temporary exemption, pursuant to s. NR 140.28(5), approval to inject materials under s. NR 812.05, and a Wisconsin Pollutant Discharge Elimination System (WPDES) permit were obtained prior to performance of the pilot test injection activities. AECOM submitted an Injection Request to the WDNR on October 24, 2016. As part of the Injection Request, an application for coverage under the WPDES general permit for Discharge of Contaminated Groundwater from the Remedial Action Operations (WI-0046566-6), dated September 30, 2016, was also included. The temporary exemption and coverage under the general WPDES permit was approved by the WDNR on December 2, 2016 (Appendix C).

3.3 ERD Pilot Testing Methodology

The ERD pilot test was conducted to:

- Confirm that site-specific aquifer characteristics were suitable for ERD injections, and
- Provide data necessary to design and optimize a full-scale remediation.

The pilot test injection activities were completed in March 2017 in an area of the KEP with documented chlorinated VOC groundwater impacts. Prior to conducting the pilot test, four temporary monitoring wells were installed at varying distances from proposed injection locations to serve as pilot test monitoring points. Existing monitoring wells/piezometers MW-61, PZ-61, PZ-75, and MW-807 were also used as monitoring points during the pilot test.

3.3.1 Temporary Monitoring Well Installation

Four temporary monitoring wells (TWs) ERD1-TW-NW10, ERD6-TW-NW10, ERD6-TW-NW15, and ERD8-TW-SW15 were installed in September 2016. Figure 6 depicts the layout of the TW's and their locations relative to the injection point locations as well as the nearby existing monitoring wells and piezometers sampled during the pilot test.

The TWs were installed and developed in general conformance with NR 141 with a variance for a longer screen length and shorter filter packs to accommodate the pilot test objectives and site conditions. The TWs were installed with longer screens to monitor the groundwater quality near the water table and at the base of the target aquifer, just above the clay till. The TWs have a two-inch diameter, 15-foot long 0.010-inch factory slotted PVC screen. The well screens were placed to both straddle the water table and extend to the top of the clay till aquitard (approximately 22 feet bgs). The filter pack was placed level with the top of the screen and one-foot of fine sand was placed as a filter pack seal. The remaining well annulus was sealed with bentonite chips and hydrated. The TWs were developed after installation. Fluids generated during development were disposed in the on-site central remediation building for treatment and discharge to the sanitary sewer under the existing permit.

Soil boring logs, well construction forms, and well development records are provided in Appendix D.

3.3.2 Baseline Groundwater Monitoring and Sampling

Baseline groundwater samples were collected from three monitoring wells (MW-61, MW-75, and MW-807), two piezometers (PZ-61 and PZ-75), and the four temporary monitoring wells (described above) in September 2016 to assess the concentrations of dissolved-phase contaminants of concern (COCs) and establish baseline concentrations to compare the results of ERD pilot testing. The longer screened intervals of the temporary wells were used so that groundwater conditions at the water table and at the base of the water table aquifer could be measured in a cost-effective manner. The total depth of the temporary wells is equivalent to the groundwater interval screened by the existing piezometers PZ-61 and PZ-75.

Before sampling, AECOM collected depth-to-groundwater measurements. The depth the groundwater measurements were used to calculate groundwater elevations used for the evaluation of groundwater flow direction and gradient. Depth to water was measured using an audible water level indicator and measurements were referenced to the top of the surveyed well casing at each monitoring point. Groundwater measurements and elevations for the sampling events are provided in Table 1.

Monitoring wells were purged before sample collection at a low-flow rate using a peristaltic pump. New tubing was used at each well location. The wells were purged at a pumping rate of less than 500 milliliters per minute (mL/min). Groundwater field measurements, including temperature, pH, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured at approximate five-minute intervals using a portable water quality meter (YSI-556) with a flow through cell. After groundwater field parameters stabilized to within a 10 percent variation for three consecutive measurement intervals, groundwater samples were collected at the low-flow sampling rate of 250 mL/min or less as required to purge the groundwater without a drop in the water level.

Groundwater samples were collected in laboratory-supplied glass bottles containing preservatives, as appropriate. Samples intended for dissolved iron and dissolved manganese analyses were filtered prior to collection. Samples analyzed for barium, chromium, lead, and nickel were not filtered. Duplicate samples and a trip blanks were also submitted for analysis for quality control purposes. One duplicate sample was collected for every ten groundwater samples and one trip blank was collected during the sample event. The samples were placed on ice in an insulated rigid cooler and delivered with completed chain-of-custody forms to Pace Laboratories of Green Bay, Wisconsin for analysis of VOCs, total metals (barium, chromium, iron, lead and nickel), dissolved iron, general geochemistry parameters (chloride, sulfate, and alkalinity), total organic carbon (TOC), dissolved gases (methane, ethane, and ethene), and volatile fatty acids (VFAs). Samples were also submitted to MI in Knoxville, Tennessee for analysis of target microbial populations (*Dehalococcoides* spp. [DHC], dechlorinating functional genes, methanogens, and sulfate-reducing bacteria).

Decontamination fluids and monitoring well purge water were treated in the on-site central remediation building and discharged to the sanitary sewer under the existing permit.

3.4 Pilot Test Equipment

3.4.1 Monitoring Wells and Temporary Monitoring Wells

Two monitoring wells (MW-61 and MW-807), two piezometers (PZ-61, and PZ-75), and three TWs (ERD1-TW-NW10, ERD6-TW-NW10, ERD6-TW-NW15) were used to collect performance data as part of the pilot testing activities. One monitoring well (MW-75, located up-gradient from the injection area) and one temporary well (ERD8-TWSW15, located within the injection area) were sampled as part of pre-injection activities, but were removed from the pilot test program because they were excavated as part of contaminated soil removal activities concurrently occurring at the site.

Water levels were monitored in selected wells/piezometers near the injection activities to evaluate the localized influence injection activities had on the water table. Following the injection activities, real-time field measurements (groundwater temperature, pH, conductivity, ORP, DO, and depth to water) were measured in selected wells/piezometers to evaluate the effects of the injection activities on groundwater levels and on groundwater geochemistry. In the TWs, samples were collected from both the top (just below the top of water table) and bottom of the 15 foot well screens to evaluate the shallow and deep groundwater conditions at each location.

3.4.2 Treatment Selection

The selected treatment was based on the results of the microcosm study (Appendix B). The microcosm study concluded that soluble substrate provided minimal stimulation of the DHC population size. Thus, ABC+, augmented with RTB-1, was selected for the field pilot test. A total of 7,692 pounds of ABC⁺ (5,292 pounds of ABC[®] and 2,400 pounds of zero-valent iron) was mixed with potable water to form 5,333 gallons of solution (approximately 12 percent by weight). Prior to mixing, sugar and yeast were added for the purpose of deoxygenating the water. The ABC⁺ solution was augmented with 30 liters of RTB-1 culture.

3.4.3 Injection Equipment

AECOM retained Redox Tech, LLC (Redox Tech) of Chicago, Illinois, to conduct the pilot test injections and prepare and apply the solution through injection points installed by direct-push methodology. Before injection, Digger's Hotline (One Call) was called to mark public utilities and a private utility locating service was retained to mark private utilities in the pilot test area.

The amendments (ABC[®], zero-valent iron, and RTB-1 culture) were delivered in a 250 gallon tote, mixed on-site with water in a batch-mix/feed tank, and applied to the subsurface as an aqueous solution. Potable water for the solution was provided by the City of Kenosha and stored in a polyethylene water storage tank supplied by Redox Tech. The solution was applied using a direct-push Geoprobe™ 66100T drilling rig and 1.25-inch inner diameter rods equipped with a disposable tip. The solution was pressure injected using a non-metallic diaphragm pump. Solution injection rate and injection pressure were monitored with a flow meter and pressure gauge. Ancillary injection equipment included chemical-resistant hoses, valves, an air compressor, a generator, miscellaneous hand tools, and personal protective equipment, including chemical-resistant gloves, Tyvek coveralls and booties, hard hats, and face shields.

After each injection point was completed, the borehole was abandoned by filling with bentonite chips to the ground surface. The bentonite chips were hydrated after placement in the borehole.

3.4.4 Monitoring Equipment

Groundwater field parameters (temperature, pH, conductivity, ORP, and DO) were measured in monitoring wells, piezometers, and TWs using a water quality meter (YSI-556). A Heron audible water level indicator was used to measure water levels in monitoring wells, piezometers, and TWs to observe

fluctuations in groundwater levels during injection. Additionally, groundwater samples from the monitoring points were observed for evidence of ABC+ (milky or cloudy samples indicates the presence of ABC+ solution).

For health and safety purposes, a multi-gas monitor equipped with the following sensors: oxygen, carbon dioxide, lower-explosive limit, hydrogen sulfide, and a photoionization detector (PID) equipped with a 10.6 electron-volt lamp, were used to monitor air quality in the breathing zone during injection activities.

3.5 Pilot Test Procedures and Results

3.5.1 Baseline Monitoring Well Sample Results

Groundwater samples were collected in September 2016 to establish baseline concentrations for pilot testing. Depth-to-water measurements were collected prior to sampling and are included in Table 1, along with historic water level data. Field parameters measurements are provided in Table 2. Groundwater samples were analyzed for alkalinity, anions, TOC, and dissolved gases (Table 3), VOCs (Table 4), metals (Table 5), VFAs (Table 6), and microbial populations (Table 7). The laboratory analytical reports are provided in Appendix E.

Baseline groundwater flow in the ERD pilot test area was generally toward the groundwater recovery sump within the ERD pilot test area with a gradient of approximately 0.0112 (between MW-807 and MW-61) in the shallow sand portion of the aquifer and 0.0005 (between PZ-75 and PZ-61) in the deeper silt portion of the aquifer. The vertical gradient was 0.028 at MW-61/PZ-61. Both the horizontal and vertical gradients measured during the baseline monitoring event are consistent with historic results.

Field parameter measurements were relatively consistent among the monitored wells. The pH averaged 7.16 standard pH units, with the pH slightly higher in the shallow sand portion of the aquifer (averaging 7.27) and pH lower in the deeper silt slightly portion of the aquifer (averaging 7.03). ORP within the ERD pilot test area was negative in all wells except at MW-807, which is located significantly down-gradient from the injection area. Similarly, DO was below 1 milligram per liter (mg/L) in all wells except MW-807. Conductivity averaged 1.9 $\mu\text{S}/\text{cm}$ in the shallow sand portion of the aquifer and 4.0 $\mu\text{S}/\text{cm}$ in the deeper silt portion of the aquifer.

TCE and/or its associated degradation products (*cis*-1,2-dichloroethene [c-DCE] and vinyl chloride [VC]) were reported at concentrations above the NR141 Enforcement Standards (ES) in all of the ERD pilot test area wells except MW-807. Concentrations of *trans*-1,2-dichloroethene (t-DCE) were not significant in any of the wells. TCE was only present at concentrations above the ES in the wells in the central portion of the ERD test area (MW-61, PZ-61, ERD1-TW-NW10, and, to a much-lower degree, ERD6-TW-NW10). Up- and side-gradient wells ERD6-TW-NW15 and ERD8-TW-SW15 contained substantial concentrations of c-DCE and VC, while up-gradient wells MW-75 and PZ-75 contained only low concentrations of VC.

Barium, chromium, iron, lead, and nickel were reported in nearly all of the baseline samples; however, only iron was consistently above the ES. Lead concentrations were negligible in the samples, with the only concentration above the ES reported in MW-807.

Chloride and sulfate were reported in all samples, with concentrations above ESs in MW-61, PZ-61, and PZ-75. TOC was negligible, averaging less than 2 mg/L across the ERD pilot test area, except in up-gradient well MW-75, where the concentration was 24 mg/L.

Dissolved gases were low in all wells, averaging 0.03 mg/L ethene, 0.01 mg/L ethane, and 0.36 mg/L for methane. The highest concentrations were reported in MW-61. Concentrations in the up- and side-gradient wells were generally comparable with concentrations in the central wells (with the exception of concentrations at MW-61, which were substantially higher than other wells in the ERD test area). In down-gradient well MW-807, no ethane or methane was reported MW-807, but ethene was reported in this well at a concentration comparable to the other ERD test-area wells.

In combination, these results indicate that reductive dechlorination is occurring naturally to some degree, but is not likely to result in complete degradation of chlorinated ethenes at the Site. The DO and ORP, predominant concentrations of c-DCE, nominal DHC population, and minimal dissolved gas production suggest that some TCE is degrading, but the conditions are not conducive to efficient or complete degradation processes.

3.5.2 Pre-Injection Groundwater Elevation Monitoring

On March 7, 2017, prior to the initiation of pilot test injections, groundwater depth measurements were collected at each of the monitoring locations. Groundwater elevations in all wells were slightly higher than during the September baseline sampling event. The gradients and flow direction were consistent with the baseline sampling event.

3.5.3 Injection Procedures and Monitoring

Eight injection points were planned for the pilot test but due to daylighting of the injectate from the annulus of the injection point borehole, three additional injection points were added. ABC+ and RTB-1 solution was injected into 11 injection points (ERD 1 through ERD 11) spaced approximately 25 feet apart and situated at incremental distances from the respective test area monitoring wells, piezometers, and TWs to evaluate effective injection spacing. Figure 6 depicts the layout of the TWs and their locations relative to the final injection point locations.

Injection activities were initiated on March 7, 2017 and concluded on March 9, 2017. The Field Injection Report, prepared by Redox Tech, summarized the injection activities and is provided as Appendix F.

3.5.3.1 Injection Methodology

The ABC+ and RTB-1 solution was injected into the subsurface using direct-push technology with injection tooling that consists of an outer casing with an expendable tip. During tooling advancement, the piping joints were sealed using Teflon[®] tape.

The direct-push injection tooling was advanced to the bottom of the observed saturated treatment zone (approximately 22 feet below ground surface). Once the target depth had been reached, the injection tooling was retracted one foot to expose the bottom of the outer casing. An injection pump, connected to the injection tooling, then pumped the solution into the exposed aquifer interval. After the prescribed volume was injected in a one-foot interval, the injection tools were raised one foot and the next one-foot interval was exposed. Injections continued in one-foot intervals until the tools reached the top of the saturated treatment zone (8 feet below grade except in points where injection was terminated due to surfacing).

3.5.3.2 Injection Solution Mixture

ABC+ solution was mixed to approximately an 18-percent solution by weight, resulting in a loading of 64 pounds of ABC+ in 48 gallons of solution per one-foot injection interval. The solution weight was amended for injection points ERD 4, ERD 5, and ERD 11 due to persistent surfacing in perimeter observation points. The amended solution was 23 to 27 percent ABC+ (by weight), which reduced the solution volume from 48 gallons per one-foot interval to between 30 and 40 gallons per foot, while maintain the loading of approximately 64 pounds of ABC+ per one-foot interval. RBT-1 was applied at a loading rate of approximately 0.25 liters per foot.

3.5.3.3 Injection Performance Monitoring

Injection performance measurements were collected during the test by Redox Tech. These measurements included injection pressure, injection flow rate, and solution volume. These data and the quantities of ERD amendments delivered in each location are summarized in Appendix F.

The ABC+ and RTB-1 solution was injected at the minimum pressure required to maintain a solution flow rate, averaging around 60 pounds per square inch (psi) throughout the injection event. Injection pressures in the deepest intervals averaged 80 to 95 psi (as necessary to overcome hydrostatic pressure) and averaged 40 to 50 psi in the shallower intervals.

Backpressure was reported at nearly all of the 11 injection points and solution surfacing occurred during injection at 6 of the 11 injection points (ERD-2, ERD-3, ERD-4, ERD-7, ERD-9, and ERD-10). Injection flow rates ranged from less than 3.6 gallons per minute (gpm) to 12.5 gallons per minute, varying significantly from point to point. The lowest flow rates were at ERD 2 and ERD 5, averaging only 6 gpm and 5 gpm, respectively. Flow rates averaging 9 to 11 gpm were achieved in the remainder of the points.

3.5.3.4 Injection Performance Monitoring

Injection performance monitoring was conducted at selected monitoring wells, piezometers, and TWs in and around the ERD injection area. Changes in groundwater geochemistry or clarity can indicate the presence of the ABC+ solution and confirm whether the injection point spacing is adequate for effective ERD treatment. Immediately before initiating injection activities, depths to groundwater and groundwater field parameter measurements were taken to establish pre-injection conditions.

During injection activities, periodic measurements of depth to water and groundwater field parameters (pH, conductivity, temperature, ORP, and DO) were recorded. Additionally, samples from selected sampling locations were observed for evidence of ABC+ solution, indicated by milky or cloudy water. The same monitoring scope was also conducted one day following injection completion and one week following injection completion to evaluate the short-term effects of the injections on the aquifer. The one-week sampling event also included groundwater sample analysis of TOC to evaluate the substrate distribution. Summaries of injection performance monitoring data are provided in Appendix F.

3.5.3.5 Injection Point Abandonment

Following completion of the injection activities, each injection point was abandoned with granular bentonite.

3.5.4 Environmental and Safety Monitoring

In accordance with the WDNR requirements for in-situ chemical injection in Wisconsin, the following environmental and safety monitoring was conducted during test injection. VOC emissions from amendment injection were monitored by visual observation and periodic multi-gas meter (including PID) measurements of the worker breathing zone. The headspace of the injection wells, as well as the monitoring wells and piezometers within the test area, were also monitored with the multi-gas meter before and during the injection event.

No VOCs were detected with the multi-gas meter during solution preparation or injection. PID measurements within well casings were up to approximately 80 parts per million; however, VOCs were not detected in the breathing zone near the wells. Oxygen, carbon dioxide, hydrogen sulfide, and lower explosive limit measurements were all within acceptable breathing zone levels.

3.6 Post-Injection Groundwater Monitoring and Sampling

Confirmation groundwater sampling events were conducted three months (June 2017), six months (September 2017), and one year (March 2018) after the pilot test injections. The purpose of the sampling was to evaluate the effects of the ERD amendments on groundwater geochemistry and VOC concentrations. Although not specified in the Work Plan, the March 2018 sampling event was added to allow for the assessment for longer-term aquifer responses to the injection test.

Groundwater depth and field parameters were measured during each of the sampling events. Samples collected in June and September 2017 were analyzed for alkalinity, anions, TOC, dissolved gases, VOCs, metals, VFAs, and microbial populations. Wells were purged using the same low-flow purging and sampling techniques as used during the baseline sampling. Decontamination fluids and purge water were disposed in the on-site central remediation building for treatment and discharge to the sanitary sewer under the existing permit.

In general, VOC concentrations decreased in most wells, with an overall average COC molar mass decrease of 40% between the baseline and March 2018 monitoring events (approximately 12 months), which included TCE reductions of over 99% in all but one of the monitoring points within the injection area. Field parameters, dissolved iron concentrations, and dissolved gas concentrations generally indicated strongly-reducing conditions, conducive to ERD. However, DHC populations did not attain the 1E+04 cells/L population considered the threshold for generally-useful rates of reductive dechlorination. This may have been due to low pH in some wells and/or insufficient TOC in some wells and/or competition for available hydrogen by SRB and MGN. Additional discussion of the post-injection monitoring results is provided in the following sections.

3.6.1 Groundwater Levels

Post-injection groundwater levels were measured one day after completing the injections, one week after completing the injections, and then again during post-injection groundwater monitoring events in June and September 2017 and March 2018. The post-injection groundwater levels are summarized in Table 1 and in Appendix G, Table G-1. Comparison of these post-injection measurements with the baseline data provides for an assessment of the effects of the injections on the aquifer.

During the injection work, groundwater elevations in the immediate injection area responded to the added solution volume and pressures. In PZ-61 and ERD1-TW-NW10, the increase was modest and water levels recovered to pre-injection levels within 24 hours. The increases were more pronounced in ERD6-TW-NW10, ERD6-TW-NW15, PZ-61, and PZ-75, where the water levels spiked by 5 to 9 feet above baseline. Water levels in these wells also recovered to pre-injection levels within 24 hours, with the exception of PZ-61, which remained elevated for more than a week after the injection event. Water levels in down-gradient well MW-807 were not affected during the injection activities; however, a slight rise in groundwater elevation was observed in this well a week following the injection work.

This indicates that the aquifer was able to absorb the added injectate solution and return to normal water levels over a relatively short period of time. Further, it indicates that a radius of injection² of 15 feet or more can be achieved within the shallow sand portion of the aquifer as well as in the deeper silt portion of the aquifer. However, the frequency of surfacing that occurred during the injections would require mitigation efforts, which may include lower pressures, limiting injectate volumes, and/or by staggering injection-work areas to allow the aquifer to equilibrate.

3.6.2 Field Parameters

Field parameters results are provided in Table 2³ and Appendix G, Table G-3.

Baseline DO averaged around 0.5 mg/L, which is suitable for ERD. Following the pilot injections, the average DO decreased slightly within three months and began to rebound to pre-injection levels by six months and remained at levels suitable for ERD through one year post-injection. Baseline ORP was mildly reducing, with levels at around -50 millivolts (mV) at most well locations. Following the pilot injections, ORP decreased to below -100 mV in most wells within three months and continued to

² Radius of injection is the average displacement of a fluid volume from a point during pumping, with a portion retained within and a portion displaced beyond the average distance, during and immediately following injection. Radius of influence will extend farther over time with localized gradient flow, advection, and molecular diffusion.

³ The data shown for March 6, 2017 were collected shortly before the injection work commenced, and serve as the baseline against which the post-injection field parameters results are compared.

decrease or remain at depressed levels through the one-year post-injection monitoring event. At down-gradient well MW-807, DO and ORP were also lower than baseline levels during the three-month and six-month sampling events, but remained aerobic.

Groundwater pH decreased in both the shallow and deeper portions of the aquifer⁴ following the pilot-test injections, but on average remained within ranges acceptable for ERD efficacy and recovered to pre-injection levels within three months. pH levels in wells PZ-61, ERD6-TW-NW10, and ERD6-TW-NW15 were at sub-optimal levels three to six months following injections and returned to acceptable and/or pre-injection levels within six months to one year.

Groundwater conductivity in the wells did not change appreciably during any of the post-injection monitoring events.

Based on field parameter results, a strongly-reducing environment can be achieved and sustained with ERD amendments. Groundwater pH dropped to below levels amenable to ERD in several wells, indicating that additional buffer may be required.

3.6.3 Alkalinity, Anions, TOC, Dissolved Gases, and VFAs

Alkalinity, anions, TOC, and dissolved gases laboratory analytical results are summarized in Table 3 and VFAs laboratory analytical results are summarized in Table 6. The laboratory analytical reports are provided in Appendix E (electronic format).

Alkalinity and anion concentration changes were generally unremarkable. Sulfide was only analyzed during the six-month post-injection monitoring event and was below detection limits in all samples.

TOC concentrations increased dramatically in PZ-61, ERD6-TW-NW10, and ERD6-TW-NW15 from an average of about 3 mg/L (across the entire ERD pilot-test area) to an average of more than 1,600 mg/L among these wells within three months post-injection. These concentrations remained relatively consistent through the six-month sampling event and decreased by the one-year sampling event, but remained well above the 20 mg/L threshold typically considered appropriate for ERD. TOC concentrations in the other wells, including MW-61 and ERD1-TW-NW10 within the injection area, remained relatively unchanged and below threshold concentrations.

Ethene, ethane, and methane concentrations increased by at least one order of magnitude over baseline concentrations in all wells within three to six months following the pilot injections, although the increases were nominal in down-gradient well MW-807. These increases are consistent with the occurrence of biodegradation and the lower increase in MW-807 indicate that the treatment was not perpetuated.

Select VFAs increased by at least one order of magnitude in most wells within three months of the injection activities and persisted through the six-month post-injection monitoring event. This indicates fermentation of the injected amendments. The most-significant increases were reported at PZ-61. Although no baseline data were available for comparison, the concentrations in ERD6-TW-NW10 and ERD6-TW-NW15 are likely significant, as they are substantially above the average baseline for the ERD pilot test area. Nominal changes in VFA concentrations were expressed in MW-61 and ERD1-TW-NW10 and no significant changes were observed in up-gradient well PZ-75 or down-gradient well MW-807.

The increases in methane concentrations, along with other monitoring data, indicate that strongly-reducing conditions have been achieved in the pilot-test area and that the conditions are sustainable with ERD amendment injection.

⁴ The relative differences in groundwater characteristics in samples from tops and bottoms of screened intervals in TWs is likely muted by incidental mixing during pump insertion and purging.

3.6.4 Metals

VOCs laboratory analytical results are summarized in Table 5. The laboratory analytical reports are provided in Appendix E (electronic format).

Barium, chromium, lead, and nickel concentrations showed some variability, but overall remained relatively unchanged during ERD pilot test period. Iron concentrations in the wells appear to correlate with pH changes, which are particularly evident in PZ-61, ERD6-TW-NW10, and ERD6-TW-NW15, where pH fell to below 6 in the June and September 2017 sampling events.

Ferrous (dissolved) iron comprised nearly 100% of the iron present in the groundwater samples within the ERD injection area in the baseline samples, indicating that iron-reducing conditions were already present before the ERD pilot injections were conducted. Thus, changes in dissolved-fraction concentrations are nominal in most of the wells. Changes in the dissolved fraction are evident in ERD6-TW-NW10 and ERD6-TW-NW15; however, these changes may be due to pH decreases.

3.6.5 Microbial Populations

Microbial populations laboratory analytical results are summarized in Table 7. The laboratory analytical reports are provided in Appendix E (electronic format).

DHC was reported above 1E+04 cells/L threshold considered for generally-useful rates of reductive dechlorination only at ERD1-TW-NW10, during the September 2017 and March 2018 sampling events. DHC at all other locations within the injection area increased slightly by the June 2017 sampling event, but remained well below the 1E+04 cells/L threshold. DHC increased modestly in the TWs and in up-gradient well PZ-75 by the March 2018 monitoring event, but populations also remained below 1E+04 cells/L threshold in these wells.

Typically, the loading rate of 0.25 liters per injection foot is sufficient for bioaugmented ERD, except where subsurface conditions are not conducive to ERD or other limiting conditions are present. In several of the wells, TOC were well below 20 mg/L and/or pH fell below 6. These conditions can limit DHC viability even where reducing conditions are present. Additionally, SRB and MGN were generally between 1E+03 and 1E+05 in most wells within the injection area. Although these indicate that reducing conditions are appropriate for successful DHC populations, SRB and MGN can compete with DHC for available hydrogen.

Charts depicting the changes in microbial populations over time are included as Figures 9 through 16.

3.6.6 VOCs

VOCs laboratory analytical results are summarized in Table 4. Baseline and post-injection TCE concentrations are shown in Figure 7. Baseline and post-injection concentrations of TCE-degradation products (c-DCE, t-DCE, and VC) are shown in Figure 8. The laboratory analytical reports are provided in Appendix E (electronic format).

TCE concentrations in all wells except MW-61 decreased by greater than 99% over the 18 months of the ERD pilot test (baseline sampling in September 2016 and final sampling in March 2018). In MW-61, TCE decreased by 57%. In most wells, the decrease in TCE resulted in temporary increases of degradation products c-DCE and/or VC. However, by the March 2018 sampling event, c-DCE concentrations were below baseline concentrations at all well locations and VC concentrations were below baseline concentrations or concentrations were trending downward in half of the wells. CVOCs over time in MW-61 and PZ-61 are depicted in Figures 17 and 18.

3.7 Test Data Evaluation

3.7.1 Injection Performance

Injection rates generally averaging 5 to 12 gpm were achieved with injection pressures typically ranging from 80 to 95 psi in the deeper intervals and 40 to 50 psi in the shallower intervals. Backpressure was reported at nearly all of the injection points and solution surfacing occurred during injection at half of the injection points. In response, the injectate solution ratio was amended to reduce the injectate volume by approximately 25% while maintaining the designed amendment loading rate.

Injections at these pressures and flow rates can be performed using standard injection equipment. Higher flow rates would likely require significant pressure increases and would likely result in increased surfacing issues.

3.7.2 CVOC Destruction

A comparison of groundwater concentrations prior to and following the pilot test confirms that the selected ERD amendments were effective in reducing contaminant mass at all locations within the pilot-study area. Significant COC concentration reductions were documented within three months following the pilot injection activities (March 2017), which continued through the final sampling event in March 2018. During the pilot-test period, TCE concentrations decreased by over 99% in all but one well (MW-61; 57% TCE reduction). This resulted in concentrations of the degradation products c-DCE and/or VC to increase temporarily in most wells; however, as of the final monitoring event in March 2018, c-DCE concentrations were below baseline concentrations in all wells and VC concentrations were below baseline concentrations or demonstrated decreasing concentration trends in half of the wells. The resulting overall average COC molar mass decrease between the baseline and March 2018 monitoring events was 40%.

3.8 Test Conclusions

- ERD substrates can be effectively introduced into the subsurface at moderate pressures.
- A 15-foot radius of injection was achieved within the shallow sand portion of the aquifer and the deeper silt portion of the aquifer; this is within range of what would be expected for the soil type and subsurface conditions.
- Surfacing occurred and was only partially mitigated by amending the injectate solution concentrations and injection pressures.
- The ERD amendments reduced COC concentrations in the groundwater despite limited DHC population growth and sub-optimal TOC concentrations and/or pH levels in some wells.

3.9 Well Abandonment

The three TWs (ERD1-TW-NW10, ERD6-TW-NW10, ERD6-TW-NW15), monitoring wells (MW-61 and MW-807) and piezometers (PZ-61 and PZ-75) will be abandoned in accordance with Wis. Adm. Code NR 141 during the Phase II Site-wide soil remediation activities. Abandonment forms will be provided after abandonment occurs.

4. Considerations for Remediation

Flexibility needs to be considered for a full scale remedy due to the following:

- Multiple source areas in varying geology and subsurface conditions;
- Potential subsurface features and multiple phases of soil remediation that may alter the distribution of injectate solutions;
- Frequent injectate surfacing experience during the pilot study indicates that mitigation efforts will be necessary, possibly including lower pressures, limiting injectate volumes, and/or by staggering injection-work areas to allow the aquifer to equilibrate; and
- DHC population growth was likely limited by one or more geochemical conditions, physical impediments to amendment distribution, and/or biological competition for available hydrogen.

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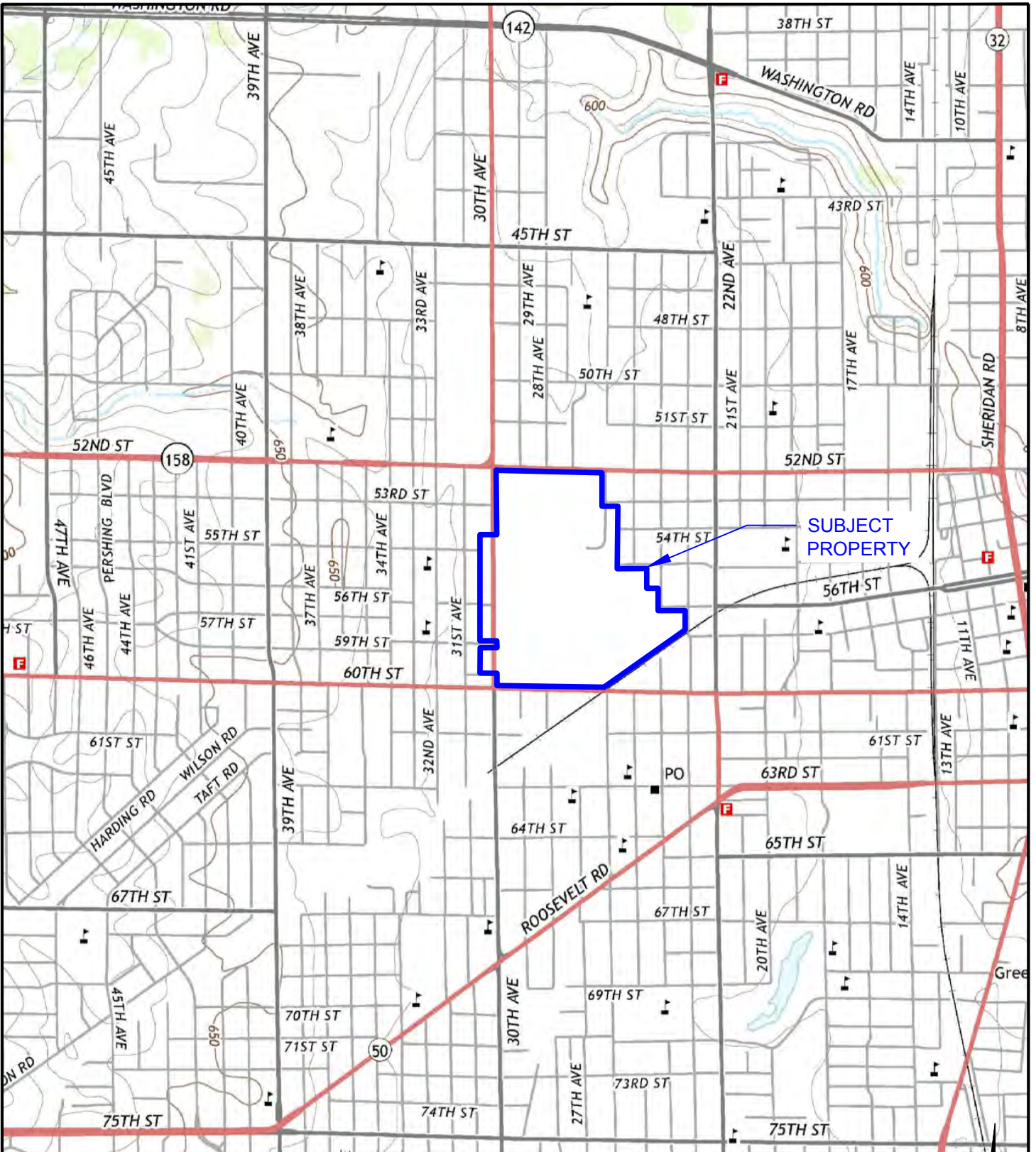
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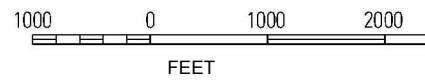
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NOTES

1. TOPOGRAPHIC MAP FROM USGS:
http://store.usgs.gov/b2c_usgs/usgs/maplocator/
 DATED 2013

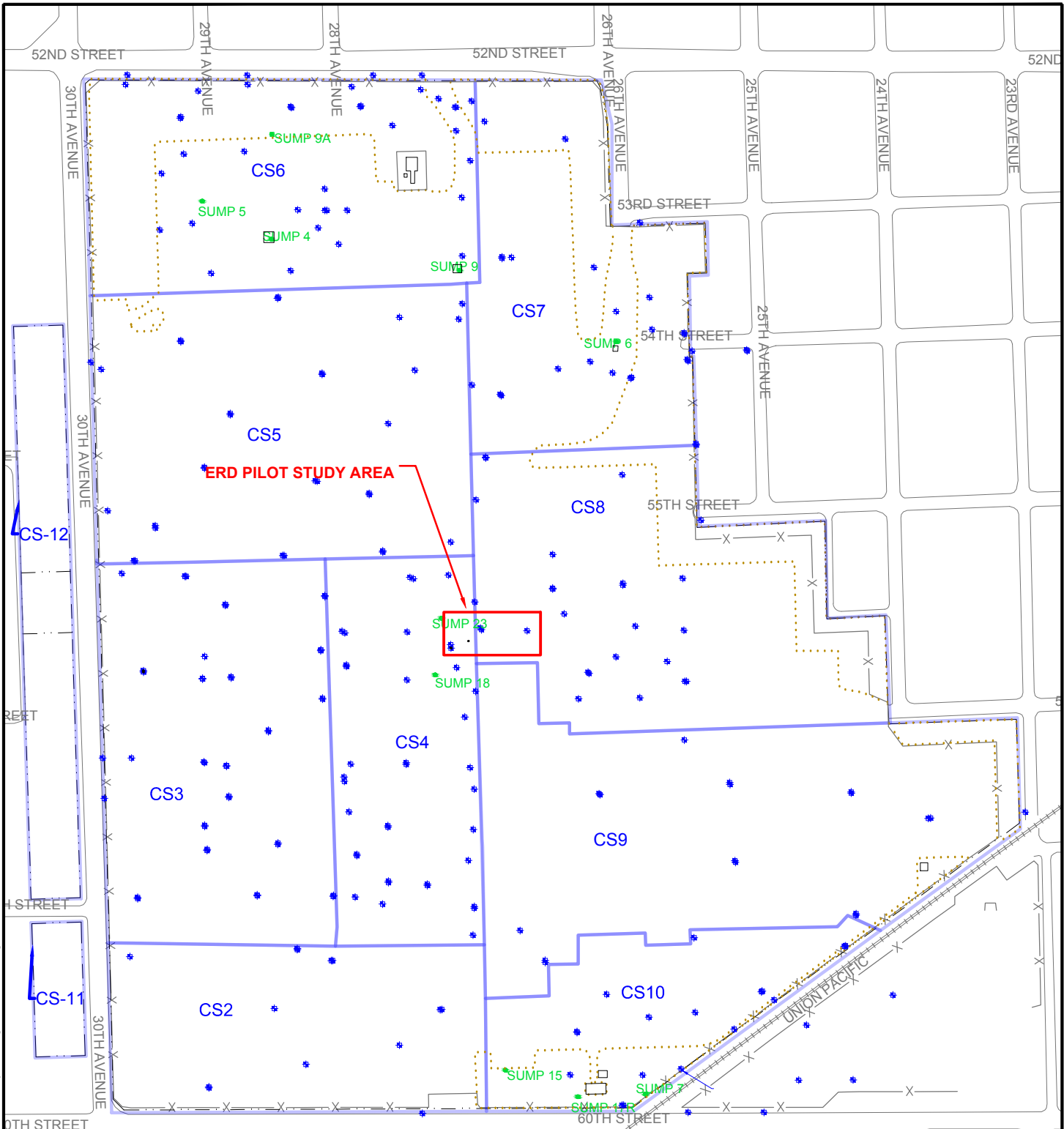


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**SITE LOCATION
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 KENOSHA, WISCONSIN**

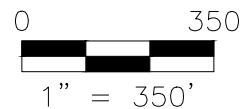
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Approved:	SP 7/7/2017
PROJECT NUMBER	60518412
FIGURE NUMBER	1

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LEGEND

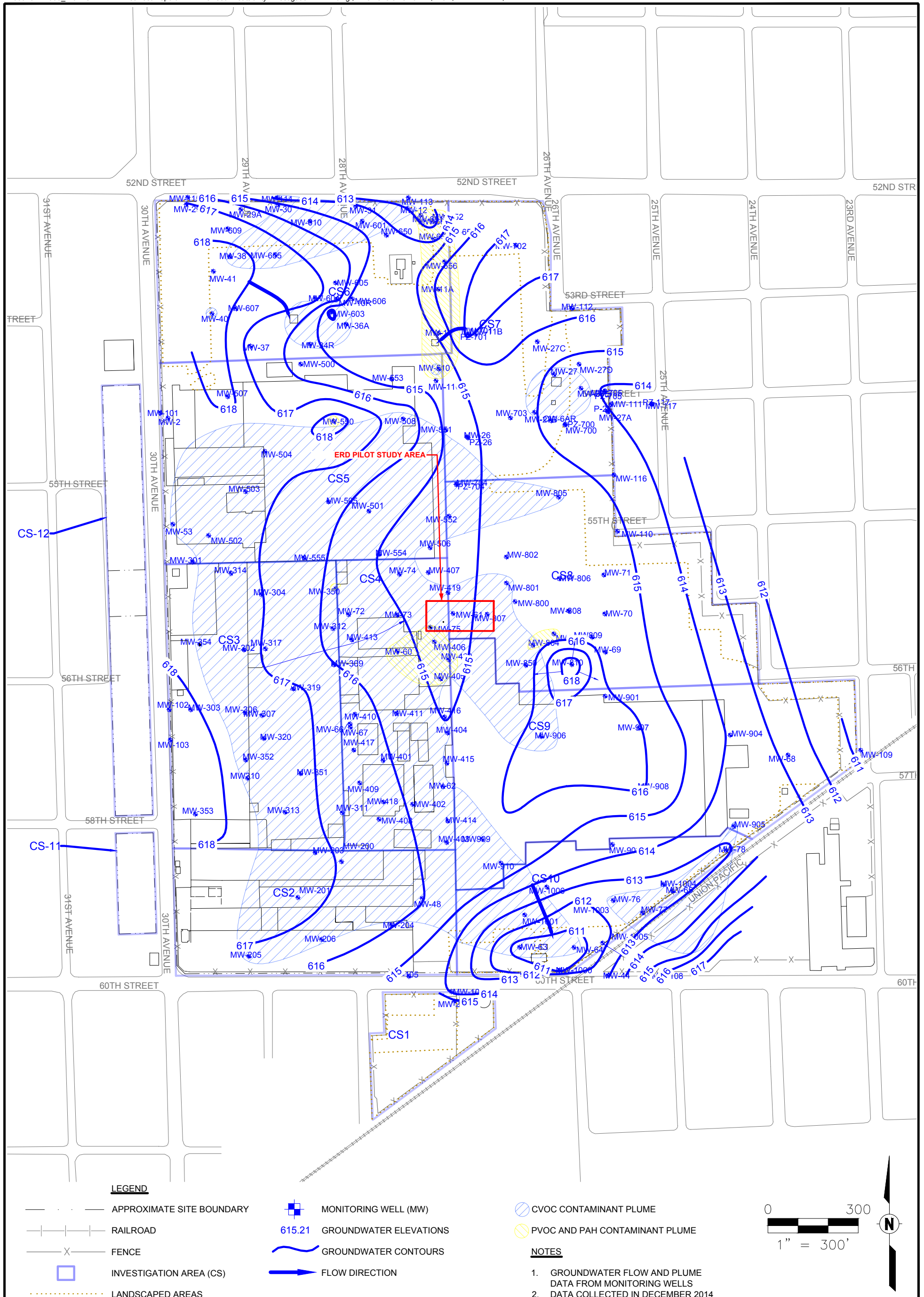
- APPROXIMATE SITE BOUNDARY
- RAILROAD
- FENCE
- LANDSCAPED AREA
- INVESTIGATION AREA (CS)
- MONITORING WELL (MW) OR PIEZOMETER (PZ)
- GROUNDWATER RECOVERY SUMP
- PILOT TEST LOCATION



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**SITE LAYOUT
 KENOSHA ENGINE PLANT
 CITY OF KENOSHA
 KENOSHA, WISCONSIN**

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PROJECT NUMBER	60518412
FIGURE NUMBER	2



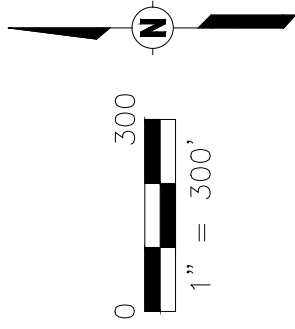
**GROUNDWATER FLOW & EXTENT OF CONTAMINATION AT THE WATER TABLE -
DECEMBER 2014
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN**

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 Checked: LLA 7/3/2017
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 PROJECT NUMBER **60518412**
 FIGURE NUMBER **3**

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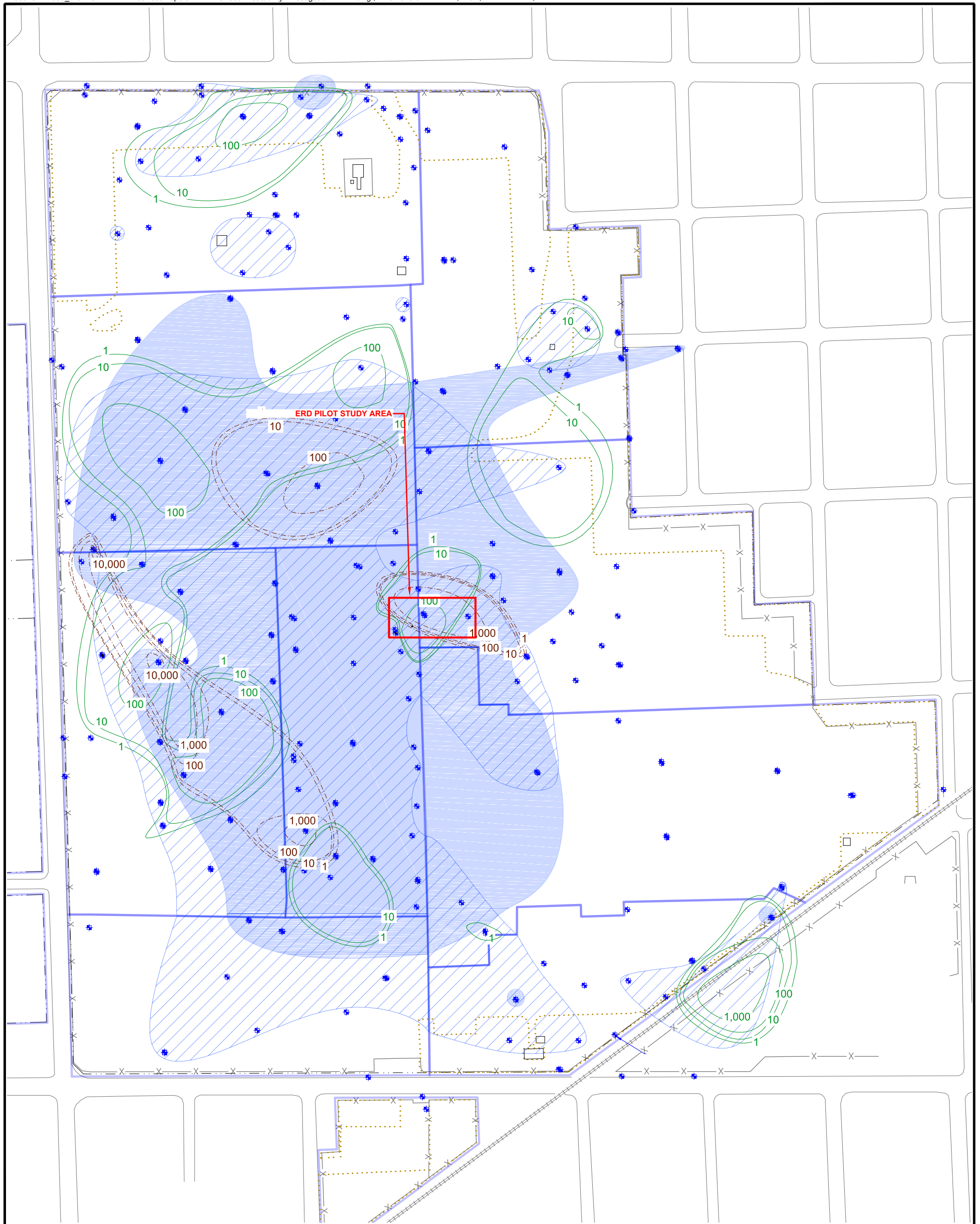
- LEGEND**
- APPROXIMATE SITE BOUNDARY
 - RAILROAD
 - FENCE
 - INVESTIGATION AREA (CS)
 - ⋯ LANDSCAPED AREAS
 - PIEZOMETER (PZ)
 - 615.21 GROUNDWATER ELEVATIONS
 - GROUNDWATER CONTOURS
 - FLOW DIRECTION
 - CVOC CONTAMINANT PLUME
 - PVOC AND PAH CONTAMINANT PLUME
- NOTES**
1. GROUNDWATER FLOW AND PLUME DATA FROM PIEZOMETERS
 2. DATA COLLECTED IN DECEMBER 2014

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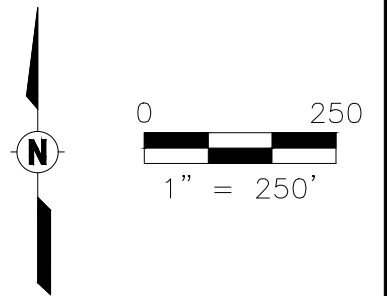
GROUNDWATER FLOW & EXTENT OF CONTAMINATION ABOVE CLAY TILL AQUITARD
 DECEMBER 2014
 KENOSHA ENGINE PLANT
 CITY OF KENOSHA
 KENOSHA, WISCONSIN

Drawn :	SAE 7/3/2017
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Approved:	SP 7/7/2017
PROJECT NUMBER	60518412
FIGURE NUMBER	4



LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD
- FENCE
- INVESTIGATION AREA (CS)
- ... LANDSCAPED AREAS
- MONITORING WELL (MW) OR PIEZOMETER (PZ)
- FLOW DIRECTION
- SHALLOW CVOC CONTAMINANT PLUME (December 2014)
- DEEP CVOC CONTAMINANT PLUME (December 2014)
- SHALLOW TRICHLOROETHENE (TCE) ISOCONCENTRATION CONTOURS (CONCENTRATIONS IN UG/L) (September 2014)
- DEEP TCE ISOCONCENTRATION CONTOURS (CONCENTRATIONS IN UG/L) (September 2014)



**GROUNDWATER CONTAMINATION PLUME EXTENT & TCE ISOCONCENTRATIONS
DECEMBER & SEPTEMBER 2014
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN**

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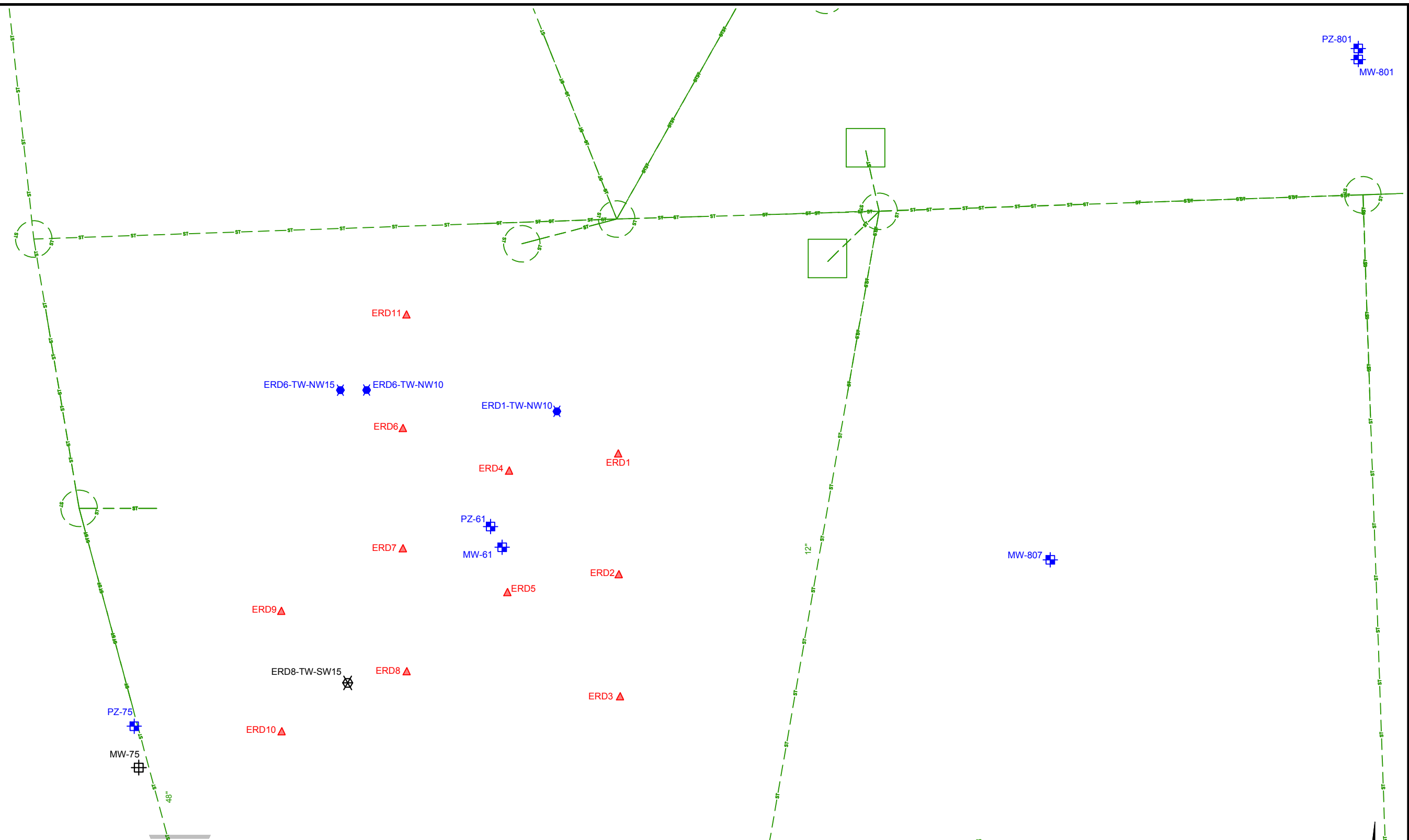
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PROJECT NUMBER	60518412
FIGURE NUMBER	5

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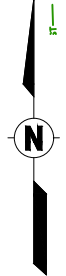
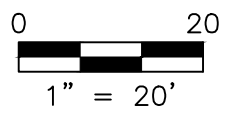
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ERD PILOT STUDY LAYOUT
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN



LEGEND

- MONITORING WELL (MW) OR PIEZOMETER (PZ) FOR ERD PILOT TEST MONITORING
- ERD PILOT INJECTION LOCATION
- TEMPORARY WELL (TW) FOR ERD MONITORING
- ABANDONED TEMPORARY WELL (TW) FOR ERD MONITORING
- ABANDONED MONITORING WELL (MW) OR PIEZOMETER (PZ)
- STORM SEWER (APPROXIMATE LOCATION) (48" indicates pipe size)
- SANITARY SEWER (APPROXIMATE LOCATION) (8" inch diameter pipe)
- FORMER BUILDING INTERIOR WALL

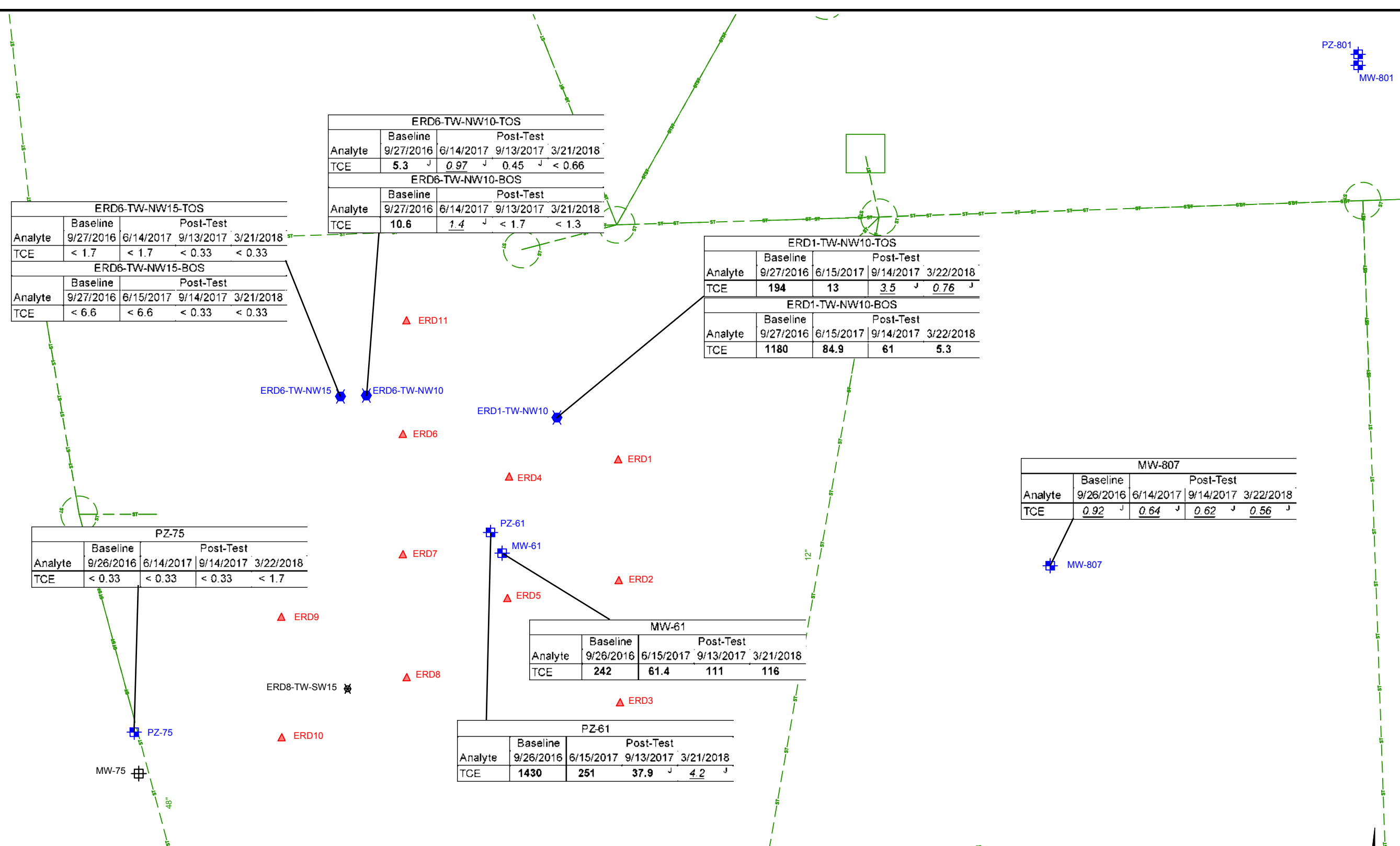


Drawn :	SAE 7/3/2017
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Approved:	KWB 7/7/2017
PROJECT NUMBER	60518412
FIGURE NUMBER	6

**TCE CONCENTRATIONS IN GROUNDWATER
 BASELINE & POST-INJECTION MONITORING RESULTS
 KENOSHA ENGINE PLANT ERD PILOT TEST
 CITY OF KENOSHA
 KENOSHA, WISCONSIN**

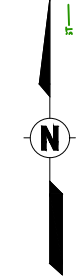
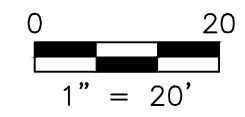
Drawn: SAE 7/3/2017
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 Approved: KWB 7/7/2017
 PROJECT NUMBER: **60518412**
 FIGURE NUMBER: **7**

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- LEGEND**
- + MONITORING WELL (MW) OR PIEZOMETER (PZ) FOR ERD PILOT TEST MONITORING
 - ▲ ERD PILOT INJECTION LOCATION
 - + TEMPORARY WELL (TW) FOR ERD MONITORING
 - + ABANDONED TEMPORARY WELL (TW) FOR ERD MONITORING
 - + ABANDONED MONITORING WELL (MW) OR PIEZOMETER (PZ)
 - STORM SEWER (APPROXIMATE LOCATION) (48" indicates pipe size)
 - SANITARY SEWER (APPROXIMATE LOCATION) (8" inch diameter pipe)
 - FORMER BUILDING INTERIOR WALL

- Notes:**
1. All results in micrograms per liter (µg/L)
 2. TCE = trichloroethene
 3. PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.10 Table 1, February 2017 exceedances are underlined italics.
 4. ES - Enforcement Standard, Wisconsin Administrative Code NR 140.10 Table 1, February 2017, exceedances are **bold**.
 5. ^J = Estimated value
 6. TOS = Top of Screen
 7. BOS = Bottom of Screen



ERD6-TW-NW10-TOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/14/2017	9/13/2017	3/21/2018
TCE	5.3	<u>0.97</u>	<u>0.45</u>	< 0.66

ERD6-TW-NW10-BOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/14/2017	9/13/2017	3/21/2018
TCE	10.6	<u>1.4</u>	< 1.7	< 1.3

ERD6-TW-NW15-TOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/14/2017	9/13/2017	3/21/2018
TCE	< 1.7	< 1.7	< 0.33	< 0.33

ERD6-TW-NW15-BOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/15/2017	9/14/2017	3/21/2018
TCE	< 6.6	< 6.6	< 0.33	< 0.33

ERD1-TW-NW10-TOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/15/2017	9/14/2017	3/22/2018
TCE	194	13	<u>3.5</u>	<u>0.76</u>

ERD1-TW-NW10-BOS				
	Baseline		Post-Test	
Analyte	9/27/2016	6/15/2017	9/14/2017	3/22/2018
TCE	1180	84.9	61	5.3

MW-807				
	Baseline		Post-Test	
Analyte	9/26/2016	6/14/2017	9/14/2017	3/22/2018
TCE	<u>0.92</u>	<u>0.64</u>	<u>0.62</u>	<u>0.56</u>

MW-61				
	Baseline		Post-Test	
Analyte	9/26/2016	6/15/2017	9/13/2017	3/21/2018
TCE	242	61.4	111	116

PZ-61				
	Baseline		Post-Test	
Analyte	9/26/2016	6/15/2017	9/13/2017	3/21/2018
TCE	1430	251	<u>37.9</u>	<u>4.2</u>

PZ-75				
	Baseline		Post-Test	
Analyte	9/26/2016	6/14/2017	9/14/2017	3/22/2018
TCE	< 0.33	< 0.33	< 0.33	< 1.7

**DCE & VC CONCENTRATIONS IN GROUNDWATER
BASELINE & POST-INJECTION MONITORING RESULTS
KENOSHA ENGINE PLANT ERD PILOT TEST
CITY OF KENOSHA
KENOSHA, WISCONSIN**

Drawn: SAE 7/3/2017

Checked: LLA 7/3/2017

Approved: KWB 7/7/2017

PROJECT NUMBER **60518412**

FIGURE NUMBER **8**

ERD6-TW-NW10-TOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/14/2017	9/13/2017	3/21/2018
c-DCE	747	150	<u>30.5</u>	<u>16.4</u>
t-DCE	< 0.26	< 0.26	0.48 ^J	< 0.51
VC	228	133	125	218

ERD6-TW-NW10-BOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/14/2017	9/13/2017	3/21/2018
c-DCE	1800	475	433	<u>49.3</u>
t-DCE	< 0.26	< 0.51	3.1 ^J	< 1.0
VC	305	189	388	456

ERD1-TW-NW10-TOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/15/2017	9/14/2017	3/22/2018
c-DCE	101	329	335	158
t-DCE	< 0.51	4.2	4.2	0.76 ^J
VC	3.8	24	27.2	36.4

ERD1-TW-NW10-BOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/15/2017	9/14/2017	3/22/2018
c-DCE	816	628	1710	578
t-DCE	2.9 ^J	11.4	<u>79.8</u>	< 0.26
VC	25.5	46.3	105	138

ERD6-TW-NW15-TOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/14/2017	9/13/2017	3/21/2018
c-DCE	689	472	2.2	<u>11.6</u>
t-DCE	< 1.3	3.4 ^J	< 0.26	< 0.26
VC	259	710	24.0	60.4

ERD6-TW-NW15-BOS				
Analyte	Baseline		Post-Test	
	9/27/2016	6/15/2017	9/14/2017	3/21/2018
c-DCE	1980	798	123	<u>58.6</u>
t-DCE	120	< 5.1	1.3	< 0.26
VC	152	995	104	115

PZ-75				
Analyte	Baseline		Post-Test	
	9/26/2016	6/14/2017	9/14/2017	3/22/2018
c-DCE	< 0.26	< 0.26	< 0.26	< 1.3
t-DCE	< 0.26	< 0.26	< 0.26	< 1.3
VC	9.0	8.6	65.1	673

MW-807				
Analyte	Baseline		Post-Test	
	9/26/2016	6/14/2017	9/14/2017	3/22/2018
c-DCE	< 0.26	< 0.26	< 0.26	< 0.26
t-DCE	< 0.26	< 0.26	< 0.26	< 0.26
VC	< 0.18	< 0.18	64.8	< 0.18

MW-61				
Analyte	Baseline		Post-Test	
	9/26/2016	6/15/2017	9/13/2017	3/21/2018
c-DCE	2740	1420	2160	2560
t-DCE	<u>47.1</u>	<u>42.6</u>	103	< 6.4
VC	1130	760	835	3280

PZ-61				
Analyte	Baseline		Post-Test	
	9/26/2016	6/15/2017	9/13/2017	3/21/2018
c-DCE	6410	5290	2880	1210
t-DCE	< 12.8	<u>78</u>	< 12.8	< 2.6
VC	114	272	203	81.2

- LEGEND**
- MONITORING WELL (MW) OR PIEZOMETER (PZ) FOR ERD PILOT TEST MONITORING
 - ERD PILOT INJECTION LOCATION
 - TEMPORARY WELL (TW) FOR ERD MONITORING
 - ABANDONED TEMPORARY WELL (TW) FOR ERD MONITORING
 - ABANDONED MONITORING WELL (MW) OR PIEZOMETER (PZ)
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 - SANITARY SEWER (APPROXIMATE LOCATION) (8" inch diameter pipe)
 - FORMER BUILDING INTERIOR WALL

- Notes:**
1. All results in micrograms per liter (µg/L)
 2. c-DCE = cis-1,2-dichloroethene
 3. t-DCE = trans-1,2-dichloroethene
 4. VC = vinyl chloride
 5. PAL - Preventive Action Limit, Wisconsin Administrative Code NR 140.10 Table 1, February 2017 exceedances are underlined italics.
 6. ES - Enforcement Standard, Wisconsin Administrative Code NR 140.10 Table 1, February 2017, exceedances are **bold**.
 7. ^J = Estimated value
 8. TOS = Top of Screen
 9. BOS = Bottom of Screen



Figure 9
MW-61 Microbial Counts Before and After Injection

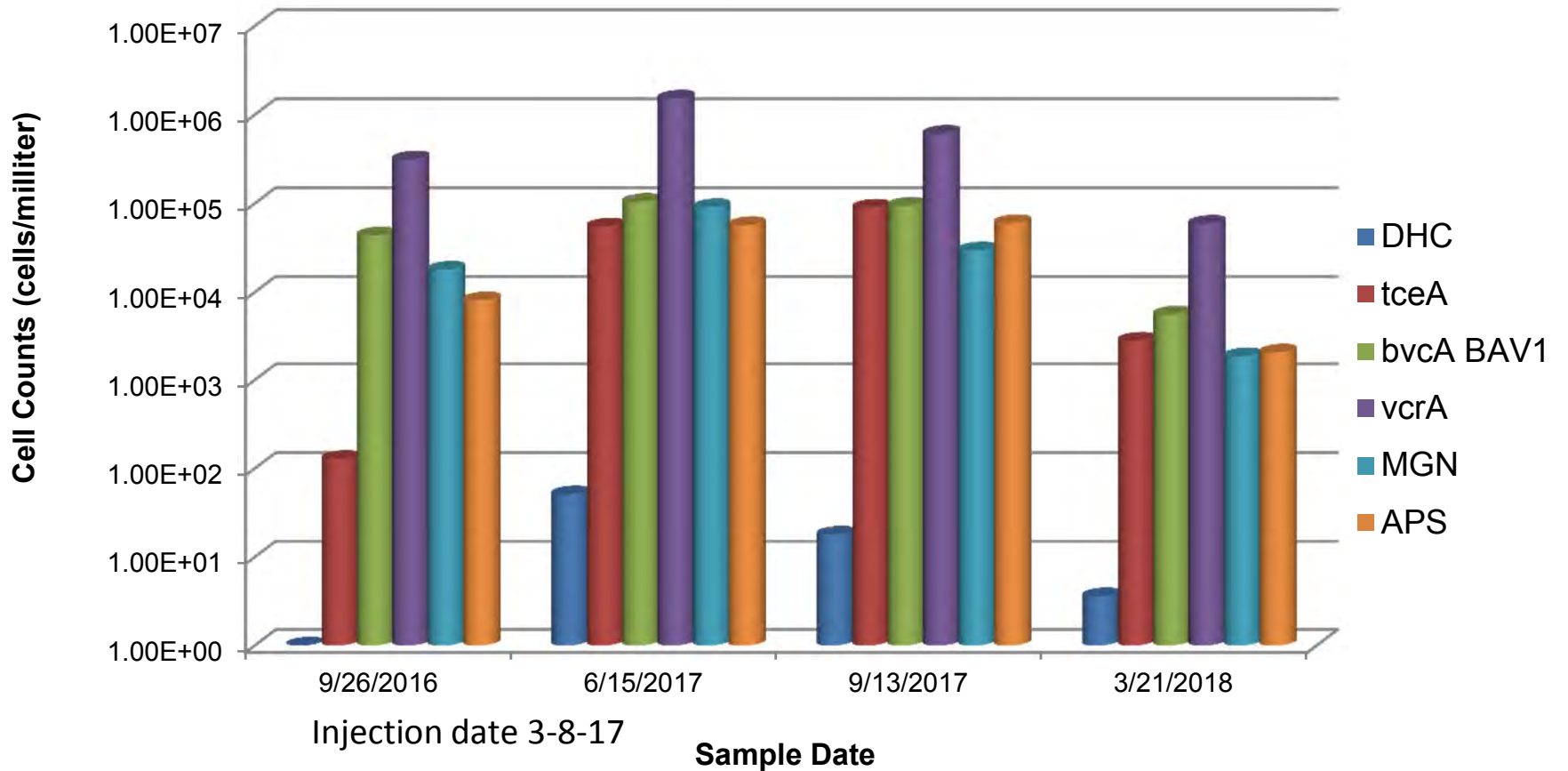


Figure 10
PZ-61 Microbial Counts Before and After Injection

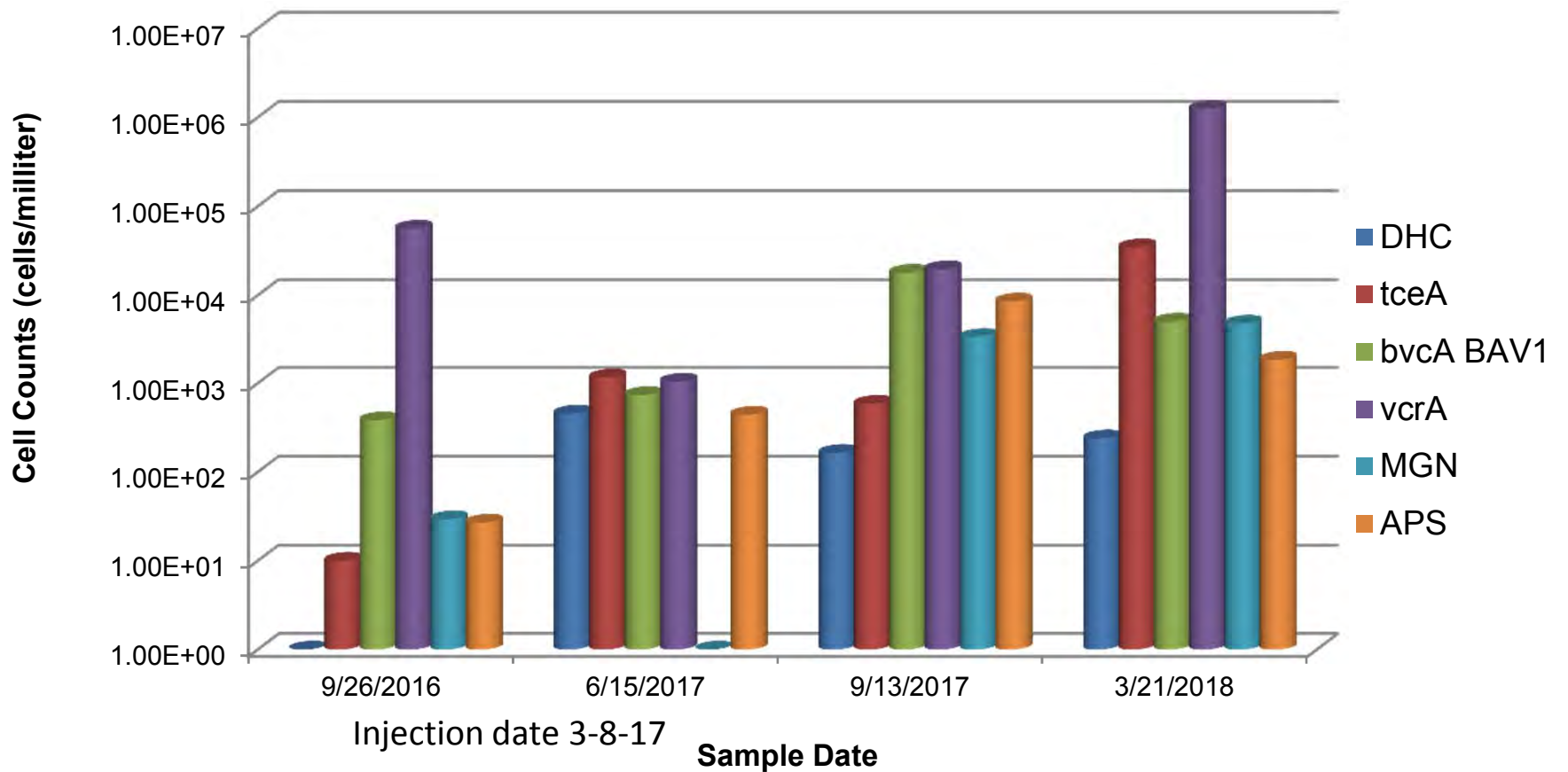


Figure 11
ERD1-TW-NW10-TOS Microbial Counts After Injection

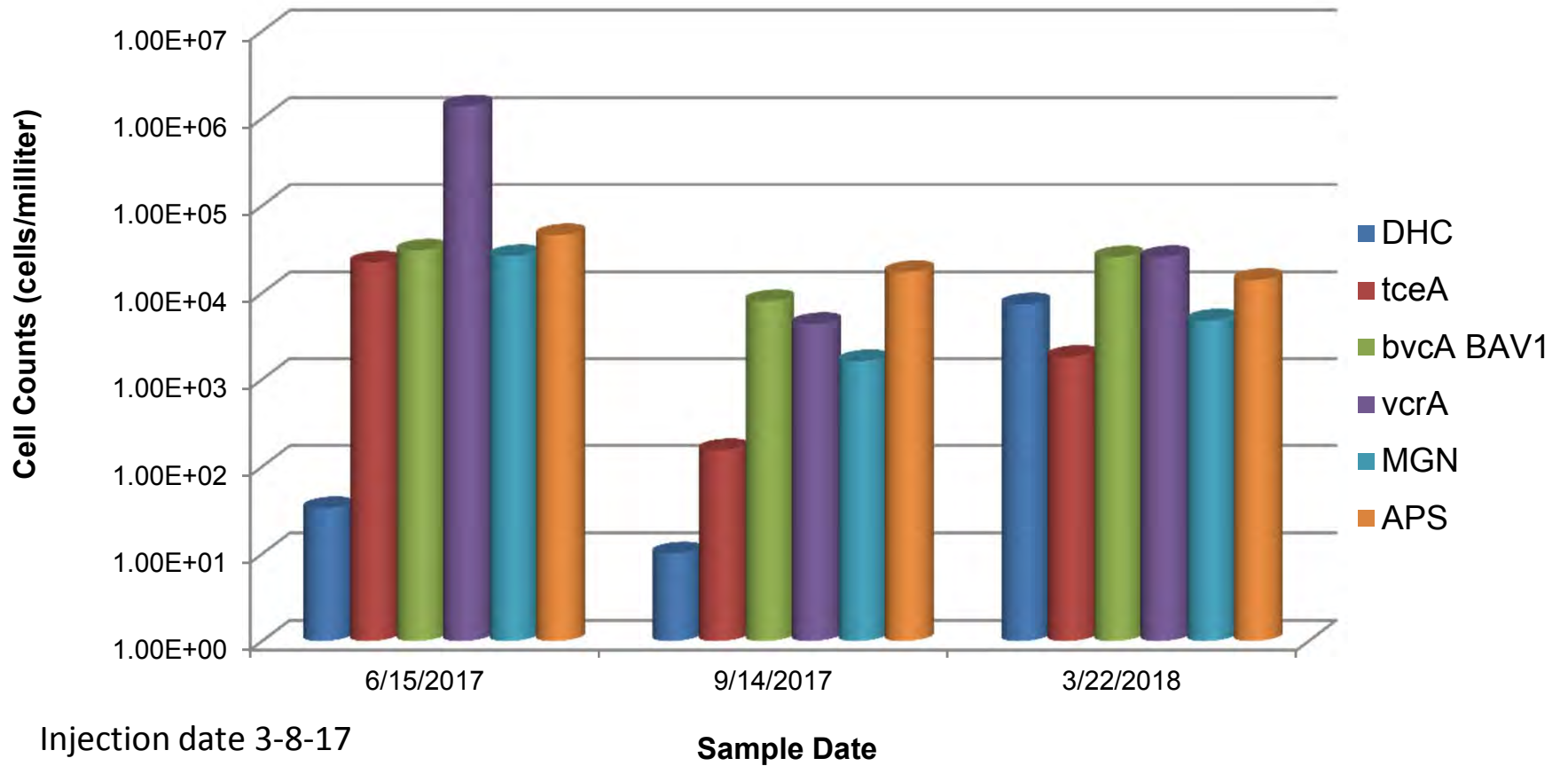


Figure 12
ERD1-TW-NW10-BOS Microbial Counts After Injection

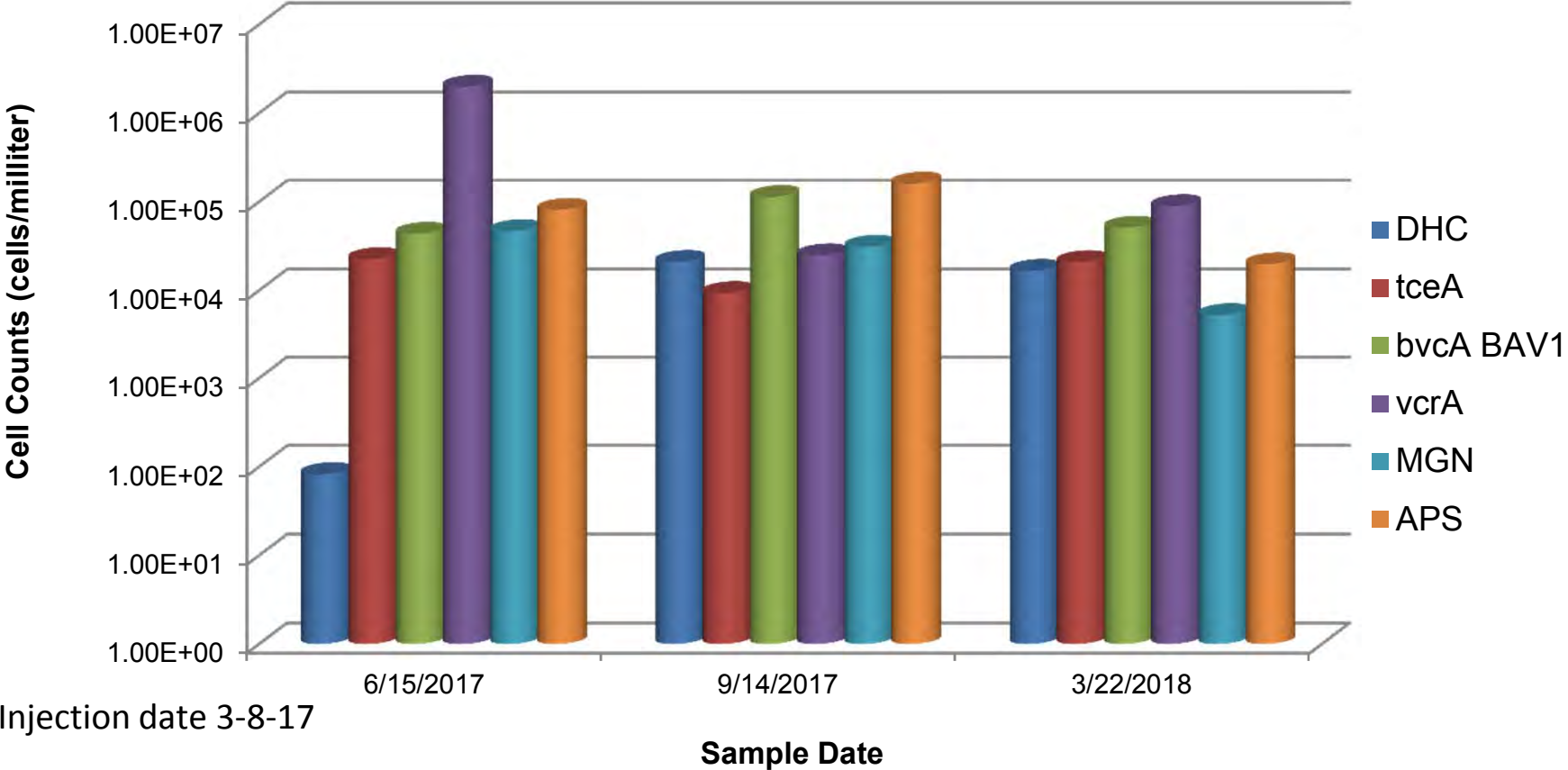


Figure 13
ERD6-TW-NW10-TOS Microbial Counts After Injection

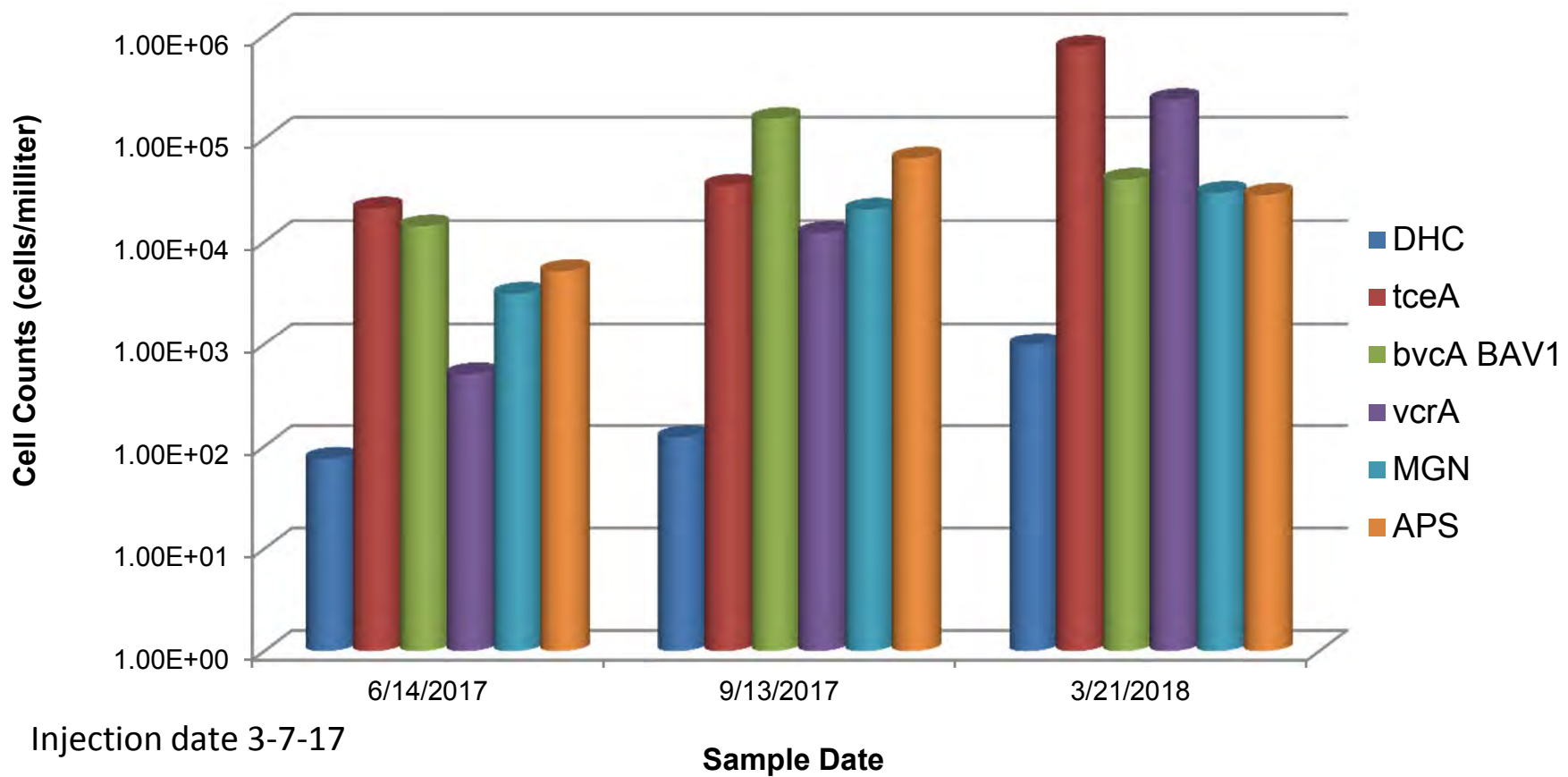


Figure 14
ERD6-TW-NW10-BOS Microbial Counts After Injection

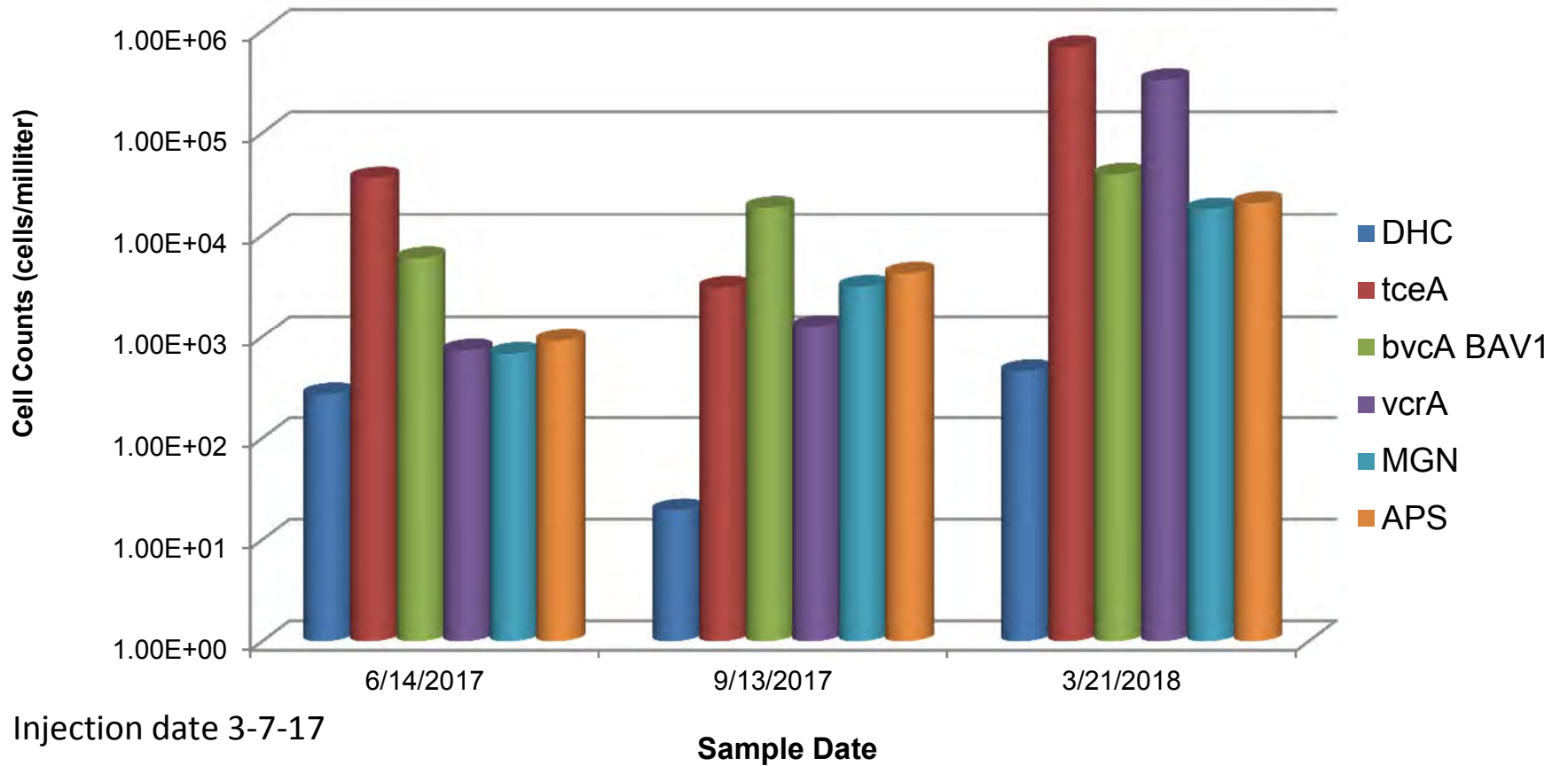


Figure 15
ERD6-TW-NW15-TOS Microbial Counts After Injection

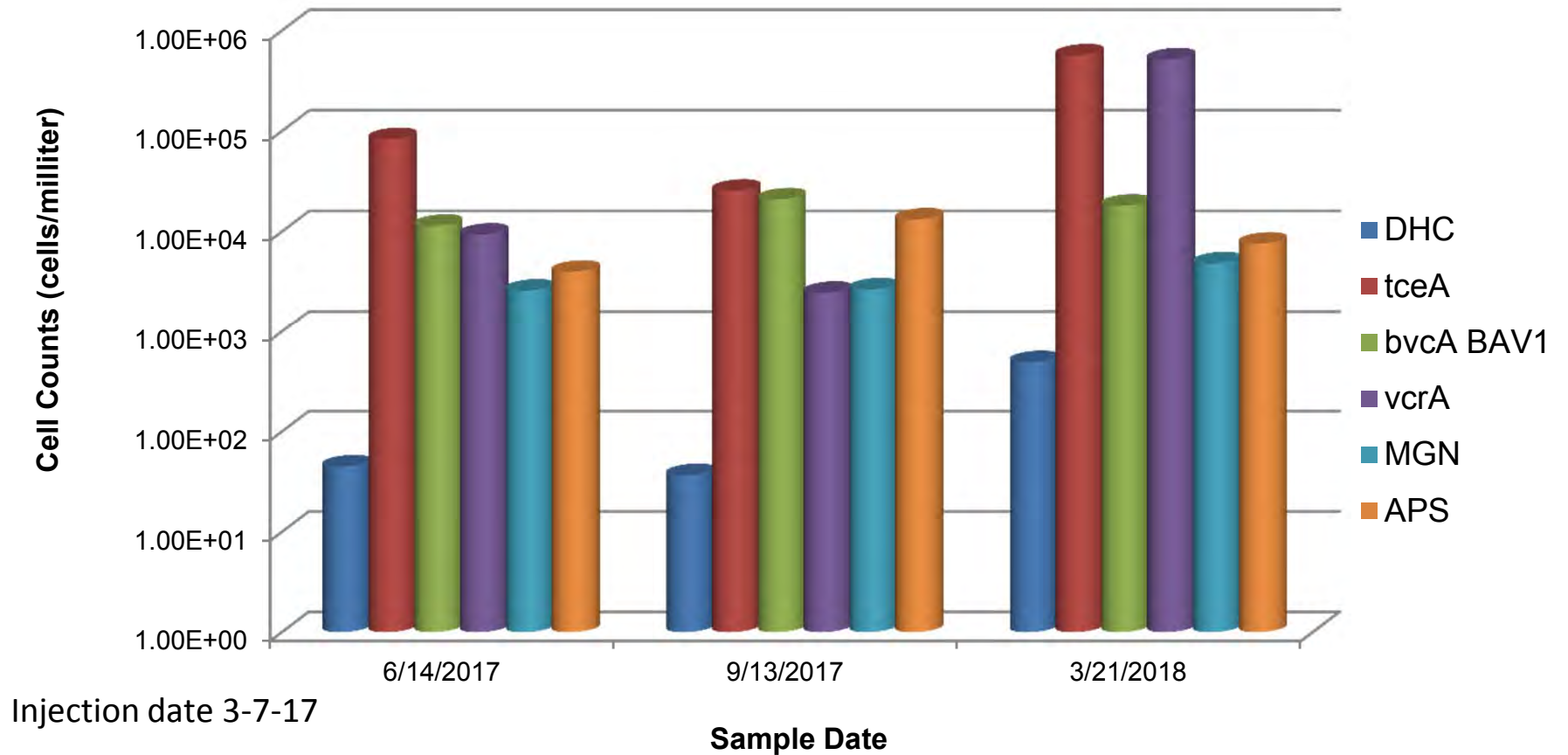


Figure 16
ERD6-TW-NW15-BOS Microbial Counts After Injection

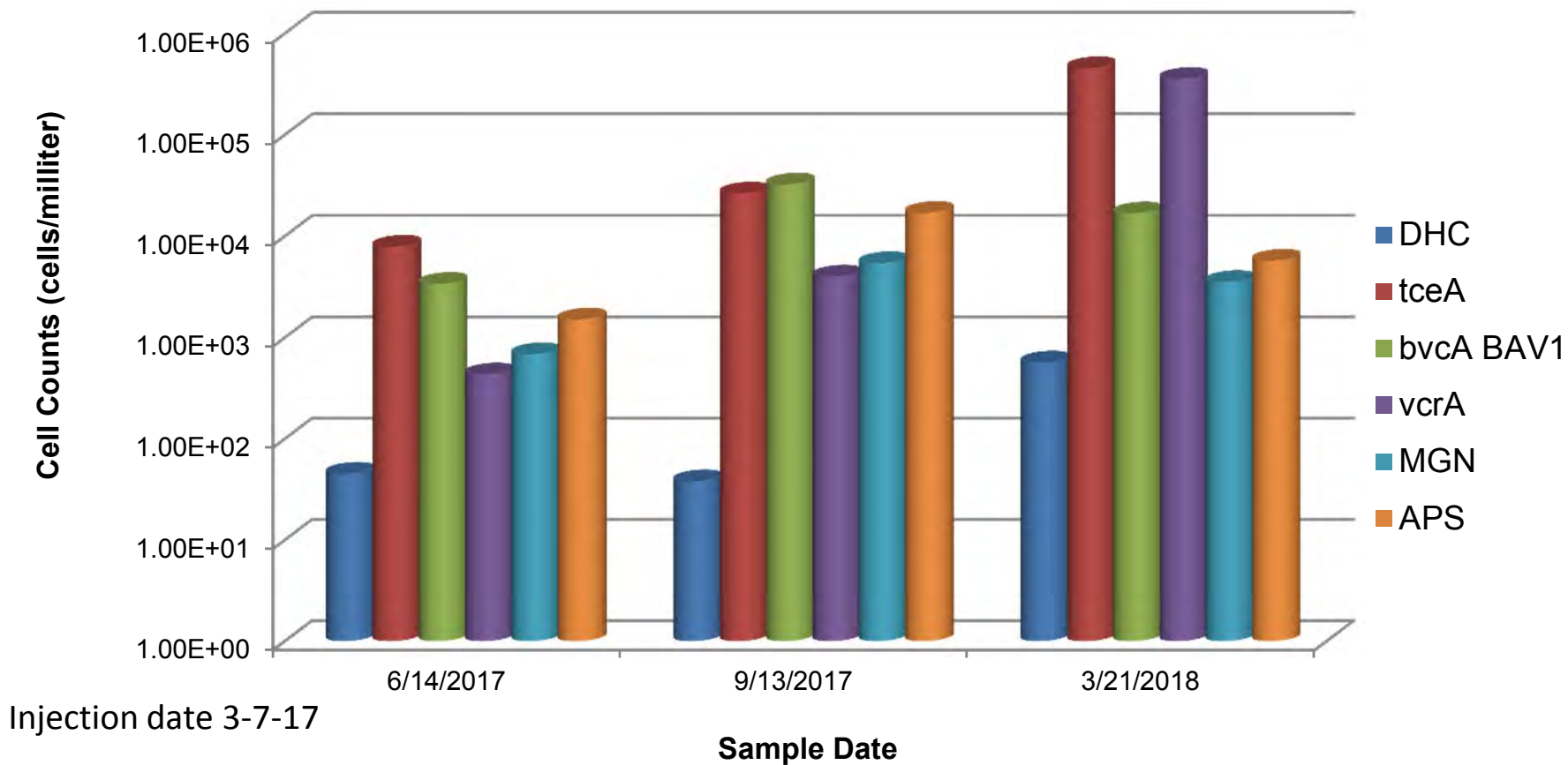


Figure 17
MW-61 CVOC Concentrations over Time
Inside Treatment Area - Shallow

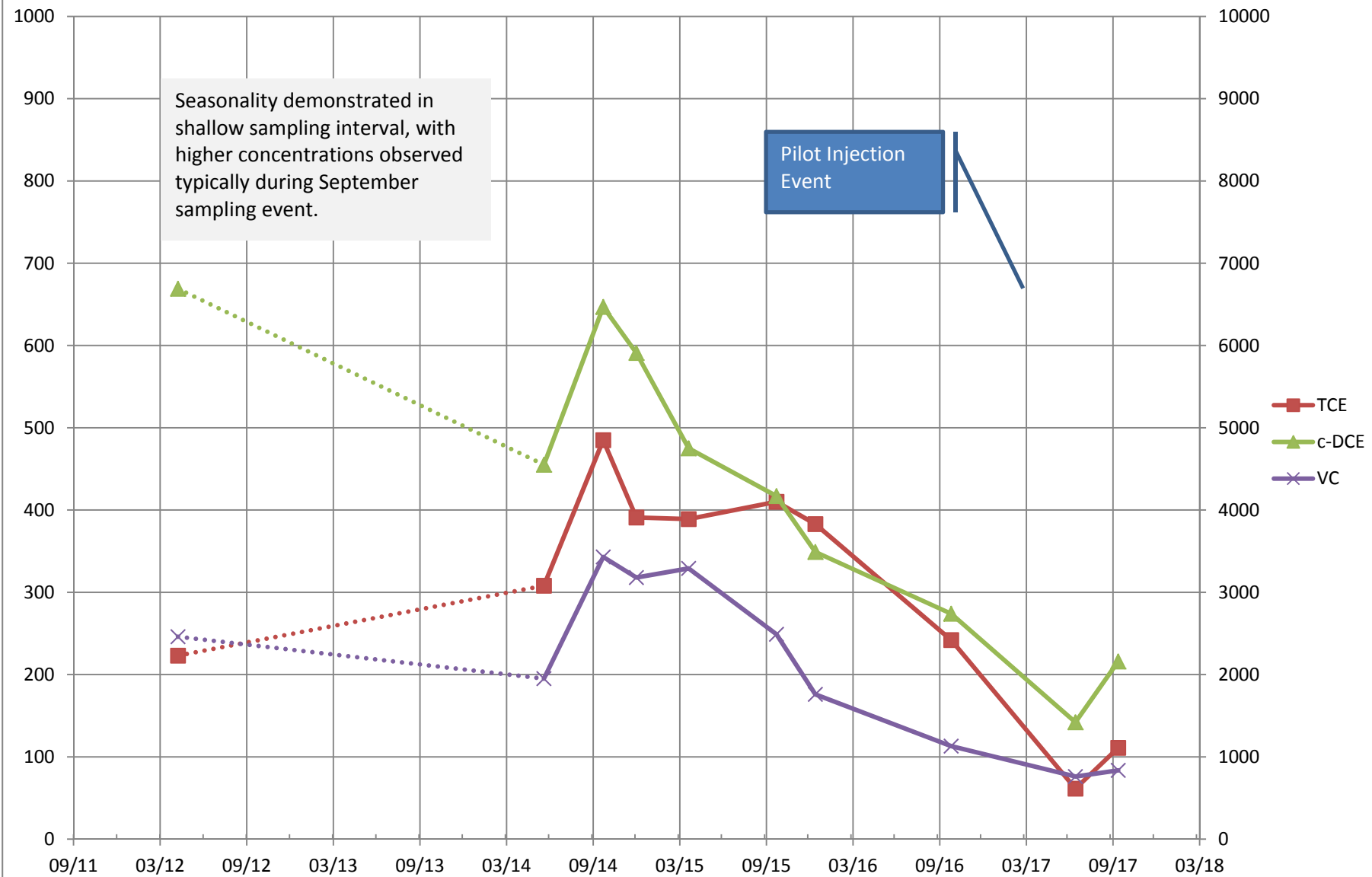
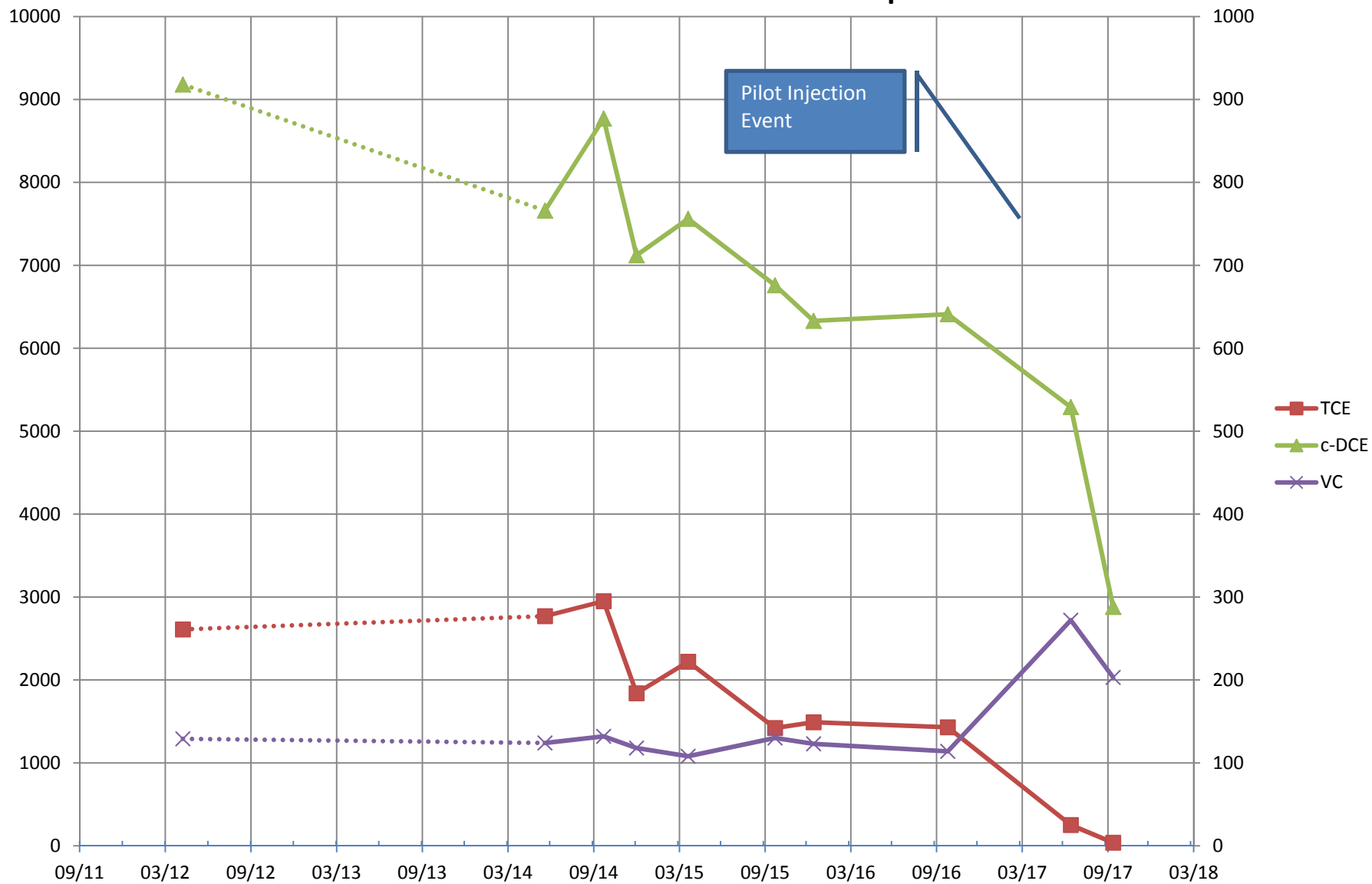


Figure 18
PZ-61 CVOC Concentrations over Time
Inside Treatment Area - Deep



Tables

Table 1	Groundwater Depth Measurements and Elevations
Table 2	Baseline and Post-Injection Field Parameters Results Summary
Table 3	Baseline and Post-Injection Alkalinity, Anions, Total Organic Carbon, and Dissolved Gases Results Summary
Table 4	Baseline and Post-Injection VOCs Results Summary
Table 5	Baseline and Post-Injection Metals Results Summary
Table 6	Baseline and Post-Injection Volatile Fatty Acids Results Summary
Table 7	Baseline and Post-Injection Microbial Populations Results Summary

**Table 1
Groundwater Depth Measurements and Elevations
Kenosha Engine Plant ERD Pilot Test**

Well Name	MW-61		PZ-61		PZ-75		MW-807		ERD1-TW-NW10		ERD6-TW-NW10		ERD6-TW-NW15	
Ground Elevation (ft)	624.08		624.08		623.97		623.91		624.00		624.00		624.00	
Top of Casing Elevation (ft)	623.78		623.87		623.83		626.23		--		--		--	
Top of Screen Elevation (ft)	616.48		603.57		604.83		618.28		--		--		--	
Screen Length (ft)	10		2.5		5		10		15		15		15	
Well Bottom (ft)	17.30		22.80		24.00		17.95		22.00		22.00		22.00	
Relative Location to ISCO Test Area	Injection Area		Injection Area		Up-Gradient		Down-Gradient (far)		Side-Gradient		Up-/Side-Gradient		Up-/Side-Gradient	
Date	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation	Groundwater Depth	Groundwater Elevation
9/6-8/2011	9.53	614.25	NI	NI	9.60	614.23	NI	NI	NI	NI	NI	NI	NI	NI
11/2/2011	9.48	614.30	9.65	614.22	9.41	614.42	NI	NI	NI	NI	NI	NI	NI	NI
1/23/2012	9.60	614.18	9.77	614.10	9.89	613.94	NI	NI	NI	NI	NI	NI	NI	NI
4/12/2012	9.60	614.18	9.78	614.09	9.93	613.90	NI	NI	NI	NI	NI	NI	NI	NI
6/11/2012	9.69	614.09	9.84	614.03	9.94	613.89	NI	NI	NI	NI	NI	NI	NI	NI
5/07-20/2014	9.01	614.77	9.12	614.75	9.42	614.41	10.82	615.41	NI	NI	NI	NI	NI	NI
9/22/2014	9.19	614.59	9.33	614.54	9.22	614.61	10.85	615.38	NI	NI	NI	NI	NI	NI
12/1/2014	9.20	614.58	9.24	614.63	9.20	614.63	11.00	615.23	NI	NI	NI	NI	NI	NI
3/20/2015	9.23	614.55	9.43	614.44	9.44	614.39	11.30	614.93	NI	NI	NI	NI	NI	NI
6/23/2015	8.91	614.87	9.17	614.70	9.36	614.47	10.48	615.75	NI	NI	NI	NI	NI	NI
9/21/2015	8.91	614.87	9.06	614.81	9.36	614.47	10.06	616.17	NI	NI	NI	NI	NI	NI
4/13/2016	8.62	615.16	8.86	615.01	9.18	614.65	10.10	616.13	NI	NI	NI	NI	NI	NI
9/26-27/2016	9.73	614.05	9.56	614.31	9.48	614.35	10.89	615.34	9.35	614.65	10.10	613.90	10.16	613.84
12/13/2016	9.30	614.48	9.53	614.34	9.61	614.22	11.31	614.92	9.38	614.62	10.18	613.82	10.21	613.79
12/14/2016	9.32	614.46	9.53	614.34	9.62	614.21	10.33	615.90	9.10	614.90	10.19	613.81	10.23	613.77
3/7/2017	9.02	614.76	9.24	614.63	9.40	614.43	10.85	615.38	9.05	614.95	9.84	614.16	9.91	614.09
3/17/2017	9.04	614.74	4.55	619.32	9.43	614.40	10.05	616.18	9.09	614.91	9.30	614.70	9.61	614.39
6/14-15/2017	9.06	614.72	9.30	614.57	9.40	614.43	11.17	615.06	9.14	614.86	9.90	614.10	9.97	614.03
9/14/2017	9.27	614.51	9.48	614.39	9.24	614.59	11.53	614.70	9.34	614.66	10.08	613.92	10.11	613.89
3/21/2018	9.18	614.60	9.38	614.49	9.24	614.59	11.21	615.02	9.30	614.70	10.08	613.92	10.11	613.89
	0.71		0.32		0.08		0.04		0.30		0.26		0.25	

Notes:

Groundwater depth measured in feet below measure point (top of casing for MWs and PZs, ground elevation for TWs)
 -- = temporary wells not surveyed; adjacent ground elevation used to estimate groundwater elevation
 NI = well not installed at time of measurement

**Table 2
Baseline and Post-Injection Field Parameters Results Summary
Kenosha Engine Plant ERD Pilot Test**

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	pH (std. units)	DO (mg/L)	ORP (mV)	Conductivity (µS/cm)	Temperature (°C)
ERD Pilot Test Area Permanent Wells								
MW-61	Injection Area	CS8-MW-61	9/26/2016	7.10	0.31	-119.9	2.368	18.66
			3/6/2017	6.98	0.78	20.4 ¹	1.492	11.57
			3/17/2017	7.02	1.17 ¹	-190.1	1.298	9.11
			6/15/2017	7.03	0.23	-133.3	1.554	17.62
			9/13/2017	7.00	0.48	-199.1	1.367	18.11
PZ-61	Injection Area	CS8-PZ-61	9/26/2016	6.96	0.43	-91.0	2.970	15.97
			3/6/2017	7.23 ¹	3.08 ¹	31.0 ¹	1.617	12.81
			6/15/2017	5.87	0.19	-149.2	6.045	14.58
			9/13/2017	5.64	0.78	-69.6	4.247	16.39
			3/21/2018	6.51	0.29	-59.0	1.725	11.14
MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	7.08	0.53	-102.0	0.954	17.90
PZ-75	Up-Gradient	CS4-PZ-75	9/26/2016	7.06	0.31	-107.3	2.103	16.91
			3/6/2017	6.86	5.48 ¹	194.7 ¹	0.902	12.06
			6/14/2017	7.06	0.41	-87.5	1.826	17.15
			9/14/2017	7.22	0.61	-103.4	1.762	16.83
MW-807	Down-Gradient (far)	CS8-MW-807	9/26/2016	8.24	6.58	42.7	0.393	20.14
			3/6/2017	6.96	6.97	194.8	0.330	11.43
			6/14/2017	7.57	4.90	76.0	0.365	22.34
			9/14/2017	7.66	2.32	8.4	0.958	19.46
			3/22/2018	7.75	6.89	50.3	0.526	8.32
ERD Pilot Test Area Temporary Wells								
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	9/27/2016	7.12	0.86	-108.9	2.278	17.24
			3/6/2017	7.09	--	-43.2	1.553	10.97
			3/17/2017	7.52	0.60	-44.0	2.303	9.68
			6/15/2017	7.18	0.74	-142.3	1.742	15.28
			9/14/2017	7.17	0.66	-109.2	1.643	18.08
		ERD1-TW-NW10-BOS	3/22/2018	9.41 ¹	2.24 ¹	-222.8	1.953	9.15
			9/27/2016	6.90	0.88	-109.8	4.972	16.49
			3/6/2017	6.89	--	-78.5	5.022	12.61
			3/17/2017	7.46	0.44	-79.0	4.009	10.20
			6/15/2017	6.99	0.78	-139.2	2.611	16.65
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	9/27/2016	6.99	0.64	-119.1	2.314	17.54
			3/6/2017	6.98	2.37 ¹	-51.8	1.507	11.33
			6/14/2017	6.57	0.31	-117.2	1.927	16.51
			9/13/2017	7.00	1.59 ¹	-115.0	1.788	19.47
			3/21/2018	4.82 ¹	1.02 ¹	-152.4	1.647	9.42
		ERD6-TW-NW10-BOS	9/27/2016	7.01	0.33	-124.5	3.202	16.50
			3/6/2017	7.08	2.09 ¹	-44.0 ¹	3.099	12.30
			6/14/2017	5.84	0.18	-119.0	2.191	16.16
			9/13/2017	6.03	0.45	-70.3	3.528	18.99
			3/21/2018	7.11	0.87	-171.1	1.908	10.40
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	9/27/2016	7.17	0.36	-101.4	2.727	17.72
			3/6/2017	7.03	0.42	-79.7	2.093	11.10
			6/14/2017	5.92	1.40 ¹	-95.6	1.820	13.69
			9/13/2017	6.67	1.03 ¹	-126.3	1.821	17.36
			3/21/2018	7.17	0.50	-89.8	1.596	8.99
		ERD6-TW-NW15-BOS	9/27/2016	7.12	0.48	-104.4	4.577	16.29
			3/6/2017	6.95	0.37	-81.8	3.494	12.37
			6/14/2017	5.96	1.11 ¹	-119.6	3.261	14.58
			9/13/2017	6.14	1.36 ¹	-120.2	2.870	16.83
			3/21/2018	6.83	0.49	-68.6	2.401	10.76
ERD8-TW-SW15*	Injection Area	ERD8-TW-SW15 TOS	9/27/2016	7.19	0.33	-105.6	2.389	17.41
		ERD8-TW-SW15 BOS	9/27/2016	7.15	0.53	-113.2	6.271	17.07

Notes:

DO = dissolved oxygen

ORP = oxidation-reduction potential

-- = not measured

* wells abandoned during other site remedial activities

mg/L = milligrams per liter

mV = millivolts

µS/cm = microSiemens per centimeter

°C = degrees Celsius

TOS = top of screen

BOS = bottom of screen

¹ measurement is suspect, due to possible instrument error.

Table 3
Baseline and Post-Injection Alkalinity, Anions, Total Organic Carbon, and Dissolved Gases Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Alkalinity (mg/L)	Anions			Total Organic Carbon (mg/L)	Dissolved Gases		
					Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)		Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)
ERD Pilot Test Area Permanent Wells											
MW-61	Injection Area	CS8-MW-61	3/23/2015	NA	1,010	17.5	< 2	NA	191	95.4	2,030
			9/24/2015	511	874	< 100	< 2	0.56	192	100	942
			12/15/2015	NA	847	65.1	< 2	0.47 ^J	122	73.7	917
			9/26/2016	519	431	67.0	NA	1.9 ^J	98.8	27.1	705
			3/17/2017	NA	NA	NA	NA	4.1	NA	NA	NA
			6/15/2017	397	431	5.7 ^J	NA	1.9 ^J	244	30.9	2,720
			9/13/2017	428	350	25.8	< 1.2	2.5	195	23.6	1,870
			3/21/2018	389	551	29.4 ^J	NA	0.94	74.1	70.0	1,390
		DUP	418	599	32.5 ^J	NA	0.98	87.2	82.3	1,240	
PZ-61	Injection Area	CS8-PZ-61	9/24/2015	282	1,190	59.9	< 2	< 0.17	6.4	10.7	283
			12/15/2015	NA	1,600	70.7	< 2	0.2 ^J	3.9 ^J	6.1	273
			9/26/2016	342	1,710	64.6	NA	< 1.5	4.3 ^J	6.6	271
			6/15/2017	1,660	1,750	< 100	NA	4,840	27.1	8.3	279
			9/13/2017	1,320	1,020	13.4 ^J	< 1.2	5,680	54.0	34.8	403
			3/21/2018	1,460	360	< 20.0	NA	2,050	68.9	9.2	4,460
MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	479	138	180	NA	24.0 ^J	1.2 ^J	2.9 ^J	194
PZ-75	Up-Gradient	CS4-PZ-75	9/26/2016	357	488	57.9	NA	3.2 ^J	< 0.52	11.8	278
			3/17/2017	NA	NA	NA	NA	0.52 ^J	NA	NA	NA
			6/14/2017	399	539	102	NA	1.1 ^J	2.4 ^J	15.5	436
			9/14/2017	397	506	118	< 1.2	10.3	23.3	12.1	542
			3/22/2018	417	542	103	NA	3.1	52.1	11.7	716
MW-807	Down-Gradient (far)	CS8-MW-807	9/26/2016	121	47.4 ^J	40.3 ^J	NA	2.0 ^J	4.9 ^J	< 0.58	< 1.4
			3/17/2017	NA	NA	NA	NA	1.8	NA	NA	NA
			6/14/2017	< 176	35.0	33.9	NA	1.0	< 0.52	< 0.58	< 1.4
			9/14/2017	287	169	45.2	< 1.2	0.54 ^J	10.6	5.0 ^J	218
			3/22/2018	221	29.1	48.4	NA	1.5	< 0.52	< 0.58	< 1.4
ERD Pilot Test Area Temporary Wells											
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	9/27/2016	NA	NA	NA	NA	1.6 ^J	NA	NA	NA
			3/17/2017	NA	NA	NA	NA	0.5 ^J	NA	NA	NA
			6/15/2017	511	741	9.5	NA	9.5	4.0 ^J	63.0	1,770
			9/14/2017	473	462	< 20.0	< 1.2	1.5 ^J	5.8	105	2,650
			3/22/2018	520	533	32.7 ^J	NA	3.4	177	85.1	1,880
		ERD1-TW-NW10-BOS	9/27/2016	NA	NA	NA	NA	< 2.5	NA	NA	NA
			DUP	NA	NA	NA	NA	< 2.5	NA	NA	NA
			3/17/2017	NA	NA	NA	NA	0.4 ^J	NA	NA	NA
			6/15/2017	504	944	13.7 ^J	NA	10.1	13.5	64.5	1,790
			9/14/2017	553	1,200	34.1 ^J	< 1.2	21.5	95.8	39.3	770
		3/22/2018	590	1,170	15.4 ^J	NA	7.3	1,190	54.0	7,890	

Table 3
Baseline and Post-Injection Alkalinity, Anions, Total Organic Carbon, and Dissolved Gases Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Alkalinity (mg/L)	Anions			Total Organic Carbon (mg/L)	Dissolved Gases		
					Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)		Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	9/27/2016	NA	NA	NA	NA	< 1.5	NA	NA	NA
			6/14/2017	776	278	< 5.0	NA	606	57.0	14.8	1,290
			9/13/2017	569	499	< 10.0	< 1.2	102	128	70.2	1,860
			3/21/2018	473	329	< 20.0	NA	58.7	51.9	86.1	2,660
		ERD6-TW-NW10-BOS	9/27/2016	NA	NA	NA	NA	< 1.5	NA	NA	NA
			6/14/2017	548 ^J	379	< 5.0	NA	1,430	104	21.0	771
			9/13/2017	717	709	< 20.0	< 1.2	1,260	209	28.1	1,450
			3/21/2018	406	408	< 20.0	NA	23.2	28.6	32.0	2,070
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	9/27/2016	NA	NA	NA	NA	< 1.5	NA	NA	NA
			6/14/2017	419 ^J	684	< 5.0	NA	368	136	22.0	1,720
			9/13/2017	541	558	< 20.0	< 1.2	130	193	55.8	2,930
			3/21/2018	465	349	< 20.0	NA	5.6	189	167	6,860
		ERD6-TW-NW15-BOS	9/27/2016	NA	NA	NA	NA	< 1.5	NA	NA	NA
			6/14/2017	405 ^J	795	< 5.0	NA	887	240	33.7	2,270
			9/13/2017	692	658	< 20.0	< 1.2	448	336	80.4	3,360
			3/21/2018	556	457	< 20.0	NA	206	94.2	62.6	5,790
ERD8-TW-SW15*	Injection Area	ERD8-TW-SW15-TOS	9/27/2016	NA	NA	NA	NA	< 1.5	NA	NA	NA
		ERD8-TW-SW15-BOS	9/27/2016	NA	NA	NA	NA	< 2.5	NA	NA	NA
ES				--	250 ^a	250 ^a	--	--	--	--	--
PAL				--	125 ^a	125 ^a	--	--	--	--	--

Notes:

ug/L = micrograms per liter

mg/L = milligrams per liter

^J = estimated value

PAL = Preventive Action Limit, Wisconsin Administrative Code NR 140.12 (Public Welfare Groundwater Quality Standards) Table 2, February 2017.

ES = Enforcement Standard, Wisconsin Administrative Code NR 140.12 (Public Welfare Groundwater Quality Standards) Table 2, February 2017.

^a = PAL and ES are Public Welfare Groundwater Quality Standards; concentrations above the ES and PAL are not highlighted.

Alkalinity = total as CaCO₃

* wells abandoned during other site remedial activities

Table 4
Baseline and Post-Injection VOCs Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Benzene (ug/L)	Chloro-ethane (ug/L)	1,1-DCE (ug/L)	c-DCE (ug/L)	t-DCE (ug/L)	Toluene (ug/L)	TCE (ug/L)	Vinyl Chloride (ug/L)	Xylene (Total) (ug/L)
ERD Pilot Test Area Permanent Wells												
MW-61	Injection Area	CS8-MW-61	4/11/2012	12.1 ^J	< 24.2	15.0 ^J	6,690	294	< 16.8	223	2,460	< 65
			5/22/2014	< 25	< 18.7	< 20.5	4,550	191	< 25	308	1,950	< 75
			9/24/2014	< 25	< 18.7	< 20.5	6,470	215	< 25	485	3,430	< 75
			12/3/2014	< 25	< 18.7	< 20.5	5,910	183	< 25	391	3,180	< 75
			3/23/2015	< 10	< 7.5	13.4 ^J	4,750	216	< 10	389	3,290	< 30
			9/24/2015	< 20	< 15	< 16.4	4,170	159	< 20	410	2,490	< 60
			12/15/2015	< 12.5	< 9.4	< 10.3	3,490	135	< 12.5	383	1,760	< 37.5
			9/26/2016	13.0 ^J	< 9.4	< 10.3	2,740	47.1	< 12.5	242	1,130	< 37.5
			6/15/2017	16.0 ^J	< 9.4	< 10.3	1,420	42.6	< 12.5	61.4	760	< 37.5
			DUP	19.1 ^J	< 9.4	< 10.3	1,280	44.7	< 12.5	68.6	752	< 37.5
9/13/2017	18.8 ^J	< 7.5	< 8.2	2,160	103	< 10.0	111	835	< 30			
3/21/2018	16.6 ^J	< 9.4	< 10.3	2,540	< 6.4	< 12.5	104	3,280	< 37.5			
DUP	16.3 ^J	< 9.4	< 10.3	2,560	< 6.4	< 12.5	116	3,140	< 37.5			
PZ-61	Injection Area	CS8-PZ-61	4/11/2012	< 20.5	< 48.5	< 28.5	9,180	108	< 33.5	2,610	129	< 130
			DUP	< 16.4	< 38.8	< 22.8	8,600	137	< 26.8	2,480	125	< 104
			5/22/2014	< 50	< 37.5	< 41	7,660	135	< 50	2,770	124	< 150
			DUP	< 50	< 37.5	< 41	7,760	129	< 50	2,820	109	< 150
			9/24/2014	< 50	< 37.5	< 41	8,770	145	< 50	2,950	132	< 150
			DUP	< 50	< 37.5	< 41	8,450	136	< 50	2,760	130	< 150
			12/3/2014	< 50	< 37.5	< 41	7,120	290	< 50	1,840	118	< 150
			DUP	< 25	< 18.7	20.8 ^J	7,220	196	< 25	1,770	114	< 75
			3/23/2015	< 50	< 37.5	< 41	7,560	135	< 50	2,220	108	< 150
			DUP	< 25	< 18.7	< 20.5	7,930	143	< 25	2,670	117	< 75
9/24/2015	< 50	< 37.5	< 41	6,760	127	< 50	1,420	130	< 150			
12/15/2015	< 25	< 18.7	< 20.5	6,330	117	< 25	1,490	123	< 75			
9/26/2016	< 25	< 18.7	< 20.5	6,410	< 12.8	< 25	1,430	114	< 75			
6/15/2017	< 25	< 18.7	< 20.5	5,290	78.0	32.5 ^J	251	272	< 75			
9/13/2017	< 25.0	< 18.7	< 20.5	2,880	< 12.8	< 25.0	37.9 ^J	203	< 75			
3/21/2018	< 5.0	< 3.7	< 4.1	1,210	< 2.6	< 5.0	4.2 ^J	81.2	< 15			
MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	87.5	< 0.37	< 0.41	1.4	< 0.26	3.7	< 0.33	27.4	64.4
PZ-75	Up-Gradient	CS4-PZ-75	4/12/2012	< 2.0	< 4.8	< 2.8	< 4.2	< 4.4	< 3.4	< 2.4	515	< 13
			5/30/2014	< 0.5	< 0.37	< 0.41	< 0.26	< 0.24	< 0.5	< 0.33	328 ^J	< 1.5
			9/30/2014	< 0.5	< 0.37	< 0.41	0.27 ^J	< 0.26	< 0.5	< 0.33	109	< 1.5
			12/9/2014	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	45.8	< 1.5
			9/26/2016	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	9.0	< 1.5
			6/14/2017	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	18.6	< 1.5
			9/14/2017	< 0.50	< 0.37	< 0.41	< 0.26	< 0.26	< 0.50	< 0.33	65.1	< 1.5
3/22/2018	< 2.5	< 1.9	< 2.1	< 1.3	< 1.3	< 2.5	< 1.7	673	< 7.5			

**Table 4
Baseline and Post-Injection VOCs Results Summary
Kenosha Engine Plant ERD Pilot Test**

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Benzene (ug/L)	Chloro-ethane (ug/L)	1,1-DCE (ug/L)	c-DCE (ug/L)	t-DCE (ug/L)	Toluene (ug/L)	TCE (ug/L)	Vinyl Chloride (ug/L)	Xylene (Total) (ug/L)
MW-807	Down-Gradient (far)	CS8-MW-807	5/22/2014	<u>1.2</u>	< 0.37	< 0.41	0.27 ^J	< 0.24	< 0.5	<u>0.76</u> ^J	8.8	< 1.5
			9/23/2014	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	7.2	< 1.5
			12/3/2014	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	< 0.18	< 1.5
			3/23/2015	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	< 0.33	80.4	< 1.5
			9/26/2016	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	<u>0.92</u> ^J	< 0.18	< 1.5
			6/14/2017	< 0.5	< 0.37	< 0.41	< 0.26	< 0.26	< 0.5	<u>0.64</u> ^J	< 0.18	< 1.5
			9/14/2017	< 0.50	< 0.37	< 0.41	< 0.26	< 0.26	< 0.50	<u>0.62</u> ^J	64.8	< 1.5
3/22/2018	< 0.50	< 0.37	< 0.41	< 0.26	< 0.26	< 0.50	<u>0.56</u> ^J	< 0.18	< 1.5			
ERD Pilot Test Area Temporary Wells												
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	9/27/2016	< 1	<u>225</u>	< 0.82	101	< 0.51	< 1	194	3.8	< 3
			6/15/2017	< 2	<u>119</u>	< 1.6	329	4.2	< 2	13.0	24.0	< 6
			9/14/2017	< 2.0	<u>149</u>	< 1.6	335	4.2	< 2.0	<u>3.5</u> ^J	27.2	< 6
			DUP	< 2.5	<u>149</u>	< 2.1	428	5.3	< 2.5	<u>4.8</u> ^J	31.2	< 7.5
		3/22/2018	< 0.50	<u>134</u>	< 0.41	158	< 0.26	< 0.50	<u>0.76</u> ^J	36.4	< 1.5	
		ERD1-TW-NW10-BOS	9/27/2016	< 5	13.4	< 4.1	816	2.9 ^J	< 5	1,180	25.5	< 15
			DUP	< 5	13.6	< 4.1	832	< 2.6	< 5	1,150	25.3	< 15
6/15/2017	< 2.5		<u>97.9</u>	< 2.1	628	11.4	< 2.5	84.9	46.3	< 7.5		
9/14/2017	< 20.0	< 15.0	< 16.4	1,710	79.8	< 20.0	61	105	< 60			
3/22/2018	< 0.50	15.6	<u>1.2</u>	578	< 0.26	< 0.50	5.3	138	< 1.5			
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	9/27/2016	5.6 ^J	73.3	< 4.1	747	< 2.6	< 5	5.3 ^J	228	< 15
			6/14/2017	5.2	38.7	< 0.82	150	< 0.51	2.9	<u>0.97</u> ^J	133	< 3
			9/13/2017	5.2	54	< 0.41	<u>30.5</u>	0.48 ^J	1.5	0.45 ^J	125	< 1.5
			3/21/2018	<u>2.7</u>	< 0.75	< 0.82	<u>16.4</u>	< 0.51	< 1.0	< 0.66	218	< 3
		ERD6-TW-NW10-BOS	9/27/2016	5.8 ^J	21.7	<u>5.9</u> ^J	1,800	< 2.6	< 5	10.6	305	< 15
			6/14/2017	5.3	8.5	<u>1.7</u> ^J	475	2.9	4.8	<u>1.4</u> ^J	189	3.6 ^J
			9/13/2017	5.1	26.7	< 2.1	433	3.1 ^J	4.0 ^J	< 1.7	388	< 7.5
3/21/2018	<u>2.5</u> ^J	< 1.5	< 1.6	<u>49.3</u>	< 1.0	< 2.0	< 1.3	456	< 6			
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	9/27/2016	8.9	53.8	<u>2.2</u> ^J	689	< 1.3	< 2.5	< 1.7	259	< 7.5
			6/14/2017	6.8	62.6	< 2.1	472	3.4 ^J	2.7 ^J	< 1.7	710	< 7.5
			9/13/2017	8.3	16.9	< 0.41	2.2	< 0.26	1.1	< 0.33	24.0	1.1 ^J
			3/21/2018	6.7	< 0.37	< 0.41	<u>11.6</u>	< 0.26	0.72 ^J	< 0.33	60.4	< 1.5
		ERD6-TW-NW15-BOS	9/27/2016	< 10	11.8 ^J	< 8.2	1,980	120	< 10	< 6.6	152	< 30
			6/14/2017	< 10	<u>82.8</u>	< 8.2	798	< 5.1	< 10	< 6.6	995	< 30
			9/13/2017	7.0	19.0	< 0.41	123	1.3	1.8	< 0.33	104	1.5 ^J
3/21/2018	5.8	< 0.37	< 0.41	<u>58.6</u>	< 0.26	0.93 ^J	< 0.33	115	< 1.5			
ERD8-TW-SW15*	Injection Area	ERD8-TW-SW15-TOS	9/27/2016	79.1	< 15	< 16.4	4,520	45.5	< 20	< 13.2	2,520	< 60
		ERD8-TW-SW15-BOS	9/27/2016	40.0	< 1.9	< 2.1	563	< 1.3	< 2.5	< 1.7	983	< 7.5
PAL				0.5	80	0.7	7	20	160	0.5	0.02	400
ES				5	400	7	70	100	800	5	0.2	2,000

Notes:

ug/L = micrograms per liter ^J = estimated value ^J = estimated value, may be biased low

PAL = Preventive Action Limit, Wisconsin Administrative Code NR 140.10 Table 1, February 2017; concentrations above PAL are in underlined italics.

ES = Enforcement Standard, Wisconsin Administrative Code NR 140.10 Table 1, February 2017; concentrations above ES are in **bold**.

Only compounds with at least one confirmed detection above the PAL are shown

* wells abandoned during other site remedial activities

Table 5
Baseline and Post-Injection Metals Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Barium (ug/L)	Chromium (ug/L)	Iron, Total (ug/L)	Iron, Dissolved (ug/L)	Lead (ug/L)	Nickel (ug/L)
ERD Pilot Test Area Permanent Wells									
MW-61	Injection Area	CS8-MW-61	3/23/2015	NA	NA	3,700	3,480	NA	NA
			9/24/2015	NA	NA	3,280	3,060	NA	NA
			12/15/2015	NA	NA	2,960	3,180	NA	NA
			9/26/2016	<u>432</u>	< 0.39	2,190	2,320	0.07 ^J	0.18 ^J
			6/15/2017	297	< 1	3,010	2,990	< 0.2	< 0.4
			DUP	298	< 1	3,100	2,930	< 0.2	< 0.4
			9/13/2017	294	< 1.0	1,590	1,800	< 0.20	< 0.40
PZ-61	Injection Area	CS8-PZ-61	9/24/2015	NA	NA	3,540	3,420	NA	NA
			12/15/2015	NA	NA	3,660	3,560	NA	NA
			9/26/2016	<u>404</u>	< 0.39	3,050	3,390	0.23 ^J	1.6
			6/15/2017	<u>549</u>	<u>11.6^J</u>	312,000	296,000	0.98 ^J	7.0
			9/13/2017	<u>1,670</u>	< 10.2	968,000	896,000	< 0.98	4.4 ^J
			3/21/2018	<u>1,260</u>	< 10.2	570,000	756,000	<u>6.5^J</u>	4.8 ^J
			MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	207	0.77 ^J	1,780
PZ-75	Up-Gradient	CS4-PZ-75	9/26/2016	238	0.61 ^J	2,670	1,810	<u>1.6</u>	2.8
			6/14/2017	249	< 1	3,020	< 15.5	0.23 ^J	2.5
			9/14/2017	236	< 1.0	3,890	4,090	< 0.20	6.3
			3/22/2018	223	< 1.0	614	400	0.75 ^J	10.2
MW-807	Down-Gradient (far)	CS8-MW-807	9/26/2016	124	<u>43.9</u>	31,600	< 12.9	18.8	<u>33.6</u>
			6/14/2017	48.1	<u>15.8</u>	9,680	24.5 ^J	<u>5.6</u>	9.9
			9/14/2017	51.8	< 1.0	419	278	0.23 ^J	0.77 ^J
			3/22/2018	39.1	<u>10.5</u>	4,100	84.6 ^J	<u>2.2</u>	4.2
ERD Pilot Test Area Temporary Wells									
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	6/15/2017	339	< 1	4,500	4,580	0.22 ^J	0.42 ^J
			9/14/2017	258	< 1.0	2,640	3,090	0.31 ^J	< 0.40
			DUP	275	< 1.0	2,750	2,970	< 0.39	< 0.40
			3/22/2018	246	< 1.0	2,180	1,850	< 0.20	< 0.40
		ERD1-TW-NW10-BOS	6/15/2017	<u>523</u>	< 1	5,650	5,800	< 0.2	< 0.4
			9/14/2017	<u>919</u>	< 5.1	10,100	10,500	< 0.98	< 2.0
			3/22/2018	<u>659</u>	< 5.1	6,980	6,030	< 0.20	< 2.0
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	6/14/2017	158	3.4 ^J	21,100	< 15.5	< 0.2	2.5
			9/13/2017	206	1.1 ^J	19,500	21,000	< 0.20	1.0 ^J
			3/21/2018	152	<u>10.2</u>	31,000	27,600	0.26 ^J	6.8
		ERD6-TW-NW10-BOS	6/14/2017	196	3.3 ^J	55,800	43,900	0.38 ^J	2.2
			9/13/2017	<u>710</u>	< 5.1	138,000	120,000	< 0.98	< 2.0
			3/21/2018	173	4.2	16,200	9,030	< 0.20	3.4

Table 5
Baseline and Post-Injection Metals Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Barium (ug/L)	Chromium (ug/L)	Iron, Total (ug/L)	Iron, Dissolved (ug/L)	Lead (ug/L)	Nickel (ug/L)
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	6/14/2017	378	< 1	25,400	1,090	< 0.2	0.5 ^J
			9/13/2017	282	< 1.0	29,400	34,300	< 0.20	< 0.40
			3/21/2018	79.8	< 1.0	6,700	7,140	< 0.20	0.78 ^J
		ERD6-TW-NW15-BOS	6/14/2017	<u>482</u>	< 1	34,100	6,770	< 0.2	0.44 ^J
			9/13/2017	<u>574</u>	1.4 ^J	44,200	50,100	< 0.39	0.89 ^J
			3/21/2018	283	8.9	33,800	32,000	1.3	5.8
PAL				400	10	150 ^a	150 ^a	1.5	20
ES				2,000	100	300 ^a	300 ^a	15	100

Notes:

ug/L = micrograms per liter

^J = estimated value

PAL = Preventive Action Limit, Wisconsin Administrative Code NR 140.10 Table 1, February 2017; concentrations above PAL are in underlined italics.

ES = Enforcement Standard, Wisconsin Administrative Code NR 140.10 Table 1, February 2017; concentrations above ES are in **bold**.

^a = PAL and ES are Public Welfare Groundwater Quality Standards; concentrations above the ES and PAL are not highlighted.

* wells abandoned during other site remedial activities

Table 6
Baseline and Post-Injection Volatile Fatty Acids Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	Acetic Acid (mg/L)	Butyric Acid (mg/L)	Formic Acid (mg/L)	Hexanoic Acid (mg/L)	i-Hexanoic Acid (mg/L)	i-Pentanoic Acid (mg/L)	Lactic Acid (mg/L)	Pentanoic Acid (mg/L)	Propionic Acid (mg/L)	Pyruvic Acid (mg/L)
ERD Pilot Test Area Permanent Wells													
MW-61	Injection Area	CS8-MW-61	9/26/2016	0.33 ^{Jb}	0.07 ^{Jb}	0.26 ^{Jb}	< 0.07	< 0.04	< 0.07	0.09 ^{Jb}	0.17 ^J	< 0.09	< 0.07
			6/15/2017	7.4	0.37 ^J	< 0.69	< 0.38	< 0.41	< 0.055	< 0.2	< 0.12	0.18 ^J	< 0.16
			9/13/2017	3.0	< 0.055	0.36 ^{Jb}	< 0.095	< 0.11	< 0.098	0.38 ^{Jb}	< 0.082	< 0.055	< 0.089
PZ-61	Injection Area	CS8-PZ-61	9/26/2016	0.31 ^{Jb}	< 0.07	0.27 ^{Jb}	< 0.07	< 0.04	< 0.07	0.099 ^{Jb}	0.22 ^J	< 0.09	< 0.07
			6/15/2017	1,300	1,400	63	8.0	5.7	2.5 ^J	140	55	760	6.5 ^J
			9/13/2017	3,200	2,600	96 ^{Jb}	48	9.6	9.6 ^J	4.5	270	1,900	15 ^J
MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	0.089 ^{Jb}	0.0074 ^{Jb}	0.063 ^{Jb}	< 0.007	< 0.004	< 0.007	0.012 ^{Jb}	0.031 ^J	< 0.009	< 0.007
PZ-75	Up-Gradient	CS4-PZ-75	9/26/2016	0.3 ^{Jb}	0.094 ^{Jb}	0.2 ^{Jb}	< 0.07	< 0.04	< 0.07	0.076 ^{Jb}	0.07 ^J	< 0.09	< 0.07
			6/14/2017	0.4 ^{Jb}	< 0.14	0.76 ^J	< 0.38	< 0.41	< 0.055	< 0.2	< 0.12	< 0.061	< 0.16
			9/14/2017	0.31 ^J	< 0.055	0.72 ^{Jb}	0.097 ^J	< 0.11	< 0.098	0.18 ^{Jb}	< 0.082	< 0.055	< 0.089
MW-807	Down-Gradient (far)	CS8-MW-807	9/26/2016	0.039 ^{Jb}	< 0.007	0.046 ^{Jb}	0.025 ^J	< 0.004	< 0.007	0.0092 ^{Jb}	0.034 ^J	< 0.009	< 0.007
			6/14/2017	0.55 ^{Jb}	0.14 ^J	1.7 ^J	< 0.38	< 0.41	< 0.055	< 0.2	< 0.12	0.1 ^J	< 0.16
			9/14/2017	0.42 ^J	< 0.055	0.9	< 0.095	< 0.11	< 0.098	0.19 ^{Jb}	< 0.082	< 0.055	< 0.089
ERD Pilot Test Area Temporary Wells													
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	6/15/2017	21	0.54 ^J	1.1 ^J	< 0.38	< 0.41	< 0.055	< 0.2	< 0.12	11	< 0.16
			9/14/2017	0.26 ^J	< 0.055	0.55 ^{Jb}	< 0.095	< 0.11	< 0.098	0.2 ^{Jb}	< 0.082	< 0.055	< 0.089
		ERD1-TW-NW10-BOS	6/15/2017	35	1.3	1.2 ^J	< 0.38	< 0.41	< 0.055	< 0.2	< 0.12	18	< 0.16
			9/14/2017	64	0.28 ^J	0.5 ^{Jb}	< 0.095	< 0.11	< 0.098	0.15 ^{Jb}	0.31 ^J	36	0.24 ^J
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	6/14/2017	600	44	3.3	5.4	0.41 ^J	1.7	8.7	4.9	350	2.3
			9/13/2017	110	13	0.99 ^{Jb}	1.3 ^J	< 0.11	0.84 ^J	0.17 ^{Jb}	4.7	54	3.1
		ERD6-TW-NW10-BOS	6/14/2017	660	150	5.7	4.0	0.82 ^J	1.9	8.6	9.1	380	3.0
			9/13/2017	970	480	11	19	2.6	4.0	7.3	65	450	17
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	6/14/2017	230	82	2.5	0.94 ^J	0.6 ^J	0.79 ^J	0.28 ^J	4.8	96	1.2
			9/13/2017	160	14	0.92 ^{Jb}	2.1	< 0.11	0.53 ^J	< 0.11	2.3	42	2.4
		ERD6-TW-NW15-BOS	6/14/2017	350	170	10 ^J	1.2 ^J	1.2 ^J	0.8 ^J	7.1 ^J	9.4	150	1.5
			9/13/2017	370	160	1.8 ^{Jb}	2.9	0.8 ^J	0.69 ^J	< 1.1	13	220	3.5

Notes:

mg/L = milligrams per liter

^J = estimated value

^b = analyte present in method blank and considered laboratory contamination (value is within 5 times the blank concentration, taking into consideration sample dilutions)

* wells abandoned during other site remedial activities

Table 7
Baseline and Post-Injection Microbial Populations Results Summary
Kenosha Engine Plant ERD Pilot Test

Well Name	Location Relative to ERD Test Area	Field ID	Sample Date	DHC (cells/mL)	tceA (cells/mL)	bvcA BAV1 (cells/mL)	vcrA (cells/mL)	MGN (cells/mL)	APS (cells/mL)
ERD Pilot Test Area Permanent Wells									
MW-61	Injection Area	CS8-MW-61	9/26/2016	< 5.00E-01	1.28E+02	4.36E+04	3.13E+05	1.79E+04	8.09E+03
			6/15/2017	5.10E+01	5.48E+04	1.04E+05	1.52E+06	9.05E+04	5.69E+04
			9/13/2017	1.79E+01	8.94E+04	9.40E+04	6.09E+05	2.96E+04	5.99E+04
			3/21/2018	3.60E+00	2.77E+03	5.61E+03	5.90E+04	1.85E+03	2.04E+03
PZ-61	Injection Area	CS8-PZ-61	9/26/2016	< 5.00E-01	1.00E+01	3.82E+02	5.61E+04	2.94E+01	2.69E+01
			6/15/2017	4.56E+02	1.16E+03	7.36E+02	1.04E+03	< 2.94E+01	4.42E+02
			9/13/2017	1.64E+02	5.86E+02	1.79E+04	1.96E+04	3.39E+03	8.51E+03
			3/21/2018	2.39E+02	3.46E+04	5.06E+03	1.24E+06	4.79E+03	1.84E+03
MW-75*	Up-Gradient	CS4-MW-75	9/26/2016	8.08E+01	6.76E+02	7.50E+03	1.51E+05	1.29E+03	1.47E+03
PZ-75	Up-Gradient	CS4-PZ-75	9/26/2016	< 5.00E-01	3.83E+02	1.08E+02	4.51E+04	1.21E+01	9.80E+00
			6/14/2017	< 5.00E-01	1.58E+03	1.79E+02	1.56E+05	4.51E+01	2.60E+03
			9/14/2017	< 5.00E-01	3.42E+01	3.45E+02	9.78E+03	2.04E+01	1.78E+03
			3/22/2018	2.00E-01 ^J	1.40E+00 ^J	9.20E+00	2.64E+04	2.70E+00	2.54E+01
MW-807	Down-Gradient (far)	CS8-MW-807	9/26/2016	< 1.10E+00	1.10E+00 ^J	< 1.10E+00	1.39E+02	< 1.10E+00	< 1.10E+00
			6/14/2017	< 4.00E+00	1.87E+01 ^J	< 4.00E+00	< 4.00E+01	< 4.00E+00	< 4.00E+00
			9/14/2017	< 1.00E+00	< 1.02E+01	< 1.00E+00	< 1.02E+01	< 1.00E+00	< 1.00E+00
			3/22/2018	< 2.50E+00	< 2.50E+01	< 2.50E+00	< 2.50E+01	< 2.50E+00	< 2.50E+00
ERD Pilot Test Area Temporary Wells									
ERD1-TW-NW10	Side-Gradient	ERD1-TW-NW10-TOS	6/15/2017	3.33E+01	2.22E+04	3.05E+04	1.37E+06	2.64E+04	4.58E+04
			9/14/2017	1.01E+01	1.54E+02	8.04E+03	4.40E+03	1.61E+03	1.73E+04
			3/22/2018	7.39E+03	1.81E+03	2.56E+04	2.57E+04	4.83E+03	1.41E+04
		ERD1-TW-NW10-BOS	6/15/2017	8.26E+01	2.25E+04	4.34E+04	1.98E+06	4.65E+04	8.08E+04
			9/14/2017	2.09E+04	9.32E+03	1.13E+05	2.48E+04	3.09E+04	1.60E+05
			3/22/2018	1.66E+04	2.08E+04	5.08E+04	8.89E+04	5.25E+03	1.97E+04
ERD6-TW-NW10	Up-/Side Gradient	ERD6-TW-NW10-TOS	6/14/2017	7.60E+01	2.10E+04	1.41E+04	5.08E+02	3.14E+03	5.20E+03
			9/13/2017	1.23E+02	3.51E+04	1.55E+05	1.22E+04	2.05E+04	6.44E+04
			3/21/2018	9.86E+02	7.74E+05	4.00E+04	2.37E+05	2.99E+04	2.85E+04
		ERD6-TW-NW10-BOS	6/14/2017	2.72E+02	3.61E+04	5.97E+03	7.35E+02	6.82E+02	9.16E+02
			9/13/2017	1.95E+01	3.09E+03	1.86E+04	1.27E+03	3.15E+03	4.24E+03
			3/21/2018	4.60E+02	6.92E+05	3.94E+04	3.30E+05	1.80E+04	2.07E+04
ERD6-TW-NW15	Up-/Side Gradient	ERD6-TW-NW15-TOS	6/14/2017	4.49E+01	8.31E+04	1.14E+04	9.32E+03	2.59E+03	3.98E+03
			9/13/2017	3.68E+01	2.55E+04	2.09E+04	2.46E+03	2.66E+03	1.32E+04
			3/21/2018	4.92E+02	5.65E+05	1.81E+04	5.16E+05	4.83E+03	7.58E+03
		ERD6-TW-NW15-BOS	6/14/2017	4.52E+01	7.89E+03	3.39E+03	4.33E+02	6.86E+02	1.51E+03
			9/13/2017	3.81E+01	2.64E+04	3.24E+04	4.00E+03	5.43E+03	1.70E+04
			3/21/2018	5.68E+02	4.54E+05	1.68E+04	3.56E+05	3.54E+03	5.74E+03

Notes:

cells/mL = cells per milliliter

^J = estimated value

* wells abandoned during other site remedial activities

DHC = *Dehalococcoides* spp.

tceA = tce Reductase functional gene encoding reductive dehalogenases, TCE to DCE and vinyl chloride

bvcA (BAV1) = BAV1 vinyl chloride Reductase functional gene encoding reductive dehalogenases, vinyl chloride to ethene

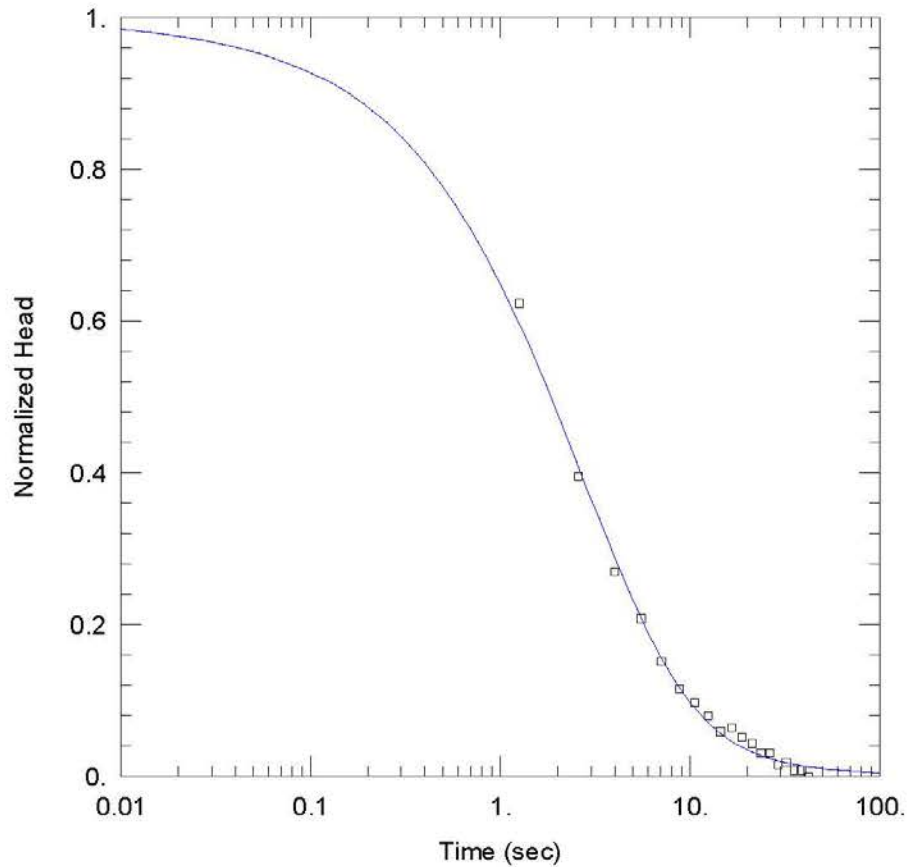
vcrA = vinyl chloride Reductase functional gene encoding reductive dehalogenases, vinyl chloride to ethene

APS = Sulphur-Reducing Bacteria

MGN = Methanogens

Appendix A

Hydraulic Conductivity Data and Results



MW61 RISING 1

Data Set: P:\60518412\900_Work\Field Work\Slug Tesing\MW61_Rising1.aqt
 Date: 06/13/18 Time: 13:10:55

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 9/28/2016

AQUIFER DATA

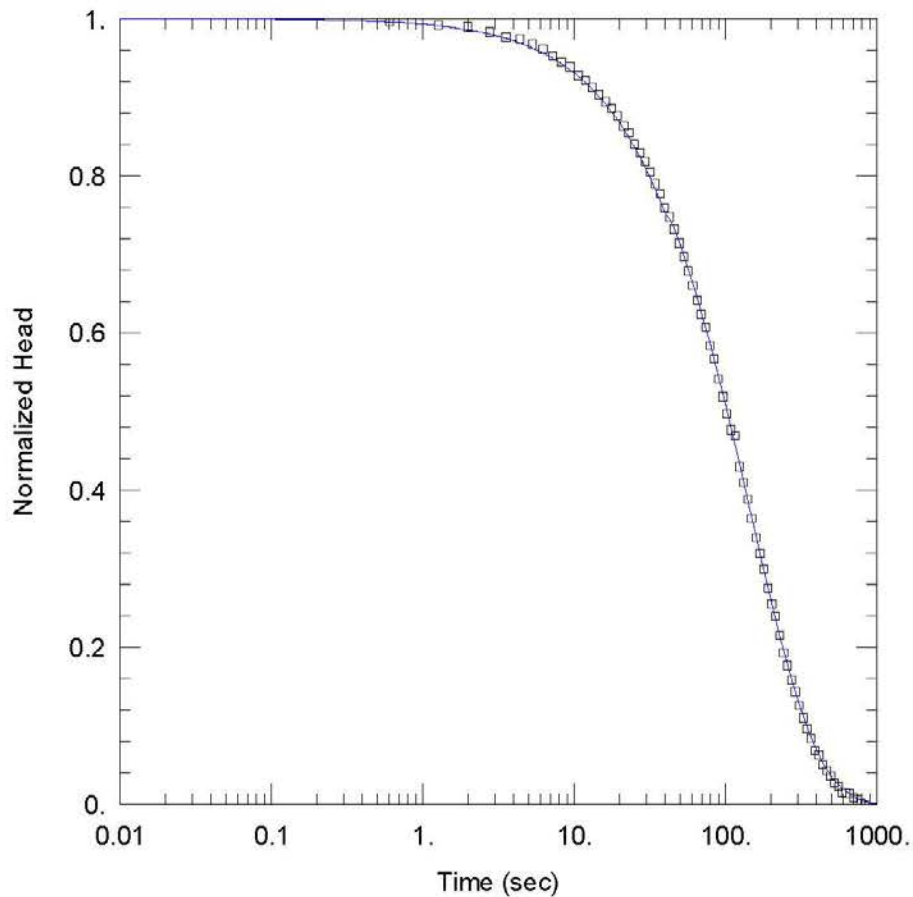
Saturated Thickness: 200. ft

WELL DATA (MW--61)

Initial Displacement: <u>1. ft</u>	Static Water Column Height: <u>7.68 ft</u>
Total Well Penetration Depth: <u>10. ft</u>	Screen Length: <u>10. ft</u>
Casing Radius: <u>0.083 ft</u>	Well Radius: <u>0.083 ft</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>KGS Model</u>
Kr = <u>0.01172 cm/sec</u>	Ss = <u>0.0003536 ft⁻¹</u>
Kz/Kr = <u>0.001012</u>	



PZ61 FALLING 1

Data Set: P:\60518412\900_Work\Field Work\Slug Tesing\PZ61_Falling1.aqt
 Date: 06/13/18 Time: 13:23:48

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: PZ-61
 Test Date: 9/28/2016

AQUIFER DATA

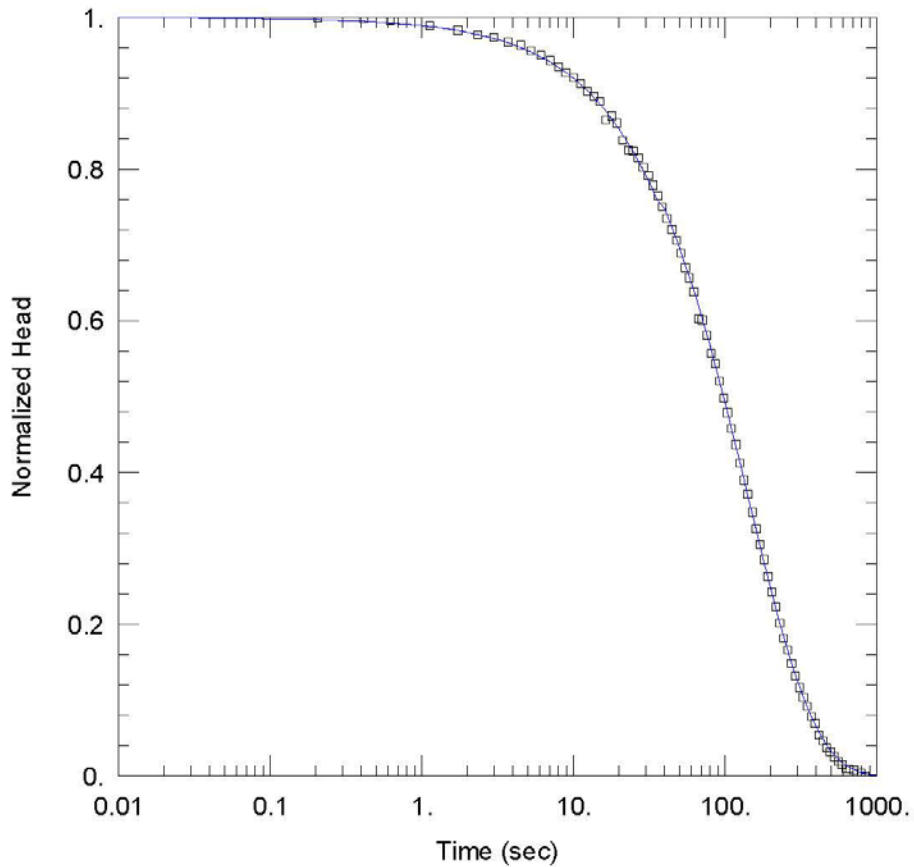
Saturated Thickness: 200. ft

WELL DATA (PZ--61)

Initial Displacement: <u>1. ft</u>	Static Water Column Height: <u>13.27 ft</u>
Total Well Penetration Depth: <u>5. ft</u>	Screen Length: <u>5. ft</u>
Casing Radius: <u>0.083 ft</u>	Well Radius: <u>0.083 ft</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>KGS Model</u>
Kr = <u>0.0005851 cm/sec</u>	Ss = <u>1.429E-12 ft⁻¹</u>
Kz/Kr = <u>0.1</u>	



PZ61 RISING 1

Data Set: P:\60518412\900_Work\Field Work\Slug Tesing\PZ61_Rising1.aqt
 Date: 06/13/18 Time: 13:03:58

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: PZ-61
 Test Date: 9/28/2016

AQUIFER DATA

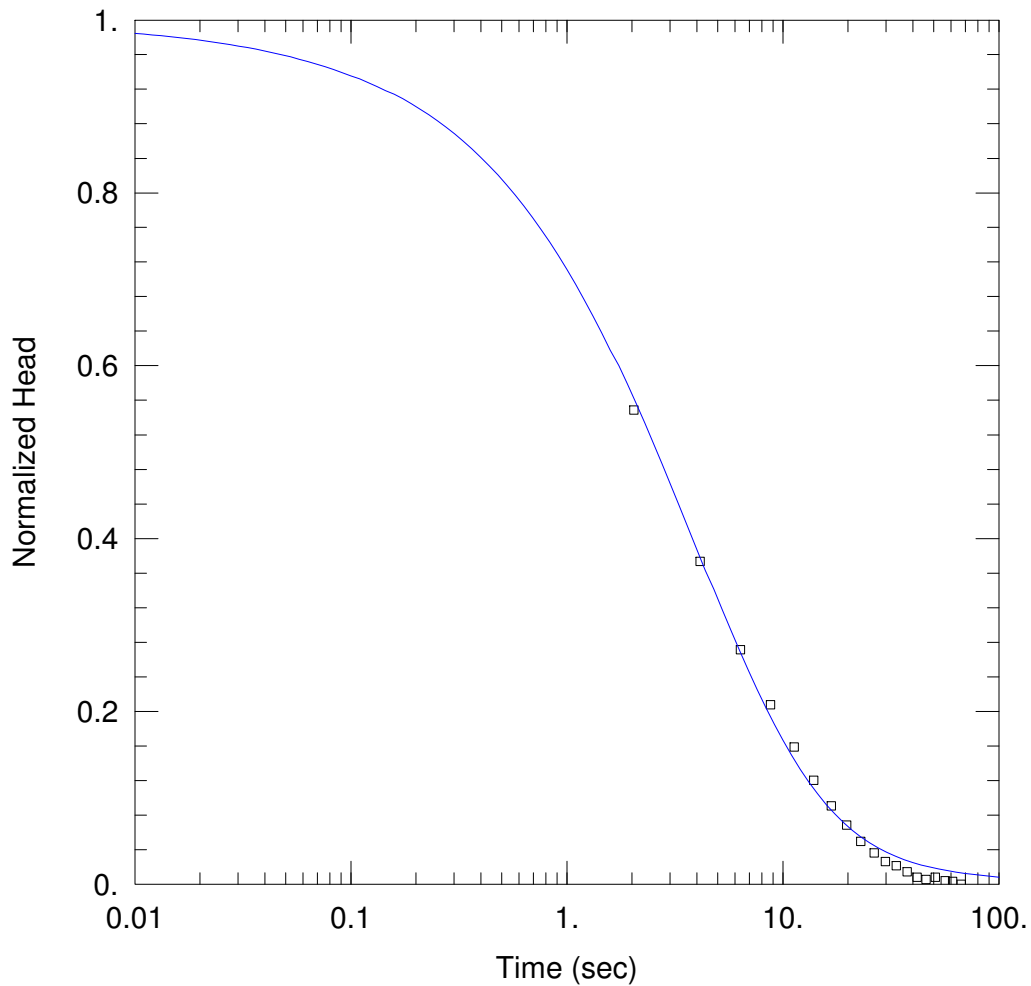
Saturated Thickness: 200. ft

WELL DATA (PZ--61)

Initial Displacement: 1. ft Static Water Column Height: 13.27 ft
 Total Well Penetration Depth: 5. ft Screen Length: 5. ft
 Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: KGS Model
 $K_r = 0.0006063 \text{ cm/sec}$ $S_s = 5.6E-6 \text{ ft}^{-1}$
 $K_z/K_r = 0.1$



MW61 RISING 1

Data Set: C:\...\MW61_Rising1_2018.aqt
 Date: 08/14/18

Time: 12:31:37

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (MW--61)

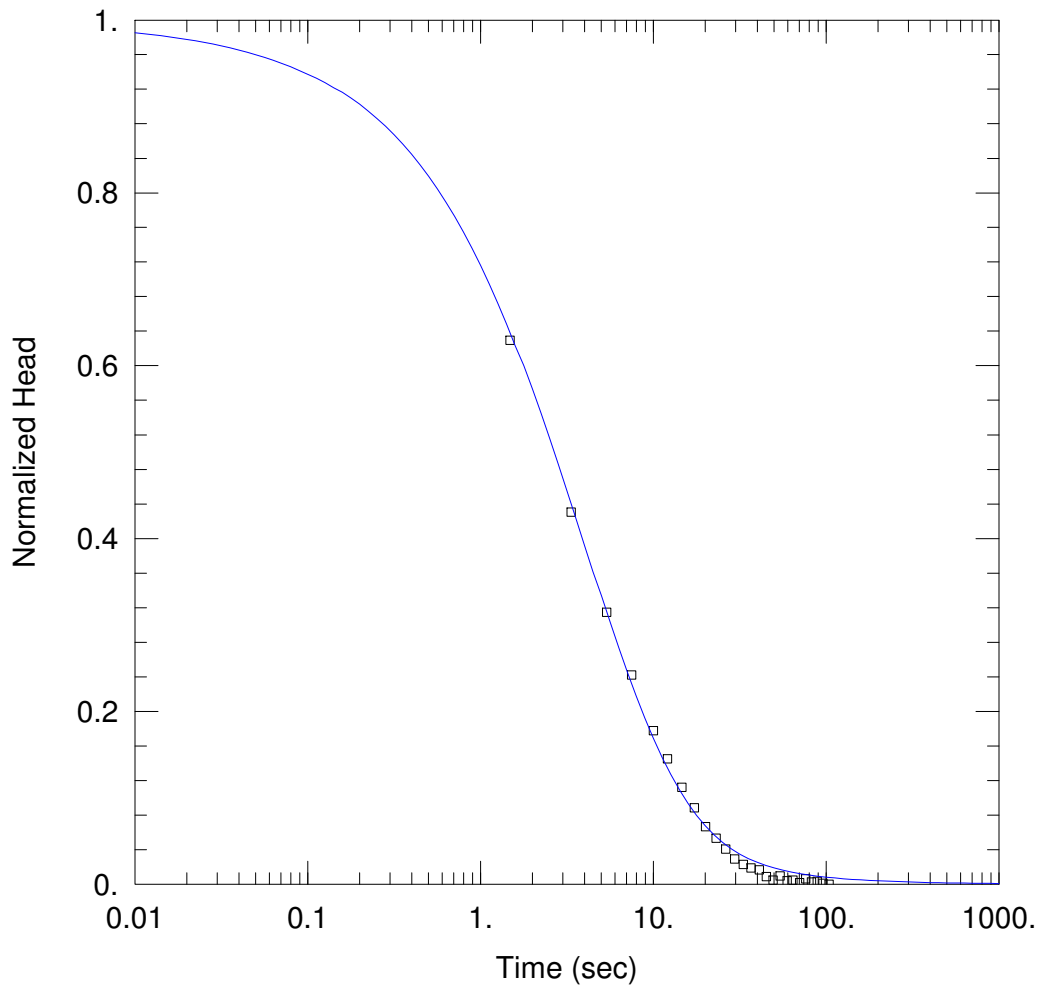
Initial Displacement: 1. ft
 Total Well Penetration Depth: 10. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 8.1 ft
 Screen Length: 10. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 0.007058 cm/sec
 Kz/Kr = 0.001012

Solution Method: KGS Model
 Ss = 0.0007717 ft⁻¹



MW61 RISING 2

Data Set: C:\...\MW61_Rising2_2018.aqt
 Date: 08/14/18

Time: 12:31:01

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (MW--61)

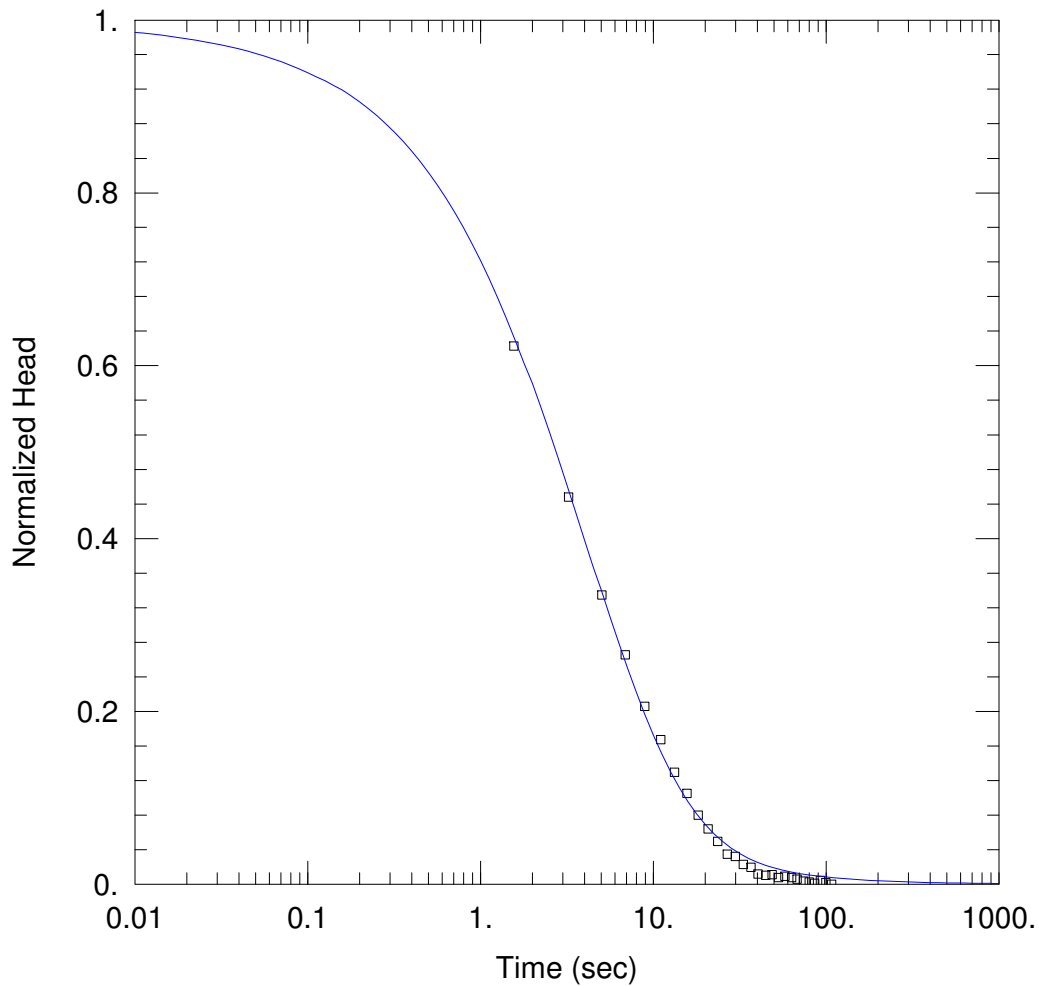
Initial Displacement: 1. ft
 Total Well Penetration Depth: 10. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 8.1 ft
 Screen Length: 10. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 0.007074 cm/sec
 Kz/Kr = 0.001012

Solution Method: KGS Model
 Ss = 0.0006945 ft⁻¹



MW61 RISING 3

Data Set: C:\...\MW61_Rising3_2018.aqt
 Date: 08/14/18

Time: 12:32:33

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200 ft

WELL DATA (MW--61)

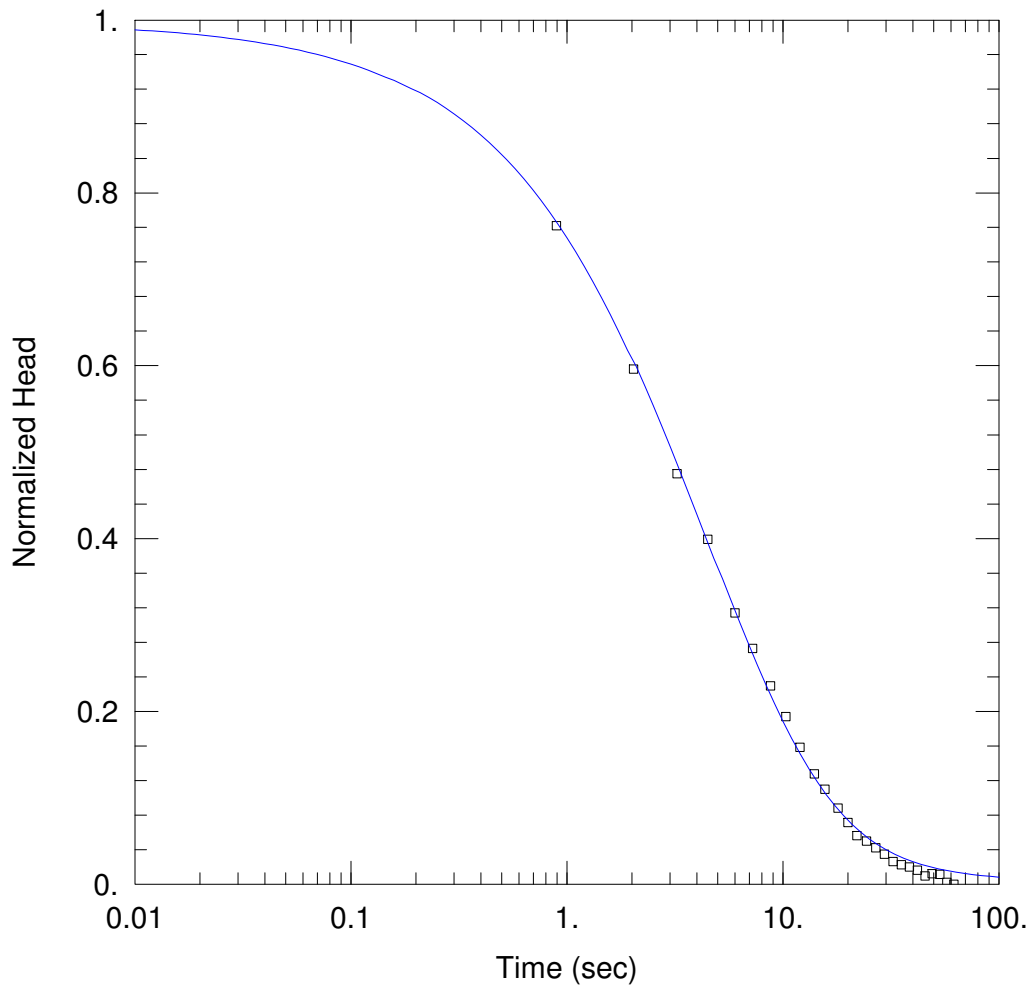
Initial Displacement: 1 ft
 Total Well Penetration Depth: 10 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 8.1 ft
 Screen Length: 10 ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 0.007043 cm/sec
 Kz/Kr = 0.001012

Solution Method: KGS Model
 Ss = 0.000629 ft⁻¹



MW61 RISING 4

Data Set: C:\...\MW61_Rising4_2018.aqt
 Date: 08/14/18

Time: 12:33:31

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (MW--61)

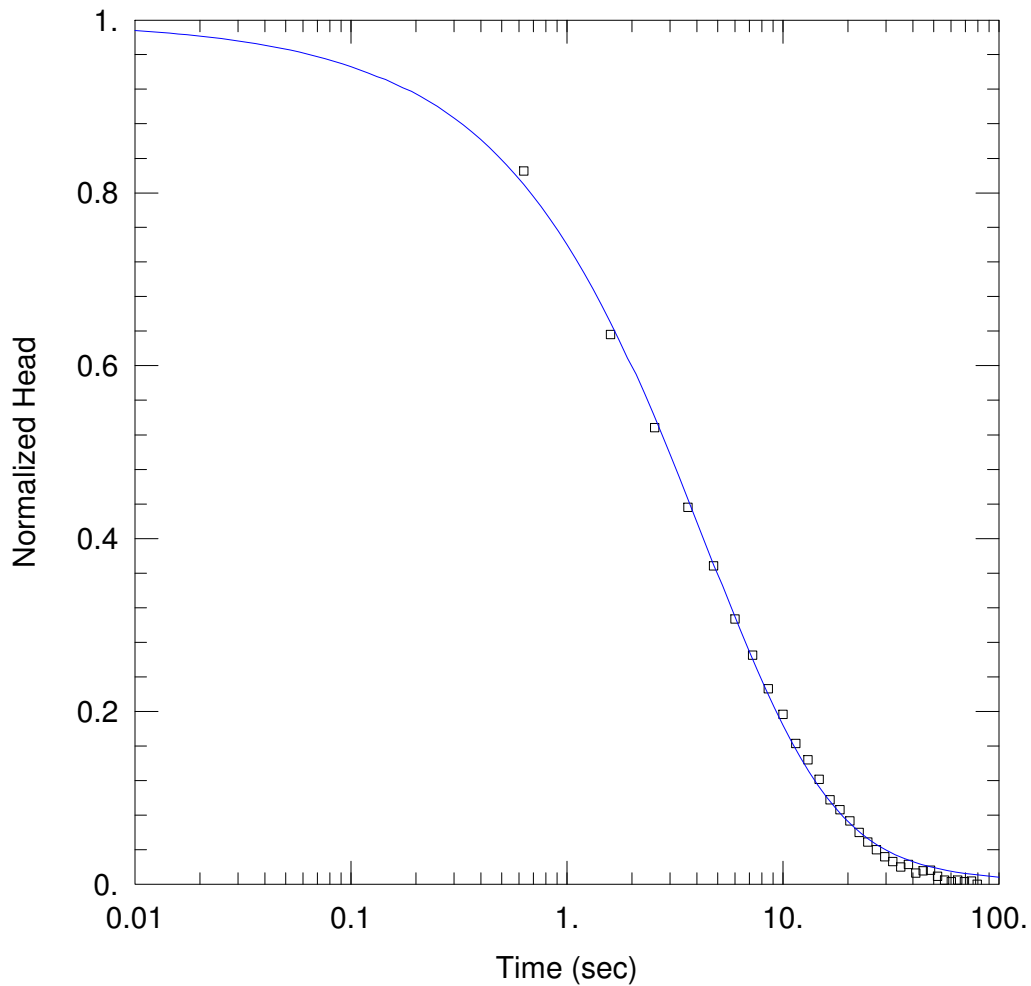
Initial Displacement: 1. ft
 Total Well Penetration Depth: 10. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 8.1 ft
 Screen Length: 10. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 0.007147 cm/sec
 Kz/Kr = 0.001012

Solution Method: KGS Model
 Ss = 0.000321 ft⁻¹



MW61 RISING 5

Data Set: C:\...\MW61_Rising5_2018.aqt
 Date: 08/14/18

Time: 12:34:06

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: MW-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (MW--61)

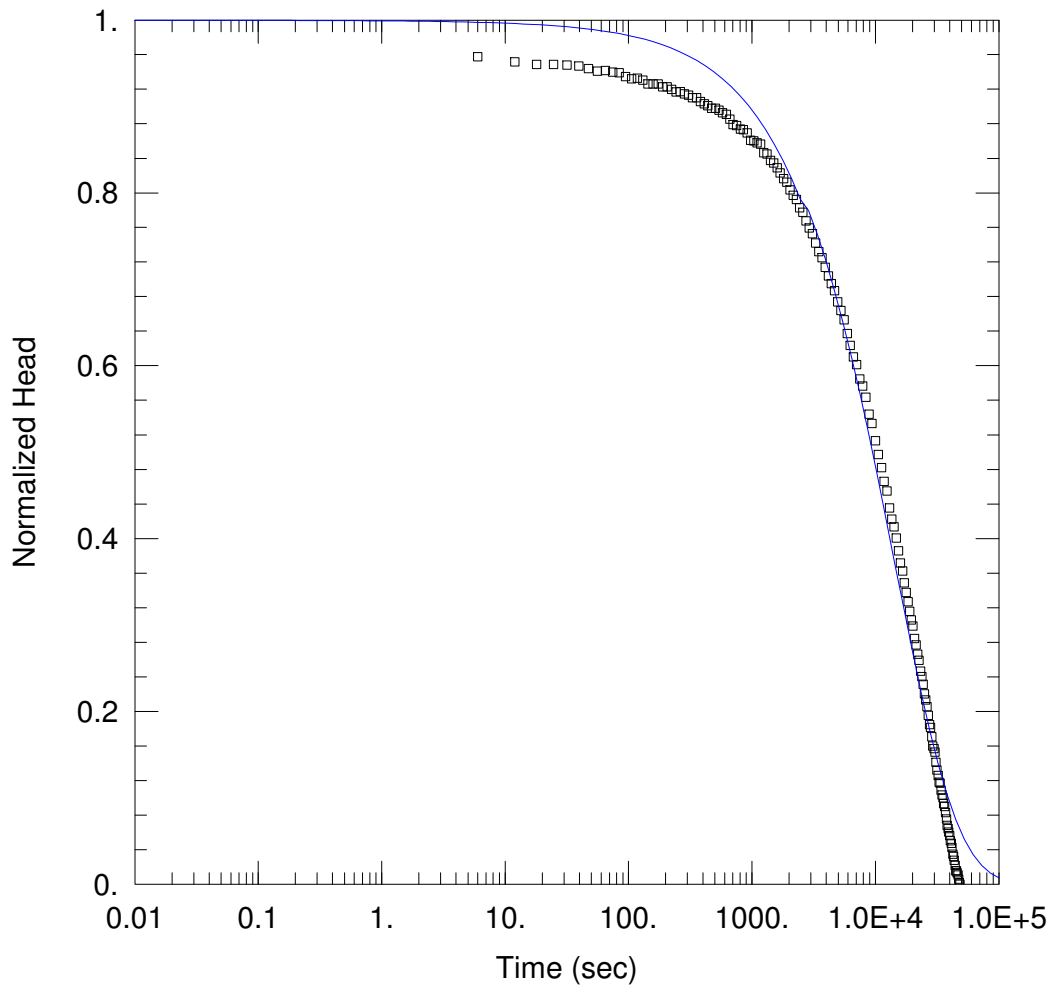
Initial Displacement: 1. ft
 Total Well Penetration Depth: 10. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 8.1 ft
 Screen Length: 10. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 0.007084 cm/sec
 Kz/Kr = 0.001012

Solution Method: KGS Model
 Ss = 0.0004037 ft⁻¹



PZ61 FALLING 1

Data Set: C:\...\PZ61_Falling1_2018.aqt
 Date: 08/14/18

Time: 12:35:18

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: PZ-61
 Test Date: 7/12/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (PZ--61)

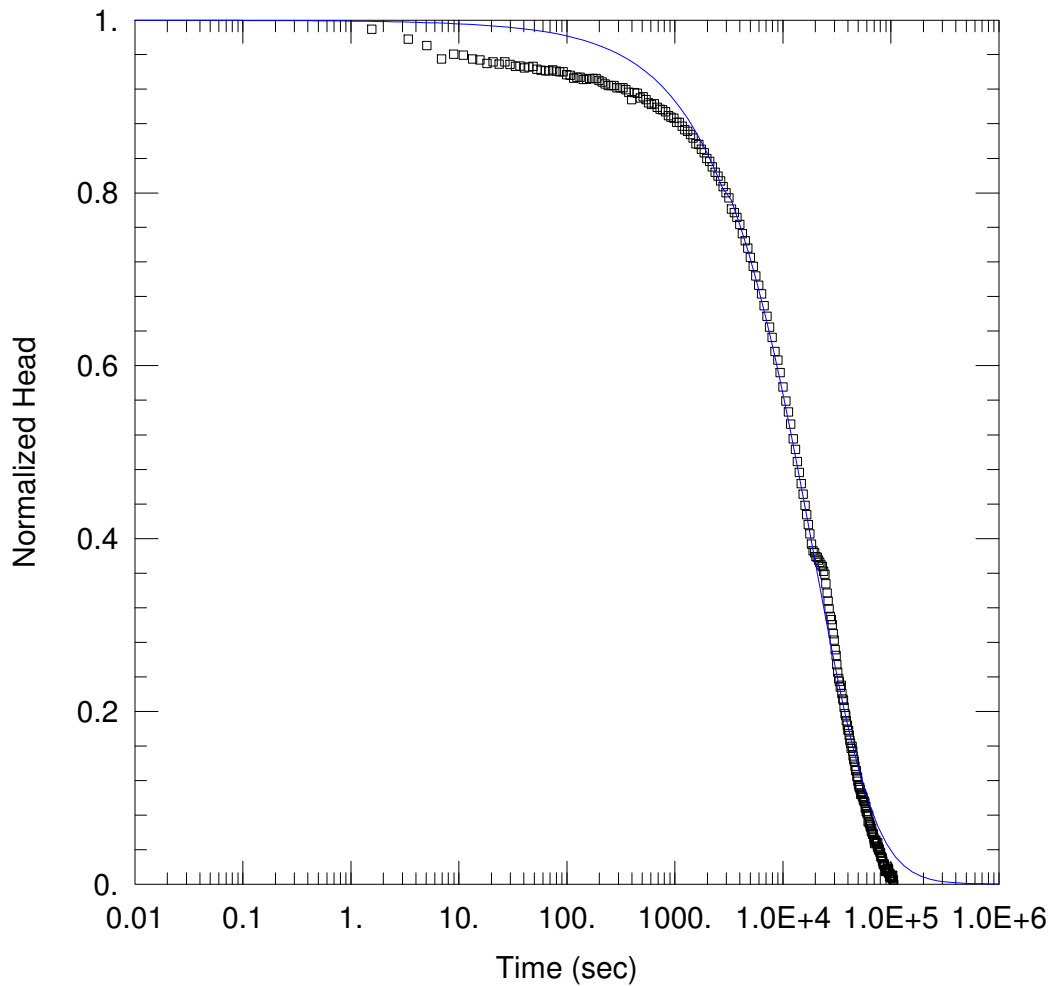
Initial Displacement: 1. ft
 Total Well Penetration Depth: 5. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 14.05 ft
 Screen Length: 5. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 Kr = 5.388E-6 cm/sec
 Kz/Kr = 0.1

Solution Method: KGS Model
 Ss = 0.0001165 ft⁻¹



PZ61 RISING 1

Data Set: C:\...\PZ61_Rising1_2018.aqt
 Date: 08/14/18

Time: 12:35:49

PROJECT INFORMATION

Company: AECOM
 Client: City of Kenosha
 Project: 60518412
 Location: Kenosha, WI
 Test Well: PZ-61
 Test Date: 7/14/2018

AQUIFER DATA

Saturated Thickness: 200. ft

WELL DATA (PZ--61)

Initial Displacement: 1. ft
 Total Well Penetration Depth: 5. ft
 Casing Radius: 0.083 ft

Static Water Column Height: 14.05 ft
 Screen Length: 5. ft
 Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Unconfined
 $K_r = 3.39E-6$ cm/sec
 $K_z/K_r = 0.1$

Solution Method: KGS Model
 $S_s = 0.0004304$ ft⁻¹

Appendix B

Laboratory-Scale Treatability Study Results (AECOM, 2015-SEP)



AECOM
1555 N RiverCenter Drive, Suite 214
Milwaukee, WI 53212

414.944.6080 tel
414.944.6081 fax

September 24, 2015

Ms. Shelly Billingsley
Acting Director of Public Works
City of Kenosha
625 52nd Street, Room 305
Kenosha, WI 53140

**Subject: Laboratory Scale Treatability Study Results
Former Kenosha Engine Plant
5555 - 30th Avenue, Kenosha, Wisconsin
WDNR FID 230004500, BRRTS #02-30-000327
AECOM Project No. 60328684**

Dear Ms. Billingsley,

AECOM Technical Services, Inc. (AECOM) has prepared this letter for the City of Kenosha to document the results of the laboratory scale treatability study activities performed for the former Kenosha Engine Plant (KEP). A *Work Plan for the Pre-Design (treatability) Studies for Groundwater Treatment* was prepared and submitted to the Wisconsin Department of Natural Resources (WDNR) on April 15, 2015. The WDNR subsequently approved the Work Plan on April 22, 2015. The treatability testing activities were performed in general accordance with the approved Work Plan unless otherwise noted.

The approved *Remedial Action Options Report* (RAOR, AECOM, April 2015) identified in-situ chemical reduction, using in-situ chemical oxidation (ISCO) and/or enhanced reductive dechlorination (ERD), as the likely most technically and economically feasible alternative to address source area groundwater impacts at the KEP. The RAOR further presented that additional pre-design data collection and testing (laboratory treatability and field scale) was necessary to confirm the anticipated effectiveness of in-situ chemical methods and to gather the information needed to complete the remedial design. The purpose of this submittal is to document the results of the laboratory scale treatability study. These results will be used to aid in the development of field scale pilot testing activities and future remedial design activities.

ISCO Laboratory Scale Treatability Testing

ISCO laboratory scale treatability testing was conducted in May and June 2015 to evaluate the effectiveness of various oxidant treatment chemistries and to estimate the appropriate oxidant loading rates for the destruction of contaminants of primary concern at the site (VOCs) consistent with the established remedial objectives as described in the RAOR. The following provides a summary of the sample collection, testing/analyses activities, and general results.

Sample Collection

Five soil borings (CS3-TX-1, CS3-TX-2, CS3-TX-3, CS3-TX-4, and CS3-TX5) were advanced on May 14 and May 15, 2015 at the locations shown on Figure 1. TX-1 to TX-3 borings were advanced within CS3, TX-4 within CS4, and TX-5 within CS8 along the western edge of CS4. These boring locations were selected to represent the area identified in the RAOR for possible source area groundwater treatment. Two four-foot long macro-core soil samples were collected from each boring location and were submitted to ORIN Remedial Technologies, LLC (ORIN) for laboratory scale testing. The soil cores were collected from both the shallow (10 to 14 feet bgs) and deep (17-21 feet bgs or 18-22 feet bgs) saturated soil intervals based on the zone of impacts identified during the site investigation activities. Groundwater samples were collected from MW-61, PZ-61, MW-74, PZ-74, MW-302, PZ-302, and CS3-TX-3 for use during the laboratory scale testing. Additional push probes were advanced near each boring location for collection of additional soil and to allow for soil characterization and screening. Soil boring logs and borehole abandonment forms are included as Attachment A.

In addition to the treatability sampling, AECOM collected one soil from the shallow and deep soil intervals at each boring location (TX-1 through TX-5) to assess baseline saturated soil concentrations. The samples were submitted to Pace Analytical for VOC analysis by SW-846 method 8260. The results of the analysis are included on Table 1. The laboratory analytical report is provided as Attachment B.

ISCO Laboratory Scale Study

The first phase of the laboratory scale treatability study performed by ORIN was to assess the total oxidant demand (TOD) of the impacted saturated soil at the KEP. The objective of the TOD study was to evaluate the amount of persulfate (in the form of sodium persulfate) and the amount of permanganate (in the form of potassium permanganate) required to oxidize natural and anthropogenic sources of organic compounds in site soil and groundwater. The TOD testing involved dosing soils with a known amount of oxidant and then measuring the residual concentration over a period of six days. The ratio of the amount of oxidant consumed to the amount of soil it was in contact with provides the TOD.

Based on the TOD and VOC results, samples TX-2 (18 –22), TX-3 (10 – 14), and TX-5 (10 – 14) were chosen for laboratory scale treatability testing. The objective of this treatability study is to assess the treatment chemistry for the destruction of the primary contaminants at the KEP that is expected to achieve the remedial objectives during full-scale remedial implementation. During the study, ORIN evaluated several potential treatment chemistries including:

- Alkaline Persulfate
- Sodium Persulfate / Iron Activation
- Alkaline Persulfate/ Calcium Peroxide
- Sodium Permanganate
- RegenOx™.

Oxidant loading rates utilized during the treatability testing were selected based on the information collected during the TOD portion of the study. After dosing a slurry of the soil and groundwater and allowing the treated samples to react for a period of eleven days, the treated samples were then analyzed and compared to the untreated control sample to determine the most effective treatment chemistry.

Details regarding the testing methods and procedures are included in the ORIN *Total Oxidant Demand Testing and Treatability Testing* report included as **Attachment C**.

Results

The treatability study concluded that sodium permanganate is the more effective treatment chemistry of the five evaluated for destruction of chlorinated VOCs at the KEP. Based on the testing performed, a chemical loading rate of 3 g/kg would likely be a feasible and cost-effective option. The remaining four treatment chemistry options evaluated had inconclusive results for success in treating the chlorinated VOCs.

ERD Microcosm Study

An in-situ microcosm study was conducted from May 2015 to July 2015 to evaluate the ability of carbon substrates to stimulate native bacteria capable of biodegrading chlorinated VOCs. The purpose of the microcosm study was to evaluate and select a substrate for use in pilot testing ERD at the KEP. Two carbon substrates were evaluated during this study: (1) Edible Oil Substrate (EOS) which is a proprietary blend of vegetable oil and nutrients and (2) ABC®+ which contains a mixture of lactate, fatty acids, alcohols, phosphate buffer, and zero-valent iron. The following provides a summary of the sample collection, testing/analyses activities, and general results:

Sample Collection

Bio-Trap® passive samplers were deployed on May 19, 2015 into several well locations at the KEP to collect microbes over time to study the biodegradation potential at the site. The following well locations were utilized: MW-65, MW-82, MW-302, PZ-301, and PZ-302. These well locations were selected to represent the chlorinated VOC concentrations indicative of the area identified in the RAOR for possible source area groundwater treatment. Two to three Bio-Trap® samplers were deployed in each well, depending on the length of the water column present within the wells screened interval (i.e. two Bio-Traps® in piezometers with 5 foot screens). One sampler was used to evaluate one of the substrates (i.e., either EOS or ABC®+) and contained beads soaked in the substrate to be evaluated. The second sampler acted as a control (i.e., no substrate was added). The samplers were suspended from the expandable caps of each monitoring well or piezometer such that they were completely submerged in water, with the control microcosm placed at a shallower depth than the treatment microcosm.

After incubating in the wells for approximately two months (i.e., May 19 through July 20, 2015), the samplers were removed and shipped on ice to Microbial Insights (MI) in Knoxville, Tennessee for analysis.

ERD Microcosm Study

MI extracted DNA from the beads and used molecular biological techniques to detect and quantify specific bacteria and genes involved in the biodegradation of TCE. MI also analyzed water from the passive samplers for VOCs, electron acceptors (i.e., nitrate, nitrite, and sulfate), volatile fatty acids (i.e., acetic, propionic, pyruvic, butyric, and lactic acid), dissolved gases (i.e., methane, ethane, and ethane), phosphate, and chloride. The results of the molecular biological testing and analysis of VOCs, geochemistry, and dissolved gas analysis in substrate-amended microcosms were compared to the results in control microcosms to assess the level to which the substrates stimulated ERD.

Details regarding the testing methods and procedures are included in the Microbial Insights *In Situ Microcosm Study* report is provided as Attachment D.

Results

In general, addition of substrate provided minimal stimulation of the *Dehalococcoides* (DHC) population size. The DHC population size in treated microcosms was generally less than an order of magnitude greater than in control microcosms, indicating a relatively low level of stimulation by the substrate provided. The DHC population size in control and treated microcosms ranged from below the detection limit of $2.5 \times 10^{+1}$ cells per bead (PZ-302 control microcosm) to $1.1 \times 10^{+4}$ cells per bead (PZ-301 control microcosm). This is generally below the DHC population of 10^{+4} cells per milliliter (cells/mL) that is often used as a criterion for providing “generally useful” rates of reductive dechlorination. Despite the low numbers of DHC and ERD functional genes, the populations of sulfate-reducing bacteria (SRB) and methanogens (MGN) in general increased in response to the addition of substrate.

Overall the presence of soluble substrate did promote establishment of anaerobic, reducing conditions as evidenced by stimulation of SRB and MGN populations. However, DHC populations (and the number of ERD functional genes) did not increase due to the presence of soluble substrate during the 62-day microcosm study. Based on the results of the microcosm study, bioaugmentation with a known DHC culture may be necessary for ERD to be successful.

Conclusions and Recommendations

The results of the treatability studies indicate that both ISCO and ERD remain potentially effective groundwater treatment methods for use at the KEP. Although ISCO was demonstrated to be effective in a laboratory setting, field scale testing is needed to assess full-scale effectiveness, evaluate implementability and gather the necessary information to design the overall remedy. Based on the ISCO treatability studies, AECOM recommends performance of a field scale pilot test using sodium permanganate as the oxidant. Additionally, based on the results of the microcosm study, bioaugmentation with a known DHC culture may be necessary for ERD to be successful. As such, an ERD pilot test using bioaugmentation is also recommended. A detailed work plan is being developed.

Should you have any questions or comments regarding the results or activities related to this letter, please do not hesitate to contact Lanette Altenbach at (414) 944-6186.

Yours sincerely,

AECOM Technical Services, Inc.



Lanette L. Altenbach, P.G., C.P.G.
Senior Hydrogeologist
Lanette.altenbach@aecom.com



Kevin L. Brehm, P.E.
Principal Engineer
kevin.brehm@aecom.com

Attachments:

Figure 1 – ISCO and ERD Treatability Sample Locations

Table 1 – Baseline Soil VOC Analytical Results

Attachment A – Soil Boring Logs and Abandonment Forms

Attachment B – Soil VOC Laboratory Analytical Report (Pace, May 2015)

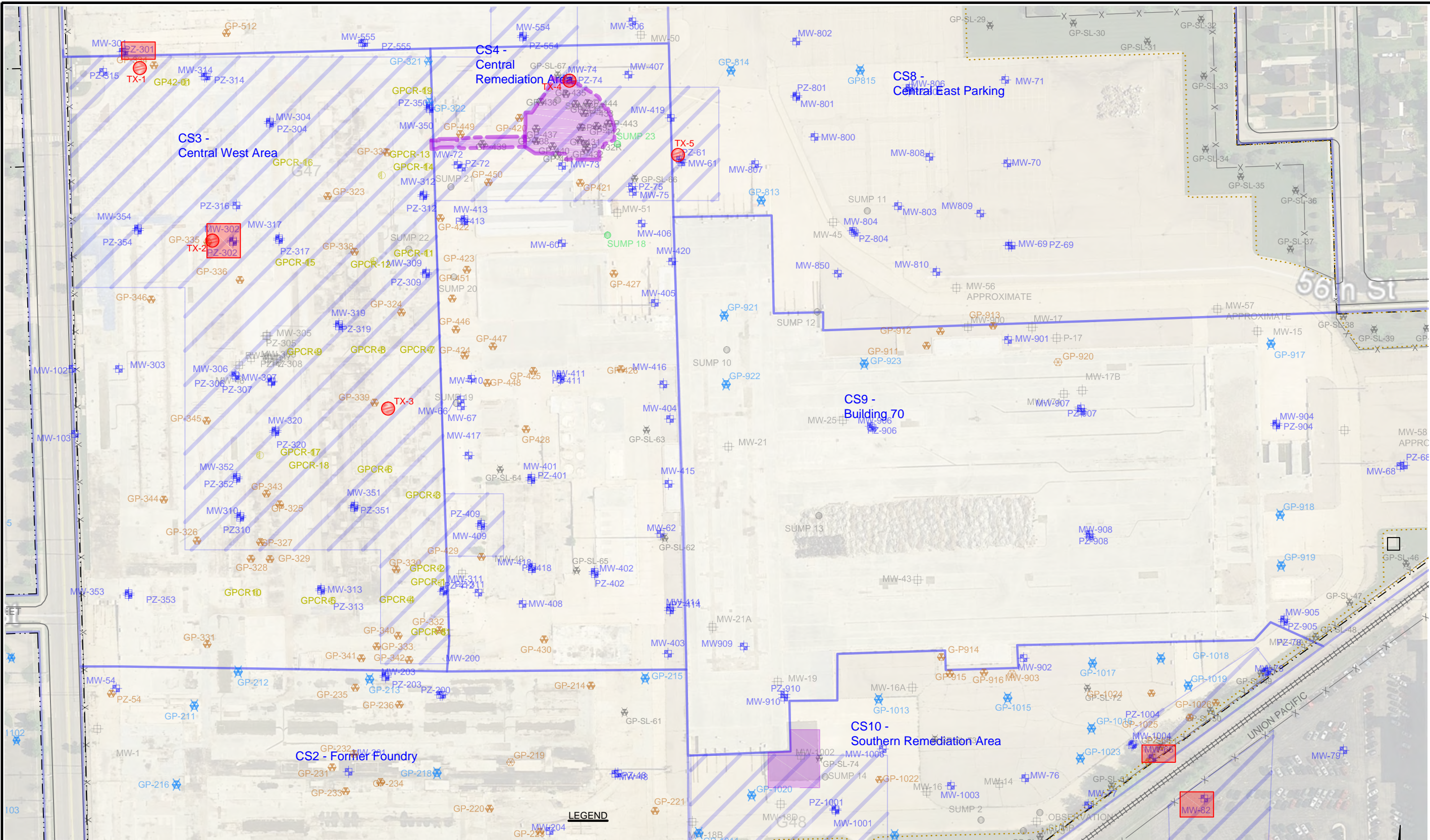
Attachment C – Total Oxidant Demand Testing and Treatability Testing Report (ORIN, August 2015)

Attachment D – In Situ Microcosm Study (Microbial Insights, August, 2015)

CC: Mr. Dave Volkert, Wisconsin Department of Natural Resources, 141 NW Barstow Street,
Waukesha, WI 53188
Kyle Rogers, Brownfields Project Manager, U.S. EPA Region V

FIGURE

I:\USM\W\1FS001\prod\Data\Projects\60328684\900_Work\CADD\TREATABILITY\KEP - Treatability Investigation - 2015.August.dwg; 8/18/2015 10:48:06 AM; ENGELHARDT, SARAH;



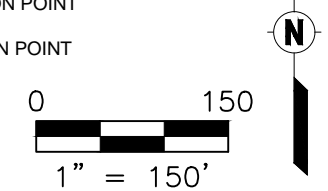
ISCO AND ERD TREATABILITY SAMPLE LOCATIONS
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN

NOTES

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, IMAGE DATED 6/2/2015; DOWNLOADED ON 8/10/2015.
2. BORDER DISCONTINUITIES ARE DUE TO ANGLE OF 2015 AERIAL.

LEGEND

	APPROXIMATE SITE BOUNDARY		EXISTING WATER TABLE MONITORING WELL (MW) OR PIEZOMETER (PZ)		ISCO SAMPLE COLLECTION POINT
	RAILROAD		ABANDONED MONITORING WELL (MW) OR PIEZOMETER (PZ)		ERD SAMPLE COLLECTION POINT
	FORMER BUILDING		SOIL PROBE		
	INVESTIGATION AREA		SOIL PROBE - REFUSAL		
	CONCEPTUAL INSITU GROUNDWATER TREATMENT (AND SATURATED SOIL IMPACTS)		SOIL PROBE / TEMPORARY MONITORING WELLS - PHASE II INVESTIGATION		
	PRIOR EXCAVATION AREAS				



Drawn :	SAE 8/18/2015
Checked:	LLA 8/18/2015
Approved:	KWB 8/18/2015
PROJECT NUMBER	60328684
FIGURE NUMBER	1

TABLE

(OMITTED - NOT RELEVANT TO ERD EVALUATION)

**ATTACHMENT A
SOIL BORING LOGS & ABANDONMENT FORMS**

**(OMITTED - SEE APPENDIX D OF THE
*ENHANCED REDUCTIVE DECHLORINATION PILOT TEST
DOCUMENTATION REPORT*
FOR SOIL BORING LOGS, WELL CONSTRUCTION, MONITORING
WELL DEVELOPMENT, AND ABANDONMENT LOGS)**

**ATTACHMENT B
LABORATORY REPORT**

(OMITTED - NOT RELEVANT TO ERD EVALUATION)

**ATTACHMENT C
ORIN REMEDIATION TECHNOLOGIES
TOTAL OXIDANT DEMAND TESTING AND TREATABILITY
TESTING REPORT**

(OMITTED - NOT RELEVANT TO ERD EVALUATION)

**ATTACHMENT D
MICROBIAL INSIGHTS
SITE LOGIC Treatability Report**

SITE LOGIC Report

In Situ Microcosm Study

Contact: Lanette Altenbach
Address: AECOM
1555 N. Rivercenter Dr., Ste. 214
Milwaukee, WI 53212

Phone: (414) 944-6186

Email: Lanette.Aldenbach@aecom.com

MI Identifier: 068MG

Report Date: August 13, 2015

Project: KEP Treatability, 60328687

Comments:

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.

Executive Summary

A Bio-Trap[®] *In Situ* Microcosm (ISM) study was performed in wells MW-65, MW-82, MW-302, PZ-302, and PZ-301 to investigate whether the addition of an electron donor would stimulate biodegradation of tetrachloroethene (PCE), trichloroethene (TCE), and associated daughter compounds. The ISM assembly deployed in wells MW-65 and MW-82 consisted of three units each: an MNA unit containing no exogenous amendment, a BioStim unit amended with EOS, and a second BioStim unit amended with ABC+. Two-unit ISM assemblies were deployed in wells MW-302, and PZ-302 with an MNA unit and a BioStim unit amended with EOS. In PZ-301, the two-unit ISM assembly included an MNA unit and a BioStim unit amended with ABC+. After a 62-day incubation period, the units were returned to the lab for CENSUS[®] analysis and quantification of contaminant concentrations, dissolved gases, volatile fatty acids (VFAs), and anions. Summaries of the results are provided in Tables 1 - 4 and Figures 1 - 10. Following are key observations from the results obtained for each *in situ* microcosm.

MW-65 MNA, EOS, and ABC+ Units

- In the MNA unit, *Dehalococcoides* populations were detected but at a low concentration (10^1 cells/bead) considerably below the 10^4 cells/mL threshold proposed by Lu et al (2006) as a screening criterion for generally useful rates of reductive dechlorination. Moreover, concentrations of the TCE and vinyl chloride reductase genes were below the detection limit suggesting that the potential for the complete biodegradation of chlorinated ethenes to ethene may be limited under MNA conditions.
- The *Dehalococcoides* population in the EOS unit (10^2 cells/bead) was somewhat greater than in the MNA unit suggesting that electron donor addition stimulated growth of this key group of halorespiring bacteria although TCE and vinyl chloride reductase genes remained below the detection limit.
- Concentrations of sulfate reducing bacteria and methanogens were also higher in the EOS amended unit, suggesting growth of other anaerobic microorganisms in response to electron donor addition.
- *Dehalococcoides* was detected in the ABC+ unit. However, concentrations of *Dehalococcoides* (10^1 cells/bead), sulfate reducing bacteria (10^5 cells/bead) and methanogens (10^3 cells/bead) were not appreciably greater than detected in the MNA unit.
- Consistent with the low *Dehalococcoides* population in the MNA unit, concentrations of vinyl chloride and ethene were low and cis-1,2-dichloroethene (cis-1,2-DCE) was the primary contaminant detected.
- In the EOS unit where *Dehalococcoides* was detected on the order of 10^2 cells/bead, the cis-1,2-DCE concentration was an order of magnitude higher compared to the MNA and ABC+ units. However, contaminant mole fractions (Figure 2) for the EOS and ABC+ units were similar to those observed in the MNA unit and could not confirm enhanced formation of the daughter products vinyl chloride and ethene at least within the deployment period.
- Acetic acid and propionic acid were detected in the EOS unit, indicating that the microorganisms were fermenting the electron donor. VFAs were also detected in the ABC+ unit but at concentrations near the detection limits.
- Sulfate concentrations ranged from 73 mg/L to 180 mg/L suggesting that competition with sulfate reducing bacteria for available electron donors should be considered.
- The results from the ISM units deployed in MW-65 suggested that reductive dechlorination is possible, but it may be limited under current site conditions. EOS addition did appear to stimulate growth of anaerobic microorganisms including sulfate reducing bacteria, methanogens, and most importantly *Dehalococcoides* although formation of vinyl chloride and ethene daughter products was not substantially greater within the deployment period than observed under MNA conditions.

MW-82 MNA, EOS, and ABC+ Units

- A low concentration of *Dehalococcoides* (10^1 cells/bead) was present in the MNA unit deployed in MW-82, and no TCE or vinyl chloride reductase genes were detected.
- *Dehalococcoides* populations were approximately an order of magnitude higher in the EOS and ABC+ units than in the MNA unit suggesting addition of both electron donors stimulated growth of halo-respiring bacteria. No reductase genes were detected in the EOS unit, but the BAV1 vinyl chloride reductase gene was present in the ABC+ unit at a concentration of 10^2 cells/bead.
- Populations of sulfate reducing bacteria were also higher in the EOS and ABC+ units than in the MNA unit which is consistent with the consumption of sulfate observed in the units amended with electron donors.
- The contaminant data indicated that substantial vinyl chloride concentrations were present in the MNA and EOS units, and ethene was also detected. The TCE concentration in the EOS unit was lower than in the MNA while the cis-1,2-DCE concentration was higher which would be consistent with stimulation of reductive dechlorination of TCE. However, increased production of vinyl chloride and ethene relative to the MNA control was not clearly evident.
- In the ABC+ unit, the TCE concentration was much higher than observed in the MNA unit, and vinyl chloride fell below the detection limit. These concentration differences may be due to vertical heterogeneity of contaminants in the subsurface.
- VFAs were detected in the EOS and ABC+ units indicating that indigenous microorganisms were fermenting both electron donors.
- As mentioned previously, sulfate concentrations in the EOS and ABC+ units were near the detection limit while 39 mg/L of sulfate was present in the MNA unit suggesting active sulfate reduction in the units amended with electron donors. Although electron donor addition would be expected to result in more methanogenic conditions, the methane concentration in the MNA unit (240 $\mu\text{g/L}$) was higher compared to the EOS and ABC+ units (37 $\mu\text{g/L}$ and 71 $\mu\text{g/L}$, respectively).
- Overall, the results from MW-82 suggest that the addition of EOS and ABC+ resulted in sulfate reduction and stimulated growth of *Dehalococcoides* although reductive dechlorination to vinyl chloride and ethene was not appreciably enhanced within the deployment period relative to MNA conditions.

MW-302 MNA and EOS Units

- The *Dehalococcoides* concentration was 10^1 cells/bead in the MNA unit deployed in MW-302 and no reductase genes were detected.
- As was observed in MW-65 and MW-82, the *Dehalococcoides* population was on the order of 10^2 cells/bead in the EOS unit suggesting growth in response to electron donor addition.
- Likewise, sulfate reducing bacteria were slightly greater, and methanogens were two orders of magnitude higher in the EOS unit (10^4 cells/bead) compared to the MNA unit (10^2 cells/bead).
- Results from the contaminant analysis suggested vertical differences in the spatial distribution of contaminants as TCE and cis-1,2-DCE concentrations were one to two orders of magnitude higher in the EOS unit compared to the MNA unit. However, daughter products were detected in both units, suggesting that some reductive dechlorination occurred during the 62-day deployment period.
- Acetic acid and propionic acid were detected in the EOS unit as a result of electron donor fermentation.
- However, the dissolved sulfate concentration in the EOS unit remained high (350 mg/L) and sulfate reducing bacteria were detected at a concentration of nearly 10^6 cells/bead. High concentrations of competing electron acceptors like sulfate can hinder reductive dechlorination.

PZ-302 MNA and EOS Units

- *Dehalococcoides* were below practical quantitation limits in the MNA unit, indicating that complete reductive dechlorination of chlorinated ethenes is likely limited under current site conditions.
- In the EOS unit however, *Dehalococcoides* (10^1 cells/bead) was detected although at a low concentration.
- Concentrations of sulfate reducing bacteria (10^5 cells/bead) and methanogens (10^3 cells/bead) were similar between the two units.
- In both units, cis-1,2-DCE was the contaminant present in the highest concentration. However, the cis-1,2-DCE concentration in the EOS unit was two orders of magnitude higher than in the MNA unit, suggesting that the contaminants were not homogeneously distributed in the subsurface.
- Acetic, propionic, and butyric acids were detected in the EOS unit, confirming that the EOS was fermented during the deployment period.
- The geochemical data suggested that conditions were slightly more reducing in the EOS unit since the methane was higher and the sulfate was lower compared to the MNA unit.
- While not an overwhelming increase, the *Dehalococcoides* population in the EOS unit was greater than in the MNA unit suggesting that electron donor addition stimulated the growth of *Dehalococcoides* in PZ-302 as shown for the previous wells discussed. With continued consumption of sulfate and a longer time frame, electron donor addition may further promote growth of halorespiring bacteria and enhance reductive dechlorination.

PZ-301 MNA and ABC+ Units

- The highest *Dehalococcoides* concentrations were detected in the units deployed at PZ-301. The *Dehalococcoides* population in the MNA unit was relatively high and comparable to the threshold value of 10^4 cells/mL proposed by Lu et al (2006) for effective reductive dechlorination. Furthermore, *bvcA* and *vcrA* reductase genes (10^3 and 10^2 cells/bead, respectively) were detected in MNA and ABC+ units, confirming growth of a bacterial population capable of completely dechlorinating PCE and TCE to ethene.
- High concentrations of sulfate reducers (10^5 cells/bead) were detected in both units, but methanogen concentrations were near or below the detection limit.
- Contaminant analysis indicated that TCE and cis-1,2-DCE concentrations were lower in the ABC+ unit compared to the MNA unit, but daughter product concentrations were similar between the units.
- VFAs were detected in the ABC+ unit but at concentrations near the detection limit and sulfate concentrations were similar between the units.
- Overall, the *Dehalococcoides* population and the detection of vinyl chloride reductase genes indicates the potential for complete reductive dechlorination at PZ-301 despite sulfate levels. However, ABC+ addition did not appear to stimulate *Dehalococcoides* or enhance daughter product formation beyond levels observed under MNA conditions within the deployment period.

The *In Situ* Microcosm Approach

Site managers have frequently turned to laboratory microcosms or small pilot studies to evaluate bioremediation. However, duplication of *in situ* conditions in the laboratory is difficult and the results often do not correlate to the field. Pilot studies are performed in the field but are often prohibitively expensive as an investigative tool. Bio-Trap studies serve as cost-effective, *in situ* microcosms providing microbial, chemical, and geochemical evidence to evaluate biodegradation as a treatment mechanism and to screen remedial alternatives.

Typically each Bio-Trap Unit will contain samplers to evaluate the following:

Geochemical Fingerprint (GEO)	• 20 mL amber VOA vial with a nylon screened cap designed for assessment of a variety of geochemical parameters including anions and metabolic acids.
Contaminant of Concern (COC)	• A low density polyethylene (LDPE) passive diffusion bag designed for analysis of a variety of COCs including chlorinated solvents and petroleum hydrocarbons.
Microbial Populations (MICRO)	• PVC cassette containing Bio-Sep beads which provide a large surface area for microbial attachment and were designed for analysis by a variety of molecular biological tools (MBTs).

How do ISMs work?

The MICRO sampler (microbial populations) contains Bio-Sep® beads, an engineered composite of Nomex® and powdered activated carbon which provides an incredibly large surface area (~600 m²/g) that is readily colonized by subsurface microorganisms. In addition to a matrix for microbial growth, the Bio-Sep® beads can be “baited” with amendments including electron donors (e.g. hydrogen releasing compounds) to investigate biostimulation approaches to enhance biodegradation. The ISM units also contain a COC (contaminant of concern) sampler to measure contaminant concentrations, daughter product formation, and dissolved gases and a GEO (geochemical fingerprint) sampler for quantification of geochemical parameters (nitrate, iron, sulfate, etc.), and volatile fatty acids (pyruvic, lactic, acetic, propionic, etc.).

Bio-Trap® *In Situ* Microcosm studies at chlorinated solvent sites typically include three types of Bio-Trap Units deployed within a monitoring well. Each Bio-Trap Unit corresponds to one of the three most common remedial options: monitored natural attenuation (MNA), Biostimulation (BioStim), and Bioaugmentation (BioAug). All three Bio-Trap Units contain COC and GEO samplers for chemical and geochemical analyses. The key difference between the Bio-Trap Units is in the MICRO sampler.

Types of ISM Units typically deployed and MICRO sampler configurations:

<p>Control (MNA)</p>	<ul style="list-style-type: none"> •Bio-Sep® beads contain no additional electron donor and represent current aquifer conditions.
<p>Biostimulation (BioStim)</p>	<ul style="list-style-type: none"> •Bio-Sep® beads are baited with a specified electron donor (sodium lactate, EOS, HRC, molasses, etc) or an Amendment Supplier is used to release the desired amendment.
<p>Bioaugmentation (BioAug)</p>	<ul style="list-style-type: none"> •Bio-Sep® beads are pre-inoculated with a <i>Dehalococcoides</i> culture. These units can also be baited with an additional electron donor.

MNA Unit: The purpose of the Control ISM Unit is to quantify contaminant degrading bacteria and daughter product formation under monitored natural attenuation (MNA) conditions and to serve as a baseline for comparison to BioStim and/or BioAug Units.

Following in-well deployment, DNA or phospholipid fatty acids can be extracted from the Bio-Sep beads for CENSUS or PLFA analyses. For example, DNA extracted from the Bio-Sep beads can be used in CENSUS analysis of *Dehalococcoides* (qDHC) and vinyl chloride reductase (qVC) genes to evaluate the potential for complete reductive dechlorination of PCE to ethene under MNA conditions. The VOC and anion samplers can be used to determine concentrations of contaminants, daughter products, dissolved gases, terminal electron acceptors, and chloride.

BioStim Unit: The Biostimulation ISM Unit is designed to test the hypothesis that electron donor addition will stimulate growth of dechlorinating bacteria and enhance biodegradation. As with the MNA Unit, the BioStim Unit contains COC and GEO samplers for chemical analyses. The BioStim Unit may contain either a MICRO sampler that contains Bio-Sep beads “baited” with the specified electron donor or an amendment supplier to release the desired amendment over the incubation time. If an Amendment Supplier is used the MICRO sampler will contain standard Bio-Sep beads for the growth matrix.

BioAug Unit: The Bioaugmentation ISM Unit is designed to evaluate bioaugmentation as a treatment technology. The MICRO sampler contains Bio-Sep beads pre-inoculated with the desired commercial culture and also contains an electron donor of choice. As with the MNA and BioStim Units, the BioAug Unit also contains a COC and GEO samplers for chemical analyses.

CENSUS®

Based on quantitative polymerase chain reaction (qPCR), CENSUS® is a nucleic acid-based approach to quantify specific microorganisms, groups of microorganisms, or functional genes involved in bioremediation or other biological processes. CENSUS® targets include bacteria and functional genes responsible for biodegradation of chlorinated solvents and petroleum products among others.

Phospholipid Fatty Acids (PLFA)

PLFA are a primary component of the membrane of all living cells including bacteria. PLFA decomposes rapidly upon cell death (1, 2), so the total amount of PLFA present in a sample is indicative of the viable biomass. When combined with stable isotope probing (SIP), incorporation of ^{13}C into PLFA is a conclusive indicator of biodegradation.

Some organisms produce “signature” types of PLFA allowing quantification of important microbial functional groups (e.g. iron reducers, sulfate reducers, or fermenters). The relative proportions of the groups of PLFA provide a “fingerprint” of the microbial community. In addition, Proteobacteria modify specific PLFA during periods of slow growth or in response to environmental stress providing an index of their health and metabolic activity.

Results

Table 1. Summary of results obtained for well MW-65.

Sample Information	MW-65 MNA	MW-65 EOS	MW-65 ABC+
Retrieval Date	7/20/15	7/20/15	7/20/15
Reductive Dechlorination (cells/bead)			
<i>Dehalococcoides</i> (DHC)	6.82E+01	2.16E+02	4.62E+01
tceA Reductase (TCE)	<2.50E+01	<2.50E+01	<2.50E+01
BAV1 Vinyl Chloride Reductase (BVC)	<2.50E+01	<2.50E+01	<2.50E+01
Vinyl Chloride Reductase (VCR)	<2.50E+01	<2.50E+01	<2.50E+01
Sulfate Reducing Bacteria (APS)	1.54E+06	2.53E+07	3.75E+06
Methanogen (MGN)	3.48E+03	5.56E+04	2.75E+03
Contaminant of Concern (µg/L)			
Tetrachloroethene	<10	<10	<10
Trichloroethene	41.9	<10	35.1
1,1-Dichloroethene	<10	<10	<10
cis-1,2-Dichloroethene	532	1,100	821
trans-1,2-Dichloroethene	7.7	15.0	15.6
Vinyl chloride	11.2	20.2	16.7
Dissolved Gases (µg/L)			
Ethene	0.18	0.41	0.55
Ethane	0.062 (J)	0.30	0.32
Methane	53	84	69
Volatile Fatty Acids (mg/L)			
Acetic Acid	1.3 (J)	28	1.5 (J)
Propionic Acid	<5.0	32	2.4 (J)
Pyruvic Acid	<5.0	<5.0	<5.0
Butyric Acid	<5.0	<5.0	<5.0
Lactic Acid	<10	<10	<10
Anions (mg/L)			
Chloride	200	770	620
Nitrite	<5.0	<12	<12
Nitrate	<0.50	<0.50	<0.50
Ortho Phosphate	<1.5	<1.5	<1.5
Sulfate	73	150	180

Legend:

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

Table 2. Summary of results obtained for well MW-82.

Sample Information	MW-82 MNA	MW-82 EOS	MW-82 ABC+
Retrieval Date	7/20/15	7/20/15	7/20/15
Reductive Dechlorination (cells/bead)			
<i>Dehalococcoides</i> (DHC)	4.85E+01	1.24E+02	7.16E+02
tceA Reductase (TCE)	<2.50E+01	<2.50E+01	<2.50E+01
BAV1 Vinyl Chloride Reductase (BVC)	<2.50E+01	<2.50E+01	2.97E+02
Vinyl Chloride Reductase (VCR)	<2.50E+01	<2.50E+01	<2.50E+01
Sulfate Reducing Bacteria (APS)	5.85E+05	5.19E+06	1.33E+06
Methanogen (MGN)	2.64E+04	4.85E+03	4.75E+03
Contaminant of Concern (µg/L)			
Tetrachloroethene	<10	<10	<10
Trichloroethene	219	76.8	2,950
1,1-Dichloroethene	<10	<10	<10
cis-1,2-Dichloroethene	699	771	1,090
trans-1,2-Dichloroethene	45.5	32.0	25.9
Vinyl chloride	388	340	<10
Dissolved Gases (µg/L)			
Ethene	3.3	0.18	1.8
Ethane	0.20	0.20	1.6
Methane	240	37	71
Volatile Fatty Acids (mg/L)			
Acetic Acid	3.3 (J)	39	56
Propionic Acid	1.3 (J)	9.4	8.2
Pyruvic Acid	<5.0	<5.0	<5.0
Butyric Acid	<5.0	<5.0	1.5 (J)
Lactic Acid	<10	<10	<10
Anions (mg/L)			
Chloride	1,000	1,300	1,300
Nitrite	<12	<12	<12
Nitrate	<0.50	<0.50	0.22 (J)
Ortho Phosphate	<1.5	2.7	2.1
Sulfate	39	0.92 (J)	0.36 (J)

Legend:

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

Table 3. Summary of results obtained for wells MW-302 and PZ-302.

Sample Information	MW-302 MNA	MW-302 EOS	PZ-302 MNA	PZ-302 EOS
Retrieval Date	7/20/15	7/20/15	7/20/15	7/20/15
Reductive Dechlorination (cells/bead)				
<i>Dehalococcoides</i> (DHC)	1.52E+01 (J)	1.95E+02	<2.50E+01	7.32E+01
tceA Reductase (TCE)	<2.50E+01	<2.50E+01	<2.50E+01	<2.50E+01
BAV1 Vinyl Chloride Reductase (BVC)	<2.50E+01	<2.50E+01	<2.50E+01	<2.50E+01
Vinyl Chloride Reductase (VCR)	<2.50E+01	<2.50E+01	<2.50E+01	<2.50E+01
Sulfate Reducing Bacteria (APS)	4.35E+05	9.43E+05	1.47E+05	2.67E+05
Methanogen (MGN)	4.97E+02	1.18E+04	4.01E+03	4.18E+03
Contaminant of Concern (µg/L)				
Tetrachloroethene	<10	<10	<10	<10
Trichloroethene	22.7	4,440	19.5	167
1,1-Dichloroethene	<10	<10	<10	86.9
cis-1,2-Dichloroethene	230	2,170	156	17,800
trans-1,2-Dichloroethene	2.0	82.7	1.7	223
Vinyl chloride	<10	73.0	<10	<10
Dissolved Gases (µg/L)				
Ethene	5.0	8.4	4.1	11
Ethane	3.6	2.0	0.90	2.5
Methane	360	150	9.2	29
Volatile Fatty Acids (mg/L)				
Acetic Acid	1.6 (J)	20	2.9 (J)	86
Propionic Acid	<5.0	3.7 (J)	1.2 (J)	23
Pyruvic Acid	<5.0	<5.0	<5.0	<5.0
Butyric Acid	<5.0	<5.0	<5.0	2.5 (J)
Lactic Acid	<10	<10	<10	<10
Anions (mg/L)				
Chloride	280	380	300	410
Nitrite	<5.0	<5.0	<5.0	<5.0
Nitrate	<0.50	<0.50	<0.50	<0.50
Ortho Phosphate	<1.5	<1.5	<1.5	<1.5
Sulfate	220	350	180	48

Legend:

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

Table 4. Summary of results obtained for well PZ-301.

Sample Information	PZ-301 MNA	PZ-301 ABC+
Retrieval Date	7/20/15	7/20/15
Reductive Dechlorination (cells/bead)		
<i>Dehalococcoides</i> (DHC)	1.12E+04	3.44E+03
tceA Reductase (TCE)	<2.50E+01	<2.50E+01
BAV1 Vinyl Chloride Reductase (BVC)	7.73E+03	2.26E+03
Vinyl Chloride Reductase (VCR)	6.40E+02	1.12E+02
Sulfate Reducing Bacteria (APS)	1.30E+05	3.78E+05
Methanogen (MGN)	1.22E+01 (J)	<2.50E+02
Contaminant of Concern (µg/L)		
Tetrachloroethene	<10	<10
Trichloroethene	888	46.4
1,1-Dichloroethene	<10	<10
cis-1,2-Dichloroethene	2,460	1,900
trans-1,2-Dichloroethene	25.8	19.8
Vinyl chloride	139	149
Dissolved Gases (µg/L)		
Ethene	15	21
Ethane	3.1	5.5
Methane	750	640
Volatile Fatty Acids (mg/L)		
Acetic Acid	1.8 (J)	3.8 (J)
Propionic Acid	<5.0	0.84 (J)
Pyruvic Acid	<5.0	<5.0
Butyric Acid	2.3 (J)	<5.0
Lactic Acid	<10	<10
Anions (mg/L)		
Chloride	1,100	1,600
Nitrite	<12	<12
Nitrate	<0.50	<0.50
Ortho Phosphate	<1.5	<1.5
Sulfate	200	190

Legend:

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

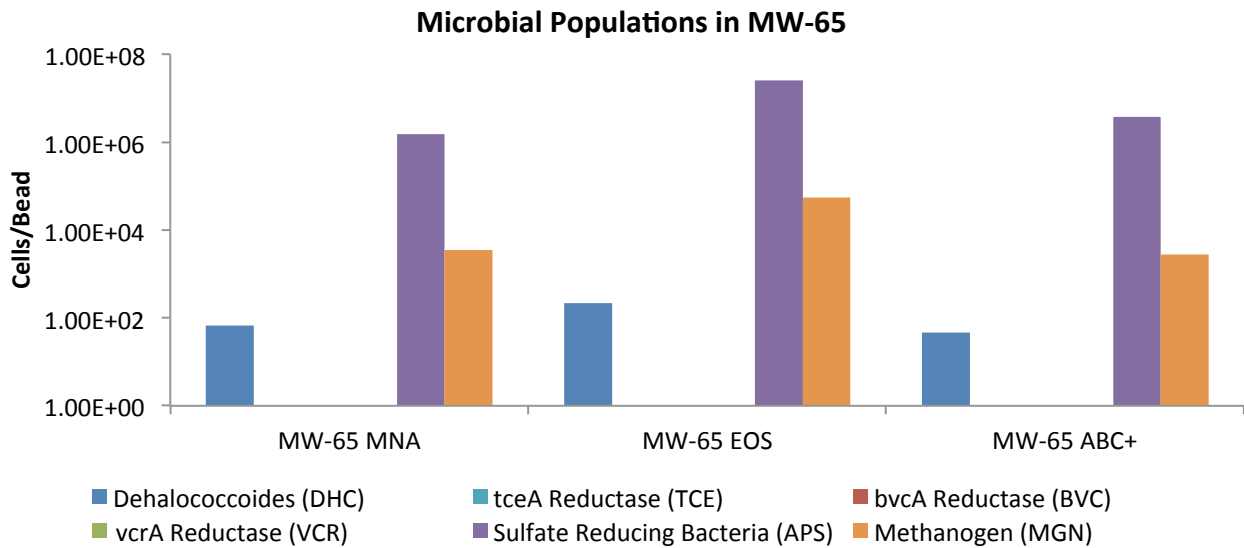


Figure 1. CENSUS® results for selected microbial populations (cells/bead) in MW-65.

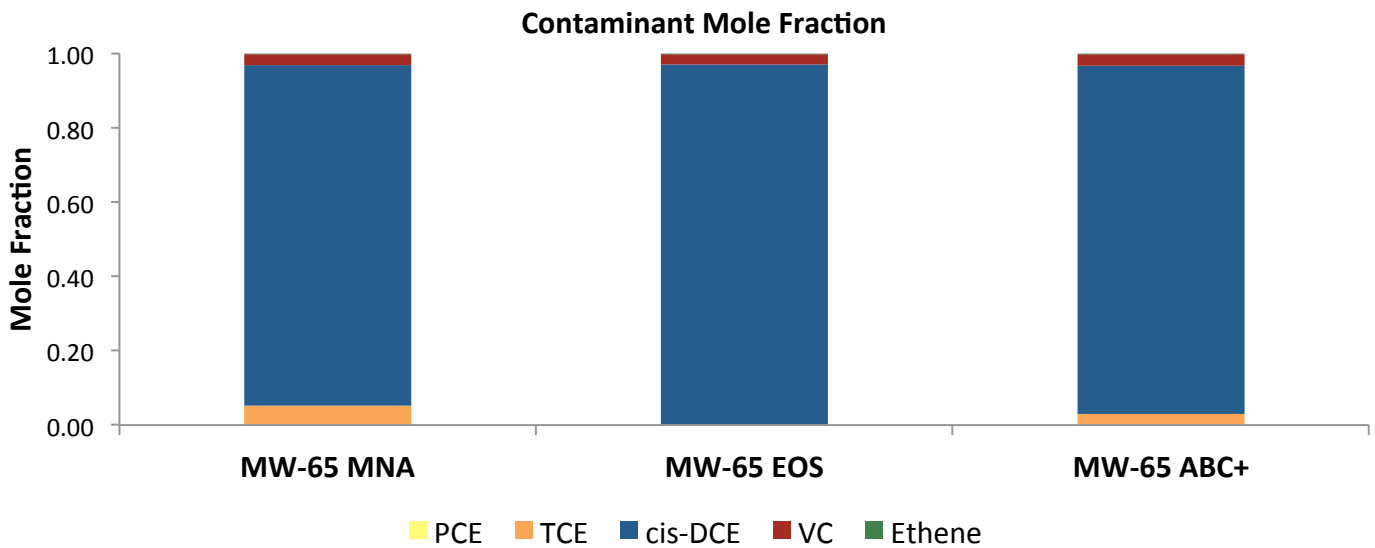


Figure 2. Contaminant mole fractions from ISM units deployed in MW-65.

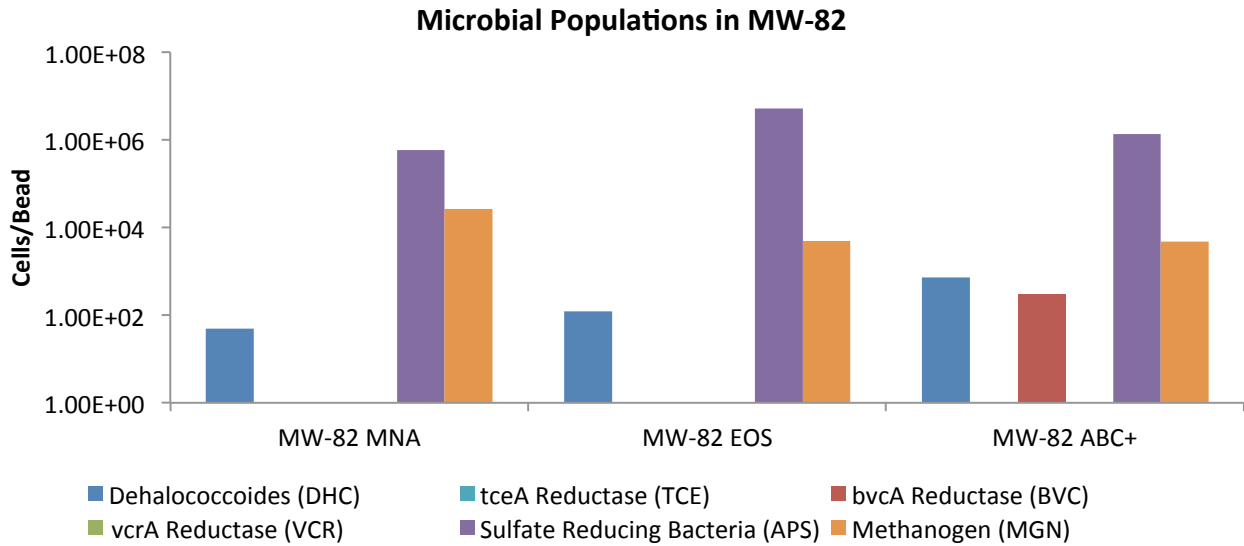


Figure 3. CENSUS® results for selected microbial populations (cells/bead) in MW-82.

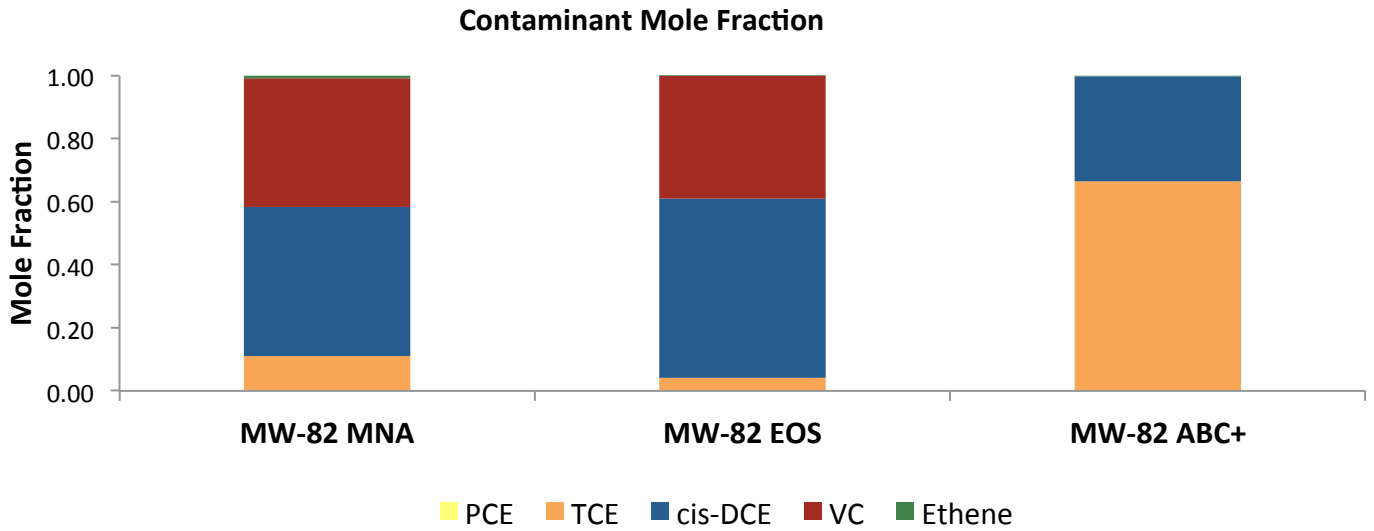


Figure 4. Contaminant mole fractions from ISM units deployed in MW-82.

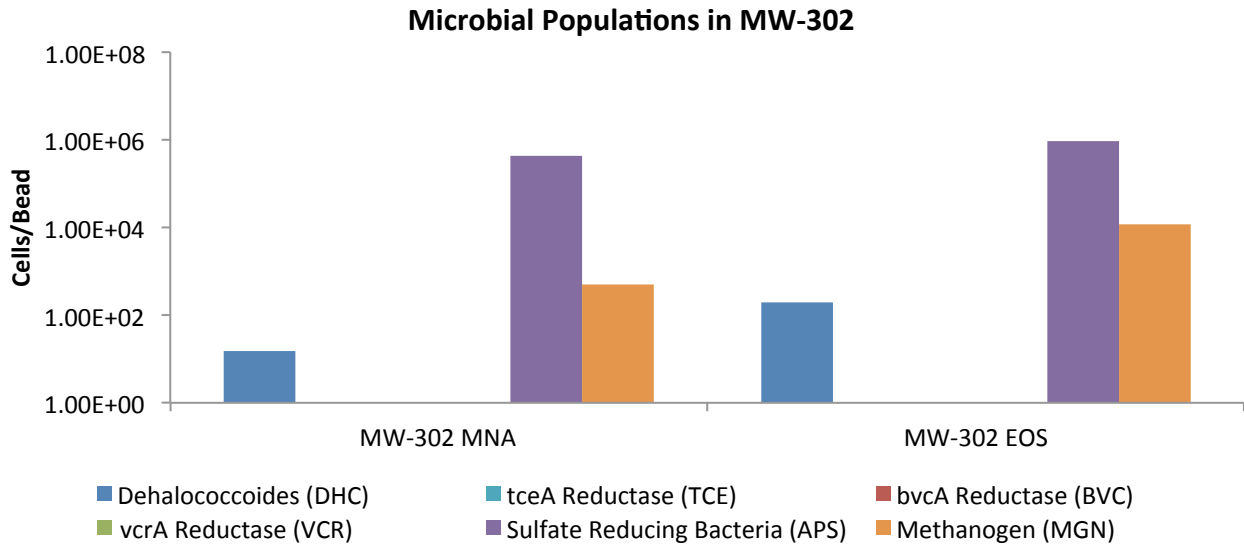


Figure 5. CENSUS® results for selected microbial populations (cells/bead) in MW-302.

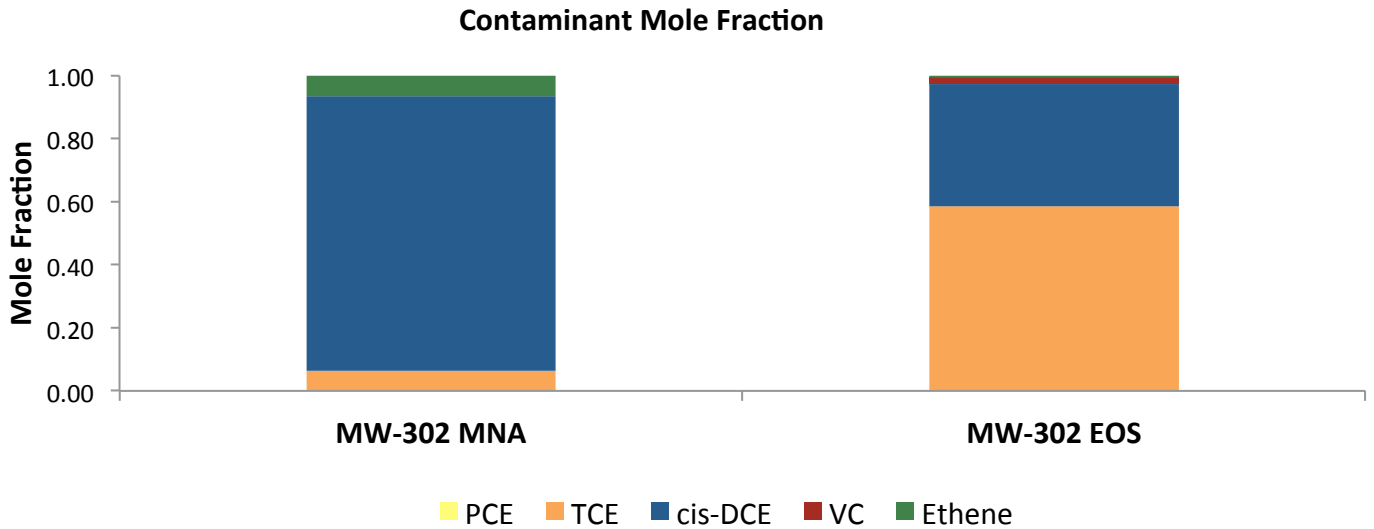


Figure 6. Contaminant mole fractions from ISM units deployed in MW-302.

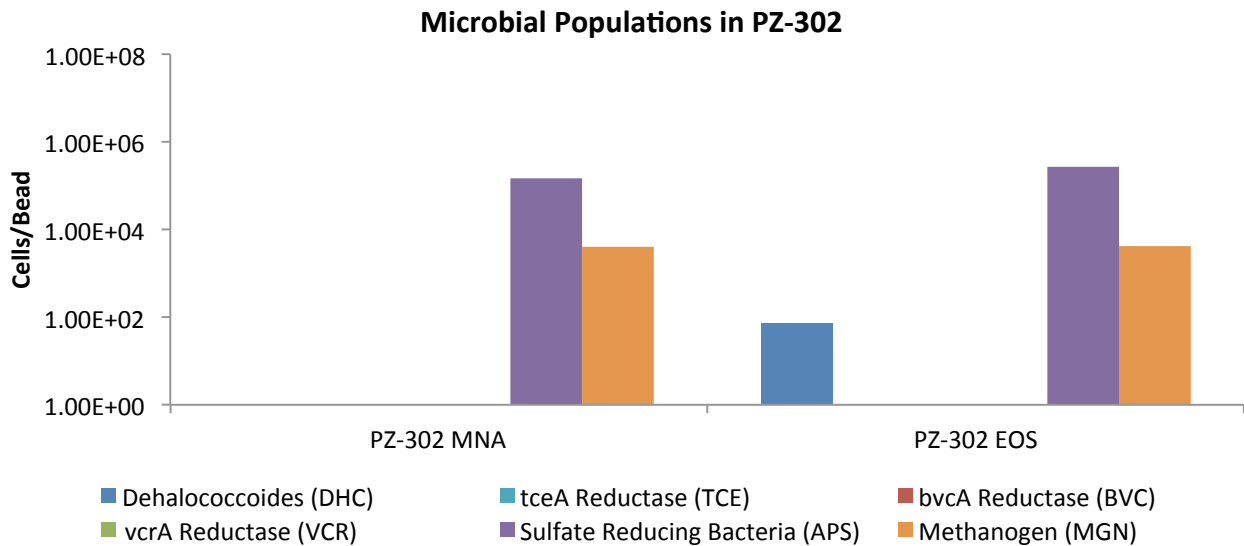


Figure 7. CENSUS® results for selected microbial populations (cells/bead) in PZ-302.

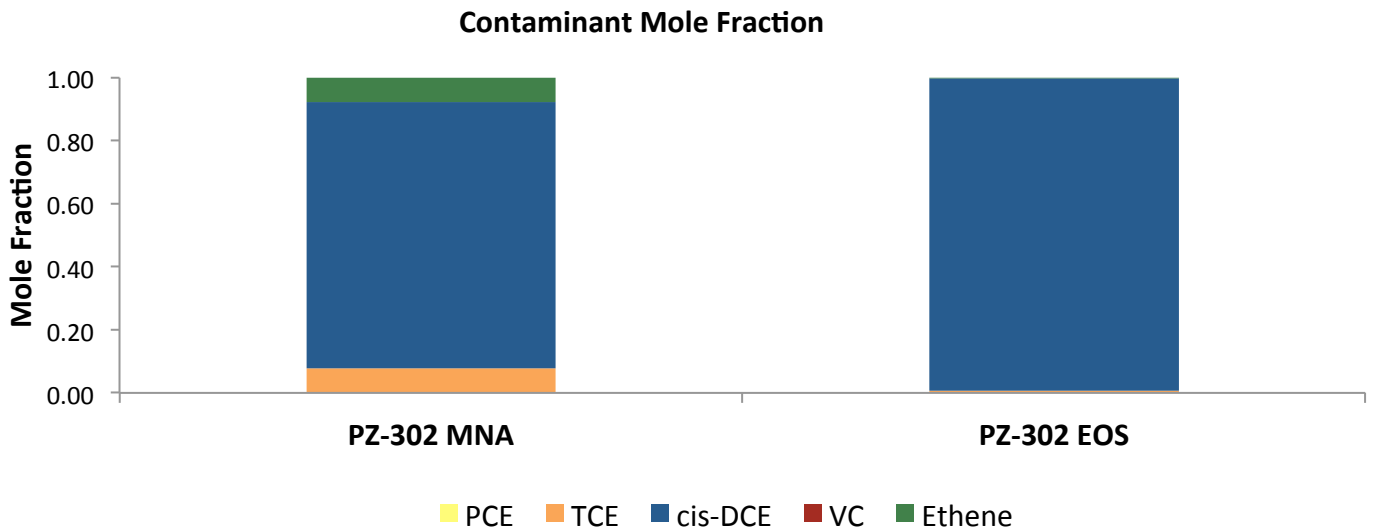


Figure 8. Contaminant mole fractions from ISM units deployed in PZ-302.

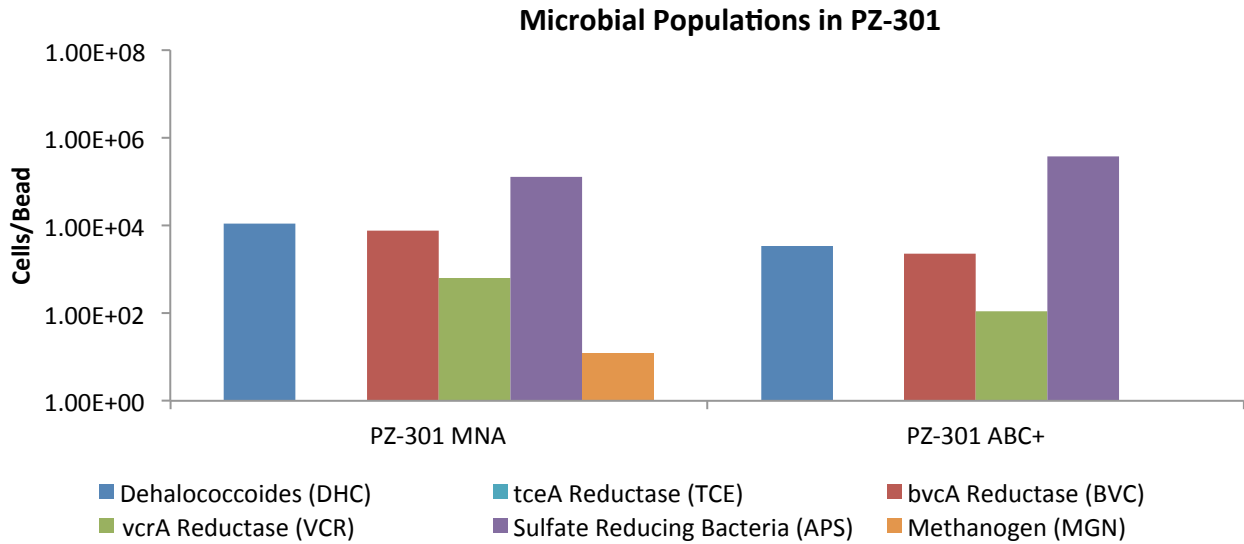


Figure 9. CENSUS® results for selected microbial populations (cells/bead) in PZ-301.

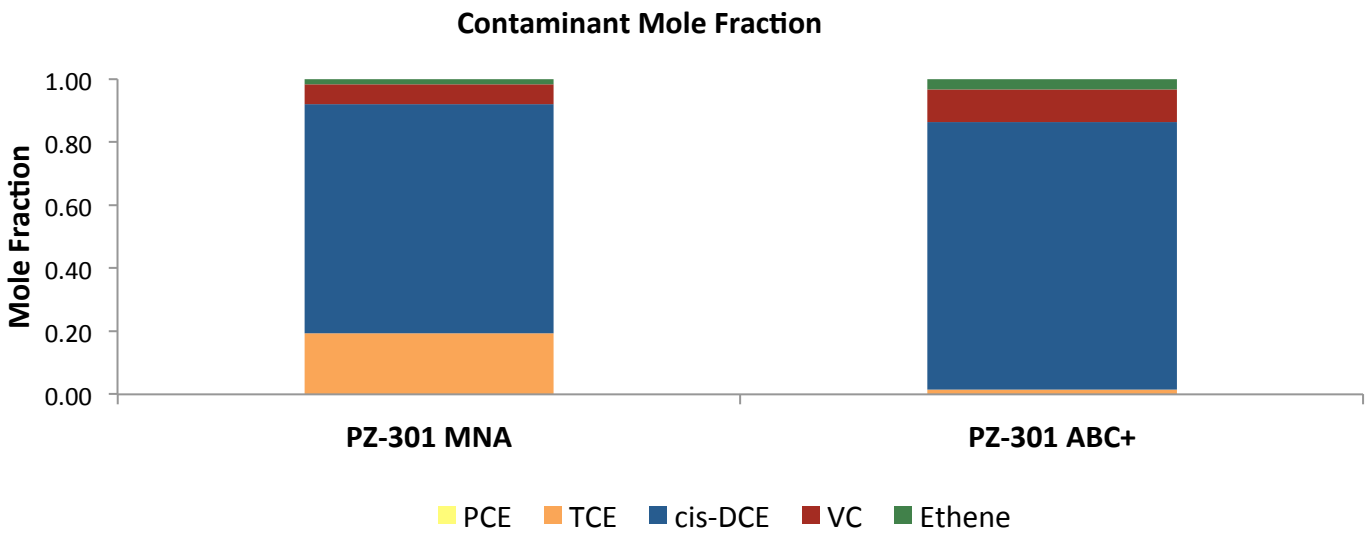


Figure 10. Contaminant mole fractions from ISM units deployed in PZ-301.

Interpretation

Bio-Trap® *In Situ* Microcosm studies are designed to provide the chemical, geochemical, and microbiological lines of evidence required to evaluate remediation options in a single, cost-effective field study. To aid in the decision making process, comparisons should generally focus on differences in results between *In Situ* Microcosm units. For example, comparison of the *Dehalococcoides* populations in the Control and BioStim units can be used to assess whether electron donor addition would stimulate growth of this key group of halorespiring bacteria. While results for individual analyses should be compared between units, overall interpretation should integrate all lines of evidence with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Microbial Populations: CENSUS® analysis allows site managers to quantify targeted members of the microbial community deemed critical for site remediation. Total Eubacteria provides an index of the total bacterial biomass and is generally greater than 10^6 cells/bead in the absence of factors inhibiting microbial growth. While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated¹⁻⁵, *Dehalococcoides* spp. 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 ethene⁶. In fact, the presence of *Dehalococcoides* spp. has been associated with the full dechlorination to ethene at sites across North America and Europe⁷. Thus, CENSUS® quantification of *Dehalococcoides* in each Bio-Trap *In Situ* Microcosm unit can be used to evaluate the likelihood of complete reductive dechlorination of PCE and TCE under MNA conditions, the ability of electron donor addition alone to stimulate growth of halorespiring bacteria (BioStim), and the survival of commercial *Dehalococcoides* cultures in the field (BioAug). The accumulation of the daughter products *cis*-DCE and vinyl chloride termed “DCE stall” is relatively common at PCE/TCE sites especially under MNA conditions. Accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. CENSUS® quantification of vinyl chloride reductase genes (*bvcA* and *vcrA*) was developed to more definitively confirm the potential for biodegradation of vinyl chloride. Again, comparison of vinyl chloride reductase copies between units can be used to assess the efficacy of enhanced bioremediation approaches (biostimulation and bioaugmentation) to enhance populations of organisms specifically capable of reductive dechlorination of vinyl chloride.

Dissolved Gases: When comparing concentrations of dissolved gases between *In Situ* Microcosm units, particular care should be afforded to the dissolved ethene concentration. While ethene can volatilize, can be further metabolized, or be further reduced to ethane in some environments, greater concentrations of ethene generally indicate complete reductive dechlorination of PCE and TCE. In addition to quantifying the end products of reductive dechlorination, analysis of dissolved gases includes determination of dissolved methane. Combined with results of geochemical analysis (See Anions), elevated methane concentrations are indicative of highly reducing conditions conducive to reductive dechlorination. However, methanogens also compete with dechlorinating bacteria including *Dehalococcoides* for available hydrogen.

Anions: Although increases in chloride ion concentrations are often coupled with reductive dechlorination and daughter product formation, the main purpose of the GEO sampler is to measure concentrations of competing electron acceptors and assess the redox status. Elevated concentrations of nitrate, for example, would suggest anoxic conditions less conducive to reductive dechlorination. Production of ferrous iron combined with elevated sulfate concentrations generally indicates iron reducing conditions. Lower concentrations of sulfate combined with sulfide production (but low methane production) suggests sulfate reducing conditions. The production of methane (Table 1 - dissolved gases) suggests highly reducing, methanogenic conditions. While dechlorination of TCE to *cis*-DCE occurs under iron reducing conditions (and in more strongly reducing environments), further reduction to vinyl chloride and ethene may require more anaerobic conditions (sulfate reduction and methanogenesis).

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include “fossil” lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a “fingerprint” of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and Actinomycetes, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly <i>Clostridia/Bacteriodes</i> -like), which produce the H ₂ necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

Physiological Status (Proteobacteria): Some Proteobacteria modify specific PLFA as a strategy to adapt to stressful environmental conditions (11, 12). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Amendment Supplier: a component that fits inside the MICRO-Trac/Bio-Trap unit at the bottom. This component is designed to slowly diffuse a desired amendment within a BioStim and/or a BioAug Unit during the incubation time.

Sampler: Individual components consisting either of a geochemical (GEO), contaminant of concern (COC) or microbial (MICRO) sampler. Geochemical samplers are essentially VOA vials with special septa that facilitate transfer. The microbial samplers are made from a smaller PVC pipe ~1" x 3 ½" and contains Bio-Sep® beads which serve as a microbial growth matrix.

COC Sampler: 40 mL amber VOA with a low density polyethylene membrane permitting passive diffusion of volatile organic compounds (VOCs).

GEO Sampler: a 20 mL amber VOA with a nylon based membrane permitting passive diffusion of anionic species.

MICRO Sampler: a polyvinylchloride cassette containing Bio-Sep® beads which provide a large surface area for microbial growth. In addition to a matrix for microbial growth, the Bio-Sep® beads can be "baited" with amendments including ¹³C labeled chlorobenzene as used in this study. Bio-Sep® beads were designed to allow extraction of phospholipids fatty acids and DNA for analysis of microbial communities.

Unit: 1.25" x 15" PVC housing that all of the samplers are place into for deployment. Units will have baffled end caps to separate different zones within the monitoring well. Typically each unit will correspond to a treatment approach.

Assembly: Collections of Units for a particular monitoring well. Samplers (GEO, COC, and MICRO) are placed in each unit. Units are linked to form an Assembly. An entire Assembly (consisting of multiple units) is deployed in each well.

CENSUS: CENSUS is based on a technique called quantitative polymerase chain reaction (qPCR) whereby many copies of a specific gene are generated. As each gene copy is made, a fluorescent marker is released, measured, and used to quantify the number of target genes present in a sample.

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Appendix C

Temporary Injection Exemption and Coverage Under the General WPDES Permit (WDNR, 2016)



December 2, 2016

M(s). Shelly Billingsley
Director of Public Works
City of Kenosha
Kenosha, WI 53140

Subject: Temporary Injection Exemption Request for Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha WI 53140, BRRTS # 02-30-000327, FID # 230004500

Dear M(s). Billingsley:

The purpose of this letter is to provide a temporary exemption for the injection of a remedial material into groundwater. On October 24, 2016 the Wisconsin Department of Natural Resources (WDNR) received a request for a temporary exemption to pilot inject Sodium Permanganate and Enhanced Reductive Dechlorination (ERD) using ABC®+ and Bioaugmentation to treat targeted CVOCs in the soil and groundwater at the 5555 30th Avenue, Kenosha, Wisconsin. The request was submitted by AECOM the project's environmental consultant, who is representing the 5555 30th Avenue, Kenosha WI including the submission of a \$700 review fee. AECOM also made a request for a WPDES General Permit for Contaminated Groundwater for Remedial Action Operations at the site dated September 30th, 2016. A WDNR injection approval and a WPDES permit are required prior to the injection of remedial materials into the subsurface. This temporary exemption provides assurance to the City of Kenosha that the proposed diluted oxidant method proposed for the environmental cleanup conforms to s. 292.12, Wis. Stats. WDNR approved the Remedial Action of this site on August 18 2016 which was modified on August 22, 2016

AECOM proposes to pilot test 7% ABC®+, a mixture of lactates, fatty acids, glycerol, phosphate buffer and zero-valent iron (ZVI) and RTB-1®, commercial culture of Dehalococcoides (DHC) solution. The pilot study will consist of injecting sodium permanganate at six to eight locations. The injection point spacing will be 20 feet with a 10 foot radius. Sodium permanganate and any catalyst will be diluted with portable water to a vendor recommended concentration of 2.7 to 4.0%. Injection will be through direct push of the diluted oxidant. The saturated treatment zone ranges in depth from about 8 feet bgs to 20 feet bgs with a thickness of 12 feet treat targeted CVOCs in the soil and groundwater at the 5555 30th Avenue, Kenosha, Wisconsin

Determination on the NR 812 Injection Prohibitions:

The injection prohibition under s. NR 812.05, Wis. Adm. Code, is not applicable in this case because the proposed action is a WDNR-approved activity necessary for the remediation of soil and groundwater. This letter serves as your approval from the WDNR to inject the proposed diluted oxidant method to treat CVOCs, including PCE, trichloroethylene (TCE), and breakdown products, cis-1, 2-dichloroethene (cis-1, 2-DCE) and vinyl chloride (VC) in groundwater, in accordance with this temporary exemption.

NR 140 Temporary Exemptions:

WDNR approval is hereby granted to AECOM for the injection of the proposed in-situ enhanced reductive dechlorination using in-situ blending methods at the Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha,

WI with certain terms and conditions. The expiration date of this temporary exemption must be less than 5 years, per NR 140.28(5) (e) 1. from the date of this letter.

The need to obtain a temporary exemption for the injection of a remedial material for which a groundwater quality standard has not been established is required under s. NR 140.28 (1) (d), Wis. Adm. Code. Based on the information provided by your consultant, it appears the requirements for a temporary exemption for the injection of a remedial material for which a groundwater quality has not been established under s. NR 140.28 (1) (d) have been or will be met in accordance with s. NR 140.28 (5) (c) and (d), Wis. Adm. Code.

Department approval is granted with the following terms and conditions:

A. General:

1. The remedial action for restoring contaminated groundwater or soil, and any infiltrated or injected contaminated water and remedial materials, shall achieve the applicable response objectives required by s. NR 140.24 (2) or s. NR 140.26 (2), Wis. Adm. Code, within a reasonable period of time.
2. The type, concentration and volume of substances or remedial material to be infiltrated or injected shall be minimized to the extent that is necessary for restoration of the contaminated groundwater.
3. Any infiltration or injection of contaminated water or remedial material into groundwater shall not significantly increase the threat to public health, or welfare, or to the environment.
4. No uncontaminated or contaminated groundwater, substance or remedial material shall be infiltrated or injected into an area where a floating non-aqueous liquid is present in the contaminated groundwater.
5. There shall be no expansion of soil or groundwater contamination, or migration of any infiltrated or injected contaminated water or remedial material, beyond the edge of previously contaminated areas, except that infiltration or injection into previously uncontaminated areas may be allowed if the Department determines that expansion into adjacent, previously uncontaminated areas is necessary for the restoration of the contaminated groundwater, and the requirements of s. NR 140.18 (1), Wis. Adm. Code will be met.
6. All necessary federal, state and local licenses, permits and other approvals are obtained and compliance with all applicable environmental protection requirements is required. A WPDES general permit for Discharge of Contaminated Groundwater from Remedial Action Operations is required for this action.

B. Specific:

7. The remedial materials to be injected to the groundwater shall be limited to 7% ABC®+, a mixture of lactates, fatty acids, glycerol, phosphate buffer and zero-valent iron (ZVI) and RTB-1®, commercial culture of Dehalococcoides (DHC) solution to treat targeted CVOCs in the soil and groundwater at the Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, Wisconsin
8. The remedial material and injection project shall be as described in AECOM's October 24, 2016 request.
9. AECOM notify the Southeast Region WDNR Project Manager of field activities no less than one (1) week before starting the injection.
10. Include soil vapor screening, using a PID, as a best management practice as part of the monitoring plan.
11. Remediation progress reports shall be submitted semi-annually, and shall include the groundwater Monitoring results. The first report should be submitted not more than three months after the first injection. Recommendations as to the next phase of sampling and/or the need for additional treatment shall be included in a future report. This report shall be submitted prior to the expiration date of this temporary approval.
12. Any significant changes to the injection process, based on information from the injection groundwater Monitoring reports or results shall be submitted to the WDNR for approval prior to the changes being implemented to plot test 7% ABC®+, a mixture of lactates, fatty acids, glycerol, phosphate buffer and zero-valent iron (ZVI) and RTB-1®, commercial culture of Dehalococcoides (DHC) solution to treat

targeted CVOCs in the soil and groundwater at the Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha. This includes, but is not limited to, adjustments to the volume/mass of the media injected, additional injection points, number of Injection/delivery events, and/or changes in the type of remediation media used in the injection points.

13. Modifications to the sampling schedule may be requested.
14. The responsible party may apply to the WDNR for an extension of this approval in the event that future injection/delivery activities are required, and the WDNR must receive any extension request before the expiration date of this approval.
15. The WDNR will review all permit extension requests, site-specific data and or any other necessary information.
16. Upon completion of the project, the placement monitoring wells must be abandoned in accordance with s. NR 141.25, Wis. Adm. Code, and later topped off with grout or native soils if settling occurs, unless converted to NR141 complying monitoring wells, or through an alternative approved by the WDNR Project Manager.

Monitoring Conditions: In addition to your plan, it is your responsibility to meet all of the following approval conditions during and related to your proposed infiltration/injection procedures at this site. The conditions are:

1. Maintain and follow the Site Specific Health and Safety Plan in accordance with the Occupation Safety and Health Administration (OSHA) and the United States Environmental Protection Agency (USEPA) health and safety standards for hazardous waste workers.
2. If a chlorinated water source (i.e. municipal water) is used as the make-up water, it shall be filtered through an activated carbon filter or method proposed in your report to remove chlorine.
3. Record the start and stop times and the actual volume of the proposed in-situ enhanced reductive dechlorination using in-situ blending methods injected into each Injection or delivered to each placement monitoring well.
4. Monitor the ambient air in and around the work area during the proposed in-situ enhanced reductive dechlorination using in-situ blending methods.
5. Monitor the headspace of all injection points prior to each the proposed in-situ enhanced reductive dechlorination using in-situ blending methods.
6. Monitor the headspace of all groundwater monitoring wells prior to each groundwater monitoring event.
7. Conduct vapor monitoring at the closest proposed monitoring well locations, including a measurement of percent (%) LEL every 15 minutes during the first hour of each infiltration event.
8. Immediately notify the WDNR if any new groundwater quality enforcement standards are exceeded during monitoring.
9. Notify digger's hotline and all owners of utility-lines if your project requires this. Also notify the local fire department prior to injection activities, and ensure that any representatives of these entities be allowed to observe the injection activities, as needed after completing the injection, sample all monitoring wells for applicable parameters quarterly.
10. Ensure that the injection is performed at less than 100 psi at a rate which minimizes solution mounding in the aquifer, and plume disfigurement.
11. Maintain a log of all field monitoring results and injection/delivering activities.
12. Document and report all project activities and all test results to the WDNR within 60 days of completing the injection activities.

Failure to adhere to the provisions of this temporary exemption may result in WDNR requiring revisions to the remedial action design, operation or monitoring procedures, or the revocation of this exemption and the implementation of an alternative remedial action to restore soil or groundwater quality, or both.

WPDES Permit

Your proposed discharge is eligible for coverage under the general Wisconsin Pollutant Discharge Elimination System (WPDES) permit WI-0046566-06 for Discharge of Contaminated Groundwater from Remedial Action Operations. You are responsible for compliance with the conditions contained in this permit. The permit and an accompanying facts sheet can be downloaded from the WDNR website at <http://dnr.wi.gov/topic/wastewater/GeneralPermits.html>. The amended water will be injected into the groundwater. No pollutants shall be injected into the groundwater.

Discharges under this permit are required to be consistent with a discharge management plan that has been approved by the WDNR. Your plan, AECOM's October 24, 2016 request will be considered as the required discharge management plan, which specifies analytical sampling of the discharge for VOC and RCRA Metals.

Treatment will be provided by injection/delivering of the proposed in-situ enhanced reductive dechlorination using in-situ blending methods to soil and groundwater. The facility must immediately notify the WDNR if any treated groundwater will be discharged to surface water. Any significant system changes will require WDNR approval.

The WDNR hereby authorizes your pollutant discharge under the general WPDES permit for Discharge of Contaminated Groundwater from Remedial Action Operations (WI-0046566-6). The following conditions are highlighted for your information:

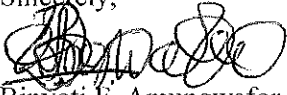
Section 283.35, Wisconsin Statutes, authorizes the WDNR to issue general permits for discharges from categories or classes of point sources. If a permittee believes coverage of a facility under a general WPDES permit is not appropriate, the permittee may apply for issuance of an individual WPDES permit pursuant to section 283.35 (2) and may petition the WDNR for withdrawal of coverage under the general permit. The individual permit application should indicate which site specific factors would justify alternate WPDES limits for the operation. Issuance of such a site specific WPDES permit will provide for a 30 day public comment period, and potentially a public informational hearing and/or an adjudicatory hearing. The WDNR may withdraw a facility from coverage under a general permit if it is determined that a discharge is a significant contributor of pollutants to waters of Wisconsin, or in certain other cases set out in s. 283.35, Stats. In lieu of general permit withdrawal, the WDNR may refer any violation of this permit to the Department of Justice for enforcement under s. 283.89, Stats. In order to avoid any enforcement action, please read the WPDES permit carefully and comply with the permit requirements.

If you believe you have a right to challenge the WDNR's decision to cover this facility with a WPDES general permit, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review WDNR decisions must be filed. To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the WDNR, to serve a petition for hearing on the Secretary of the Department of Natural Resources. Such a petition should identify pollutant(s) that are believed to be not appropriately regulated by the general permit for the specific site. All requests for contested case hearings must be made in accordance with section NR 2.05 (5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the time period for filing a petition for judicial review.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the WDNR, to file your petition with the appropriate circuit court and serve the petition on the WDNR. A petition for judicial review must name the Department of Natural Resources as the respondent.

If you have any questions regarding this letter, please contact either me at 414-263-8607 or
BinyotiAmungwafor@Wisconsin.gov

Sincerely,

A handwritten signature in black ink, appearing to read 'Binyoti F. Amungwafor', written over a horizontal line.

Binyoti F. Amungwafor
Hydrogeologist
Remediation & Redevelopment Program

Cc: M(s). Lanette L. Altenbach, AECOM
Mr. Brian Austin, WDNR DG/5
Mr. Bill Phelps, WDNR DG/5
Case File

Appendix D

Soil Boring Logs, Well Construction, Monitoring Well Development, and Abandonment Forms

Route To: Watershed/Wastewater Waste Management
Remediation/Revelopment Other

Page 1 of 1

Facility/Project Name DaimlerChrysler - KEP			License/Permit/Monitoring Number		Boring Number MW-61
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: Jeff Last Name: Copak Firm: Fox Drilling			Date Drilling Started 12 / 19 / 00	Date Drilling Completed 12 / 19 / 00	Drilling Method hollow stem auger
WI Unique Well No. JJ934	DNR Well ID No.	Well Name MW-61	Final Static Water Level 0 Feet MSL	Surface Elevation 0 Feet MSL	Borehole Diameter 8 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input checked="" type="checkbox"/> State Plane 0 N, 0 E			Lat 0 0 0 "	Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S 0 Feet <input type="checkbox"/> W	
W 1/4 of SE 1/4 of Section 36 T 2 N, R 22 E			Long 0 0 0 "	0 Feet	
Facility ID 230004500	County KENOSHA	County Code 30	Civil Town/City/ or Village Kenosha		

Sample	Date	Depth (ft)	Soil/Rock Description And Geologic Origin For	Type	Soil Properties								
					Moisture	Temperature	Specific Gravity	Unit Weight	Void Ratio	Porosity	Shrinkage	Swell	
1-SS	24/5	50/5"	2 0-2' 7" Concrete, 4" Fill: SAND and Gravel, Light Brown,	SP									
2-SS	24/7	15,7 8,8	4 2-4' 2" SAND and Gravel, Brown, Wet, 1" SAND and Gravel, Light Brown, Moist, 4" SILTY CLAY, Little Gravel, Brown, Moist	CL									
3-SS	24/10	5,6 7,9	6 4-6' SILTY CLAY, Gray with Orange Mottling, Soft, Moist	CL									
4-SS	24/10	4,5 4,4	8 6-8' SILTY CLAY, Gray with Orange Mottling, Soft, Moist	CL									
5-SS	24/18	5,7 9,11	10 8-10' 6" SILTY CLAY, Gray with Orange Mottling, Soft, Moist, 12" SILTY SAND, Gray, Fine to Med. Grained, Well Sorted, Wet	SM						37.3			
6-SS	24/19	5,8 10,12	12 10-12' SILTY SAND, Gray, Fine to Med. Grained, Well Sorted, Wet	SM						140			
7-SS	24/17	5,7 9,11	14 12-14' SILTY SAND, Gray, Fine to Med. Grained, Well Sorted, Wet	SM						189			
8-SS	24/16	3,3 5,6	16 14-16' SILTY SAND, Gray, Fine to Med. Grained, Well Sorted, Wet	SM						160			
9-SS	24/19	4,7 10,10	18 16-18' SILTY SAND, Gray, Fine to Med. Grained, Well Sorted, Wet	SM						122			
End of Boring at 18 Feet													

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Mark L.* Firm *GZA GeoEnvironmental, Inc.*

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

019306
KENOSHA

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP CS8		License/Permit/Monitoring Number		Boring Number PZ-61	
Boring Drilled By: Name of crew chief (first, last) and Firm Tony Kapugi On-Site Environmental Services		Date Drilling Started 10/5/2011	Date Drilling Completed 10/5/2011	Drilling Method geoprobe/HSA	
WI Unique Well No.	DNR Well ID No.	Common Well Name PZ-61		Final Static Water Level Feet MSL	Surface Elevation Feet MSL
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N		Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____ 1/4 of Section _____, T _____ N, R _____		Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID	County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties						RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1 GP	60 39.6		1	Concrete Surface	Concrete										
			2	Fill: Medium to Coarse Sand, trace fine to medium sub-angular gravel - brownish yellow (10YR 6/6) - moist - noncohesive	Fill										
2 GP	60 51.6		3	Fill: Silt, trace coarse sand - black (2.5Y 2/0) - moist - noncohesive	Fill			0.0							Sample CS8-SS-PZ-61 (3-4) at 11:05 am
			4	74.5 TSF - Hard Clayey Silt - yellowish brown (10YR 5/8) and gray (10YR 6/1) - moist - cohesive	ML										
			5	Clayey Silt - yellowish brown (10YR 5/8) mottled with gray (10YR 6/1) - moist - cohesive	ML					0.0					
3 GP	60 60		7	Clayey Silt - trace fine sub-round gravel - dark gray (10YR 4/1) - moist - cohesive	ML			0.0						Sample CS8-SS-PZ-61 (7-8) at 11:20 am	
			9	Fine to Medium Sand - dark gray (10YR 4/1) - wet - noncohesive	SP				0.0						
			10	Fine to Medium Sand - dark gray (10YR 4/1) - wet - noncohesive - slight gas odor	SP			0.0							

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Firm **AECOM** Tel: _____ Fax: _____

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **PZ-61** Use only as an attachment to Form 4400-122.

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
4 GP	60 60		13	Fine to Medium Sand - dark gray (10YR 4/1) - wet - noncohesive - slight gas odor <i>(continued)</i>	SP			0.0						
		14												
		15												
		16												
5 GP	60 60		20	Fine to Medium Sand, increasing silt with depth - dark gray (10YR 4/1) - wet - noncohesive - slight gas odor	SP			0.0						
			21	Silt - dark gray (10YR 4/1) - wet - noncohesive - stiff 1.5 TSF - Stiff	ML			0.0						
6	60		22	Clay, trace fine to medium sub-round gravel - dark gray (10YR 4/1) - cohesive - hard 74.5 TSF End of Boring at 25.0 feet. Set well at 23.5 ft. - Screened 21.0 - 23.5 ft.	CL			0.0						
			24											

Sample
CS8-SS-PZ-61
(22.5-23.5) at
11:30 am

Route to: Watershed/Wastewater Remediation/Redevelopment Waste Management Other

Page 1 of 1

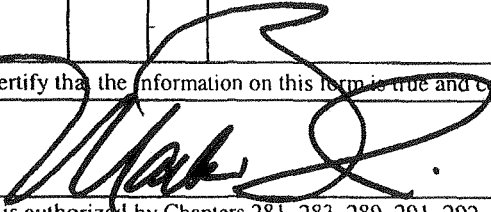
Facility/Project Name DaimlerChrysler - Kenosha Engine Plant			License/Permit/Monitoring Number		Boring Number MW-75
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Don Last Name Eger Firm RDnP Drilling, Inc.			Date Drilling Started 9/3/03	Date Drilling Completed 9/3/03	Drilling Method Hollow-Stem Auger
WI Unique Well No.	DNR Well ID No.	Well Name MW-75	Final Static Water Level Feet	Surface Elevation 623.7 Feet MSL	Borehole Diameter 8.0 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane <u>W</u> <u>12</u> of <u>SE</u> 1/4 of Section <u>36</u> ,T <u>2</u> ,R <u>22E</u>			Local Grid Location Lat _____ <input type="checkbox"/> N <input type="checkbox"/> E Long _____ Feet <input type="checkbox"/> S _____ Feet <input type="checkbox"/> W		

Facility ID	County Kenosha	County Code 30	Civil Town/City/or Village Kenosha
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Sample Number and Type	Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	24/17	10, 21, 23, 16	5	Medium-dense SAND and GRAVEL, brown, damp (FILL)	SP			5.3						
2	24/5	8, 8, 5, 5		Loose, silty SAND, some Gravel, brown, fine, damp	SM			4.6						
3	24/5	3, 3, 5, 7	10	Medium-stiff, silty CLAY, some organics, dark brown, damp	CL			7.4						
4	24/3	3, 4, 5, 7		CL			29.2							
5	24/14	4, 7, 11, 15	15	Loose, silty SAND, dark brown to gray, fine, moist, strong petroleum odor	SM			311						
6	24/13	8, 10, 13, 14		SM			192.5							
7	24/18	5, 8, 14, 16		SM			81.4							
8	24/22	3, 8, 13, 17	20	END OF BORING AT 19'	SM			44.4						
9	24/24	5, 12, 17, 17			SM			74						

021224
KENOSHA

I hereby certify that the information on this form is true and correct to the best of my knowledge.


Signature:  Firm: **GZA GeoEnvironmental, Inc.**

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP - CS4			License/Permit/Monitoring Number		Boring Number PZ-75	
Boring Drilled By: Name of crew chief (first, last) and Firm T. Kapugi Onsite Environmental Services			Date Drilling Started 8/15/2011	Date Drilling Completed 8/15/2011	Drilling Method geoprobe	
WI Unique Well No.	DNR Well ID No.	Common Well Name PZ-75	Final Static Water Level Feet MSL		Surface Elevation Feet MSL	Borehole Diameter 2.00 inches
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____		1/4 of Section _____, T _____ N, R _____	Long _____ ° _____ ' _____ "			
Facility ID		County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1 2 3 4 5 6 7 8 9 10 11 12	Blind Drilled to 24.5 feet.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm AECOM	Tel: Fax:
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Kenosha Engine Plant		License/Permit/Monitoring Number		Boring Number MW-807	
Boring Drilled By: Name of crew chief (first, last) and Firm T. Kapugi On-Site Environmental		Date Drilling Started 4/21/2014	Date Drilling Completed 4/21/2014	Drilling Method Direct Push/HSA	
WI Unique Well No.	DNR Well ID No.	Common Well Name MW-807		Final Static Water Level Feet MSL	Surface Elevation 623.91 Feet MSL
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane 220421.6 N, 2581301.9 E S/C/N		Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____ 1/4 of Section _____, T _____ N, R _____		Long _____ ° _____ ' _____ "		Feet _____ Feet _____	
Facility ID		County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	60 30		1	Concrete	Concrete									
			2	Fill: Sand and Gravel, light gray, dry, loose	Fill									
2	60 30		3	Fill: Sand and Gravel, light brown, moist	Fill			2.2						
			4	Fill: Silty Clay, brown and gray, moist, medium plasticity, soft	Fill			0.3						
			5					0.1						
			6					0.5						
3	60 54		7		Fill			0.6						
			8					2.1						
			9					5.9						
			10	Medium Grained Sand, trace fine gravel and silt, gray, saturated	SP			125						
			11	Fine Grained Sandy Silt, trace clay, gray, dense	ML			29.7						
			12	Medium Grained Sand, saturated, loose	SP			1.5						
			13					727						
			14					30.1						
			15	End of Boring at 15.0 ft.				25.5						
								8.5						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 	Firm AECOM 1555 N RiverCenter Drive, Suite 214 Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		License/Permit/Monitoring Number		Boring Number ERD1-TW-NW10	
Boring Drilled By: Name of crew chief (first, last) and Firm Tony Kapugi On-Site Environmental		Date Drilling Started 9/12/2016	Date Drilling Completed 9/12/2016	Drilling Method Geoprobe/HSA	
WI Unique Well No.	DNR Well ID No.	Common Well Name ERD1-TW-NW10	Final Static Water Level 10 Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 4.25
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>	State Plane N, E S/C/N		Lat _____ ° _____ ' _____ "	Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of	1/4 of Section	T N, R	Long _____ ° _____ ' _____ "	Feet	Feet
Facility ID	County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 GP	60 38		0	Concrete	Concrete									
				Fill: Gravelly sand, trace silt, tan, moist, loose	Fill			0.0						
2 GP	60 42		2	Silt with little clay, dark grayish black, moist, firm, noncohesive, nonplastic	ML									
				Silty clay, trace fine sand, gray with some light brown mottles, moist, firm, cohesive, low plasticity	CL			0.0						
3 GP	60 52		4	Color transition to lighter gray with brown mottles at 5.0 ft.			CL			0.0				
				Sand, grayish brown, moist to wet, loose, fine grained, poorly graded		0.0								
4 GP	60 57		6	Color becomes gray at 9.5 ft.	SP			0.0						
								0.0						
5 GP	36 36		8		CL			0.0						
								0.0						
			10					0.0						
								0.0						
			12					0.0						
								0.0						
			14					0.0						
								0.0						
			16					0.0						
								0.0						
			18					0.0						
								0.0						
			20					0.0						
								0.0						
			22					0.0						
								0.0						
				Silty clay, gray, moist, firm to stiff, cohesive, medium plasticity, trace subrounded gravel	CL			0.0						
				End of Boring at 23.0 ft. - Well set at 22.0 ft.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM	Tel: 414-944-6080
	1555 N RiverCenter Drive Milwaukee, WI 53212	Fax: 414-944-6081

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		License/Permit/Monitoring Number		Boring Number ERD6-TW-NW10	
Boring Drilled By: Name of crew chief (first, last) and Firm Tony Kapugi On-Site Environmental		Date Drilling Started 9/12/2016	Date Drilling Completed 9/12/2016	Drilling Method Geoprobe/HSA	
WI Unique Well No.	DNR Well ID No.	Common Well Name ERD6-TW-NW10	Final Static Water Level 10 Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 4.25
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>	State Plane N, E S/C/N		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		
1/4 of	1/4 of Section	T N, R	Lat _____ ° _____ ' _____ "	Long _____ ° _____ ' _____ "	
Facility ID	County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 GP	60 39		0-2	Concrete	Concrete									
				Fill: Gravelly sand, trace silt, light brown, moist to dry, loose	Fill			0.2						
2 GP	60 36		2-4	Fill: Gravelly sand, whitish gray, moist, loose, possible crushed concrete	Fill			0.2						
				Silty clay, dark brownish gray, moist, firm, cohesive, low plasticity, slight odor at 4.0 ft. Transitions to light tannish gray color at 4.5 ft. with medium brown mottles	CL			1.0						
3 GP	60 30		4-6					5.9						
								1.6						
4 GP	60 56		6-10					2.6						
								0.5						
5 GP	36 36		10-14					0.5						
								0.3						
			14-16					0.2						
								0.6						
			16-18					0.3						
								0.2						
			18-20					0.5						
								0.4						
			20-22	Silty clay, gray, moist, firm to hard, cohesive, medium plasticity	CL									
			22-23	End of Boring at 23.0 ft. - Well set at 22.0 ft.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		License/Permit/Monitoring Number		Boring Number ERD6-TW-NW15	
Boring Drilled By: Name of crew chief (first, last) and Firm Tony Kapugi On-Site Environmental		Date Drilling Started 9/12/2016	Date Drilling Completed 9/12/2016	Drilling Method hollow stem auger	
WI Unique Well No.	DNR Well ID No.	Common Well Name ERD6-TW-NW15		Final Static Water Level Feet MSL	Surface Elevation Feet MSL
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N		Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____ 1/4 of Section _____, T _____ N, R _____		Long _____ ° _____ ' _____ "		Feet _____ Feet _____	
Facility ID		County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
	264		0 2 4 6 8 10 12 14 16 18 20 22	Blind Drilled										
				Well set at 22.0 ft.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		License/Permit/Monitoring Number		Boring Number ERD8-TW-SW15	
Boring Drilled By: Name of crew chief (first, last) and Firm Tony Kapugi On-Site Environmental		Date Drilling Started 9/12/2016	Date Drilling Completed 9/12/2016	Drilling Method Geoprobe/HSA	
WI Unique Well No.	DNR Well ID No.	Common Well Name ERD8-TW-SW15	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter 4.25
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/>	State Plane N, E S/C/N		Lat _____ ° _____ ' _____ "	Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of _____	1/4 of Section _____	T _____ N, R _____	Long _____ ° _____ ' _____ "	Feet _____ Feet _____	
Facility ID	County Kenosha	County Code 30	Civil Town/City/ or Village Kenosha		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1 GP	60 41		0-2	Concrete	Concrete										
				Fill: Gravelly sand, tannish brown, moist, loose	Fill										
2 GP	60 50		2-4	Silty with little clay, black, moist, medium dense/firm, noncohesive, nonplastic	ML			0.7							
				Silty clay, gray, moist, firm, cohesive, medium plasticity	CL			25.2 1300 687							
3 GP	60 40		4-6	Tannish brown color mottling appears between 4.5-6.5 ft.	CL			161							
				Light gray color between 6.5-8.0 ft.			13.4								
4 GP	60 60		6-10	Sand, trace silt, gray, moist to wet, loose, fine to medium grained, poorly graded	SP			173							
							2.7								
5 GP	24 24		10-14					1.1							
							7.4								
5 GP	24 24		14-16					0.9							
							3.0								
5 GP	24 24		16-18					1.5							
							0.2								
5 GP	24 24		18-20					0.6							
5 GP	24 24		20-22	Silty clay, gray, moist, firm, cohesive, medium plasticity, little subrounded gravel deposits	CL										
				End of Boring at 22.0 ft. - Well set at 22.0 ft.											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name DaimlerChrysler - KEP	Local Grid Location of Well 0 ft. N. 0 ft. E. 0 ft. S. 0 ft. W.	Well Name MW-61
Facility License, Permit or Monitoring No.	Local Grid Origin (estimated: <input type="checkbox"/>) or Well Location <input checked="" type="checkbox"/> Lat. 0 0 0 " Long. 0 0 0 "	Wis. Unique Well No. JJ935 DNR Well ID No.
Facility ID 230004500	St. Plane 0 ft. N. 0 ft. E. S/C/N	Date Well Installed 12 / 19 / 00
Type of Well Well Code 11 / mw	Section Location of Waste/Source W 1/4 of SE 1/4 of Sec. 36 T. 2 N. R. 22 <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: Name (first, last) and Firm Jeff Copak Fox Drilling
Distance from Waste/Source 0 ft.	Enf. Stds. Apply <input type="checkbox"/>	
	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

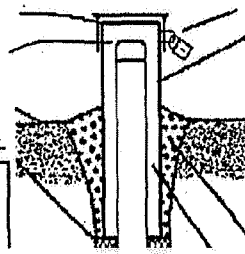
A. Protective pipe, top elevation -- 0 -- ft. MSL

B. Well casing, top elevation -- 0 -- ft. MSL

C. Land surface elevation -- 0 -- ft. MSL

D. Surface seal, bottom -- 0 -- ft. MSL or -- 1 -- ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH



1. Cap and lock? Yes No

2. Protective cover pipe:
 a. Inside diameter: 9 in.
 b. Length: 1 ft.
 c. Material: Steel 04
 Other
 d. Additional protection? Yes No
 If yes, describe: _____

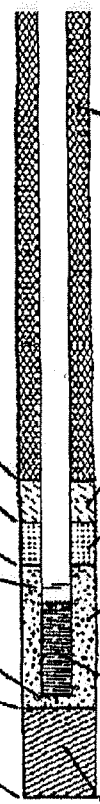
Bentonite 30

14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Other

15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16. Drilling additives used? Yes No
 Describe: _____

17. Source of water (attach analysis, if required): _____



4. Material between well casing and protective pipe:
 Bentonite 30
 Other

5. Annular space seal:
 a. Granular/Chipped Bentonite 33
 b. 0 Lbs/gal mud weight... Bentonite-sand slurry 35
 c. 0 Lbs/gal mud weight... Bentonite slurry 31
 d. 0 % Bentonite... Bentonite-cement grout 50
 e. 0 Ft³ volume added for any of the above
 f. How installed: Tremie 01
 Tremie pumped 02
 Gravity 08

6. Bentonite seal:
 a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 32
 c. Cetco Pure Gold Medium Chips— Other

7. Fine sand material: Manufacturer, product name & mesh size
 a. _____
 b. Volume added 0 ft³

8. Filter pack material: Manufacturer, product name & mesh size
 a. Global Filter Pack #5
 b. Volume added 2.3 ft³

9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
 Other

10. Screen material: PVC Schedule 40
 a. Screen type: Factory cut 11
 Continuous slot 01
 Other
 b. Manufacturer _____
 c. Slot size: 0.01 in.
 d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None 14
 Other

E. Bentonite seal, top -- 0 -- ft. MSL or -- 1 -- ft.

F. Fine sand, top -- 0 -- ft. MSL or -- 0 -- ft.

G. Filter pack, top -- 0 -- ft. MSL or -- 6 -- ft.

H. Screen joint, top -- 0 -- ft. MSL or -- 8 -- ft.

I. Well bottom -- 0 -- ft. MSL or -- 18 -- ft.

J. Filter pack, bottom -- 0 -- ft. MSL or -- 18 -- ft.

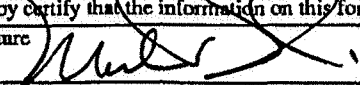
K. Borehole, bottom -- 0 -- ft. MSL or -- 18 -- ft.

L. Borehole, diameter -- 8 -- in.

M. O.D. well casing -- 2.38 -- in.

N. I.D. well casing -- 2.05 -- in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature  Firm GZA GeoEnvironmental, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Remediation/Redevelopment Waste Management Other

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name KEP CS8		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name PZ-61	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ' _____ " Long. _____ ' _____ " or _____		Date Well Installed 10/05/2011	
Type of Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E _____ <input type="checkbox"/> W		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Distance from Waste/Source ft.	Enf. Stds. Apply <input type="checkbox"/>	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
				Onsite Environmental Services	

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom _____ ft. MSL or _____ ft.

12. USCS classification of soil near screen:
GP GM GC GW SW SP
SM SC ML MH CL CH
Bedrock

13. Sieve analysis attached? Yes No

14. Drilling method used: Rotary 5 0
Hollow Stem Auger 4 1
Other

15. Drilling fluid used: Water 0 2 Air 0 1
Drilling Mud 0 3 None 9 9

16. Drilling additives used? Yes No
Describe _____

17. Source of water (attach analysis, if required): _____

1. Cap and lock? Yes No

2. Protective cover pipe:
a. Inside diameter: _____ 12.0 in.
b. Length: _____ 1.0 ft.
c. Material: Steel 0 4
Other

3. Surface seal: Bentonite 3 0
Concrete 0 1
Other

4. Material between well casing and protective pipe:
Bentonite 3 0
Other

5. Annular space seal: a. Granular/Chipped Bentonite 3 3
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry 3 5
c. _____ Lbs/gal mud weight . . . Bentonite slurry 3 1
d. _____ % Bentonite . . . Bentonite-cement grout 5 0
e. _____ 4 bags _____ Ft³ volume added for any of the above
f. How installed: Tremie 0 1
Tremie pumped 0 2
Gravity 0 8

6. Bentonite seal: a. Bentonite granules 3 3
b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 3 2
c. _____ Other

7. Fine sand material: Manufacturer, product name & mesh size
a. _____ Sidley OH 4000
b. Volume added _____ 0.25 ft³

8. Filter pack material: Manufacturer, product name & mesh size
a. _____ Sidley OH #5
b. Volume added _____ 1 ft³

9. Well casing: Flush threaded PVC schedule 40 2 3
Flush threaded PVC schedule 80 2 4
Other

10. Screen material: _____ PVC
a. Screen Type: Factory cut 1 1
Continuous slot 0 1
Other

b. Manufacturer _____ Monoflex
c. Slot size: _____ 0.010 in.
d. Slotted length: _____ 10.0 ft.

11. Backfill material (below filter pack): None 1 4
Other

E. Bentonite seal, top _____ ft. MSL or _____ 1.0 ft.

F. Fine sand, top _____ ft. MSL or _____ 20.0 ft.

G. Filter pack, top _____ ft. MSL or _____ 20.5 ft.

H. Screen joint, top _____ ft. MSL or _____ 21.0 ft.

I. Well bottom _____ ft. MSL or _____ 23.5 ft.

J. Filter pack, bottom _____ ft. MSL or _____ 23.5 ft.

K. Borehole, bottom _____ ft. MSL or _____ 24.0 ft.

L. Borehole, diameter _____ 8.25 in.

M. O.D. well casing _____ 2.38 in.

N. I.D. well casing _____ 2.06 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Signature] Firm **AECOM** Tel: _____ Fax: _____

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160. 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name DaimlerChrysler - KEP		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.		Well Name MW-75	
Facility License, Permit or Monitoring Number		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well Number JJ908	
Facility ID		Lat. _____ Long. _____ or St. Plane _____ ft. N, _____ ft. E		DNR Well Number	
Type of Well Well Code _____		Section Location of Waste/Source W 1/4 of SE 1/4 of Sec. 36 T. 2 N.R. 22		Date Well Installed 9/3/03	
Distance from Waste/Source NA ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input checked="" type="checkbox"/> Not Known		Well Installed By: Name (first, last) and Firm Don Eger RDnP Drilling, Inc.	
Enf. Stds. Apply <input type="checkbox"/>		Gov. Lot #			

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation **623.75'** ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom **-5** ft MSL or _____ ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

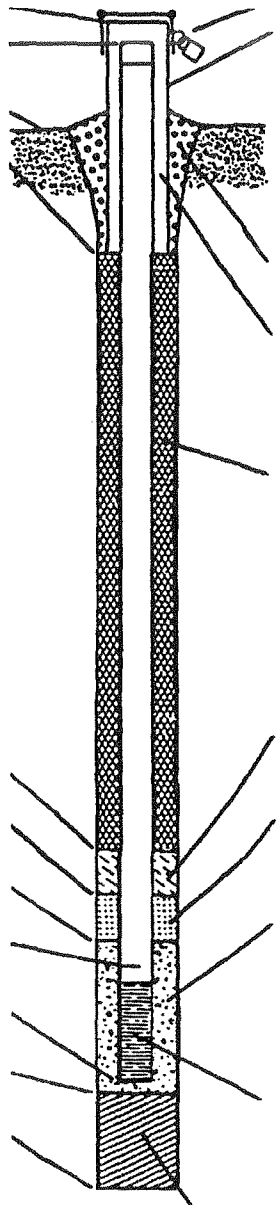
13. Sieve analysis attached? Yes No

14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Other

15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16. Drilling additives used? Yes No
 Describe _____

17. Source of Water (attach analysis if required):



1. Cap and lock? Yes No

2. Protective cover pipe:
 a. Inside diameter: **10** in.
 b. Length: **1** ft.
 c. Material: Steel 04
 Other

d. Additional protection? Yes No
 If yes, describe: **No**

3. Surface seal: Bentonite 30
 Concrete 01
 Other

4. Material between well casing and protective pipe:
 Bentonite 30
 Annular space seal
 Other

5. Annular space seal:
 a. Granular Bentonite 33
 b. _____ Lbs/gal mud weight... Bentonite-sand slurry 35
 c. _____ Lbs/gal mud weight.... Bentonite slurry 31
 d. _____ % Bentonite..... Bentonite-cement grout 50
 e. _____ Ft³ volume added for any of the above

f. How installed: Tremie 01
 Tremie pumped 02
 Gravity 08

6. Bentonite seal:
 a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite pellets 32
 c. _____ Other

7. Fine sand Material: Manufacturer, product name & mesh size
 a. _____
 b. Volume added _____ ft³

8. Filter pack material: Manufacturer, product name and mesh size
 a. **Best Sand #5**
 b. Volume added **2.0** ft³

9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
 Other

10. Screen material: **PVC #40**
 a. Screen type: Factory cut 11
 Continuous slot 01
 Other
 b. Manufacturer **US Filter**
 c. Slot size: **0.01** in.
 d. Slotted length: **10** ft.

11. Backfill material (below filter pack): None 14
 Other

021230
KENOSHA

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature *[Handwritten Signature]* Firm **GZA GeoEnvironmental, Inc.**

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP - CS4		Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. <input type="checkbox"/> S. <input type="checkbox"/> W.		Well Name PZ-75	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/> Lat. _____ " Long. _____ " or		Wis. Unique Well No. / DNR Well Number	
Facility ID		St. Plane _____ ft. N. _____ ft. E. S / C / N		Date Well Installed 08/15/2011	
Type of Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____ T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Distance from Waste/ Source _____ ft.	Enf. Stds. Apply <input type="checkbox"/>	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number	
				Onsite Environmental Services	

A. Protective pipe, top elevation _____ ft. MSL		1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL		2. Protective cover pipe: a. Inside diameter: _____ 12.0 in. b. Length: _____ 1.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL		d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.		3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>		4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. 3 bags _____ Ft ³ volume added for any of the above
14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 Other <input type="checkbox"/>		f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8
15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9		6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____		7. Fine sand material: Manufacturer, product name & mesh size a. _____ Sidley OH 4000 b. Volume added _____ 0.25 ft ³
17. Source of water (attach analysis, if required): _____		8. Filter pack material: Manufacturer, product name & mesh size a. _____ Sidley OH #5 b. Volume added _____ 2 ft ³
E. Bentonite seal, top _____ ft. MSL or _____ 1.0 ft.		9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or _____ 18.0 ft.	10. Screen material: _____ PVC a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>	
G. Filter pack, top _____ ft. MSL or _____ 18.5 ft.	b. Manufacturer _____ Monoflex c. Slot size: _____ 0.010 in. d. Slotted length: _____ 5.0 ft.	
H. Screen joint, top _____ ft. MSL or _____ 19.0 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>	
I. Well bottom _____ ft. MSL or _____ 24.0 ft.		
J. Filter pack, bottom _____ ft. MSL or _____ 24.0 ft.		
K. Borehole, bottom _____ ft. MSL or _____ 24.5 ft.		
L. Borehole, diameter _____ 8.25 in.		
M. O.D. well casing _____ 2.38 in.		
N. I.D. well casing _____ 2.06 in.		

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature [Signature] Firm AECOM Tel: _____ Fax: _____

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Kenosha Engine Plant		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name MW-807	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ° _____ ' _____ " Long. _____ ° _____ ' _____ " or		Date Well Installed 04/21/2014	
Type of Well		St. Plane 220421.6 ft. N, 2581301.9 ft. E. S/C/N		Well Installed By: (Person's Name and Firm) T. Kapugi	
Distance from Waste/Source _____ ft.		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		On-Site Environmental	
Enf. Stds. Apply <input type="checkbox"/>		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	

<p>A. Protective pipe, top elevation _____ 626.41 ft. MSL</p> <p>B. Well casing, top elevation _____ 626.23 ft. MSL</p> <p>C. Land surface elevation _____ 623.91 ft. MSL</p> <p>D. Surface seal, bottom _____ ft. MSL or _____ ft.</p> <div style="border: 1px solid black; padding: 5px;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input checked="" type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 _____ Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Describe _____</p> <p>17. Source of water (attach analysis, if required): _____</p> </div> <p>E. Bentonite seal, top _____ 623.91 ft. MSL or _____ 0.00 ft.</p> <p>F. Fine sand, top _____ 620.91 ft. MSL or _____ 3.00 ft.</p> <p>G. Filter pack, top _____ 619.91 ft. MSL or _____ 4.00 ft.</p> <p>H. Screen joint, top _____ 618.91 ft. MSL or _____ 5.00 ft.</p> <p>I. Well bottom _____ 608.91 ft. MSL or _____ 15.00 ft.</p> <p>J. Filter pack, bottom _____ 608.91 ft. MSL or _____ 15.00 ft.</p> <p>K. Borehole, bottom _____ 608.91 ft. MSL or _____ 15.00 ft.</p> <p>L. Borehole, diameter _____ 8.25 in.</p> <p>M. O.D. well casing _____ 2.00 in.</p> <p>N. I.D. well casing _____ in.</p>		<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: _____ 4.0 in. b. Length: _____ 5.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/></p> <p>d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. _____ Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. _____ Unimin (5010) _____ b. Volume added _____ ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. _____ Sidley Ohio #5 (1020) _____ b. Volume added _____ ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 _____ Other <input type="checkbox"/></p> <p>10. Screen material: _____ PVC _____ a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 _____ Other <input type="checkbox"/></p> <p>b. Manufacturer _____ Monoflex _____ c. Slot size: _____ 0.100 in. d. Slotted length: _____ 10.0 ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 _____ Other <input type="checkbox"/></p>
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I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Lanette Altkerbaul* Firm **AECOM** Tel: 414-944-6080
 1555 N RiverCenter Drive, Suite 214 Milwaukee, WI 53212 Fax: 414-944-6081

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name ERD1-TW-NW10	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ° _____ ' _____ " Long. _____ ° _____ ' _____ " or		Date Well Installed 09/12/2016	
Type of Well		St. Plane _____ ft. N, _____ ft. E. S/C/N		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Well Code /Groundwater Monitoring Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		On-Site Environmental	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
Enf. Stds. Apply <input type="checkbox"/>					

<p>A. Protective pipe, top elevation _____ ft. MSL</p> <p>B. Well casing, top elevation _____ ft. MSL</p> <p>C. Land surface elevation _____ ft. MSL</p> <p>D. Surface seal, bottom _____ ft. MSL or <u>0.0</u> ft.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 _____ Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Describe _____</p> <p>17. Source of water (attach analysis, if required): _____</p> </div> <p>E. Bentonite seal, top _____ ft. MSL or <u>0.50</u> ft.</p> <p>F. Fine sand, top _____ ft. MSL or <u>6.00</u> ft.</p> <p>G. Filter pack, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>H. Screen joint, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>I. Well bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>J. Filter pack, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>K. Borehole, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>L. Borehole, diameter <u>4.25</u> in.</p> <p>M. O.D. well casing <u>2.00</u> in.</p> <p>N. I.D. well casing <u>2.00</u> in.</p>		<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: _____ <u>12.0</u> in. b. Length: _____ <u>1.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. <u>1.5</u> Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. _____ 1.5 Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. _____ 30/100 b. Volume added _____ <u>0.25</u> ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. _____ #5 to 20 b. Volume added _____ <u>3</u> ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/></p> <p>10. Screen material: _____ PVC a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/> b. Manufacturer _____ Monoflex c. Slot size: _____ <u>0.100</u> in. d. Slotted length: _____ ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/></p>
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I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name ERD6-TW-NW10	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ° _____ ' _____ " Long. _____ ° _____ ' _____ " or		Date Well Installed 09/12/2016	
Type of Well		St. Plane _____ ft. N, _____ ft. E. S/C/N		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Well Code /Groundwater Monitoring Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	
Distance from Waste/Source _____ ft.		Gov. Lot Number _____		On-Site Environmental	

<p>A. Protective pipe, top elevation _____ ft. MSL</p> <p>B. Well casing, top elevation _____ ft. MSL</p> <p>C. Land surface elevation _____ ft. MSL</p> <p>D. Surface seal, bottom _____ ft. MSL or <u>0.0</u> ft.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 _____ Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Describe _____</p> <p>17. Source of water (attach analysis, if required): _____</p> </div> <p>E. Bentonite seal, top _____ ft. MSL or <u>0.50</u> ft.</p> <p>F. Fine sand, top _____ ft. MSL or <u>6.00</u> ft.</p> <p>G. Filter pack, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>H. Screen joint, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>I. Well bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>J. Filter pack, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>K. Borehole, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>L. Borehole, diameter <u>4.25</u> in.</p> <p>M. O.D. well casing <u>2.00</u> in.</p> <p>N. I.D. well casing <u>2.00</u> in.</p>		<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>9.8</u> in. b. Length: <u>1.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. <u>1.5</u> Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. <u>1.5</u> Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. <u>30/100</u> b. Volume added <u>0.25</u> ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. <u>#5 to 20</u> b. Volume added <u>3</u> ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/></p> <p>10. Screen material: <u>PVC</u> a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/> b. Manufacturer <u>Monoflex</u> c. Slot size: <u>0.100</u> in. d. Slotted length: _____ ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/></p>
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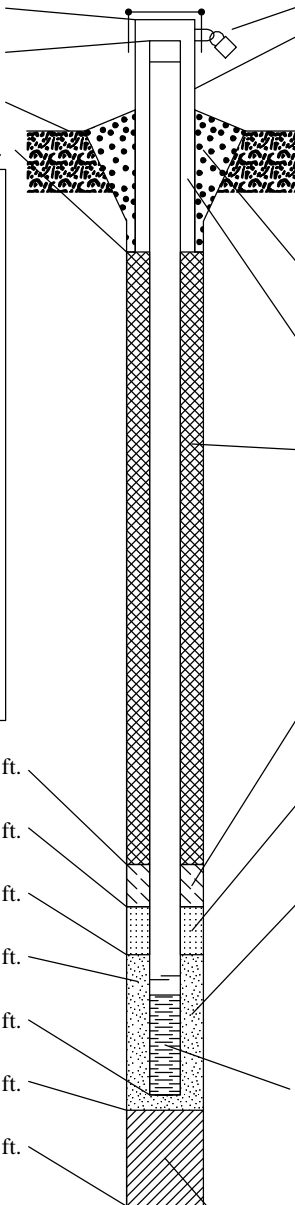
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name ERD6-TW-NW15	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ° _____ ' _____ " Long. _____ ° _____ ' _____ " or		Date Well Installed 09/12/2016	
Type of Well		St. Plane _____ ft. N, _____ ft. E. S/C/N		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Well Code /Groundwater Monitoring Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		On-Site Environmental	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	
Enf. Stds. Apply <input type="checkbox"/>					

<p>A. Protective pipe, top elevation _____ ft. MSL</p> <p>B. Well casing, top elevation _____ ft. MSL</p> <p>C. Land surface elevation _____ ft. MSL</p> <p>D. Surface seal, bottom _____ ft. MSL or <u>0.0</u> ft.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 _____ Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Describe _____</p> <p>17. Source of water (attach analysis, if required): _____</p> </div> <p>E. Bentonite seal, top _____ ft. MSL or <u>0.50</u> ft.</p> <p>F. Fine sand, top _____ ft. MSL or <u>6.00</u> ft.</p> <p>G. Filter pack, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>H. Screen joint, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>I. Well bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>J. Filter pack, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>K. Borehole, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>L. Borehole, diameter <u>8.25</u> in.</p> <p>M. O.D. well casing <u>2.00</u> in.</p> <p>N. I.D. well casing <u>2.00</u> in.</p>	 <p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>12.0</u> in. b. Length: <u>1.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. <u>1.5</u> Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. <u>1.5</u> Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. <u>30/100</u> b. Volume added <u>0.25</u> ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. <u>#5 to 20</u> b. Volume added <u>3</u> ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/></p> <p>10. Screen material: <u>PVC</u> a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/> b. Manufacturer <u>Monoflex</u> c. Slot size: <u>0.100</u> in. d. Slotted length: _____ ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/></p>
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I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP		Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.		Well Name ERD8-TW-SW15	
Facility License, Permit or Monitoring No.		Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. _____ DNR Well Number _____	
Facility ID		Lat. _____ ° _____ ' _____ " Long. _____ ° _____ ' _____ " or		Date Well Installed 09/12/2016	
Type of Well		St. Plane _____ ft. N, _____ ft. E. S/C/N		Well Installed By: (Person's Name and Firm) Tony Kapugi	
Well Code /Groundwater Monitoring Well		Section Location of Waste/Source _____ 1/4 of _____ 1/4 of Sec. _____, T. _____ N, R. _____ <input type="checkbox"/> E <input type="checkbox"/> W		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	
Distance from Waste/Source _____ ft.		Gov. Lot Number _____		On-Site Environmental	

<p>A. Protective pipe, top elevation _____ ft. MSL</p> <p>B. Well casing, top elevation _____ ft. MSL</p> <p>C. Land surface elevation _____ ft. MSL</p> <p>D. Surface seal, bottom _____ ft. MSL or <u>0.0</u> ft.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input checked="" type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input checked="" type="checkbox"/> 4 1 _____ Other <input type="checkbox"/></p> <p>15. Drilling fluid used: Water <input type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Describe _____</p> <p>17. Source of water (attach analysis, if required): _____</p> </div> <p>E. Bentonite seal, top _____ ft. MSL or <u>0.50</u> ft.</p> <p>F. Fine sand, top _____ ft. MSL or <u>6.00</u> ft.</p> <p>G. Filter pack, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>H. Screen joint, top _____ ft. MSL or <u>7.00</u> ft.</p> <p>I. Well bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>J. Filter pack, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>K. Borehole, bottom _____ ft. MSL or <u>22.00</u> ft.</p> <p>L. Borehole, diameter <u>4.25</u> in.</p> <p>M. O.D. well casing <u>2.00</u> in.</p> <p>N. I.D. well casing <u>2.00</u> in.</p>		<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>12.0</u> in. b. Length: <u>1.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight . . . Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite . . . Bentonite-cement grout <input type="checkbox"/> 5 0 e. <u>1.5</u> Ft³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> 3 2 c. <u>1.5</u> Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. <u>30/100</u> b. Volume added <u>0.25</u> ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. <u>#5 to 20</u> b. Volume added <u>3</u> ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 Other <input type="checkbox"/></p> <p>10. Screen material: <u>PVC</u> a. Screen Type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/> b. Manufacturer <u>Monoflex</u> c. Slot size: <u>0.100</u> in. d. Slotted length: _____ ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/></p>
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I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____	Firm AECOM 1555 N RiverCenter Drive Milwaukee, WI 53212	Tel: 414-944-6080 Fax: 414-944-6081
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP CS8	County Kenosha	Well Name PZ-61
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method:

- surged with bailer and bailed 41
- surged with bailer and pumped 61
- surged with block and bailed 42
- surged with block and pumped 62
- surged with block, bailed, and pumped 70
- compressed air 20
- bailed only 10
- pumped only 51
- pumped slowly 50
- other _____

3. Time spent developing well _____ min.

4. Depth of well (from top of well casing) **15 ft.**

5. Inside diameter of well **22.0 in.**

6. Volume of water in filter pack and well casing **4.3 gal.**

7. Volume of water removed from well **8.0 gal.**

8. Volume of water added (if any) **0.0 gal.**

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 9.58 ft.	22.80 ft.
Date	h. 10/12/2011	10/12/2011
Time	c. 09:25 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	09:40 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	_____ inches	_____ inches
13. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Well developed by: Person's Name and Firm
Matt Baake
AECOM

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: _____

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Jordan Junion for Matt Baake

Print Name: Jordan Junion

Firm: AECOM

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP - CS4	County Kenosha	Well Name PZ-75	
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method:
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other _____

3. Time spent developing well **30 min.**

4. Depth of well (from top of well casing) **24.0 ft.**

5. Inside diameter of well **2.00 in.**

6. Volume of water in filter pack and well casing **5.5 gal.**

7. Volume of water removed from well **7.5 gal.**

8. Volume of water added (if any) **0.0 gal.**

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

17. Additional comments on development:

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 14.40 ft.	14.40 ft.
Date	b. 8/22/2011	8/22/2011
Time	c. 01:30 <input checked="" type="checkbox"/> p.m.	02:00 <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	inches	inches
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe)	Clear <input checked="" type="checkbox"/> 2 0 Turbid <input type="checkbox"/> 2 5 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l
16. Well developed by: Person's Name and Firm		
Sarah Prindiville		
AECOM		

Facility Address or Owner/Responsible Party Address

Name: _____

Firm: _____

Street: _____

City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Sarah Prindiville

Print Name: Sarah Prindiville

Firm: AECOM

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Kenosha Engine Plant	County Kenosha	Well Name MW-807	
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method:
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other Surged and purged with pump
3. Time spent developing well **60** min.
4. Depth of well (from top of well casing) **18.0** ft.
5. Inside diameter of well **2.00** in.
6. Volume of water in filter pack and well casing **7.0** gal.
7. Volume of water removed from well **40.0** gal.
8. Volume of water added (if any) _____ gal.
9. Source of water added NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.98 ft.	11.05 ft.
Date	b. 4/24/2014	4/24/2014
Time	c. 11:15 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	12:15 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	inches	inches
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Brown/Gray</u>	Clear <input type="checkbox"/> 2 0 Turbid <input checked="" type="checkbox"/> 2 5 (Describe) <u>Light brown</u>
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l
16. Well developed by: Person's Name and Firm		
AECOM Jordan Junior		

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address	I hereby certify that the above information is true and correct to the best of my knowledge.
Name: _____	
Firm: _____	
Street: <u>5555 30th Ave</u>	
City/State/Zip: <u>Kenosha, WI 53140</u>	
	Signature: <u><i>Lanette Altman</i></u>
	Print Name: _____
	Firm: <u>AECOM</u>

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP	County Kenosha	Well Name ERD1-TW-NW10	
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method:
 - surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other _____
3. Time spent developing well **76 min.**
4. Depth of well (from top of well casing) **21.8 ft.**
5. Inside diameter of well **2.00 in.**
6. Volume of water in filter pack and well casing **11.9 gal.**
7. Volume of water removed from well **60.0 gal.**
8. Volume of water added (if any) _____ gal.
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	9.32 ft.	9.38 ft.
Date	b.	9/13/2016	9/13/2016
Time	c.	12:20 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	01:36 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom		0.1 inches	inches
13. Water clarity (Describe)	Clear	<input type="checkbox"/> 1 0	Clear <input checked="" type="checkbox"/> 2 0
	Turbid	<input checked="" type="checkbox"/> 1 5	Turbid <input type="checkbox"/> 2 5
		<u>Dark grayish brown, many fines</u>	<u>Clear</u>
Fill in if drilling fluids were used and well is at solid waste facility:			
14. Total suspended solids		mg/l	mg/l
15. COD		mg/l	mg/l
16. Well developed by: Person's Name and Firm			
Andrew Pirrung			
AECOM			

17. Additional comments on development:
 Surged and purged with submersible pump.
 $21.70 - 9.32 \times 0.963 = 11.92$
 Beg DTW - Beg DTW + 0.936 = vol. in filter pack 1 well

Facility Address or Owner/Responsible Party Address Name: _____ Firm: <u>AECOM</u> Street: <u>1555 N RiverCenter Drive</u> City/State/Zip: <u>Milwaukee, WI 53212</u>	I hereby certify that the above information is true and correct to the best of my knowledge. Signature: _____ Print Name: _____ Firm: <u>AECOM</u>
---	---

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP	County Kenosha	Well Name ERD6-TW-NW10
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method:
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other
3. Time spent developing well **79 min.**
4. Depth of well (from top of well casing) **21.5 ft.**
5. Inside diameter of well **2.00 in.**
6. Volume of water in filter pack and well casing **11.0 gal.**
7. Volume of water removed from well **47.0 gal.**
8. Volume of water added (if any) **gal.**
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.06 ft.	10.09 ft.
Date	b. 9/13/2016	9/13/2016
Time	c. 08:01 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	09:20 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	0.8 inches	inches
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Dark chocolate colored brown, many fines</u>	Clear <input checked="" type="checkbox"/> 2 0 Turbid <input type="checkbox"/> 2 5 (Describe) <u>Clear</u>
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l
16. Well developed by: Person's Name and Firm		
Andrew Pirrung AECOM		

17. Additional comments on development:
Surged and purged with submersible pump.
 $20.73 - 10.06 \times 0.963 = 11.04$

Facility Address or Owner/Responsible Party Address	I hereby certify that the above information is true and correct to the best of my knowledge.
Name: _____	Signature: _____
Firm: <u>AECOM</u>	Print Name: _____
Street: <u>1555 N RiverCenter Drive</u>	Firm: <u>AECOM</u>
City/State/Zip: <u>Milwaukee, WI 53212</u>	

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP	County Kenosha	Well Name ERD6-TW-NW15	
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method:
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other _____
3. Time spent developing well **53 min.**
4. Depth of well (from top of well casing) **21.9 ft.**
5. Inside diameter of well **2.00 in.**
6. Volume of water in filter pack and well casing **11.2 gal.**
7. Volume of water removed from well **59.0 gal.**
8. Volume of water added (if any) _____ gal.
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.14 ft.	10.22 ft.
Date	b. 9/12/2016	9/13/2016
Time	c. 12:52 <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	10:00 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	0.1 inches	inches
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Dark grayish brown color, turbid</u>	Clear <input checked="" type="checkbox"/> 2 0 Turbid <input type="checkbox"/> 2 5 (Describe) <u>Clear</u>
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l
16. Well developed by: Person's Name and Firm		
Andrew Pirrung AECOM		

17. Additional comments on development:
 Surged and purged with submersible pump.
 21.74 - 10.13 x 0.963
 Beg DTB - Beg DTW x 0.963 = water in filter pack/well bottom
 Surged and purged 9/12/16 from 1252 - 1330. Returned 9/13/16 to purge and take GW parameters from 0945 - 1000

Facility Address or Owner/Responsible Party Address Name: _____ Firm: <u>AECOM</u> Street: <u>1555 N RiverCenter Drive</u> City/State/Zip: <u>Milwaukee, WI 53212</u>	I hereby certify that the above information is true and correct to the best of my knowledge. Signature: _____ Print Name: _____ Firm: <u>AECOM</u>
---	---

NOTE: See instructions for more information including a list of county codes and well type codes.

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name KEP	County Kenosha	Well Name ERD8-TW-SW15	
Facility License, Permit or Monitoring Number	County Code 30	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method:
- surged with bailer and bailed 4 1
 - surged with bailer and pumped 6 1
 - surged with block and bailed 4 2
 - surged with block and pumped 6 2
 - surged with block, bailed, and pumped 7 0
 - compressed air 2 0
 - bailed only 1 0
 - pumped only 5 1
 - pumped slowly 5 0
 - other _____
3. Time spent developing well **74 min.**
4. Depth of well (from top of well casing) **22.1 ft.**
5. Inside diameter of well **2.00 in.**
6. Volume of water in filter pack and well casing **12.1 gal.**
7. Volume of water removed from well **58.0 gal.**
8. Volume of water added (if any) _____ gal.
9. Source of water added _____
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 4.46 ft.	9.48 ft.
Date	b. 9/13/2016	9/13/2016
Time	c. 10:25 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	11:39 <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	0.1 inches	inches
13. Water clarity	Clear <input type="checkbox"/> 1 0 Turbid <input checked="" type="checkbox"/> 1 5 (Describe) <u>Dark grayish brown, many fines</u>	Clear <input checked="" type="checkbox"/> 2 0 Turbid <input type="checkbox"/> 2 5 (Describe) <u>Clear</u>
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l
16. Well developed by: Person's Name and Firm		
Zach Alberts AECOM		

17. Additional comments on development:
Surged and purged with submersible pump.
 $21.99 - 9.46 \times 0.963 = 12.07$

Facility Address or Owner/Responsible Party Address	I hereby certify that the above information is true and correct to the best of my knowledge.
Name: _____	Signature: _____
Firm: <u>AECOM</u>	Print Name: _____
Street: <u>1555 N RiverCenter Drive</u>	Firm: <u>AECOM</u>
City/State/Zip: <u>Milwaukee, WI 53212</u>	

NOTE: See instructions for more information including a list of county codes and well type codes.

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between \$10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return this form to the appropriate DNR office and bureau. See instructions on reverse for more information.

Verification Only of Fill and Seal

Route to:

- Drinking Water Watershed/Wastewater Remediation/Redevelopment
 Waste Management Other _____

1. Well Location Information **2. Facility / Owner Information**

County Kenosha	WI Unique Well # of Removed Well MW-75	Hicap #	Facility Name KEP - CS4		
Latitude / Longitude (Degrees and Minutes)		Method Code (see instructions)			
° ' " ' W	° ' " ' N				
1/4 / 1/4	1/4	Section	Township	Range	<input type="checkbox"/> E <input type="checkbox"/> W
or Gov't Lot #		Original Well Owner Chrysler			
Well Street Address 5555 30th Ave		Present Well Owner City of Kenosha			
Well City, Village or Town Kenosha		Well ZIP Code 53140		Mailing Address of Present Owner 625 52nd Street, Rm 305	
Subdivision Name		Lot #		City of Present Owner Kenosha	State WI ZIP Code 53140

3. Well / Drillhole / Borehole Information **4. Pump, Liner, Screen, Casing & Sealing Material**

Reason For Removal From Service Soil Remediation	WI Unique Well # of Replacement Well	Pump and piping removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Liner(s) removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Screen removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Casing left in place? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Was casing cut off below surface? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Did sealing material rise to surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Did material settle after 24 hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A If yes, was hole retopped? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A If bentonite chips were used, were they hydrated with water from a known safe source <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A			
<input type="checkbox"/> Monitoring Well Original Construction Date <input type="checkbox"/> Water Well 9/3/2003 <input checked="" type="checkbox"/> Drillhole / Borehole If a Well Construction Report is available, please attach.		Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Screened & Poured <input type="checkbox"/> Other (Explain) (Bentonite Chips)			
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) _____		Sealing Materials <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Clay-Sand Slurry (11 lb./gal. wt.) <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Bentonite-Sand Slurry " " <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Bentonite Chips			
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		For Monitoring Wells and Monitoring Well Boreholes Only: <input type="checkbox"/> Bentonite Chips <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Sand Slurry			
Total Well Depth From Ground Surface (ft) 19.00	Casing Diameter (in.) 2.06				
Lower Drillhole Diameter (in.) 8.25	Casing Depth (ft.)				
Was well annular space grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown					
If yes, to what depth (feet)?		Depth to Water (feet)			

5. Material Used to Fill Well / Drillhole	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite	Surface	19.0	0.5	

6. Comments

7. Supervision of Work				DNR Use Only	
Name of Person or Firm Doing Filling & Sealing AECOM		License #	Date of Filling & Sealing (mm/dd/yyyy) 10/21/2016	Date Received	Noted By
Street or Route 1555 N RiverCenter Drive, Suite 214			Telephone Number 414-944-6080	Comments	
City Milwaukee	State WI	ZIP Code 53212	Signature of Person Doing Work Zachary Albert	Date Signed 10/21/2016	

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between \$10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return this form to the appropriate DNR office and bureau. See instructions on reverse for more information.

Verification Only of Fill and Seal

Route to:

- Drinking Water Watershed/Wastewater Remediation/Redevelopment
 Waste Management Other _____

1. Well Location Information **2. Facility / Owner Information**

County Kenosha	WI Unique Well # of Removed Well ERD8-TW-SW15	Hicap #	Facility Name KEP	
Latitude / Longitude (Degrees and Minutes) ° ' " ' W ° ' " ' N		Method Code (see instructions)		
1/4 / 1/4 or Gov't Lot #	Section	Township	Range <input type="checkbox"/> E <input type="checkbox"/> W	Facility ID (FID or PWS)
Well Street Address 5555 30th Avenue				License/Permit/Monitoring #
Well City, Village or Town Kenosha		Well ZIP Code 53140		
Subdivision Name		Lot #	Original Well Owner Chrysler	Present Well Owner City of Kenosha
Reason For Removal From Service Removed by Excavation		WI Unique Well # of Replacement Well		
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input checked="" type="checkbox"/> Drillhole / Borehole		Original Construction Date 9/12/2016 If a Well Construction Report is available, please attach.		
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) _____		Pump and piping removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Liner(s) removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Screen removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Casing left in place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> N/A Was casing cut off below surface? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Did sealing material rise to surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Did material settle after 24 hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A If yes, was hole retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A If bentonite chips were used, were they hydrated with water from a known safe source? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Screened & Poured <input type="checkbox"/> Other (Explain) (Bentonite Chips)		
Total Well Depth From Ground Surface (ft) 22.00	Casing Diameter (in.) 2.00	Sealing Materials <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Clay-Sand Slurry (11 lb./gal. wt.) <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Bentonite-Sand Slurry " " <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite Chips		
Lower Drillhole Diameter (in.)	Casing Depth (ft.)	For Monitoring Wells and Monitoring Well Boreholes Only: <input type="checkbox"/> Bentonite Chips <input type="checkbox"/> Bentonite - Cement Grout <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Sand Slurry		
Was well annular space grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown	If yes, to what depth (feet)? Depth to Water (feet)			

4. Pump, Liner, Screen, Casing & Sealing Material

5. Material Used to Fill Well / Drillhole	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
	Surface	22.0		

6. Comments

7. Supervision of Work **DNR Use Only**

Name of Person or Firm Doing Filling & Sealing AECOM	License #	Date of Filling & Sealing (mm/dd/yyyy) 9/24/2016	Date Received	Noted By
Street or Route 1555 N RiverCenter Drive		Telephone Number 414-944-6080	Comments	
City Milwaukee	State WI	ZIP Code 53212	Signature of Person Doing Work Stacie Albert	Date Signed 10/24/2016

Appendix E

Groundwater Laboratory Analytical Reports

October 12, 2016

Lanette Altenbach
AECOM, Inc.- Milwaukee
1555 N River Center Drive
Suite 214
Milwaukee, WI 53212

RE: Project: 60518412.1 KEP
Pace Project No.: 40139240

Dear Lanette Altenbach:

Enclosed are the analytical results for sample(s) received by the laboratory on September 29, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christopher Hyska
christopher.hyska@pacelabs.com
Project Manager

Enclosures

cc: Ken Brown, AECOM, Inc. - MILWAUKEE
Sarah Engelhardt, AECOM, Inc. - Milwaukee



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

Virginia VELAP ID: 460263

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

US Dept of Agriculture #: S-76505

Virginia VELAP ID: 460263

Virginia VELAP Certification ID: 460263

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 60518412.1 KEP

Pace Project No.: 40139240

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40139240001	CS4-MW-75	Water	09/26/16 12:10	09/29/16 13:50
40139240002	CS4-PZ-75	Water	09/26/16 12:17	09/29/16 13:50
40139240003	CS8-MW-61	Water	09/26/16 13:37	09/29/16 13:50
40139240004	CS8-PZ-61	Water	09/26/16 13:55	09/29/16 13:50
40139240005	CS8-MW-807	Water	09/26/16 15:18	09/29/16 13:50
40139240006	ERD6-TW-NW10-TOS	Water	09/27/16 08:39	09/29/16 13:50
40139240007	ERD6-TW-NW10-BOS	Water	09/27/16 09:00	09/29/16 13:50
40139240008	ERD6-TW-NW15-TOS	Water	09/27/16 09:08	09/29/16 13:50
40139240009	ERD6-TW-NW15-BOS	Water	09/27/16 09:00	09/29/16 13:50
40139240010	ERD8-TW-SW15-TOS	Water	09/27/16 10:20	09/29/16 13:50
40139240011	ERD8-TW-SW15-BOS	Water	09/27/16 10:10	09/29/16 13:50
40139240012	TRIP BLANK-ERD	Water	09/26/16 08:00	09/29/16 13:50
40139240013	ERD1-TW-NW10-BOS	Water	09/27/16 10:12	09/29/16 13:50
40139240014	ERD1-TW-NW10-BOS DUP	Water	09/27/16 10:12	09/29/16 13:50
40139240015	ERD1-TW-NW10-TOS	Water	09/27/16 10:20	09/29/16 13:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP
Pace Project No.: 40139240

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40139240001	CS4-MW-75	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240002	CS4-PZ-75	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240003	CS8-MW-61	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240004	CS8-PZ-61	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240005	CS8-MW-807	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240006	ERD6-TW-NW10-TOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP
Pace Project No.: 40139240

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40139240007	ERD6-TW-NW10-BOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240008	ERD6-TW-NW15-TOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240009	ERD6-TW-NW15-BOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240010	ERD8-TW-SW15-TOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240011	ERD8-TW-SW15-BOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240012	TRIP BLANK-ERD	EPA 8260	LAP	64	PASI-G
40139240013	ERD1-TW-NW10-BOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240014	ERD1-TW-NW10-BOS DUP	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G
40139240015	ERD1-TW-NW10-TOS	EPA 8260	LAP	64	PASI-G
		SM 5310C	TJJ	1	PASI-G

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS4-MW-75 **Lab ID: 40139240001** Collected: 09/26/16 12:10 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	2.9J	ug/L	5.6	0.58	1		10/03/16 08:49	74-84-0	
Ethene	1.2J	ug/L	5.0	0.52	1		10/03/16 08:49	74-85-1	
Methane	194	ug/L	2.8	1.4	1		10/03/16 08:49	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	1880	ug/L	100	12.9	1		09/30/16 15:32	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	207	ug/L	1.0	0.062	1	10/03/16 08:59	10/06/16 20:08	7440-39-3	
Chromium	0.77J	ug/L	1.0	0.39	1	10/03/16 08:59	10/06/16 20:08	7440-47-3	
Iron	1780	ug/L	250	10.0	1	10/03/16 08:59	10/06/16 20:08	7439-89-6	
Lead	0.79J	ug/L	1.0	0.040	1	10/03/16 08:59	10/06/16 20:08	7439-92-1	
Nickel	4.5	ug/L	1.0	0.11	1	10/03/16 08:59	10/06/16 20:08	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	87.5	ug/L	1.0	0.50	1		10/04/16 15:58	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/04/16 15:58	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/04/16 15:58	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/04/16 15:58	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 15:58	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/04/16 15:58	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/04/16 15:58	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/04/16 15:58	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/04/16 15:58	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/04/16 15:58	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		10/04/16 15:58	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/04/16 15:58	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		10/04/16 15:58	75-71-8	
1,1-Dichloroethane	2.6	ug/L	1.0	0.24	1		10/04/16 15:58	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/04/16 15:58	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/04/16 15:58	75-35-4	
cis-1,2-Dichloroethene	1.4	ug/L	1.0	0.26	1		10/04/16 15:58	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 15:58	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/04/16 15:58	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS4-MW-75 **Lab ID: 40139240001** Collected: 09/26/16 12:10 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/04/16 15:58	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/04/16 15:58	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/04/16 15:58	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	108-20-3	
Ethylbenzene	1.8	ug/L	1.0	0.50	1		10/04/16 15:58	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/04/16 15:58	87-68-3	
Isopropylbenzene (Cumene)	0.33J	ug/L	1.0	0.14	1		10/04/16 15:58	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/04/16 15:58	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/04/16 15:58	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/04/16 15:58	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		10/04/16 15:58	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/04/16 15:58	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	127-18-4	
Toluene	3.7	ug/L	1.0	0.50	1		10/04/16 15:58	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/04/16 15:58	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 15:58	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		10/04/16 15:58	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		10/04/16 15:58	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		10/04/16 15:58	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:58	96-18-4	
1,2,4-Trimethylbenzene	22.7	ug/L	1.0	0.50	1		10/04/16 15:58	95-63-6	
1,3,5-Trimethylbenzene	7.1	ug/L	1.0	0.50	1		10/04/16 15:58	108-67-8	
Vinyl chloride	27.4	ug/L	1.0	0.18	1		10/04/16 15:58	75-01-4	
m&p-Xylene	60.5	ug/L	2.0	1.0	1		10/04/16 15:58	179601-23-1	
o-Xylene	3.9	ug/L	1.0	0.50	1		10/04/16 15:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	84	%	70-130		1		10/04/16 15:58	460-00-4	
Dibromofluoromethane (S)	89	%	70-130		1		10/04/16 15:58	1868-53-7	
Toluene-d8 (S)	86	%	70-130		1		10/04/16 15:58	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	138	mg/L	40.0	20.0	10		10/05/16 18:16	16887-00-6	
Sulfate	180	mg/L	40.0	20.0	10		10/05/16 18:16	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	479	mg/L	117	35.2	5		10/05/16 12:23		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	24.0J	mg/L	25.2	7.6	30		10/04/16 11:46	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS4-PZ-75 **Lab ID: 40139240002** Collected: 09/26/16 12:17 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	11.8	ug/L	5.6	0.58	1		10/03/16 08:56	74-84-0	
Ethene	<0.52	ug/L	5.0	0.52	1		10/03/16 08:56	74-85-1	
Methane	278	ug/L	2.8	1.4	1		10/03/16 08:56	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	1810	ug/L	100	12.9	1		09/30/16 15:38	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	238	ug/L	1.0	0.062	1	10/03/16 08:59	10/06/16 20:48	7440-39-3	
Chromium	0.61J	ug/L	1.0	0.39	1	10/03/16 08:59	10/06/16 20:48	7440-47-3	
Iron	2670	ug/L	250	10.0	1	10/03/16 08:59	10/06/16 20:48	7439-89-6	
Lead	1.6	ug/L	1.0	0.040	1	10/03/16 08:59	10/06/16 20:48	7439-92-1	
Nickel	2.8	ug/L	1.0	0.11	1	10/03/16 08:59	10/06/16 20:48	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/04/16 15:36	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/04/16 15:36	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/04/16 15:36	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 15:36	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/04/16 15:36	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/04/16 15:36	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/04/16 15:36	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/04/16 15:36	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/04/16 15:36	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		10/04/16 15:36	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/04/16 15:36	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		10/04/16 15:36	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		10/04/16 15:36	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/04/16 15:36	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/04/16 15:36	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 15:36	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 15:36	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/04/16 15:36	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP
Pace Project No.: 40139240

Sample: CS4-PZ-75 **Lab ID: 40139240002** Collected: 09/26/16 12:17 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/04/16 15:36	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/04/16 15:36	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/04/16 15:36	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/04/16 15:36	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		10/04/16 15:36	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/04/16 15:36	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/04/16 15:36	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/04/16 15:36	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		10/04/16 15:36	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/04/16 15:36	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/04/16 15:36	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 15:36	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		10/04/16 15:36	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		10/04/16 15:36	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		10/04/16 15:36	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	108-67-8	
Vinyl chloride	9.0	ug/L	1.0	0.18	1		10/04/16 15:36	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/04/16 15:36	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/04/16 15:36	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		1		10/04/16 15:36	460-00-4	
Dibromofluoromethane (S)	104	%	70-130		1		10/04/16 15:36	1868-53-7	
Toluene-d8 (S)	84	%	70-130		1		10/04/16 15:36	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	488	mg/L	80.0	40.0	20		10/05/16 20:26	16887-00-6	
Sulfate	57.9	mg/L	20.0	10.0	5		10/05/16 20:15	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	357	mg/L	23.5	7.0	1		10/05/16 11:10		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	3.2J	mg/L	8.4	2.5	10		10/04/16 12:05	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-MW-61 **Lab ID: 40139240003** Collected: 09/26/16 13:37 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	27.1	ug/L	5.6	0.58	1		10/03/16 09:03	74-84-0	
Ethene	98.8	ug/L	5.0	0.52	1		10/03/16 09:03	74-85-1	
Methane	705	ug/L	28.0	13.7	10		10/03/16 12:41	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	2320	ug/L	100	12.9	1		09/30/16 15:41	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	432	ug/L	1.0	0.062	1	10/03/16 08:59	10/06/16 21:02	7440-39-3	
Chromium	<0.39	ug/L	1.0	0.39	1	10/03/16 08:59	10/06/16 21:02	7440-47-3	
Iron	2190	ug/L	250	10.0	1	10/03/16 08:59	10/06/16 21:02	7439-89-6	
Lead	0.070J	ug/L	1.0	0.040	1	10/03/16 08:59	10/06/16 21:02	7439-92-1	
Nickel	0.18J	ug/L	1.0	0.11	1	10/03/16 08:59	10/06/16 21:02	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	13.0J	ug/L	25.0	12.5	25		10/04/16 17:05	71-43-2	
Bromobenzene	<5.8	ug/L	25.0	5.8	25		10/04/16 17:05	108-86-1	
Bromochloromethane	<8.5	ug/L	25.0	8.5	25		10/04/16 17:05	74-97-5	
Bromodichloromethane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	75-27-4	
Bromoform	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	75-25-2	
Bromomethane	<60.9	ug/L	125	60.9	25		10/04/16 17:05	74-83-9	
n-Butylbenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	104-51-8	
sec-Butylbenzene	<54.7	ug/L	125	54.7	25		10/04/16 17:05	135-98-8	
tert-Butylbenzene	<4.5	ug/L	25.0	4.5	25		10/04/16 17:05	98-06-6	
Carbon tetrachloride	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	56-23-5	
Chlorobenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	108-90-7	
Chloroethane	<9.4	ug/L	25.0	9.4	25		10/04/16 17:05	75-00-3	
Chloroform	<62.5	ug/L	125	62.5	25		10/04/16 17:05	67-66-3	
Chloromethane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	74-87-3	
2-Chlorotoluene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	95-49-8	
4-Chlorotoluene	<5.3	ug/L	25.0	5.3	25		10/04/16 17:05	106-43-4	
1,2-Dibromo-3-chloropropane	<54.1	ug/L	125	54.1	25		10/04/16 17:05	96-12-8	
Dibromochloromethane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	124-48-1	
1,2-Dibromoethane (EDB)	<4.4	ug/L	25.0	4.4	25		10/04/16 17:05	106-93-4	
Dibromomethane	<10.7	ug/L	25.0	10.7	25		10/04/16 17:05	74-95-3	
1,2-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	95-50-1	
1,3-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	541-73-1	
1,4-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	106-46-7	
Dichlorodifluoromethane	<5.6	ug/L	25.0	5.6	25		10/04/16 17:05	75-71-8	
1,1-Dichloroethane	<6.0	ug/L	25.0	6.0	25		10/04/16 17:05	75-34-3	
1,2-Dichloroethane	<4.2	ug/L	25.0	4.2	25		10/04/16 17:05	107-06-2	
1,1-Dichloroethene	<10.3	ug/L	25.0	10.3	25		10/04/16 17:05	75-35-4	
cis-1,2-Dichloroethene	2740	ug/L	25.0	6.4	25		10/04/16 17:05	156-59-2	
trans-1,2-Dichloroethene	47.1	ug/L	25.0	6.4	25		10/04/16 17:05	156-60-5	
1,2-Dichloropropane	<5.8	ug/L	25.0	5.8	25		10/04/16 17:05	78-87-5	
1,3-Dichloropropane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-MW-61 **Lab ID: 40139240003** Collected: 09/26/16 13:37 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<12.1	ug/L	25.0	12.1	25		10/04/16 17:05	594-20-7	
1,1-Dichloropropene	<11.0	ug/L	25.0	11.0	25		10/04/16 17:05	563-58-6	
cis-1,3-Dichloropropene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	10061-01-5	
trans-1,3-Dichloropropene	<5.7	ug/L	25.0	5.7	25		10/04/16 17:05	10061-02-6	
Diisopropyl ether	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	108-20-3	
Ethylbenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	100-41-4	
Hexachloro-1,3-butadiene	<52.6	ug/L	125	52.6	25		10/04/16 17:05	87-68-3	
Isopropylbenzene (Cumene)	<3.6	ug/L	25.0	3.6	25		10/04/16 17:05	98-82-8	
p-Isopropyltoluene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	99-87-6	
Methylene Chloride	<5.8	ug/L	25.0	5.8	25		10/04/16 17:05	75-09-2	
Methyl-tert-butyl ether	<4.4	ug/L	25.0	4.4	25		10/04/16 17:05	1634-04-4	
Naphthalene	<62.5	ug/L	125	62.5	25		10/04/16 17:05	91-20-3	
n-Propylbenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	103-65-1	
Styrene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	100-42-5	
1,1,1,2-Tetrachloroethane	<4.5	ug/L	25.0	4.5	25		10/04/16 17:05	630-20-6	
1,1,2,2-Tetrachloroethane	<6.2	ug/L	25.0	6.2	25		10/04/16 17:05	79-34-5	
Tetrachloroethene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	127-18-4	
Toluene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	108-88-3	
1,2,3-Trichlorobenzene	<53.3	ug/L	125	53.3	25		10/04/16 17:05	87-61-6	
1,2,4-Trichlorobenzene	<55.2	ug/L	125	55.2	25		10/04/16 17:05	120-82-1	
1,1,1-Trichloroethane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	71-55-6	
1,1,2-Trichloroethane	<4.9	ug/L	25.0	4.9	25		10/04/16 17:05	79-00-5	
Trichloroethene	242	ug/L	25.0	8.3	25		10/04/16 17:05	79-01-6	
Trichlorofluoromethane	<4.6	ug/L	25.0	4.6	25		10/04/16 17:05	75-69-4	
1,2,3-Trichloropropane	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	96-18-4	
1,2,4-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	95-63-6	
1,3,5-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	108-67-8	
Vinyl chloride	1130	ug/L	25.0	4.4	25		10/04/16 17:05	75-01-4	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		10/04/16 17:05	179601-23-1	
o-Xylene	<12.5	ug/L	25.0	12.5	25		10/04/16 17:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	76	%	70-130		25		10/04/16 17:05	460-00-4	
Dibromofluoromethane (S)	98	%	70-130		25		10/04/16 17:05	1868-53-7	
Toluene-d8 (S)	81	%	70-130		25		10/04/16 17:05	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	431	mg/L	80.0	40.0	20		10/05/16 20:49	16887-00-6	
Sulfate	67.0	mg/L	20.0	10.0	5		10/05/16 20:38	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	519	mg/L	47.0	14.1	2		10/05/16 11:12		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.9J	mg/L	5.0	1.5	6		10/04/16 12:24	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-PZ-61 **Lab ID: 40139240004** Collected: 09/26/16 13:55 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	6.6	ug/L	5.6	0.58	1		10/03/16 09:10	74-84-0	
Ethene	4.3J	ug/L	5.0	0.52	1		10/03/16 09:10	74-85-1	
Methane	271	ug/L	7.0	3.4	2.5		10/03/16 12:48	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	3390	ug/L	100	12.9	1		09/30/16 15:44	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	404	ug/L	1.0	0.062	1	10/03/16 08:59	10/06/16 21:09	7440-39-3	
Chromium	<0.39	ug/L	1.0	0.39	1	10/03/16 08:59	10/06/16 21:09	7440-47-3	
Iron	3050	ug/L	250	10.0	1	10/03/16 08:59	10/06/16 21:09	7439-89-6	
Lead	0.23J	ug/L	1.0	0.040	1	10/03/16 08:59	10/06/16 21:09	7439-92-1	
Nickel	1.6	ug/L	1.0	0.11	1	10/03/16 08:59	10/06/16 21:09	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	71-43-2	
Bromobenzene	<11.5	ug/L	50.0	11.5	50		10/04/16 17:50	108-86-1	
Bromochloromethane	<17.0	ug/L	50.0	17.0	50		10/04/16 17:50	74-97-5	
Bromodichloromethane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	75-27-4	
Bromoform	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	75-25-2	
Bromomethane	<122	ug/L	250	122	50		10/04/16 17:50	74-83-9	
n-Butylbenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	104-51-8	
sec-Butylbenzene	<109	ug/L	250	109	50		10/04/16 17:50	135-98-8	
tert-Butylbenzene	<9.0	ug/L	50.0	9.0	50		10/04/16 17:50	98-06-6	
Carbon tetrachloride	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	56-23-5	
Chlorobenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	108-90-7	
Chloroethane	<18.7	ug/L	50.0	18.7	50		10/04/16 17:50	75-00-3	
Chloroform	<125	ug/L	250	125	50		10/04/16 17:50	67-66-3	
Chloromethane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	74-87-3	
2-Chlorotoluene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	95-49-8	
4-Chlorotoluene	<10.7	ug/L	50.0	10.7	50		10/04/16 17:50	106-43-4	
1,2-Dibromo-3-chloropropane	<108	ug/L	250	108	50		10/04/16 17:50	96-12-8	
Dibromochloromethane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	124-48-1	
1,2-Dibromoethane (EDB)	<8.9	ug/L	50.0	8.9	50		10/04/16 17:50	106-93-4	
Dibromomethane	<21.3	ug/L	50.0	21.3	50		10/04/16 17:50	74-95-3	
1,2-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	95-50-1	
1,3-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	541-73-1	
1,4-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	106-46-7	
Dichlorodifluoromethane	<11.2	ug/L	50.0	11.2	50		10/04/16 17:50	75-71-8	
1,1-Dichloroethane	<12.1	ug/L	50.0	12.1	50		10/04/16 17:50	75-34-3	
1,2-Dichloroethane	<8.4	ug/L	50.0	8.4	50		10/04/16 17:50	107-06-2	
1,1-Dichloroethene	<20.5	ug/L	50.0	20.5	50		10/04/16 17:50	75-35-4	
cis-1,2-Dichloroethene	6410	ug/L	50.0	12.8	50		10/04/16 17:50	156-59-2	
trans-1,2-Dichloroethene	<12.8	ug/L	50.0	12.8	50		10/04/16 17:50	156-60-5	
1,2-Dichloropropane	<11.7	ug/L	50.0	11.7	50		10/04/16 17:50	78-87-5	
1,3-Dichloropropane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-PZ-61 **Lab ID: 40139240004** Collected: 09/26/16 13:55 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<24.2	ug/L	50.0	24.2	50		10/04/16 17:50	594-20-7	
1,1-Dichloropropene	<22.1	ug/L	50.0	22.1	50		10/04/16 17:50	563-58-6	
cis-1,3-Dichloropropene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	10061-01-5	
trans-1,3-Dichloropropene	<11.5	ug/L	50.0	11.5	50		10/04/16 17:50	10061-02-6	
Diisopropyl ether	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	108-20-3	
Ethylbenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	100-41-4	
Hexachloro-1,3-butadiene	<105	ug/L	250	105	50		10/04/16 17:50	87-68-3	
Isopropylbenzene (Cumene)	<7.2	ug/L	50.0	7.2	50		10/04/16 17:50	98-82-8	
p-Isopropyltoluene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	99-87-6	
Methylene Chloride	<11.6	ug/L	50.0	11.6	50		10/04/16 17:50	75-09-2	
Methyl-tert-butyl ether	<8.7	ug/L	50.0	8.7	50		10/04/16 17:50	1634-04-4	
Naphthalene	<125	ug/L	250	125	50		10/04/16 17:50	91-20-3	
n-Propylbenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	103-65-1	
Styrene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	100-42-5	
1,1,1,2-Tetrachloroethane	<9.0	ug/L	50.0	9.0	50		10/04/16 17:50	630-20-6	
1,1,2,2-Tetrachloroethane	<12.5	ug/L	50.0	12.5	50		10/04/16 17:50	79-34-5	
Tetrachloroethene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	127-18-4	
Toluene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	108-88-3	
1,2,3-Trichlorobenzene	<107	ug/L	250	107	50		10/04/16 17:50	87-61-6	
1,2,4-Trichlorobenzene	<110	ug/L	250	110	50		10/04/16 17:50	120-82-1	
1,1,1-Trichloroethane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	71-55-6	
1,1,2-Trichloroethane	<9.9	ug/L	50.0	9.9	50		10/04/16 17:50	79-00-5	
Trichloroethene	1430	ug/L	50.0	16.5	50		10/04/16 17:50	79-01-6	
Trichlorofluoromethane	<9.2	ug/L	50.0	9.2	50		10/04/16 17:50	75-69-4	
1,2,3-Trichloropropane	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	96-18-4	
1,2,4-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	95-63-6	
1,3,5-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	108-67-8	
Vinyl chloride	114	ug/L	50.0	8.8	50		10/04/16 17:50	75-01-4	
m&p-Xylene	<50.0	ug/L	100	50.0	50		10/04/16 17:50	179601-23-1	
o-Xylene	<25.0	ug/L	50.0	25.0	50		10/04/16 17:50	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	74	%	70-130		50		10/04/16 17:50	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		50		10/04/16 17:50	1868-53-7	
Toluene-d8 (S)	81	%	70-130		50		10/04/16 17:50	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	1710	mg/L	400	200	100		10/05/16 21:11	16887-00-6	
Sulfate	64.6	mg/L	20.0	10.0	5		10/05/16 21:00	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	342	mg/L	23.5	7.0	1		10/05/16 11:13		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 08:41	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-MW-807 **Lab ID: 40139240005** Collected: 09/26/16 15:18 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	<0.58	ug/L	5.6	0.58	1		10/03/16 09:17	74-84-0	
Ethene	4.9J	ug/L	5.0	0.52	1		10/03/16 09:17	74-85-1	
Methane	<1.4	ug/L	2.8	1.4	1		10/03/16 09:17	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	<12.9	ug/L	100	12.9	1		09/30/16 15:46	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	124	ug/L	5.0	0.31	5	10/03/16 08:59	10/06/16 21:16	7440-39-3	
Chromium	43.9	ug/L	5.0	2.0	5	10/03/16 08:59	10/06/16 21:16	7440-47-3	
Iron	31600	ug/L	1250	50.0	5	10/03/16 08:59	10/06/16 21:16	7439-89-6	
Lead	18.8	ug/L	5.0	0.20	5	10/03/16 08:59	10/06/16 21:16	7439-92-1	
Nickel	33.6	ug/L	5.0	0.56	5	10/03/16 08:59	10/06/16 21:16	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/04/16 11:00	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/04/16 11:00	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/04/16 11:00	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 11:00	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/04/16 11:00	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/04/16 11:00	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/04/16 11:00	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/04/16 11:00	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/04/16 11:00	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		10/04/16 11:00	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/04/16 11:00	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		10/04/16 11:00	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		10/04/16 11:00	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/04/16 11:00	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/04/16 11:00	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 11:00	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 11:00	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/04/16 11:00	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: CS8-MW-807 **Lab ID: 40139240005** Collected: 09/26/16 15:18 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/04/16 11:00	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/04/16 11:00	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/04/16 11:00	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/04/16 11:00	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		10/04/16 11:00	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/04/16 11:00	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/04/16 11:00	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/04/16 11:00	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		10/04/16 11:00	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/04/16 11:00	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/04/16 11:00	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 11:00	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		10/04/16 11:00	79-00-5	
Trichloroethene	0.92J	ug/L	1.0	0.33	1		10/04/16 11:00	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		10/04/16 11:00	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		10/04/16 11:00	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/04/16 11:00	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/04/16 11:00	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		1		10/04/16 11:00	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		10/04/16 11:00	1868-53-7	
Toluene-d8 (S)	78	%	70-130		1		10/04/16 11:00	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	47.4J	mg/L	80.0	40.0	20		10/04/16 16:38	16887-00-6	D3
Sulfate	40.3J	mg/L	80.0	40.0	20		10/04/16 16:38	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	121	mg/L	23.5	7.0	1		10/05/16 11:14		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	2.0J	mg/L	5.0	1.5	6		10/05/16 09:00	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW10-TOS Lab ID: 40139240006 Collected: 09/27/16 08:39 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.6J	ug/L	10.0	5.0	10		10/04/16 16:21	71-43-2	
Bromobenzene	<2.3	ug/L	10.0	2.3	10		10/04/16 16:21	108-86-1	
Bromochloromethane	<3.4	ug/L	10.0	3.4	10		10/04/16 16:21	74-97-5	
Bromodichloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	75-27-4	
Bromoform	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	75-25-2	
Bromomethane	<24.3	ug/L	50.0	24.3	10		10/04/16 16:21	74-83-9	
n-Butylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	104-51-8	
sec-Butylbenzene	<21.9	ug/L	50.0	21.9	10		10/04/16 16:21	135-98-8	
tert-Butylbenzene	<1.8	ug/L	10.0	1.8	10		10/04/16 16:21	98-06-6	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	108-90-7	
Chloroethane	73.3	ug/L	10.0	3.7	10		10/04/16 16:21	75-00-3	
Chloroform	<25.0	ug/L	50.0	25.0	10		10/04/16 16:21	67-66-3	
Chloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	74-87-3	
2-Chlorotoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	95-49-8	
4-Chlorotoluene	<2.1	ug/L	10.0	2.1	10		10/04/16 16:21	106-43-4	
1,2-Dibromo-3-chloropropane	<21.6	ug/L	50.0	21.6	10		10/04/16 16:21	96-12-8	
Dibromochloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	124-48-1	
1,2-Dibromoethane (EDB)	<1.8	ug/L	10.0	1.8	10		10/04/16 16:21	106-93-4	
Dibromomethane	<4.3	ug/L	10.0	4.3	10		10/04/16 16:21	74-95-3	
1,2-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	95-50-1	
1,3-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	541-73-1	
1,4-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	106-46-7	
Dichlorodifluoromethane	<2.2	ug/L	10.0	2.2	10		10/04/16 16:21	75-71-8	
1,1-Dichloroethane	<2.4	ug/L	10.0	2.4	10		10/04/16 16:21	75-34-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		10/04/16 16:21	107-06-2	
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		10/04/16 16:21	75-35-4	
cis-1,2-Dichloroethene	747	ug/L	10.0	2.6	10		10/04/16 16:21	156-59-2	
trans-1,2-Dichloroethene	<2.6	ug/L	10.0	2.6	10		10/04/16 16:21	156-60-5	
1,2-Dichloropropane	<2.3	ug/L	10.0	2.3	10		10/04/16 16:21	78-87-5	
1,3-Dichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	142-28-9	
2,2-Dichloropropane	<4.8	ug/L	10.0	4.8	10		10/04/16 16:21	594-20-7	
1,1-Dichloropropene	<4.4	ug/L	10.0	4.4	10		10/04/16 16:21	563-58-6	
cis-1,3-Dichloropropene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	10061-01-5	
trans-1,3-Dichloropropene	<2.3	ug/L	10.0	2.3	10		10/04/16 16:21	10061-02-6	
Diisopropyl ether	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	108-20-3	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	100-41-4	
Hexachloro-1,3-butadiene	<21.1	ug/L	50.0	21.1	10		10/04/16 16:21	87-68-3	
Isopropylbenzene (Cumene)	<1.4	ug/L	10.0	1.4	10		10/04/16 16:21	98-82-8	
p-Isopropyltoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	99-87-6	
Methylene Chloride	<2.3	ug/L	10.0	2.3	10		10/04/16 16:21	75-09-2	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/04/16 16:21	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		10/04/16 16:21	91-20-3	
n-Propylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	103-65-1	
Styrene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	100-42-5	
1,1,1,2-Tetrachloroethane	<1.8	ug/L	10.0	1.8	10		10/04/16 16:21	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW10-TOS **Lab ID: 40139240006** Collected: 09/27/16 08:39 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<2.5	ug/L	10.0	2.5	10		10/04/16 16:21	79-34-5	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	127-18-4	
Toluene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	108-88-3	
1,2,3-Trichlorobenzene	<21.3	ug/L	50.0	21.3	10		10/04/16 16:21	87-61-6	
1,2,4-Trichlorobenzene	<22.1	ug/L	50.0	22.1	10		10/04/16 16:21	120-82-1	
1,1,1-Trichloroethane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	71-55-6	
1,1,2-Trichloroethane	<2.0	ug/L	10.0	2.0	10		10/04/16 16:21	79-00-5	
Trichloroethene	5.3J	ug/L	10.0	3.3	10		10/04/16 16:21	79-01-6	
Trichlorofluoromethane	<1.8	ug/L	10.0	1.8	10		10/04/16 16:21	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	96-18-4	
1,2,4-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	95-63-6	
1,3,5-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	108-67-8	
Vinyl chloride	228	ug/L	10.0	1.8	10		10/04/16 16:21	75-01-4	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/04/16 16:21	179601-23-1	
o-Xylene	<5.0	ug/L	10.0	5.0	10		10/04/16 16:21	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	78	%	70-130		10		10/04/16 16:21	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		10		10/04/16 16:21	1868-53-7	
Toluene-d8 (S)	81	%	70-130		10		10/04/16 16:21	2037-26-5	
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 09:19	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW10-BOS Lab ID: 40139240007 Collected: 09/27/16 09:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.8J	ug/L	10.0	5.0	10		10/04/16 14:00	71-43-2	
Bromobenzene	<2.3	ug/L	10.0	2.3	10		10/04/16 14:00	108-86-1	
Bromochloromethane	<3.4	ug/L	10.0	3.4	10		10/04/16 14:00	74-97-5	
Bromodichloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	75-27-4	
Bromoform	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	75-25-2	
Bromomethane	<24.3	ug/L	50.0	24.3	10		10/04/16 14:00	74-83-9	
n-Butylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	104-51-8	
sec-Butylbenzene	<21.9	ug/L	50.0	21.9	10		10/04/16 14:00	135-98-8	
tert-Butylbenzene	<1.8	ug/L	10.0	1.8	10		10/04/16 14:00	98-06-6	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	108-90-7	
Chloroethane	21.7	ug/L	10.0	3.7	10		10/04/16 14:00	75-00-3	
Chloroform	<25.0	ug/L	50.0	25.0	10		10/04/16 14:00	67-66-3	
Chloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	74-87-3	
2-Chlorotoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	95-49-8	
4-Chlorotoluene	<2.1	ug/L	10.0	2.1	10		10/04/16 14:00	106-43-4	
1,2-Dibromo-3-chloropropane	<21.6	ug/L	50.0	21.6	10		10/04/16 14:00	96-12-8	
Dibromochloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	124-48-1	
1,2-Dibromoethane (EDB)	<1.8	ug/L	10.0	1.8	10		10/04/16 14:00	106-93-4	
Dibromomethane	<4.3	ug/L	10.0	4.3	10		10/04/16 14:00	74-95-3	
1,2-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	95-50-1	
1,3-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	541-73-1	
1,4-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	106-46-7	
Dichlorodifluoromethane	<2.2	ug/L	10.0	2.2	10		10/04/16 14:00	75-71-8	
1,1-Dichloroethane	<2.4	ug/L	10.0	2.4	10		10/04/16 14:00	75-34-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		10/04/16 14:00	107-06-2	
1,1-Dichloroethene	5.9J	ug/L	10.0	4.1	10		10/04/16 14:00	75-35-4	
cis-1,2-Dichloroethene	1800	ug/L	10.0	2.6	10		10/04/16 14:00	156-59-2	
trans-1,2-Dichloroethene	<2.6	ug/L	10.0	2.6	10		10/04/16 14:00	156-60-5	
1,2-Dichloropropane	<2.3	ug/L	10.0	2.3	10		10/04/16 14:00	78-87-5	
1,3-Dichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	142-28-9	
2,2-Dichloropropane	<4.8	ug/L	10.0	4.8	10		10/04/16 14:00	594-20-7	
1,1-Dichloropropene	<4.4	ug/L	10.0	4.4	10		10/04/16 14:00	563-58-6	
cis-1,3-Dichloropropene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	10061-01-5	
trans-1,3-Dichloropropene	<2.3	ug/L	10.0	2.3	10		10/04/16 14:00	10061-02-6	
Diisopropyl ether	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	108-20-3	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	100-41-4	
Hexachloro-1,3-butadiene	<21.1	ug/L	50.0	21.1	10		10/04/16 14:00	87-68-3	
Isopropylbenzene (Cumene)	<1.4	ug/L	10.0	1.4	10		10/04/16 14:00	98-82-8	
p-Isopropyltoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	99-87-6	
Methylene Chloride	<2.3	ug/L	10.0	2.3	10		10/04/16 14:00	75-09-2	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/04/16 14:00	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		10/04/16 14:00	91-20-3	
n-Propylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	103-65-1	
Styrene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	100-42-5	
1,1,1,2-Tetrachloroethane	<1.8	ug/L	10.0	1.8	10		10/04/16 14:00	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW10-BOS **Lab ID:** 40139240007 Collected: 09/27/16 09:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,2,2-Tetrachloroethane	<2.5	ug/L	10.0	2.5	10		10/04/16 14:00	79-34-5	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	127-18-4	
Toluene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	108-88-3	
1,2,3-Trichlorobenzene	<21.3	ug/L	50.0	21.3	10		10/04/16 14:00	87-61-6	
1,2,4-Trichlorobenzene	<22.1	ug/L	50.0	22.1	10		10/04/16 14:00	120-82-1	
1,1,1-Trichloroethane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	71-55-6	
1,1,2-Trichloroethane	<2.0	ug/L	10.0	2.0	10		10/04/16 14:00	79-00-5	
Trichloroethene	10.6	ug/L	10.0	3.3	10		10/04/16 14:00	79-01-6	
Trichlorofluoromethane	<1.8	ug/L	10.0	1.8	10		10/04/16 14:00	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	96-18-4	
1,2,4-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	95-63-6	
1,3,5-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	108-67-8	
Vinyl chloride	305	ug/L	10.0	1.8	10		10/04/16 14:00	75-01-4	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/04/16 14:00	179601-23-1	
o-Xylene	<5.0	ug/L	10.0	5.0	10		10/04/16 14:00	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	78	%	70-130		10		10/04/16 14:00	460-00-4	
Dibromofluoromethane (S)	107	%	70-130		10		10/04/16 14:00	1868-53-7	
Toluene-d8 (S)	82	%	70-130		10		10/04/16 14:00	2037-26-5	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 09:38	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW15-TOS Lab ID: 40139240008 Collected: 09/27/16 09:08 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	8.9	ug/L	5.0	2.5	5		10/04/16 12:52	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		10/04/16 12:52	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		10/04/16 12:52	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		10/04/16 12:52	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		10/04/16 12:52	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		10/04/16 12:52	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	108-90-7	
Chloroethane	53.8	ug/L	5.0	1.9	5		10/04/16 12:52	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		10/04/16 12:52	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		10/04/16 12:52	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		10/04/16 12:52	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		10/04/16 12:52	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		10/04/16 12:52	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		10/04/16 12:52	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:52	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		10/04/16 12:52	107-06-2	
1,1-Dichloroethene	2.2J	ug/L	5.0	2.1	5		10/04/16 12:52	75-35-4	
cis-1,2-Dichloroethene	689	ug/L	5.0	1.3	5		10/04/16 12:52	156-59-2	
trans-1,2-Dichloroethene	<1.3	ug/L	5.0	1.3	5		10/04/16 12:52	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:52	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	142-28-9	
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		10/04/16 12:52	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		10/04/16 12:52	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		10/04/16 12:52	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	108-20-3	
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		10/04/16 12:52	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		10/04/16 12:52	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		10/04/16 12:52	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		10/04/16 12:52	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		10/04/16 12:52	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		10/04/16 12:52	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW15-TOS **Lab ID: 40139240008** Collected: 09/27/16 09:08 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:52	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	127-18-4	
Toluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		10/04/16 12:52	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		10/04/16 12:52	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		10/04/16 12:52	79-00-5	
Trichloroethene	<1.7	ug/L	5.0	1.7	5		10/04/16 12:52	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		10/04/16 12:52	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	108-67-8	
Vinyl chloride	259	ug/L	5.0	0.88	5		10/04/16 12:52	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		10/04/16 12:52	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:52	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	76	%	70-130		5		10/04/16 12:52	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		5		10/04/16 12:52	1868-53-7	
Toluene-d8 (S)	85	%	70-130		5		10/04/16 12:52	2037-26-5	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 09:56	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW15-BOS Lab ID: 40139240009 Collected: 09/27/16 09:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	71-43-2	
Bromobenzene	<4.6	ug/L	20.0	4.6	20		10/04/16 16:43	108-86-1	
Bromochloromethane	<6.8	ug/L	20.0	6.8	20		10/04/16 16:43	74-97-5	
Bromodichloromethane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	75-27-4	
Bromoform	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	75-25-2	
Bromomethane	<48.7	ug/L	100	48.7	20		10/04/16 16:43	74-83-9	
n-Butylbenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	104-51-8	
sec-Butylbenzene	<43.7	ug/L	100	43.7	20		10/04/16 16:43	135-98-8	
tert-Butylbenzene	<3.6	ug/L	20.0	3.6	20		10/04/16 16:43	98-06-6	
Carbon tetrachloride	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	56-23-5	
Chlorobenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	108-90-7	
Chloroethane	11.8J	ug/L	20.0	7.5	20		10/04/16 16:43	75-00-3	
Chloroform	<50.0	ug/L	100	50.0	20		10/04/16 16:43	67-66-3	
Chloromethane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	74-87-3	
2-Chlorotoluene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	95-49-8	
4-Chlorotoluene	<4.3	ug/L	20.0	4.3	20		10/04/16 16:43	106-43-4	
1,2-Dibromo-3-chloropropane	<43.3	ug/L	100	43.3	20		10/04/16 16:43	96-12-8	
Dibromochloromethane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	124-48-1	
1,2-Dibromoethane (EDB)	<3.6	ug/L	20.0	3.6	20		10/04/16 16:43	106-93-4	
Dibromomethane	<8.5	ug/L	20.0	8.5	20		10/04/16 16:43	74-95-3	
1,2-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	95-50-1	
1,3-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	541-73-1	
1,4-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	106-46-7	
Dichlorodifluoromethane	<4.5	ug/L	20.0	4.5	20		10/04/16 16:43	75-71-8	
1,1-Dichloroethane	<4.8	ug/L	20.0	4.8	20		10/04/16 16:43	75-34-3	
1,2-Dichloroethane	<3.4	ug/L	20.0	3.4	20		10/04/16 16:43	107-06-2	
1,1-Dichloroethene	<8.2	ug/L	20.0	8.2	20		10/04/16 16:43	75-35-4	
cis-1,2-Dichloroethene	1980	ug/L	20.0	5.1	20		10/04/16 16:43	156-59-2	
trans-1,2-Dichloroethene	120	ug/L	20.0	5.1	20		10/04/16 16:43	156-60-5	
1,2-Dichloropropane	<4.7	ug/L	20.0	4.7	20		10/04/16 16:43	78-87-5	
1,3-Dichloropropane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	142-28-9	
2,2-Dichloropropane	<9.7	ug/L	20.0	9.7	20		10/04/16 16:43	594-20-7	
1,1-Dichloropropene	<8.8	ug/L	20.0	8.8	20		10/04/16 16:43	563-58-6	
cis-1,3-Dichloropropene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	10061-01-5	
trans-1,3-Dichloropropene	<4.6	ug/L	20.0	4.6	20		10/04/16 16:43	10061-02-6	
Diisopropyl ether	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	108-20-3	
Ethylbenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	100-41-4	
Hexachloro-1,3-butadiene	<42.1	ug/L	100	42.1	20		10/04/16 16:43	87-68-3	
Isopropylbenzene (Cumene)	<2.9	ug/L	20.0	2.9	20		10/04/16 16:43	98-82-8	
p-Isopropyltoluene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	99-87-6	
Methylene Chloride	<4.7	ug/L	20.0	4.7	20		10/04/16 16:43	75-09-2	
Methyl-tert-butyl ether	<3.5	ug/L	20.0	3.5	20		10/04/16 16:43	1634-04-4	
Naphthalene	<50.0	ug/L	100	50.0	20		10/04/16 16:43	91-20-3	
n-Propylbenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	103-65-1	
Styrene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	100-42-5	
1,1,1,2-Tetrachloroethane	<3.6	ug/L	20.0	3.6	20		10/04/16 16:43	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD6-TW-NW15-BOS **Lab ID: 40139240009** Collected: 09/27/16 09:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<5.0	ug/L	20.0	5.0	20		10/04/16 16:43	79-34-5	
Tetrachloroethene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	127-18-4	
Toluene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	108-88-3	
1,2,3-Trichlorobenzene	<42.7	ug/L	100	42.7	20		10/04/16 16:43	87-61-6	
1,2,4-Trichlorobenzene	<44.2	ug/L	100	44.2	20		10/04/16 16:43	120-82-1	
1,1,1-Trichloroethane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	71-55-6	
1,1,2-Trichloroethane	<3.9	ug/L	20.0	3.9	20		10/04/16 16:43	79-00-5	
Trichloroethene	<6.6	ug/L	20.0	6.6	20		10/04/16 16:43	79-01-6	
Trichlorofluoromethane	<3.7	ug/L	20.0	3.7	20		10/04/16 16:43	75-69-4	
1,2,3-Trichloropropane	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	96-18-4	
1,2,4-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	95-63-6	
1,3,5-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	108-67-8	
Vinyl chloride	152	ug/L	20.0	3.5	20		10/04/16 16:43	75-01-4	
m&p-Xylene	<20.0	ug/L	40.0	20.0	20		10/04/16 16:43	179601-23-1	
o-Xylene	<10.0	ug/L	20.0	10.0	20		10/04/16 16:43	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		20		10/04/16 16:43	460-00-4	
Dibromofluoromethane (S)	97	%	70-130		20		10/04/16 16:43	1868-53-7	
Toluene-d8 (S)	80	%	70-130		20		10/04/16 16:43	2037-26-5	
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 10:15	7440-44-0	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD8-TW-SW15-TOS **Lab ID: 40139240010** Collected: 09/27/16 10:20 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
Benzene	79.1	ug/L	40.0	20.0	40		10/04/16 17:28	71-43-2	
Bromobenzene	<9.2	ug/L	40.0	9.2	40		10/04/16 17:28	108-86-1	
Bromochloromethane	<13.6	ug/L	40.0	13.6	40		10/04/16 17:28	74-97-5	
Bromodichloromethane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	75-27-4	
Bromoform	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	75-25-2	
Bromomethane	<97.4	ug/L	200	97.4	40		10/04/16 17:28	74-83-9	
n-Butylbenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	104-51-8	
sec-Butylbenzene	<87.4	ug/L	200	87.4	40		10/04/16 17:28	135-98-8	
tert-Butylbenzene	<7.2	ug/L	40.0	7.2	40		10/04/16 17:28	98-06-6	
Carbon tetrachloride	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	56-23-5	
Chlorobenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	108-90-7	
Chloroethane	<15.0	ug/L	40.0	15.0	40		10/04/16 17:28	75-00-3	
Chloroform	<100	ug/L	200	100	40		10/04/16 17:28	67-66-3	
Chloromethane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	74-87-3	
2-Chlorotoluene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	95-49-8	
4-Chlorotoluene	<8.5	ug/L	40.0	8.5	40		10/04/16 17:28	106-43-4	
1,2-Dibromo-3-chloropropane	<86.6	ug/L	200	86.6	40		10/04/16 17:28	96-12-8	
Dibromochloromethane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	124-48-1	
1,2-Dibromoethane (EDB)	<7.1	ug/L	40.0	7.1	40		10/04/16 17:28	106-93-4	
Dibromomethane	<17.1	ug/L	40.0	17.1	40		10/04/16 17:28	74-95-3	
1,2-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	95-50-1	
1,3-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	541-73-1	
1,4-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	106-46-7	
Dichlorodifluoromethane	<9.0	ug/L	40.0	9.0	40		10/04/16 17:28	75-71-8	
1,1-Dichloroethane	<9.7	ug/L	40.0	9.7	40		10/04/16 17:28	75-34-3	
1,2-Dichloroethane	<6.7	ug/L	40.0	6.7	40		10/04/16 17:28	107-06-2	
1,1-Dichloroethene	<16.4	ug/L	40.0	16.4	40		10/04/16 17:28	75-35-4	
cis-1,2-Dichloroethene	4520	ug/L	40.0	10.2	40		10/04/16 17:28	156-59-2	
trans-1,2-Dichloroethene	45.5	ug/L	40.0	10.3	40		10/04/16 17:28	156-60-5	
1,2-Dichloropropane	<9.3	ug/L	40.0	9.3	40		10/04/16 17:28	78-87-5	
1,3-Dichloropropane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	142-28-9	
2,2-Dichloropropane	<19.4	ug/L	40.0	19.4	40		10/04/16 17:28	594-20-7	
1,1-Dichloropropene	<17.6	ug/L	40.0	17.6	40		10/04/16 17:28	563-58-6	
cis-1,3-Dichloropropene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	10061-01-5	
trans-1,3-Dichloropropene	<9.2	ug/L	40.0	9.2	40		10/04/16 17:28	10061-02-6	
Diisopropyl ether	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	108-20-3	
Ethylbenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	100-41-4	
Hexachloro-1,3-butadiene	<84.2	ug/L	200	84.2	40		10/04/16 17:28	87-68-3	
Isopropylbenzene (Cumene)	<5.7	ug/L	40.0	5.7	40		10/04/16 17:28	98-82-8	
p-Isopropyltoluene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	99-87-6	
Methylene Chloride	<9.3	ug/L	40.0	9.3	40		10/04/16 17:28	75-09-2	
Methyl-tert-butyl ether	<7.0	ug/L	40.0	7.0	40		10/04/16 17:28	1634-04-4	
Naphthalene	<100	ug/L	200	100	40		10/04/16 17:28	91-20-3	
n-Propylbenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	103-65-1	
Styrene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	100-42-5	
1,1,1,2-Tetrachloroethane	<7.2	ug/L	40.0	7.2	40		10/04/16 17:28	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD8-TW-SW15-TOS **Lab ID: 40139240010** Collected: 09/27/16 10:20 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<10	ug/L	40.0	10	40		10/04/16 17:28	79-34-5	
Tetrachloroethene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	127-18-4	
Toluene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	108-88-3	
1,2,3-Trichlorobenzene	<85.3	ug/L	200	85.3	40		10/04/16 17:28	87-61-6	
1,2,4-Trichlorobenzene	<88.4	ug/L	200	88.4	40		10/04/16 17:28	120-82-1	
1,1,1-Trichloroethane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	71-55-6	
1,1,2-Trichloroethane	<7.9	ug/L	40.0	7.9	40		10/04/16 17:28	79-00-5	
Trichloroethene	<13.2	ug/L	40.0	13.2	40		10/04/16 17:28	79-01-6	
Trichlorofluoromethane	<7.4	ug/L	40.0	7.4	40		10/04/16 17:28	75-69-4	
1,2,3-Trichloropropane	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	96-18-4	
1,2,4-Trimethylbenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	95-63-6	
1,3,5-Trimethylbenzene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	108-67-8	
Vinyl chloride	2520	ug/L	40.0	7.0	40		10/04/16 17:28	75-01-4	
m&p-Xylene	<40.0	ug/L	80.0	40.0	40		10/04/16 17:28	179601-23-1	
o-Xylene	<20.0	ug/L	40.0	20.0	40		10/04/16 17:28	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	77	%	70-130		40		10/04/16 17:28	460-00-4	
Dibromofluoromethane (S)	106	%	70-130		40		10/04/16 17:28	1868-53-7	
Toluene-d8 (S)	85	%	70-130		40		10/04/16 17:28	2037-26-5	
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	<1.5	mg/L	5.0	1.5	6		10/05/16 10:34	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD8-TW-SW15-BOS Lab ID: 40139240011 Collected: 09/27/16 10:10 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	40.0	ug/L	5.0	2.5	5		10/04/16 12:30	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		10/04/16 12:30	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		10/04/16 12:30	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		10/04/16 12:30	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		10/04/16 12:30	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		10/04/16 12:30	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	108-90-7	
Chloroethane	<1.9	ug/L	5.0	1.9	5		10/04/16 12:30	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		10/04/16 12:30	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		10/04/16 12:30	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		10/04/16 12:30	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		10/04/16 12:30	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		10/04/16 12:30	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		10/04/16 12:30	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:30	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		10/04/16 12:30	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		10/04/16 12:30	75-35-4	
cis-1,2-Dichloroethene	563	ug/L	5.0	1.3	5		10/04/16 12:30	156-59-2	
trans-1,2-Dichloroethene	<1.3	ug/L	5.0	1.3	5		10/04/16 12:30	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:30	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	142-28-9	
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		10/04/16 12:30	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		10/04/16 12:30	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		10/04/16 12:30	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	108-20-3	
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		10/04/16 12:30	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		10/04/16 12:30	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		10/04/16 12:30	75-09-2	
Methyl-tert-butyl ether	2.9J	ug/L	5.0	0.87	5		10/04/16 12:30	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		10/04/16 12:30	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		10/04/16 12:30	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD8-TW-SW15-BOS **Lab ID: 40139240011** Collected: 09/27/16 10:10 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		10/04/16 12:30	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	127-18-4	
Toluene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		10/04/16 12:30	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		10/04/16 12:30	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		10/04/16 12:30	79-00-5	
Trichloroethene	<1.7	ug/L	5.0	1.7	5		10/04/16 12:30	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		10/04/16 12:30	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	108-67-8	
Vinyl chloride	983	ug/L	5.0	0.88	5		10/04/16 12:30	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		10/04/16 12:30	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		10/04/16 12:30	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	80	%	70-130		5		10/04/16 12:30	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		5		10/04/16 12:30	1868-53-7	
Toluene-d8 (S)	84	%	70-130		5		10/04/16 12:30	2037-26-5	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<2.5	mg/L	8.4	2.5	10		10/05/16 10:53	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: TRIP BLANK-ERD **Lab ID: 40139240012** Collected: 09/26/16 08:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		10/04/16 10:37	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		10/04/16 10:37	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		10/04/16 10:37	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 10:37	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		10/04/16 10:37	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		10/04/16 10:37	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		10/04/16 10:37	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		10/04/16 10:37	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		10/04/16 10:37	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		10/04/16 10:37	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		10/04/16 10:37	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		10/04/16 10:37	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		10/04/16 10:37	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		10/04/16 10:37	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		10/04/16 10:37	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 10:37	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		10/04/16 10:37	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		10/04/16 10:37	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	142-28-9	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		10/04/16 10:37	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		10/04/16 10:37	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		10/04/16 10:37	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		10/04/16 10:37	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		10/04/16 10:37	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		10/04/16 10:37	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		10/04/16 10:37	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		10/04/16 10:37	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		10/04/16 10:37	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: TRIP BLANK-ERD **Lab ID: 40139240012** Collected: 09/26/16 08:00 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		10/04/16 10:37	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		10/04/16 10:37	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		10/04/16 10:37	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		10/04/16 10:37	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		10/04/16 10:37	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		10/04/16 10:37	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		10/04/16 10:37	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		10/04/16 10:37	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		10/04/16 10:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	73	%	70-130		1		10/04/16 10:37	460-00-4	
Dibromofluoromethane (S)	95	%	70-130		1		10/04/16 10:37	1868-53-7	
Toluene-d8 (S)	83	%	70-130		1		10/04/16 10:37	2037-26-5	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-BOS **Lab ID:** 40139240013 Collected: 09/27/16 10:12 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	71-43-2	
Bromobenzene	<2.3	ug/L	10.0	2.3	10		10/04/16 13:37	108-86-1	
Bromochloromethane	<3.4	ug/L	10.0	3.4	10		10/04/16 13:37	74-97-5	
Bromodichloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	75-27-4	
Bromoform	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	75-25-2	
Bromomethane	<24.3	ug/L	50.0	24.3	10		10/04/16 13:37	74-83-9	
n-Butylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	104-51-8	
sec-Butylbenzene	<21.9	ug/L	50.0	21.9	10		10/04/16 13:37	135-98-8	
tert-Butylbenzene	<1.8	ug/L	10.0	1.8	10		10/04/16 13:37	98-06-6	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	108-90-7	
Chloroethane	13.4	ug/L	10.0	3.7	10		10/04/16 13:37	75-00-3	
Chloroform	<25.0	ug/L	50.0	25.0	10		10/04/16 13:37	67-66-3	
Chloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	74-87-3	
2-Chlorotoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	95-49-8	
4-Chlorotoluene	<2.1	ug/L	10.0	2.1	10		10/04/16 13:37	106-43-4	
1,2-Dibromo-3-chloropropane	<21.6	ug/L	50.0	21.6	10		10/04/16 13:37	96-12-8	
Dibromochloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	124-48-1	
1,2-Dibromoethane (EDB)	<1.8	ug/L	10.0	1.8	10		10/04/16 13:37	106-93-4	
Dibromomethane	<4.3	ug/L	10.0	4.3	10		10/04/16 13:37	74-95-3	
1,2-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	95-50-1	
1,3-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	541-73-1	
1,4-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	106-46-7	
Dichlorodifluoromethane	<2.2	ug/L	10.0	2.2	10		10/04/16 13:37	75-71-8	
1,1-Dichloroethane	<2.4	ug/L	10.0	2.4	10		10/04/16 13:37	75-34-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		10/04/16 13:37	107-06-2	
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		10/04/16 13:37	75-35-4	
cis-1,2-Dichloroethene	816	ug/L	10.0	2.6	10		10/04/16 13:37	156-59-2	
trans-1,2-Dichloroethene	2.9J	ug/L	10.0	2.6	10		10/04/16 13:37	156-60-5	
1,2-Dichloropropane	<2.3	ug/L	10.0	2.3	10		10/04/16 13:37	78-87-5	
1,3-Dichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	142-28-9	
2,2-Dichloropropane	<4.8	ug/L	10.0	4.8	10		10/04/16 13:37	594-20-7	
1,1-Dichloropropene	<4.4	ug/L	10.0	4.4	10		10/04/16 13:37	563-58-6	
cis-1,3-Dichloropropene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	10061-01-5	
trans-1,3-Dichloropropene	<2.3	ug/L	10.0	2.3	10		10/04/16 13:37	10061-02-6	
Diisopropyl ether	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	108-20-3	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	100-41-4	
Hexachloro-1,3-butadiene	<21.1	ug/L	50.0	21.1	10		10/04/16 13:37	87-68-3	
Isopropylbenzene (Cumene)	<1.4	ug/L	10.0	1.4	10		10/04/16 13:37	98-82-8	
p-Isopropyltoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	99-87-6	
Methylene Chloride	<2.3	ug/L	10.0	2.3	10		10/04/16 13:37	75-09-2	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/04/16 13:37	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		10/04/16 13:37	91-20-3	
n-Propylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	103-65-1	
Styrene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	100-42-5	
1,1,1,2-Tetrachloroethane	<1.8	ug/L	10.0	1.8	10		10/04/16 13:37	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-BOS **Lab ID: 40139240013** Collected: 09/27/16 10:12 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<2.5	ug/L	10.0	2.5	10		10/04/16 13:37	79-34-5	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	127-18-4	
Toluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	108-88-3	
1,2,3-Trichlorobenzene	<21.3	ug/L	50.0	21.3	10		10/04/16 13:37	87-61-6	
1,2,4-Trichlorobenzene	<22.1	ug/L	50.0	22.1	10		10/04/16 13:37	120-82-1	
1,1,1-Trichloroethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	71-55-6	
1,1,2-Trichloroethane	<2.0	ug/L	10.0	2.0	10		10/04/16 13:37	79-00-5	
Trichloroethene	1180	ug/L	10.0	3.3	10		10/04/16 13:37	79-01-6	
Trichlorofluoromethane	<1.8	ug/L	10.0	1.8	10		10/04/16 13:37	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	96-18-4	
1,2,4-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	95-63-6	
1,3,5-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	108-67-8	
Vinyl chloride	25.5	ug/L	10.0	1.8	10		10/04/16 13:37	75-01-4	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/04/16 13:37	179601-23-1	
o-Xylene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:37	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		10		10/04/16 13:37	460-00-4	
Dibromofluoromethane (S)	105	%	70-130		10		10/04/16 13:37	1868-53-7	
Toluene-d8 (S)	85	%	70-130		10		10/04/16 13:37	2037-26-5	
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	<2.5	mg/L	8.4	2.5	10		10/05/16 11:12	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-BOS DUP Lab ID: 40139240014 Collected: 09/27/16 10:12 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	71-43-2	
Bromobenzene	<2.3	ug/L	10.0	2.3	10		10/04/16 13:15	108-86-1	
Bromochloromethane	<3.4	ug/L	10.0	3.4	10		10/04/16 13:15	74-97-5	
Bromodichloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	75-27-4	
Bromoform	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	75-25-2	
Bromomethane	<24.3	ug/L	50.0	24.3	10		10/04/16 13:15	74-83-9	
n-Butylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	104-51-8	
sec-Butylbenzene	<21.9	ug/L	50.0	21.9	10		10/04/16 13:15	135-98-8	
tert-Butylbenzene	<1.8	ug/L	10.0	1.8	10		10/04/16 13:15	98-06-6	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	108-90-7	
Chloroethane	13.6	ug/L	10.0	3.7	10		10/04/16 13:15	75-00-3	
Chloroform	<25.0	ug/L	50.0	25.0	10		10/04/16 13:15	67-66-3	
Chloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	74-87-3	
2-Chlorotoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	95-49-8	
4-Chlorotoluene	<2.1	ug/L	10.0	2.1	10		10/04/16 13:15	106-43-4	
1,2-Dibromo-3-chloropropane	<21.6	ug/L	50.0	21.6	10		10/04/16 13:15	96-12-8	
Dibromochloromethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	124-48-1	
1,2-Dibromoethane (EDB)	<1.8	ug/L	10.0	1.8	10		10/04/16 13:15	106-93-4	
Dibromomethane	<4.3	ug/L	10.0	4.3	10		10/04/16 13:15	74-95-3	
1,2-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	95-50-1	
1,3-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	541-73-1	
1,4-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	106-46-7	
Dichlorodifluoromethane	<2.2	ug/L	10.0	2.2	10		10/04/16 13:15	75-71-8	
1,1-Dichloroethane	<2.4	ug/L	10.0	2.4	10		10/04/16 13:15	75-34-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		10/04/16 13:15	107-06-2	
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		10/04/16 13:15	75-35-4	
cis-1,2-Dichloroethene	832	ug/L	10.0	2.6	10		10/04/16 13:15	156-59-2	
trans-1,2-Dichloroethene	<2.6	ug/L	10.0	2.6	10		10/04/16 13:15	156-60-5	
1,2-Dichloropropane	<2.3	ug/L	10.0	2.3	10		10/04/16 13:15	78-87-5	
1,3-Dichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	142-28-9	
2,2-Dichloropropane	<4.8	ug/L	10.0	4.8	10		10/04/16 13:15	594-20-7	
1,1-Dichloropropene	<4.4	ug/L	10.0	4.4	10		10/04/16 13:15	563-58-6	
cis-1,3-Dichloropropene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	10061-01-5	
trans-1,3-Dichloropropene	<2.3	ug/L	10.0	2.3	10		10/04/16 13:15	10061-02-6	
Diisopropyl ether	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	108-20-3	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	100-41-4	
Hexachloro-1,3-butadiene	<21.1	ug/L	50.0	21.1	10		10/04/16 13:15	87-68-3	
Isopropylbenzene (Cumene)	<1.4	ug/L	10.0	1.4	10		10/04/16 13:15	98-82-8	
p-Isopropyltoluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	99-87-6	
Methylene Chloride	<2.3	ug/L	10.0	2.3	10		10/04/16 13:15	75-09-2	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		10/04/16 13:15	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		10/04/16 13:15	91-20-3	
n-Propylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	103-65-1	
Styrene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	100-42-5	
1,1,1,2-Tetrachloroethane	<1.8	ug/L	10.0	1.8	10		10/04/16 13:15	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-BOS DUP Lab ID: 40139240014 Collected: 09/27/16 10:12 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,2,2-Tetrachloroethane	<2.5	ug/L	10.0	2.5	10		10/04/16 13:15	79-34-5	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	127-18-4	
Toluene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	108-88-3	
1,2,3-Trichlorobenzene	<21.3	ug/L	50.0	21.3	10		10/04/16 13:15	87-61-6	
1,2,4-Trichlorobenzene	<22.1	ug/L	50.0	22.1	10		10/04/16 13:15	120-82-1	
1,1,1-Trichloroethane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	71-55-6	
1,1,2-Trichloroethane	<2.0	ug/L	10.0	2.0	10		10/04/16 13:15	79-00-5	
Trichloroethene	1150	ug/L	10.0	3.3	10		10/04/16 13:15	79-01-6	
Trichlorofluoromethane	<1.8	ug/L	10.0	1.8	10		10/04/16 13:15	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	96-18-4	
1,2,4-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	95-63-6	
1,3,5-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	108-67-8	
Vinyl chloride	25.3	ug/L	10.0	1.8	10		10/04/16 13:15	75-01-4	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		10/04/16 13:15	179601-23-1	
o-Xylene	<5.0	ug/L	10.0	5.0	10		10/04/16 13:15	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	75	%	70-130		10		10/04/16 13:15	460-00-4	
Dibromofluoromethane (S)	106	%	70-130		10		10/04/16 13:15	1868-53-7	
Toluene-d8 (S)	88	%	70-130		10		10/04/16 13:15	2037-26-5	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	<2.5	mg/L	8.4	2.5	10		10/05/16 11:30	7440-44-0	D3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-TOS Lab ID: 40139240015 Collected: 09/27/16 10:20 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	71-43-2	
Bromobenzene	<0.46	ug/L	2.0	0.46	2		10/04/16 11:22	108-86-1	
Bromochloromethane	<0.68	ug/L	2.0	0.68	2		10/04/16 11:22	74-97-5	
Bromodichloromethane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	75-27-4	
Bromoform	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	75-25-2	
Bromomethane	<4.9	ug/L	10.0	4.9	2		10/04/16 11:22	74-83-9	
n-Butylbenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	104-51-8	
sec-Butylbenzene	<4.4	ug/L	10.0	4.4	2		10/04/16 11:22	135-98-8	
tert-Butylbenzene	<0.36	ug/L	2.0	0.36	2		10/04/16 11:22	98-06-6	
Carbon tetrachloride	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	56-23-5	
Chlorobenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	108-90-7	
Chloroethane	225	ug/L	2.0	0.75	2		10/04/16 11:22	75-00-3	
Chloroform	<5.0	ug/L	10.0	5.0	2		10/04/16 11:22	67-66-3	
Chloromethane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	74-87-3	
2-Chlorotoluene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	95-49-8	
4-Chlorotoluene	<0.43	ug/L	2.0	0.43	2		10/04/16 11:22	106-43-4	
1,2-Dibromo-3-chloropropane	<4.3	ug/L	10.0	4.3	2		10/04/16 11:22	96-12-8	
Dibromochloromethane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	124-48-1	
1,2-Dibromoethane (EDB)	<0.36	ug/L	2.0	0.36	2		10/04/16 11:22	106-93-4	
Dibromomethane	<0.85	ug/L	2.0	0.85	2		10/04/16 11:22	74-95-3	
1,2-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	95-50-1	
1,3-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	541-73-1	
1,4-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	106-46-7	
Dichlorodifluoromethane	<0.45	ug/L	2.0	0.45	2		10/04/16 11:22	75-71-8	
1,1-Dichloroethane	<0.48	ug/L	2.0	0.48	2		10/04/16 11:22	75-34-3	
1,2-Dichloroethane	<0.34	ug/L	2.0	0.34	2		10/04/16 11:22	107-06-2	
1,1-Dichloroethene	<0.82	ug/L	2.0	0.82	2		10/04/16 11:22	75-35-4	
cis-1,2-Dichloroethene	101	ug/L	2.0	0.51	2		10/04/16 11:22	156-59-2	
trans-1,2-Dichloroethene	<0.51	ug/L	2.0	0.51	2		10/04/16 11:22	156-60-5	
1,2-Dichloropropane	<0.47	ug/L	2.0	0.47	2		10/04/16 11:22	78-87-5	
1,3-Dichloropropane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	142-28-9	
2,2-Dichloropropane	<0.97	ug/L	2.0	0.97	2		10/04/16 11:22	594-20-7	
1,1-Dichloropropene	<0.88	ug/L	2.0	0.88	2		10/04/16 11:22	563-58-6	
cis-1,3-Dichloropropene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	10061-01-5	
trans-1,3-Dichloropropene	<0.46	ug/L	2.0	0.46	2		10/04/16 11:22	10061-02-6	
Diisopropyl ether	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	108-20-3	
Ethylbenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	100-41-4	
Hexachloro-1,3-butadiene	<4.2	ug/L	10.0	4.2	2		10/04/16 11:22	87-68-3	
Isopropylbenzene (Cumene)	<0.29	ug/L	2.0	0.29	2		10/04/16 11:22	98-82-8	
p-Isopropyltoluene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	99-87-6	
Methylene Chloride	<0.47	ug/L	2.0	0.47	2		10/04/16 11:22	75-09-2	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		10/04/16 11:22	1634-04-4	
Naphthalene	<5.0	ug/L	10.0	5.0	2		10/04/16 11:22	91-20-3	
n-Propylbenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	103-65-1	
Styrene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	100-42-5	
1,1,1,2-Tetrachloroethane	<0.36	ug/L	2.0	0.36	2		10/04/16 11:22	630-20-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40139240

Sample: ERD1-TW-NW10-TOS **Lab ID: 40139240015** Collected: 09/27/16 10:20 Received: 09/29/16 13:50 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
1,1,2,2-Tetrachloroethane	<0.50	ug/L	2.0	0.50	2		10/04/16 11:22	79-34-5	
Tetrachloroethene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	127-18-4	
Toluene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	108-88-3	
1,2,3-Trichlorobenzene	<4.3	ug/L	10.0	4.3	2		10/04/16 11:22	87-61-6	
1,2,4-Trichlorobenzene	<4.4	ug/L	10.0	4.4	2		10/04/16 11:22	120-82-1	
1,1,1-Trichloroethane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	71-55-6	
1,1,2-Trichloroethane	<0.39	ug/L	2.0	0.39	2		10/04/16 11:22	79-00-5	
Trichloroethene	194	ug/L	2.0	0.66	2		10/04/16 11:22	79-01-6	
Trichlorofluoromethane	<0.37	ug/L	2.0	0.37	2		10/04/16 11:22	75-69-4	
1,2,3-Trichloropropane	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	96-18-4	
1,2,4-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	95-63-6	
1,3,5-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	108-67-8	
Vinyl chloride	3.8	ug/L	2.0	0.35	2		10/04/16 11:22	75-01-4	
m&p-Xylene	<2.0	ug/L	4.0	2.0	2		10/04/16 11:22	179601-23-1	
o-Xylene	<1.0	ug/L	2.0	1.0	2		10/04/16 11:22	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	77	%	70-130		2		10/04/16 11:22	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		2		10/04/16 11:22	1868-53-7	
Toluene-d8 (S)	81	%	70-130		2		10/04/16 11:22	2037-26-5	
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.6J	mg/L	5.0	1.5	6		10/05/16 12:47	7440-44-0	D3

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 236858 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

METHOD BLANK: 1404307 Matrix: Water
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	<0.58	5.6	10/03/16 08:19	
Ethene	ug/L	<0.52	5.0	10/03/16 08:19	
Methane	ug/L	<1.4	2.8	10/03/16 08:19	

LABORATORY CONTROL SAMPLE & LCSD: 1404308

Parameter	Units	1404309		LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result						
Ethane	ug/L	53.6	53.1	99	98	76-120	1	20	
Ethene	ug/L	50	49.3	99	97	75-120	1	20	
Methane	ug/L	28.6	27.7	97	96	73-122	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404498

Parameter	Units	40139344002		404499		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Ethane	ug/L	<0.58	53.6	53.6	53.4	100	95	73-120	5	20	
Ethene	ug/L	<0.52	50	50	49.7	99	94	72-120	6	20	
Methane	ug/L	<1.4	28.6	28.6	28.5	100	94	15-187	6	20	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

QC Batch: 236798 Analysis Method: EPA 6010
 QC Batch Method: EPA 6010 Analysis Description: ICP Metals, Trace, Dissolved
 Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

METHOD BLANK: 1403550 Matrix: Water
 Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	<12.9	100	09/30/16 15:26	

LABORATORY CONTROL SAMPLE: 1403551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	5000	5040	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1403552 1403553

Parameter	Units	MS		MSD		% Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40139240001 Result	Spike Conc.	Spike Conc.	MS Result						
Iron, Dissolved	ug/L	1880	5000	5000	6880	6940	100	101	75-125	1	20

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 236879 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

METHOD BLANK: 1404391 Matrix: Water
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	<0.062	1.0	10/06/16 19:27	
Chromium	ug/L	<0.39	1.0	10/06/16 19:27	
Iron	ug/L	10.1J	250	10/06/16 19:27	
Lead	ug/L	<0.040	1.0	10/06/16 19:27	
Nickel	ug/L	<0.11	1.0	10/06/16 19:27	

LABORATORY CONTROL SAMPLE: 1404392

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	504	101	80-120	
Chromium	ug/L	500	498	100	80-120	
Iron	ug/L	5000	4820	96	80-120	
Lead	ug/L	500	500	100	80-120	
Nickel	ug/L	500	501	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404393 1404394

Parameter	Units	40139240001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Barium	ug/L	207	500	500	714	706	101	100	75-125	1	20		
Chromium	ug/L	0.77J	500	500	503	499	100	100	75-125	1	20		
Iron	ug/L	1780	5000	5000	6600	6510	96	94	75-125	1	20		
Lead	ug/L	0.79J	500	500	517	516	103	103	75-125	0	20		
Nickel	ug/L	4.5	500	500	495	485	98	96	75-125	2	20		

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 236771 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005, 40139240006, 40139240007, 40139240008, 40139240009, 40139240010, 40139240011, 40139240012, 40139240013, 40139240014, 40139240015

METHOD BLANK: 1403410 Matrix: Water
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005, 40139240006, 40139240007, 40139240008, 40139240009, 40139240010, 40139240011, 40139240012, 40139240013, 40139240014, 40139240015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	10/04/16 07:06	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	10/04/16 07:06	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	10/04/16 07:06	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	10/04/16 07:06	
1,1-Dichloroethane	ug/L	<0.24	1.0	10/04/16 07:06	
1,1-Dichloroethene	ug/L	<0.41	1.0	10/04/16 07:06	
1,1-Dichloropropene	ug/L	<0.44	1.0	10/04/16 07:06	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	10/04/16 07:06	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	10/04/16 07:06	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	10/04/16 07:06	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	10/04/16 07:06	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	10/04/16 07:06	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	10/04/16 07:06	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	10/04/16 07:06	
1,2-Dichloroethane	ug/L	<0.17	1.0	10/04/16 07:06	
1,2-Dichloropropane	ug/L	<0.23	1.0	10/04/16 07:06	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	10/04/16 07:06	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	10/04/16 07:06	
1,3-Dichloropropane	ug/L	<0.50	1.0	10/04/16 07:06	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	10/04/16 07:06	
2,2-Dichloropropane	ug/L	<0.48	1.0	10/04/16 07:06	
2-Chlorotoluene	ug/L	<0.50	1.0	10/04/16 07:06	
4-Chlorotoluene	ug/L	<0.21	1.0	10/04/16 07:06	
Benzene	ug/L	<0.50	1.0	10/04/16 07:06	
Bromobenzene	ug/L	<0.23	1.0	10/04/16 07:06	
Bromochloromethane	ug/L	<0.34	1.0	10/04/16 07:06	
Bromodichloromethane	ug/L	<0.50	1.0	10/04/16 07:06	
Bromoform	ug/L	<0.50	1.0	10/04/16 07:06	
Bromomethane	ug/L	<2.4	5.0	10/04/16 07:06	
Carbon tetrachloride	ug/L	<0.50	1.0	10/04/16 07:06	
Chlorobenzene	ug/L	<0.50	1.0	10/04/16 07:06	
Chloroethane	ug/L	<0.37	1.0	10/04/16 07:06	
Chloroform	ug/L	<2.5	5.0	10/04/16 07:06	
Chloromethane	ug/L	<0.50	1.0	10/04/16 07:06	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	10/04/16 07:06	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	10/04/16 07:06	
Dibromochloromethane	ug/L	<0.50	1.0	10/04/16 07:06	
Dibromomethane	ug/L	<0.43	1.0	10/04/16 07:06	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

METHOD BLANK: 1403410

Matrix: Water

Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005, 40139240006, 40139240007, 40139240008, 40139240009, 40139240010, 40139240011, 40139240012, 40139240013, 40139240014, 40139240015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	<0.22	1.0	10/04/16 07:06	
Diisopropyl ether	ug/L	<0.50	1.0	10/04/16 07:06	
Ethylbenzene	ug/L	<0.50	1.0	10/04/16 07:06	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	10/04/16 07:06	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	10/04/16 07:06	
m&p-Xylene	ug/L	<1.0	2.0	10/04/16 07:06	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	10/04/16 07:06	
Methylene Chloride	ug/L	<0.23	1.0	10/04/16 07:06	
n-Butylbenzene	ug/L	<0.50	1.0	10/04/16 07:06	
n-Propylbenzene	ug/L	<0.50	1.0	10/04/16 07:06	
Naphthalene	ug/L	<2.5	5.0	10/04/16 07:06	
o-Xylene	ug/L	<0.50	1.0	10/04/16 07:06	
p-Isopropyltoluene	ug/L	<0.50	1.0	10/04/16 07:06	
sec-Butylbenzene	ug/L	<2.2	5.0	10/04/16 07:06	
Styrene	ug/L	<0.50	1.0	10/04/16 07:06	
tert-Butylbenzene	ug/L	<0.18	1.0	10/04/16 07:06	
Tetrachloroethene	ug/L	<0.50	1.0	10/04/16 07:06	
Toluene	ug/L	<0.50	1.0	10/04/16 07:06	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	10/04/16 07:06	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	10/04/16 07:06	
Trichloroethene	ug/L	<0.33	1.0	10/04/16 07:06	
Trichlorofluoromethane	ug/L	<0.18	1.0	10/04/16 07:06	
Vinyl chloride	ug/L	<0.18	1.0	10/04/16 07:06	
4-Bromofluorobenzene (S)	%	75	70-130	10/04/16 07:06	
Dibromofluoromethane (S)	%	105	70-130	10/04/16 07:06	
Toluene-d8 (S)	%	85	70-130	10/04/16 07:06	

LABORATORY CONTROL SAMPLE: 1403411

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.0	100	70-130	
1,1,1-Trichloroethane	ug/L	50	43.9	88	70-131	
1,1,2,2-Tetrachloroethane	ug/L	50	43.6	87	67-130	
1,1,2-Trichloroethane	ug/L	50	47.2	94	70-130	
1,1-Dichloroethane	ug/L	50	49.8	100	70-133	
1,1-Dichloroethene	ug/L	50	43.3	87	70-130	
1,1-Dichloropropene	ug/L	50	43.7	87	70-133	
1,2,3-Trichlorobenzene	ug/L	50	49.8	100	70-130	
1,2,3-Trichloropropane	ug/L	50	40.5	81	70-130	
1,2,4-Trichlorobenzene	ug/L	50	47.1	94	70-130	
1,2,4-Trimethylbenzene	ug/L	50	47.1	94	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	34.5	69	50-150	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

LABORATORY CONTROL SAMPLE: 1403411

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	50	45.7	91	70-130	
1,2-Dichlorobenzene	ug/L	50	48.3	97	70-130	
1,2-Dichloroethane	ug/L	50	42.1	84	70-130	
1,2-Dichloropropane	ug/L	50	48.2	96	70-130	
1,3,5-Trimethylbenzene	ug/L	50	48.0	96	70-130	
1,3-Dichlorobenzene	ug/L	50	49.1	98	70-130	
1,3-Dichloropropane	ug/L	50	47.2	94	70-130	
1,4-Dichlorobenzene	ug/L	50	49.3	99	70-130	
2,2-Dichloropropane	ug/L	50	41.0	82	58-148	
2-Chlorotoluene	ug/L	50	44.3	89	70-130	
4-Chlorotoluene	ug/L	50	48.0	96	70-130	
Benzene	ug/L	50	48.6	97	60-135	
Bromobenzene	ug/L	50	45.8	92	70-130	
Bromochloromethane	ug/L	50	45.4	91	70-130	
Bromodichloromethane	ug/L	50	45.0	90	70-130	
Bromoform	ug/L	50	47.5	95	70-130	
Bromomethane	ug/L	50	36.6	73	33-130	
Carbon tetrachloride	ug/L	50	44.0	88	70-138	
Chlorobenzene	ug/L	50	49.8	100	70-130	
Chloroethane	ug/L	50	45.8	92	51-130	
Chloroform	ug/L	50	45.4	91	70-130	
Chloromethane	ug/L	50	45.0	90	25-132	
cis-1,2-Dichloroethene	ug/L	50	43.1	86	69-130	
cis-1,3-Dichloropropene	ug/L	50	40.8	82	70-130	
Dibromochloromethane	ug/L	50	44.8	90	70-130	
Dibromomethane	ug/L	50	46.1	92	70-130	
Dichlorodifluoromethane	ug/L	50	40.2	80	23-130	
Diisopropyl ether	ug/L	50	45.3	91	70-130	
Ethylbenzene	ug/L	50	48.0	96	70-136	
Hexachloro-1,3-butadiene	ug/L	50	54.1	108	70-132	
Isopropylbenzene (Cumene)	ug/L	50	46.3	93	70-140	
m&p-Xylene	ug/L	100	99.0	99	70-138	
Methyl-tert-butyl ether	ug/L	50	37.4	75	66-138	
Methylene Chloride	ug/L	50	39.2	78	70-130	
n-Butylbenzene	ug/L	50	50.7	101	70-130	
n-Propylbenzene	ug/L	50	47.9	96	70-130	
Naphthalene	ug/L	50	36.7	73	70-130	
o-Xylene	ug/L	50	43.8	88	70-134	
p-Isopropyltoluene	ug/L	50	50.0	100	70-130	
sec-Butylbenzene	ug/L	50	45.5	91	70-130	
Styrene	ug/L	50	48.6	97	70-133	
tert-Butylbenzene	ug/L	50	45.5	91	70-130	
Tetrachloroethene	ug/L	50	54.2	108	70-138	
Toluene	ug/L	50	50.8	102	70-130	
trans-1,2-Dichloroethene	ug/L	50	47.4	95	70-131	
trans-1,3-Dichloropropene	ug/L	50	41.1	82	69-130	
Trichloroethene	ug/L	50	47.7	95	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

LABORATORY CONTROL SAMPLE: 1403411

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichlorofluoromethane	ug/L	50	50.0	100	50-150	
Vinyl chloride	ug/L	50	56.5	113	49-130	
4-Bromofluorobenzene (S)	%			91	70-130	
Dibromofluoromethane (S)	%			93	70-130	
Toluene-d8 (S)	%			93	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404866 1404867

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40139403001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1,2-Tetrachloroethane	ug/L	<0.18	50	50	50.8	48.3	102	97	70-130	5	20	
1,1,1-Trichloroethane	ug/L	<0.50	50	50	42.5	42.7	85	85	70-134	0	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	44.9	43.6	90	87	67-130	3	20	
1,1,2-Trichloroethane	ug/L	<0.20	50	50	44.7	43.8	89	88	70-130	2	20	
1,1-Dichloroethane	ug/L	<0.24	50	50	48.5	50.4	97	101	70-134	4	20	
1,1-Dichloroethene	ug/L	<0.41	50	50	44.5	46.1	89	92	68-136	4	20	
1,1-Dichloropropene	ug/L	<0.44	50	50	43.0	43.7	86	87	70-133	2	20	
1,2,3-Trichlorobenzene	ug/L	<2.1	50	50	51.7	51.4	103	102	62-138	1	20	
1,2,3-Trichloropropane	ug/L	<0.50	50	50	40.2	41.1	80	82	70-130	2	20	
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	48.7	47.5	97	94	62-139	3	20	
1,2,4-Trimethylbenzene	ug/L	<0.50	50	50	45.7	44.9	91	90	70-130	2	20	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	37.0	34.7	74	69	50-150	7	20	
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	45.8	43.2	92	86	70-130	6	20	
1,2-Dichlorobenzene	ug/L	<0.50	50	50	48.7	47.4	97	95	70-130	3	20	
1,2-Dichloroethane	ug/L	<0.17	50	50	42.8	42.4	86	85	70-130	1	20	
1,2-Dichloropropane	ug/L	<0.23	50	50	49.5	46.4	99	93	70-130	7	20	
1,3,5-Trimethylbenzene	ug/L	<0.50	50	50	47.2	46.2	94	92	70-130	2	20	
1,3-Dichlorobenzene	ug/L	<0.50	50	50	48.7	48.1	97	96	70-131	1	20	
1,3-Dichloropropane	ug/L	<0.50	50	50	45.6	45.1	91	90	70-130	1	20	
1,4-Dichlorobenzene	ug/L	<0.50	50	50	50.6	48.8	101	98	70-130	4	20	
2,2-Dichloropropane	ug/L	<0.48	50	50	41.3	39.9	83	80	58-151	4	20	
2-Chlorotoluene	ug/L	<0.50	50	50	44.8	44.6	90	89	70-130	0	20	
4-Chlorotoluene	ug/L	<0.21	50	50	48.8	47.1	98	94	70-130	4	20	
Benzene	ug/L	<0.50	50	50	48.3	49.4	97	99	57-138	2	20	
Bromobenzene	ug/L	<0.23	50	50	45.4	44.7	91	89	70-130	2	20	
Bromochloromethane	ug/L	0.53J	50	50	45.8	45.8	91	91	70-130	0	20	
Bromodichloromethane	ug/L	5.3	50	50	50.4	47.9	90	85	70-130	5	20	
Bromoform	ug/L	46.5	50	50	107	99.7	121	106	70-130	7	20	
Bromomethane	ug/L	<2.4	50	50	44.5	47.3	89	95	33-130	6	27	
Carbon tetrachloride	ug/L	<0.50	50	50	43.8	43.5	88	87	70-138	1	20	
Chlorobenzene	ug/L	<0.50	50	50	48.2	47.9	96	96	70-130	1	20	
Chloroethane	ug/L	<0.37	50	50	45.7	46.1	91	92	51-130	1	20	
Chloroform	ug/L	9.3	50	50	54.3	54.7	90	91	70-130	1	20	
Chloromethane	ug/L	<0.50	50	50	46.1	45.6	92	91	25-132	1	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

Parameter	Units	40139403001		MS		MSD		MS		MSD		% Rec	Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec							
MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1404866				1404867										
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	44.9	45.5	90	91	61-140	1	20					
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	43.3	39.0	87	78	70-130	10	20					
Dibromochloromethane	ug/L	13.4	50	50	65.5	63.6	104	100	70-130	3	20					
Dibromomethane	ug/L	2.0	50	50	46.4	46.0	89	88	70-130	1	20					
Dichlorodifluoromethane	ug/L	<0.22	50	50	38.7	39.1	77	78	23-130	1	20					
Diisopropyl ether	ug/L	<0.50	50	50	46.8	47.8	94	96	70-130	2	20					
Ethylbenzene	ug/L	<0.50	50	50	47.4	46.4	95	93	70-138	2	20					
Hexachloro-1,3-butadiene	ug/L	<2.1	50	50	56.9	57.1	112	113	56-147	0	20					
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	45.0	44.6	90	89	70-152	1	20					
m&p-Xylene	ug/L	<1.0	100	100	94.9	93.7	95	94	70-140	1	20					
Methyl-tert-butyl ether	ug/L	<0.17	50	50	40.5	41.2	81	82	66-139	2	20					
Methylene Chloride	ug/L	<0.23	50	50	39.0	39.6	78	79	70-130	2	20					
n-Butylbenzene	ug/L	<0.50	50	50	51.1	49.1	102	98	66-146	4	20					
n-Propylbenzene	ug/L	<0.50	50	50	47.7	47.5	95	95	70-133	0	20					
Naphthalene	ug/L	<2.5	50	50	40.5	40.1	80	80	70-130	1	20					
o-Xylene	ug/L	<0.50	50	50	42.7	41.8	85	84	70-134	2	20					
p-Isopropyltoluene	ug/L	<0.50	50	50	50.5	49.6	101	99	65-132	2	20					
sec-Butylbenzene	ug/L	<2.2	50	50	46.4	45.7	93	91	70-143	2	20					
Styrene	ug/L	<0.50	50	50	41.5	41.4	83	83	70-138	0	20					
tert-Butylbenzene	ug/L	<0.18	50	50	47.3	46.7	95	93	70-141	1	20					
Tetrachloroethene	ug/L	<0.50	50	50	52.5	53.8	105	108	70-148	2	20					
Toluene	ug/L	<0.50	50	50	49.2	47.8	98	96	70-130	3	20					
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	46.8	46.1	94	92	70-133	1	20					
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	40.0	38.1	80	76	69-130	5	20					
Trichloroethene	ug/L	<0.33	50	50	49.9	46.5	100	93	70-131	7	20					
Trichlorofluoromethane	ug/L	<0.18	50	50	49.7	50.3	99	101	50-150	1	20					
Vinyl chloride	ug/L	<0.18	50	50	56.0	58.7	112	117	49-133	5	20					
4-Bromofluorobenzene (S)	%						86	87	70-130							
Dibromofluoromethane (S)	%						94	96	70-130							
Toluene-d8 (S)	%						92	89	70-130							

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 236893 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

METHOD BLANK: 1404449 Matrix: Water
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<2.0	4.0	10/04/16 11:18	
Sulfate	mg/L	<2.0	4.0	10/04/16 11:18	

LABORATORY CONTROL SAMPLE: 1404450

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	18.6	93	90-110	
Sulfate	mg/L	20	19.3	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404451 1404452

Parameter	Units	40139240001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result						
Chloride	mg/L	138	200	200	342	344	102	103	90-110	0	15	
Sulfate	mg/L	180	200	200	387	389	103	104	90-110	1	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404453 1404454

Parameter	Units	40139248015 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result						
Chloride	mg/L	177	200	200	388	390	106	106	90-110	0	15	
Sulfate	mg/L	494	1000	1000	1440	1460	95	97	90-110	2	15	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 237179 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

METHOD BLANK: 1405459 Matrix: Water
Associated Lab Samples: 40139240001, 40139240002, 40139240003, 40139240004, 40139240005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<7.0	23.5	10/05/16 10:59	

LABORATORY CONTROL SAMPLE: 1405460

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	107	107	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1405461 1405462

Parameter	Units	40138818003		40138818003		40138818003		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Alkalinity, Total as CaCO ₃	mg/L	384	500	500	888	889	101	101	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1405463 1405464

Parameter	Units	40138845004		40138845004		40138845004		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Alkalinity, Total as CaCO ₃	mg/L	358	500	500	827	807	94	90	90-110	2	20	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40139240

QC Batch:	236696	Analysis Method:	SM 5310C
QC Batch Method:	SM 5310C	Analysis Description:	5310C Total Organic Carbon
Associated Lab Samples:	40139240001, 40139240002, 40139240003, 40139240004, 40139240005, 40139240006, 40139240007, 40139240008, 40139240009, 40139240010, 40139240011, 40139240013, 40139240014		

METHOD BLANK:	1402814	Matrix:	Water
Associated Lab Samples:	40139240001, 40139240002, 40139240003, 40139240004, 40139240005, 40139240006, 40139240007, 40139240008, 40139240009, 40139240010, 40139240011, 40139240013, 40139240014		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	10/03/16 12:36	

LABORATORY CONTROL SAMPLE: 1402815

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.5	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1402816 1402817

Parameter	Units	40139199001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	4.9	3	3	8.7	8.6	129	126	80-120	1	10	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404293 1404294

Parameter	Units	40139220001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	80.9	30	30	113	109	108	94	80-120	4	10	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40139240

QC Batch: 236855 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 40139240015

METHOD BLANK: 1404295 Matrix: Water
Associated Lab Samples: 40139240015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	10/05/16 12:08	

LABORATORY CONTROL SAMPLE: 1404296

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.6	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404297 1404298

Parameter	Units	40139248001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Total Organic Carbon	mg/L	21.2	20	20	46.3	48.3	125	136	80-120	4	10	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1404299 1404300

Parameter	Units	40139248002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
										RPD	RPD	
Total Organic Carbon	mg/L	1.6J	3	3	3.6	3.7	66	69	80-120	3	10	M0

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QUALIFIERS

Project: 60518412.1 KEP

Pace Project No.: 40139240

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412.1 KEP
Pace Project No.: 40139240

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40139240001	CS4-MW-75	EPA 8015B Modified	236858		
40139240002	CS4-PZ-75	EPA 8015B Modified	236858		
40139240003	CS8-MW-61	EPA 8015B Modified	236858		
40139240004	CS8-PZ-61	EPA 8015B Modified	236858		
40139240005	CS8-MW-807	EPA 8015B Modified	236858		
40139240001	CS4-MW-75	EPA 6010	236798		
40139240002	CS4-PZ-75	EPA 6010	236798		
40139240003	CS8-MW-61	EPA 6010	236798		
40139240004	CS8-PZ-61	EPA 6010	236798		
40139240005	CS8-MW-807	EPA 6010	236798		
40139240001	CS4-MW-75	EPA 3010	236879	EPA 6020	236972
40139240002	CS4-PZ-75	EPA 3010	236879	EPA 6020	236972
40139240003	CS8-MW-61	EPA 3010	236879	EPA 6020	236972
40139240004	CS8-PZ-61	EPA 3010	236879	EPA 6020	236972
40139240005	CS8-MW-807	EPA 3010	236879	EPA 6020	236972
40139240001	CS4-MW-75	EPA 8260	236771		
40139240002	CS4-PZ-75	EPA 8260	236771		
40139240003	CS8-MW-61	EPA 8260	236771		
40139240004	CS8-PZ-61	EPA 8260	236771		
40139240005	CS8-MW-807	EPA 8260	236771		
40139240006	ERD6-TW-NW10-TOS	EPA 8260	236771		
40139240007	ERD6-TW-NW10-BOS	EPA 8260	236771		
40139240008	ERD6-TW-NW15-TOS	EPA 8260	236771		
40139240009	ERD6-TW-NW15-BOS	EPA 8260	236771		
40139240010	ERD8-TW-SW15-TOS	EPA 8260	236771		
40139240011	ERD8-TW-SW15-BOS	EPA 8260	236771		
40139240012	TRIP BLANK-ERD	EPA 8260	236771		
40139240013	ERD1-TW-NW10-BOS	EPA 8260	236771		
40139240014	ERD1-TW-NW10-BOS DUP	EPA 8260	236771		
40139240015	ERD1-TW-NW10-TOS	EPA 8260	236771		
40139240001	CS4-MW-75	EPA 300.0	236893		
40139240002	CS4-PZ-75	EPA 300.0	236893		
40139240003	CS8-MW-61	EPA 300.0	236893		
40139240004	CS8-PZ-61	EPA 300.0	236893		
40139240005	CS8-MW-807	EPA 300.0	236893		
40139240001	CS4-MW-75	EPA 310.2	237179		
40139240002	CS4-PZ-75	EPA 310.2	237179		
40139240003	CS8-MW-61	EPA 310.2	237179		
40139240004	CS8-PZ-61	EPA 310.2	237179		
40139240005	CS8-MW-807	EPA 310.2	237179		
40139240001	CS4-MW-75	SM 5310C	236696		
40139240002	CS4-PZ-75	SM 5310C	236696		
40139240003	CS8-MW-61	SM 5310C	236696		
40139240004	CS8-PZ-61	SM 5310C	236696		
40139240005	CS8-MW-807	SM 5310C	236696		
40139240006	ERD6-TW-NW10-TOS	SM 5310C	236696		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412.1 KEP

Pace Project No.: 40139240

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40139240007	ERD6-TW-NW10-BOS	SM 5310C	236696		
40139240008	ERD6-TW-NW15-TOS	SM 5310C	236696		
40139240009	ERD6-TW-NW15-BOS	SM 5310C	236696		
40139240010	ERD8-TW-SW15-TOS	SM 5310C	236696		
40139240011	ERD8-TW-SW15-BOS	SM 5310C	236696		
40139240013	ERD1-TW-NW10-BOS	SM 5310C	236696		
40139240014	ERD1-TW-NW10-BOS DUP	SM 5310C	236696		
40139240015	ERD1-TW-NW10-TOS	SM 5310C	236855		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40139260
Page 52 of 70

Section A

Required Client Information:

Company: AECOM - Milw
Address: 1555 N. River Center Dr., Suite 214
Milwaukee, WI 53212
Email To: Lanette.Altenbach@aecom.com
Phone: 414-577-1363 Fax:
Requested Due Date/TAT: Standard

Section B

Required Project Information:

Report To: Lanette Altenbach
Copy To:
Purchase Order No.:
Project Name:
Project Number: 60518412.1

Section C

Invoice Information:

Attention: Accounts Payable/Finance Department
Company Name: City of Kenosha
Address: 652 52nd St., Kenosha, WI 53140
Pace Quote Reference:
Pace Project Manager: Chris Hyska
Pace Profile #: (2430) Kenosha work

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

SITE LOCATION
 GA IL IN MI NC
 OH SC WI OTHER _____

Filtered (Y/N) **N/N**

ITEM #	Section D Required Client Information		MATRIX CODE	SAMPLE TYPE G-GRAB C-COMP	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Requested Analysis: <i>VOCs TOC</i>	Residual Chlorine (Y/N)	Pace Project Number Lab I.D.							
	SAMPLE ID One Character per box. (A-Z, 0-9 / .-) Samples IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX CODE DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WF AIR AR OTHER OT TISSUE TS			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other										
					DATE	TIME	DATE	TIME																				
					Analysis: <i>see additional sheet mm 9/29/16</i>																							
1	ERDI-TW-NW10-BOS	013	WT	G	9/27/16		9/27/16	1012		4	1	3							X	X								
2	ERDI-TW-NW10-BOS DUP	014	WT	G	↓		↓	1012		4	1	3							X	X								
3	ERDI-TW-NW10-TOS	015	WT	G	↓		↓	1020		4	1	3							X	X								
4			WT																									
5			WT																									
6			WT																									
7			WT																									
8			WT																									
9			WT																									
10			WT																									
11			WT																									
12			WT																									

Additional Comments:

Analysis per contract

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
<i>Sergio Lopez</i>	<i>9/28/16</i>	<i>10:45</i>	<i>Mary Farnon</i>	<i>9/28/16</i>	<i>10:45</i>		Y/N	Y/N	Y/N	Y/N
<i>Mary Farnon</i>	<i>9/28/16</i>	<i>11:30</i>					Y/N	Y/N	Y/N	Y/N
<i>CS Woodhull</i>	<i>9/29/16</i>	<i>1350</i>	<i>Mari McKay</i>	<i>9/29</i>	<i>1350</i>	<i>ROI</i>	Y/N	Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

Andrew Pirrung

SIGNATURE of SAMPLER:

Andrew Pirrung

DATE Signed (MM/DD/YY)

09/27/16

Temp in °C _____
 Received on Ice _____
 Custody Sealed Cooler _____
 Samples intact _____



Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Sample Condition Upon Receipt

Client Name: AE.com Project # 4039240

Additional Comments/Resolution: _____

001 - 6-40mlVB, 2-40mlVag⁵ 1-~~125mlagC~~^{125mlagC} 4-250ml^{AADA}

002 -

003 -

004 -

005 -

006 - 3-40mlVB 1-125mlagC

007 -

008 -

009 -

010 -

011 -

012 - 4-40mlVB

013 - 3-40mlVB, 1-125mlagC

014 -

015 -

Project Manager Review: [Signature]

Date: 9-30-16



Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project # WO#: 40139240

Client Name: AECOM

Courier: Fed Ex UPS Client Pace Other:

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used na Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROI /Corr: Biological Tissue is Frozen: yes

Temp Blank Present: yes no

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:
Date: 9-29-16
Initials: mm

Comments:

Table with 15 rows of checklist items. Columns include item description, Yes/No/N/A checkboxes, and a comments column. Items include Chain of Custody Present, Samples Arrived within Hold Time, Short Hold Time Analysis, Containers Intact, etc.

Client Notification/ Resolution:
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: _____ Date: 9-30-16



Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

October 12, 2016

Christopher Hyska
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302

RE: **60518412.1.KEP / 40139240**
Pace Workorder: 20467

Dear Christopher Hyska:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, October 03, 2016. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 10/12/2016
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages _____

Report ID: 20467 - 847419

Page 1 of 14



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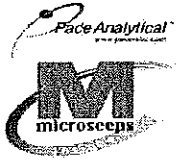
LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).



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SAMPLE SUMMARY

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID	Sample ID	Matrix	Date Collected	Date Received
204670001	CS4-MW-75	Water	9/26/2016 12:10	10/3/2016 08:30
204670002	CS4-PZ-75	Water	9/26/2016 12:17	10/3/2016 08:30
204670003	CS4-MW-61	Water	9/26/2016 13:37	10/3/2016 08:30
204670004	CS4-PZ-61	Water	9/26/2016 13:55	10/3/2016 08:30
204670005	CS4-MW-807	Water	9/26/2016 15:18	10/3/2016 08:30



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PROJECT SUMMARY

Workorder: 20467 60518412.1.KEP / 40139240

Workorder Comments

The analysis for volatile fatty acids, method AM23G, was reported at dilution for samples 20467 (0002-0004) due to the measured chloride concentration within the sample; matrix interfering compound.

Report ID: 20467 - 847419

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ANALYTICAL RESULTS

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID: 204670001 Date Received: 10/3/2016 08:30 Matrix: Water
 Sample ID: CS4-MW-75 Date Collected: 9/26/2016 12:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.012J	mg/l	0.20	0.0060	1	10/6/2016 05:18	MD	B
Acetic Acid	0.089J	mg/l	0.10	0.0070	1	10/6/2016 05:18	MD	B
Propionic Acid	0.0090U	mg/l	0.10	0.0090	1	10/6/2016 05:18	MD	
Formic Acid	0.063J	mg/l	0.10	0.0050	1	10/6/2016 05:18	MD	B
Butyric Acid	0.0074J	mg/l	0.10	0.0070	1	10/6/2016 05:18	MD	B
Pyruvic Acid	0.0070U	mg/l	0.10	0.0070	1	10/6/2016 05:18	MD	
i-Pentanoic Acid	0.0070U	mg/l	0.10	0.0070	1	10/6/2016 05:18	MD	
Pentanoic Acid	0.031J	mg/l	0.10	0.0060	1	10/6/2016 05:18	MD	
i-Hexanoic Acid	0.0040U	mg/l	0.20	0.0040	1	10/6/2016 05:18	MD	
Hexanoic Acid	0.0070U	mg/l	0.20	0.0070	1	10/6/2016 05:18	MD	



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ANALYTICAL RESULTS

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID: 204670002 Date Received: 10/3/2016 08:30 Matrix: Water
 Sample ID: CS4-PZ-75 Date Collected: 9/26/2016 12:17

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.076J	mg/l	2.0	0.060	10	10/6/2016 06:11	MD	d,B
Acetic Acid	0.30J	mg/l	1.0	0.070	10	10/6/2016 06:11	MD	d,B
Propionic Acid	0.090U	mg/l	1.0	0.090	10	10/6/2016 06:11	MD	d
Formic Acid	0.20J	mg/l	1.0	0.050	10	10/6/2016 06:11	MD	d,B
Butyric Acid	0.094J	mg/l	1.0	0.070	10	10/6/2016 06:11	MD	d,B
Pyruvic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 06:11	MD	d
i-Pentanoic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 06:11	MD	d
Pentanoic Acid	0.070J	mg/l	1.0	0.060	10	10/6/2016 06:11	MD	d
i-Hexanoic Acid	0.040U	mg/l	2.0	0.040	10	10/6/2016 06:11	MD	d
Hexanoic Acid	0.070U	mg/l	2.0	0.070	10	10/6/2016 06:11	MD	d



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ANALYTICAL RESULTS

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID: 204670003 Date Received: 10/3/2016 08:30 Matrix: Water
 Sample ID: CS4-MW-61 Date Collected: 9/26/2016 13:37

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.090J	mg/l	2.0	0.060	10	10/6/2016 07:05	MD	d,B
Acetic Acid	0.33J	mg/l	1.0	0.070	10	10/6/2016 07:05	MD	d,B
Propionic Acid	0.090U	mg/l	1.0	0.090	10	10/6/2016 07:05	MD	d
Formic Acid	0.26J	mg/l	1.0	0.050	10	10/6/2016 07:05	MD	d,B
Butyric Acid	0.070J	mg/l	1.0	0.070	10	10/6/2016 07:05	MD	d,B
Pyruvic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 07:05	MD	d
i-Pentanoic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 07:05	MD	d
Pentanoic Acid	0.17J	mg/l	1.0	0.060	10	10/6/2016 07:05	MD	d
i-Hexanoic Acid	0.040U	mg/l	2.0	0.040	10	10/6/2016 07:05	MD	d
Hexanoic Acid	0.070U	mg/l	2.0	0.070	10	10/6/2016 07:05	MD	d



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ANALYTICAL RESULTS

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID: 204670004 Date Received: 10/3/2016 08:30 Matrix: Water
 Sample ID: CS4-PZ-61 Date Collected: 9/26/2016 13:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.099J	mg/l	2.0	0.060	10	10/6/2016 07:58	MD	d,B
Acetic Acid	0.31J	mg/l	1.0	0.070	10	10/6/2016 07:58	MD	d,B
Propionic Acid	0.090U	mg/l	1.0	0.090	10	10/6/2016 07:58	MD	d
Formic Acid	0.27J	mg/l	1.0	0.050	10	10/6/2016 07:58	MD	d,B
Butyric Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 07:58	MD	d,B
Pyruvic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 07:58	MD	d
i-Pentanoic Acid	0.070U	mg/l	1.0	0.070	10	10/6/2016 07:58	MD	d
Pentanoic Acid	0.22J	mg/l	1.0	0.060	10	10/6/2016 07:58	MD	d
i-Hexanoic Acid	0.040U	mg/l	2.0	0.040	10	10/6/2016 07:58	MD	d
Hexanoic Acid	0.070U	mg/l	2.0	0.070	10	10/6/2016 07:58	MD	d



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ANALYTICAL RESULTS

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID: 204670005 Date Received: 10/3/2016 08:30 Matrix: Water
 Sample ID: CS4-MW-807 Date Collected: 9/26/2016 15:18

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.0092J	mg/l	0.20	0.0060	1	10/6/2016 08:51	MD	B
Acetic Acid	0.039J	mg/l	0.10	0.0070	1	10/6/2016 08:51	MD	B
Propionic Acid	0.0090U	mg/l	0.10	0.0090	1	10/6/2016 08:51	MD	
Formic Acid	0.046J	mg/l	0.10	0.0050	1	10/6/2016 08:51	MD	B
Butyric Acid	0.0070U	mg/l	0.10	0.0070	1	10/6/2016 08:51	MD	B
Pyruvic Acid	0.0070U	mg/l	0.10	0.0070	1	10/6/2016 08:51	MD	
i-Pentanoic Acid	0.0070U	mg/l	0.10	0.0070	1	10/6/2016 08:51	MD	
Pentanoic Acid	0.034J	mg/l	0.10	0.0060	1	10/6/2016 08:51	MD	
i-Hexanoic Acid	0.0040U	mg/l	0.20	0.0040	1	10/6/2016 08:51	MD	
Hexanoic Acid	0.025J	mg/l	0.20	0.0070	1	10/6/2016 08:51	MD	



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ANALYTICAL RESULTS QUALIFIERS

Workorder: 20467 60518412.1.KEP / 40139240

DEFINITIONS/QUALIFIERS

- MDL Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
- PQL Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
- ND Not detected at or above reporting limit.
- DF Dilution Factor.
- S Surrogate.
- RPD Relative Percent Difference.
- % Rec Percent Recovery.
- U Indicates the compound was analyzed for, but not detected at or above the noted concentration.
- J Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).

- B The analyte was detected in the associated blank.

- d The analyte concentration was determined from a dilution.



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QUALITY CONTROL DATA

Workorder: 20467 60518412.1.KEP / 40139240

QC Batch: EDON/3108 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 204670001, 204670002, 204670003, 204670004, 204670005

METHOD BLANK: 44622

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	0.011J	0.0060	B
Acetic Acid	mg/l	0.032J	0.0070	B
Propionic Acid	mg/l	0.0090U	0.0090	
Formic Acid	mg/l	0.022J	0.0050	B
Butyric Acid	mg/l	0.0098J	0.0070	B
Pyruvic Acid	mg/l	0.0070U	0.0070	
i-Pentanoic Acid	mg/l	0.0070U	0.0070	
Pentanoic Acid	mg/l	0.0060U	0.0060	
i-Hexanoic Acid	mg/l	0.0040U	0.0040	
Hexanoic Acid	mg/l	0.0070U	0.0070	

LABORATORY CONTROL SAMPLE: 44623

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	1.9	94	70-130	B
Acetic Acid	mg/l	2	1.9	93	70-130	B
Propionic Acid	mg/l	2	1.9	97	70-130	
Formic Acid	mg/l	2	1.8	88	70-130	B
Butyric Acid	mg/l	2	1.9	97	70-130	B
Pyruvic Acid	mg/l	2	2.0	98	70-130	
i-Pentanoic Acid	mg/l	2	2.0	98	70-130	
Pentanoic Acid	mg/l	2	1.9	96	70-130	
i-Hexanoic Acid	mg/l	2	1.9	94	70-130	
Hexanoic Acid	mg/l	2	1.9	95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 44624 44625 Original: 204350004

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	Max RPD	RPD	Qualifiers
EDonors											
Lactic Acid	mg/l	0.025	2	1.8	1.8	88	90	70-130	2.2	30	B



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Pace Analytical Energy Services LLC
 220 William Pitt Way
 Pittsburgh, PA 15238
 Phone: (412) 826-5245
 Fax: (412) 826-3433

QUALITY CONTROL DATA

Workorder: 20467 60518412.1.KEP / 40139240

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 44624 44625 Original: 204350004

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Acetic Acid	mg/l	0.072	2	2.0	2.0	96	96	70-130	0	30	B
Propionic Acid	mg/l	0.0047	2	2.0	2.0	97	97	70-130	0	30	
Formic Acid	mg/l	0.073	2	1.8	1.8	85	85	70-130	0	30	B
Butyric Acid	mg/l	0.01	2	1.9	1.9	95	95	70-130	0	30	B
Pyruvic Acid	mg/l	0.035	2	1.8	1.8	89	88	70-130	1.1	30	
i-Pentanoic Acid	mg/l	0.0022	2	1.9	1.9	95	95	70-130	0	30	
Pentanoic Acid	mg/l	0.035	2	1.9	1.9	92	92	70-130	0	30	
i-Hexanoic Acid	mg/l	0	2	1.6	1.6	78	79	70-130	1.3	30	
Hexanoic Acid	mg/l	0.088	2	1.5	1.5	70	73	70-130	4.2	30	



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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA QUALIFIERS

Workorder: 20467 60518412.1.KEP / 40139240

QUALITY CONTROL PARAMETER QUALIFIERS

B The analyte was detected in the associated blank.



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220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 20467 60518412.1.KEP / 40139240

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
204670001	CS4-MW-75			AM23G	EDON/3108
204670002	CS4-PZ-75			AM23G	EDON/3108
204670003	CS4-MW-61			AM23G	EDON/3108
204670004	CS4-PZ-61			AM23G	EDON/3108
204670005	CS4-MW-807			AM23G	EDON/3108



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Chain of Custody

20467



Workorder: 40139240

Workorder Name: 60518412.1 KEP

Results Requested By: 10/06/2016

Christopher Hyska
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Phone (920)469-2436
Email: christopher.hyska@pacelabs.com

Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh, PA 15238
Phone: 412-826-4481

State of Sample Origin: WILOD/LOQ

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	BAK	Preserved Containers	VFAs AM23G	Requested Analysis	LAB USE ONLY
1	CS4-MW-75	9/26/2016 12:10	40139240001	Water	2		X		
2	CS4-PZ-75	9/26/2016 12:17	40139240002	Water	2		X		
3	CS8-MW-61	9/26/2016 13:37	40139240003	Water	2		X		
4	CS8-PZ-61	9/26/2016 13:55	40139240004	Water	2		X		
5	CS8-MW-807	9/26/2016 15:18	40139240005	Water	2		X		
Transfers									
1	Released By	Date/Time	Received By	Date/Time	Comments				
2									
3									
Cooler Temperature on Receipt			°C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	Y or N

Cooler Receipt Form

Client Name: Perce GB Project: 60578412.1. KEP Lab Work Order: 20467

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 9325 18910788

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 10C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC		✓		
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC	✓			
Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments: _____

Cooler contents examined/received by: LG Date: 10.3.16

Project Manager Review: RW Date: 10-4-16



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

Client: Lanette Altenbach
AECOM
1555 N Rivercenter Dr
Suite 214
Milwaukee, WI 53212

Phone: 414-944-6186

Fax: 414-944-6080

Identifier: 109NI

Date Rec: 09/27/2016

Report Date: 09/30/2016

Client Project #: 60518412

Client Project Name: KEP Pilot Wells

Purchase Order #:

Analysis Requested: 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.

Client: AECOM
Project: KEP Pilot Wells

MI Project Number: 109NI
Date Received: 09/27/2016

Sample Information

Client Sample ID:	CS4-MW-75	CS4-PZ-75	CS8-MW-61	CS8-PZ-61	CS8-MW-807
Sample Date:	09/26/2016	09/26/2016	09/26/2016	09/26/2016	09/26/2016
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst:	JS	JS	JS	JS	JS

Dechlorinating Bacteria

		CS4-MW-75	CS4-PZ-75	CS8-MW-61	CS8-PZ-61	CS8-MW-807
<i>Dehalococcoides</i>	DHC	7.50E+03	1.08E+02	4.36E+04	3.82E+02	<1.10E+00
tceA Reductase	TCE	8.08E+01	<5.00E-01	<5.00E-01	<5.00E-01	<1.10E+00
BAV1 Vinyl Chloride Reductase	BVC	1.29E+03	1.21E+01	1.79E+04	2.94E+01	<1.10E+00
Vinyl Chloride Reductase	VCR	1.47E+03	9.80E+00	8.09E+03	2.69E+01	<1.10E+00

Functional Genes

		CS4-MW-75	CS4-PZ-75	CS8-MW-61	CS8-PZ-61	CS8-MW-807
Sulfate Reducing Bacteria	APS	1.51E+05	4.51E+04	3.13E+05	5.61E+04	1.39E+02
Methanogens	MGN	6.76E+02	3.83E+02	1.28E+02	1.00E+01	1.10E+00 (J)

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 9/27/2016

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	09/27/2016	09/30/2016	1 °C	102%	non-detect	non-detect
MGN	09/27/2016	09/30/2016	1 °C	118%	non-detect	non-detect
BVC	09/27/2016	09/30/2016	1 °C	103%	non-detect	non-detect
TCE	09/27/2016	09/30/2016	1 °C	102%	non-detect	non-detect
VCR	09/27/2016	09/30/2016	1 °C	104%	non-detect	non-detect
APS	09/27/2016	09/30/2016	1 °C	100%	non-detect	non-detect

March 28, 2017

Lanette Altenbach
AECOM, Inc.- Milwaukee
1555 N River Center Drive
Suite 214
Milwaukee, WI 53212

RE: Project: 60518412.1 KEP
Pace Project No.: 40147002

Dear Lanette Altenbach:

Enclosed are the analytical results for sample(s) received by the laboratory on March 21, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Paul Lindquist, AECOM



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 60518412.1 KEP

Pace Project No.: 40147002

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40147002001	CS-8-MW-807	Water	03/17/17 12:12	03/21/17 09:45
40147002002	CS-8-PZ-75	Water	03/17/17 12:52	03/21/17 09:45
40147002003	CS-8-MW-61	Water	03/17/17 13:46	03/21/17 09:45
40147002004	ERD1-TW-NW10 BOS	Water	03/17/17 13:24	03/21/17 09:45
40147002005	ERD1-TW-NW10 TOS	Water	03/17/17 13:53	03/21/17 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP

Pace Project No.: 40147002

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40147002001	CS-8-MW-807	SM 5310C	TJJ	1	PASI-G
40147002002	CS-8-PZ-75	SM 5310C	TJJ	1	PASI-G
40147002003	CS-8-MW-61	SM 5310C	TJJ	1	PASI-G
40147002004	ERD1-TW-NW10 BOS	SM 5310C	TJJ	1	PASI-G
40147002005	ERD1-TW-NW10 TOS	SM 5310C	TJJ	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Sample: CS-8-MW-807 **Lab ID: 40147002001** Collected: 03/17/17 12:12 Received: 03/21/17 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	1.8	mg/L	1.7	0.50	2		03/22/17 13:45	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Sample: CS-8-PZ-75 **Lab ID: 40147002002** Collected: 03/17/17 12:52 Received: 03/21/17 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.52J	mg/L	0.84	0.25	1		03/24/17 10:21	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Sample: CS-8-MW-61 **Lab ID: 40147002003** Collected: 03/17/17 13:46 Received: 03/21/17 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	4.1	mg/L	1.7	0.50	2		03/22/17 15:00	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Sample: ERD1-TW-NW10 BOS **Lab ID: 40147002004** Collected: 03/17/17 13:24 Received: 03/21/17 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.40J	mg/L	0.84	0.25	1		03/24/17 10:39	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40147002

Sample: ERD1-TW-NW10 TOS **Lab ID: 40147002005** Collected: 03/17/17 13:53 Received: 03/21/17 09:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.50J	mg/L	0.84	0.25	1		03/24/17 10:59	7440-44-0	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40147002

QC Batch: 250764 Analysis Method: SM 5310C
 QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
 Associated Lab Samples: 40147002001, 40147002002, 40147002003, 40147002004, 40147002005

METHOD BLANK: 1479931 Matrix: Water
 Associated Lab Samples: 40147002001, 40147002002, 40147002003, 40147002004, 40147002005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	03/22/17 13:06	

LABORATORY CONTROL SAMPLE: 1479932

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.4	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1479933 1479934

Parameter	Units	40147002001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	1.8	2	2	3.7	3.6	99	95	80-120	2	10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 60518412.1 KEP

Pace Project No.: 40147002

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412.1 KEP

Pace Project No.: 40147002

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40147002001	CS-8-MW-807	SM 5310C	250764		
40147002002	CS-8-PZ-75	SM 5310C	250764		
40147002003	CS-8-MW-61	SM 5310C	250764		
40147002004	ERD1-TW-NW10 BOS	SM 5310C	250764		
40147002005	ERD1-TW-NW10 TOS	SM 5310C	250764		

REPORT OF LABORATORY ANALYSIS

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Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302



Project #: **WO# : 40147002**

Client Name: AECOM

Courier: Fed Ex UPS Client Pace Other: CS Logistics



Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROI /Corr: _____ Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 3-21-17
Initials: SN

Temp should be above freezing to 6°C for all sample except Biota.

Frozen Biota Samples should be received ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>h</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lab Std #ID of preservative
		Date/Time:
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature] Date: 3/21/17

June 29, 2017

Lanette Altenbach
AECOM, Inc.
1555 N River Center Drive
Suite 214
Milwaukee, WI 53212

RE: Project: 60518412 KEP
Pace Project No.: 40151851

Dear Lanette Altenbach:

Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Susan Petroske, AECOM, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60518412 KEP

Pace Project No.: 40151851

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 60518412 KEP
Pace Project No.: 40151851

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40151851001	ERD6-TW-NW10-BOS	Water	06/14/17 10:04	06/16/17 14:15
40151851002	ERD6-TW-NW15-TOS	Water	06/14/17 10:15	06/16/17 14:15
40151851003	ERD6-TW-NW10-TOS	Water	06/14/17 11:07	06/16/17 14:15
40151851004	ERD6-TW-NW15-BOS	Water	06/14/17 11:24	06/16/17 14:15
40151851005	CS8-MW-807	Water	06/14/17 13:21	06/16/17 14:15
40151851006	CS4-PZ-75	Water	06/14/17 13:28	06/16/17 14:15
40151851007	ERD1-TW-NW10-TOS	Water	06/15/17 09:38	06/16/17 14:15
40151851008	CS8-PZ-61	Water	06/15/17 09:46	06/16/17 14:15
40151851009	ERD1-TW-NW10-BOS	Water	06/15/17 11:02	06/16/17 14:15
40151851010	CS8-MW-61	Water	06/15/17 11:23	06/16/17 14:15
40151851011	CS8-MW-61-DUP	Water	06/15/17 11:23	06/16/17 14:15
40151851012	TRIP BLANK	Water	06/14/17 09:30	06/16/17 14:15

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412 KEP

Pace Project No.: 40151851

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40151851001	ERD6-TW-NW10-BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851002	ERD6-TW-NW15-TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851003	ERD6-TW-NW10-TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851004	ERD6-TW-NW15-BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851005	CS8-MW-807	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851006	CS4-PZ-75	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412 KEP
Pace Project No.: 40151851

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40151851007	ERD1-TW-NW10-TOS	EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
40151851008	CS8-PZ-61	EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		SM 2320B	DDY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
40151851009	ERD1-TW-NW10-BOS	EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
40151851010	CS8-MW-61	EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40151851011	CS8-MW-61-DUP	EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	MDS	64	PASI-G
40151851012	TRIP BLANK	EPA 8260	MDS	64	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP
Pace Project No.: 40151851

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40151851001	ERD6-TW-NW10-BOS					
EPA 8015B Modified	Ethane	21.0	ug/L	5.6	06/19/17 11:11	
EPA 8015B Modified	Ethene	104	ug/L	5.0	06/19/17 11:11	
EPA 8015B Modified	Methane	771	ug/L	28.0	06/19/17 13:43	
EPA 6010	Iron, Dissolved	43900	ug/L	100	06/22/17 14:16	
EPA 6020	Barium	196	ug/L	1.1	06/23/17 16:03	
EPA 6020	Chromium	3.3J	ug/L	3.4	06/23/17 16:03	
EPA 6020	Iron	55800	ug/L	368	06/23/17 16:03	
EPA 6020	Lead	0.38J	ug/L	1.0	06/23/17 16:03	
EPA 6020	Nickel	2.2	ug/L	1.3	06/23/17 16:03	
EPA 8260	Benzene	5.3	ug/L	2.0	06/22/17 03:17	
EPA 8260	n-Butylbenzene	3.0	ug/L	2.0	06/22/17 03:17	
EPA 8260	Chloroethane	8.5	ug/L	2.0	06/22/17 03:17	
EPA 8260	1,1-Dichloroethene	1.7J	ug/L	2.0	06/22/17 03:17	
EPA 8260	cis-1,2-Dichloroethene	475	ug/L	2.0	06/22/17 03:17	
EPA 8260	trans-1,2-Dichloroethene	2.9	ug/L	2.0	06/22/17 03:17	
EPA 8260	Isopropylbenzene (Cumene)	0.76J	ug/L	2.0	06/22/17 03:17	
EPA 8260	n-Propylbenzene	1.0J	ug/L	2.0	06/22/17 03:17	
EPA 8260	Toluene	4.8	ug/L	2.0	06/22/17 03:17	
EPA 8260	Trichloroethene	1.4J	ug/L	2.0	06/22/17 03:17	
EPA 8260	Vinyl chloride	189	ug/L	2.0	06/22/17 03:17	
EPA 8260	m&p-Xylene	3.6J	ug/L	4.0	06/22/17 03:17	
EPA 300.0	Chloride	379	mg/L	40.0	06/26/17 12:27	
EPA 310.2	Alkalinity, Total as CaCO3	548J	mg/L	587	06/23/17 09:51	D3
SM 5310C	Total Organic Carbon	1430	mg/L	504	06/20/17 10:14	M0
40151851002	ERD6-TW-NW15-TOS					
EPA 8015B Modified	Ethane	22.0	ug/L	5.6	06/19/17 11:43	
EPA 8015B Modified	Ethene	136	ug/L	5.0	06/19/17 11:43	
EPA 8015B Modified	Methane	1720	ug/L	28.0	06/19/17 13:50	
EPA 6010	Iron, Dissolved	1090	ug/L	100	06/22/17 14:18	P4
EPA 6020	Barium	378	ug/L	1.1	06/23/17 16:17	
EPA 6020	Iron	25400	ug/L	368	06/23/17 16:17	
EPA 6020	Nickel	0.50J	ug/L	1.3	06/23/17 16:17	
EPA 8260	Benzene	6.8	ug/L	5.0	06/20/17 23:56	
EPA 8260	Chloroethane	62.6	ug/L	5.0	06/20/17 23:56	
EPA 8260	cis-1,2-Dichloroethene	472	ug/L	5.0	06/20/17 23:56	
EPA 8260	trans-1,2-Dichloroethene	3.4J	ug/L	5.0	06/20/17 23:56	
EPA 8260	Toluene	2.7J	ug/L	5.0	06/20/17 23:56	
EPA 8260	Vinyl chloride	710	ug/L	5.0	06/20/17 23:56	
EPA 300.0	Chloride	684	mg/L	40.0	06/26/17 13:00	
EPA 310.2	Alkalinity, Total as CaCO3	419J	mg/L	587	06/23/17 09:51	D3
SM 5310C	Total Organic Carbon	368	mg/L	168	06/20/17 11:10	
40151851003	ERD6-TW-NW10-TOS					
EPA 8015B Modified	Ethane	14.8	ug/L	5.6	06/19/17 11:50	
EPA 8015B Modified	Ethene	57.0	ug/L	5.0	06/19/17 11:50	
EPA 8015B Modified	Methane	1290	ug/L	28.0	06/19/17 13:57	
EPA 6020	Barium	158	ug/L	1.1	06/23/17 16:23	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP

Pace Project No.: 40151851

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40151851003	ERD6-TW-NW10-TOS					
EPA 6020	Chromium	3.4J	ug/L	3.4	06/23/17 16:23	
EPA 6020	Iron	21100	ug/L	368	06/23/17 16:23	
EPA 6020	Nickel	2.5	ug/L	1.3	06/23/17 16:23	
EPA 8260	Benzene	5.2	ug/L	2.0	06/21/17 00:19	
EPA 8260	n-Butylbenzene	1.2J	ug/L	2.0	06/21/17 00:19	
EPA 8260	Chloroethane	38.7	ug/L	2.0	06/21/17 00:19	
EPA 8260	cis-1,2-Dichloroethene	150	ug/L	2.0	06/21/17 00:19	
EPA 8260	Isopropylbenzene (Cumene)	0.62J	ug/L	2.0	06/21/17 00:19	
EPA 8260	Toluene	2.9	ug/L	2.0	06/21/17 00:19	
EPA 8260	Trichloroethene	0.97J	ug/L	2.0	06/21/17 00:19	
EPA 8260	Vinyl chloride	133	ug/L	2.0	06/21/17 00:19	
EPA 300.0	Chloride	278	mg/L	10.0	06/23/17 15:58	
EPA 310.2	Alkalinity, Total as CaCO3	776	mg/L	587	06/23/17 09:52	
SM 5310C	Total Organic Carbon	606	mg/L	168	06/20/17 11:29	
40151851004	ERD6-TW-NW15-BOS					
EPA 8015B Modified	Ethane	33.7	ug/L	5.6	06/19/17 11:57	
EPA 8015B Modified	Ethene	240	ug/L	5.0	06/19/17 11:57	
EPA 8015B Modified	Methane	2270	ug/L	28.0	06/19/17 14:04	
EPA 6010	Iron, Dissolved	6770	ug/L	100	06/22/17 14:23	P4
EPA 6020	Barium	482	ug/L	1.1	06/23/17 16:30	
EPA 6020	Iron	34100	ug/L	368	06/23/17 16:30	
EPA 6020	Nickel	0.44J	ug/L	1.3	06/23/17 16:30	
EPA 8260	Chloroethane	82.8	ug/L	20.0	06/21/17 00:41	
EPA 8260	cis-1,2-Dichloroethene	798	ug/L	20.0	06/21/17 00:41	
EPA 8260	Vinyl chloride	995	ug/L	20.0	06/21/17 00:41	
EPA 300.0	Chloride	795	mg/L	40.0	06/26/17 13:11	
EPA 310.2	Alkalinity, Total as CaCO3	405J	mg/L	587	06/23/17 09:53	D3
SM 5310C	Total Organic Carbon	887	mg/L	252	06/20/17 11:57	
40151851005	CS8-MW-807					
EPA 6010	Iron, Dissolved	24.5J	ug/L	100	06/22/17 14:26	P4
EPA 6020	Barium	48.1	ug/L	1.1	06/23/17 16:37	
EPA 6020	Chromium	15.8	ug/L	3.4	06/23/17 16:37	
EPA 6020	Iron	9680	ug/L	368	06/23/17 16:37	
EPA 6020	Lead	5.6	ug/L	1.0	06/23/17 16:37	
EPA 6020	Nickel	9.9	ug/L	1.3	06/23/17 16:37	
EPA 8260	Trichloroethene	0.64J	ug/L	1.0	06/20/17 22:25	
EPA 300.0	Chloride	35.0	mg/L	10.0	06/23/17 16:20	
EPA 300.0	Sulfate	33.9	mg/L	15.0	06/23/17 16:20	
SM 5310C	Total Organic Carbon	1.0	mg/L	0.84	06/20/17 12:35	
40151851006	CS4-PZ-75					
EPA 8015B Modified	Ethane	15.5	ug/L	5.6	06/19/17 12:11	
EPA 8015B Modified	Ethene	2.4J	ug/L	5.0	06/19/17 12:11	
EPA 8015B Modified	Methane	436	ug/L	7.0	06/19/17 14:11	
EPA 6020	Barium	249	ug/L	1.1	06/23/17 16:44	
EPA 6020	Iron	3020	ug/L	368	06/23/17 16:44	
EPA 6020	Lead	0.23J	ug/L	1.0	06/23/17 16:44	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP

Pace Project No.: 40151851

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40151851006	CS4-PZ-75					
EPA 6020	Nickel	2.5	ug/L	1.3	06/23/17 16:44	
EPA 8260	Vinyl chloride	18.6	ug/L	1.0	06/20/17 22:48	
EPA 300.0	Chloride	539	mg/L	20.0	06/23/17 16:30	
EPA 300.0	Sulfate	102	mg/L	30.0	06/23/17 16:30	
EPA 310.2	Alkalinity, Total as CaCO3	399	mg/L	117	06/23/17 09:54	
SM 5310C	Total Organic Carbon	1.1J	mg/L	2.5	06/21/17 09:12	D3
40151851007	ERD1-TW-NW10-TOS					
EPA 8015B Modified	Ethane	63.0	ug/L	5.6	06/19/17 12:18	
EPA 8015B Modified	Ethene	4.0J	ug/L	5.0	06/19/17 12:18	
EPA 8015B Modified	Methane	1770	ug/L	28.0	06/19/17 14:18	
EPA 6010	Iron, Dissolved	4580	ug/L	100	06/22/17 14:31	
EPA 6020	Barium	339	ug/L	1.1	06/23/17 15:22	
EPA 6020	Iron	4500	ug/L	368	06/23/17 15:22	
EPA 6020	Lead	0.22J	ug/L	1.0	06/23/17 15:22	
EPA 6020	Nickel	0.42J	ug/L	1.3	06/23/17 15:22	
EPA 8260	Chloroethane	119	ug/L	4.0	06/21/17 01:04	
EPA 8260	cis-1,2-Dichloroethene	329	ug/L	4.0	06/21/17 01:04	
EPA 8260	trans-1,2-Dichloroethene	4.2	ug/L	4.0	06/21/17 01:04	
EPA 8260	Trichloroethene	13.0	ug/L	4.0	06/21/17 01:04	
EPA 8260	Vinyl chloride	24.0	ug/L	4.0	06/21/17 01:04	
EPA 300.0	Chloride	741	mg/L	40.0	06/26/17 17:33	
EPA 300.0	Sulfate	9.5	mg/L	3.0	06/23/17 17:14	
EPA 310.2	Alkalinity, Total as CaCO3	511	mg/L	117	06/23/17 09:54	
SM 5310C	Total Organic Carbon	9.5	mg/L	8.4	06/20/17 13:12	
40151851008	CS8-PZ-61					
EPA 8015B Modified	Ethane	8.3	ug/L	5.6	06/19/17 12:25	
EPA 8015B Modified	Ethene	27.1	ug/L	5.0	06/19/17 12:25	
EPA 8015B Modified	Methane	279	ug/L	2.8	06/19/17 12:25	
EPA 6010	Iron, Dissolved	296000	ug/L	100	06/22/17 14:33	
EPA 6020	Barium	549	ug/L	5.7	06/23/17 16:51	
EPA 6020	Chromium	11.6J	ug/L	17.0	06/23/17 16:51	D3
EPA 6020	Iron	312000	ug/L	1840	06/23/17 16:51	
EPA 6020	Lead	0.98J	ug/L	5.0	06/23/17 16:51	D3
EPA 6020	Nickel	7.0	ug/L	6.7	06/23/17 16:51	
EPA 8260	cis-1,2-Dichloroethene	5290	ug/L	50.0	06/21/17 01:26	
EPA 8260	trans-1,2-Dichloroethene	78.0	ug/L	50.0	06/21/17 01:26	
EPA 8260	Toluene	32.5J	ug/L	50.0	06/21/17 01:26	
EPA 8260	Trichloroethene	251	ug/L	50.0	06/21/17 01:26	
EPA 8260	Vinyl chloride	272	ug/L	50.0	06/21/17 01:26	
SM 2320B	Alkalinity, Total as CaCO3	1660	mg/L	10.0	06/23/17 13:18	
EPA 300.0	Chloride	1750	mg/L	200	06/23/17 17:25	
SM 5310C	Total Organic Carbon	4840	mg/L	2520	06/20/17 13:31	
40151851009	ERD1-TW-NW10-BOS					
EPA 8015B Modified	Ethane	64.5	ug/L	5.6	06/19/17 12:32	
EPA 8015B Modified	Ethene	13.5	ug/L	5.0	06/19/17 12:32	
EPA 8015B Modified	Methane	1790	ug/L	28.0	06/19/17 14:25	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP

Pace Project No.: 40151851

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40151851009	ERD1-TW-NW10-BOS					
EPA 6010	Iron, Dissolved	5800	ug/L	100	06/22/17 14:40	
EPA 6020	Barium	523	ug/L	1.1	06/23/17 16:58	
EPA 6020	Iron	5650	ug/L	368	06/23/17 16:58	
EPA 8260	Chloroethane	97.9	ug/L	5.0	06/22/17 14:28	
EPA 8260	cis-1,2-Dichloroethene	628	ug/L	5.0	06/22/17 14:28	
EPA 8260	trans-1,2-Dichloroethene	11.4	ug/L	5.0	06/22/17 14:28	
EPA 8260	Trichloroethene	84.9	ug/L	5.0	06/22/17 14:28	
EPA 8260	Vinyl chloride	46.3	ug/L	5.0	06/22/17 14:28	
EPA 300.0	Chloride	944	mg/L	100	06/26/17 13:32	
EPA 300.0	Sulfate	13.7J	mg/L	15.0	06/23/17 17:35	D3
EPA 310.2	Alkalinity, Total as CaCO3	504	mg/L	117	06/23/17 09:55	
SM 5310C	Total Organic Carbon	10.1	mg/L	8.4	06/20/17 13:50	
40151851010	CS8-MW-61					
EPA 8015B Modified	Ethane	30.9	ug/L	5.6	06/19/17 12:39	
EPA 8015B Modified	Ethene	244	ug/L	5.0	06/19/17 12:39	
EPA 8015B Modified	Methane	2720	ug/L	56.0	06/19/17 14:32	
EPA 6010	Iron, Dissolved	2990	ug/L	100	06/22/17 14:43	
EPA 6020	Barium	297	ug/L	1.1	06/23/17 17:04	
EPA 6020	Iron	3010	ug/L	368	06/23/17 17:04	
EPA 8260	Benzene	16.0J	ug/L	25.0	06/21/17 02:12	
EPA 8260	cis-1,2-Dichloroethene	1420	ug/L	25.0	06/21/17 02:12	
EPA 8260	trans-1,2-Dichloroethene	42.6	ug/L	25.0	06/21/17 02:12	
EPA 8260	Trichloroethene	61.4	ug/L	25.0	06/21/17 02:12	
EPA 8260	Vinyl chloride	760	ug/L	25.0	06/21/17 02:12	
EPA 300.0	Chloride	431	mg/L	40.0	06/26/17 13:43	
EPA 300.0	Sulfate	5.7J	mg/L	15.0	06/23/17 17:46	D3
EPA 310.2	Alkalinity, Total as CaCO3	397	mg/L	235	06/23/17 09:58	
SM 5310C	Total Organic Carbon	1.9J	mg/L	2.5	06/21/17 09:31	D3
40151851011	CS8-MW-61-DUP					
EPA 6010	Iron, Dissolved	2930	ug/L	100	06/22/17 14:45	
EPA 6020	Barium	298	ug/L	1.1	06/23/17 17:25	
EPA 6020	Iron	3100	ug/L	368	06/23/17 17:25	
EPA 8260	Benzene	19.1J	ug/L	25.0	06/20/17 23:11	
EPA 8260	cis-1,2-Dichloroethene	1280	ug/L	25.0	06/20/17 23:11	
EPA 8260	trans-1,2-Dichloroethene	44.7	ug/L	25.0	06/20/17 23:11	
EPA 8260	Trichloroethene	68.6	ug/L	25.0	06/20/17 23:11	
EPA 8260	Vinyl chloride	752	ug/L	25.0	06/20/17 23:11	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW10-BOS **Lab ID:** 40151851001 Collected: 06/14/17 10:04 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	21.0	ug/L	5.6	0.58	1		06/19/17 11:11	74-84-0	
Ethene	104	ug/L	5.0	0.52	1		06/19/17 11:11	74-85-1	
Methane	771	ug/L	28.0	13.7	10		06/19/17 13:43	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	43900	ug/L	100	15.5	1		06/22/17 14:16	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	196	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:03	7440-39-3	
Chromium	3.3J	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:03	7440-47-3	
Iron	55800	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:03	7439-89-6	
Lead	0.38J	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:03	7439-92-1	
Nickel	2.2	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:03	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.3	ug/L	2.0	1.0	2		06/22/17 03:17	71-43-2	
Bromobenzene	<0.46	ug/L	2.0	0.46	2		06/22/17 03:17	108-86-1	
Bromochloromethane	<0.68	ug/L	2.0	0.68	2		06/22/17 03:17	74-97-5	
Bromodichloromethane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	75-27-4	
Bromoform	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	75-25-2	
Bromomethane	<4.9	ug/L	10.0	4.9	2		06/22/17 03:17	74-83-9	
n-Butylbenzene	3.0	ug/L	2.0	1.0	2		06/22/17 03:17	104-51-8	
sec-Butylbenzene	<4.4	ug/L	10.0	4.4	2		06/22/17 03:17	135-98-8	
tert-Butylbenzene	<0.36	ug/L	2.0	0.36	2		06/22/17 03:17	98-06-6	
Carbon tetrachloride	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	56-23-5	
Chlorobenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	108-90-7	
Chloroethane	8.5	ug/L	2.0	0.75	2		06/22/17 03:17	75-00-3	
Chloroform	<5.0	ug/L	10.0	5.0	2		06/22/17 03:17	67-66-3	
Chloromethane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	74-87-3	
2-Chlorotoluene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	95-49-8	
4-Chlorotoluene	<0.43	ug/L	2.0	0.43	2		06/22/17 03:17	106-43-4	
1,2-Dibromo-3-chloropropane	<4.3	ug/L	10.0	4.3	2		06/22/17 03:17	96-12-8	
Dibromochloromethane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	124-48-1	
1,2-Dibromoethane (EDB)	<0.36	ug/L	2.0	0.36	2		06/22/17 03:17	106-93-4	
Dibromomethane	<0.85	ug/L	2.0	0.85	2		06/22/17 03:17	74-95-3	
1,2-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	95-50-1	
1,3-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	541-73-1	
1,4-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	106-46-7	
Dichlorodifluoromethane	<0.45	ug/L	2.0	0.45	2		06/22/17 03:17	75-71-8	
1,1-Dichloroethane	<0.48	ug/L	2.0	0.48	2		06/22/17 03:17	75-34-3	
1,2-Dichloroethane	<0.34	ug/L	2.0	0.34	2		06/22/17 03:17	107-06-2	
1,1-Dichloroethene	1.7J	ug/L	2.0	0.82	2		06/22/17 03:17	75-35-4	
cis-1,2-Dichloroethene	475	ug/L	2.0	0.51	2		06/22/17 03:17	156-59-2	
trans-1,2-Dichloroethene	2.9	ug/L	2.0	0.51	2		06/22/17 03:17	156-60-5	
1,2-Dichloropropane	<0.47	ug/L	2.0	0.47	2		06/22/17 03:17	78-87-5	
1,3-Dichloropropane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW10-BOS Lab ID: 40151851001 Collected: 06/14/17 10:04 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.97	ug/L	2.0	0.97	2		06/22/17 03:17	594-20-7	
1,1-Dichloropropene	<0.88	ug/L	2.0	0.88	2		06/22/17 03:17	563-58-6	
cis-1,3-Dichloropropene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	10061-01-5	
trans-1,3-Dichloropropene	<0.46	ug/L	2.0	0.46	2		06/22/17 03:17	10061-02-6	
Diisopropyl ether	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	108-20-3	
Ethylbenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	100-41-4	
Hexachloro-1,3-butadiene	<4.2	ug/L	10.0	4.2	2		06/22/17 03:17	87-68-3	
Isopropylbenzene (Cumene)	0.76J	ug/L	2.0	0.29	2		06/22/17 03:17	98-82-8	
p-Isopropyltoluene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	99-87-6	
Methylene Chloride	<0.47	ug/L	2.0	0.47	2		06/22/17 03:17	75-09-2	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		06/22/17 03:17	1634-04-4	
Naphthalene	<5.0	ug/L	10.0	5.0	2		06/22/17 03:17	91-20-3	
n-Propylbenzene	1.0J	ug/L	2.0	1.0	2		06/22/17 03:17	103-65-1	
Styrene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	100-42-5	
1,1,1,2-Tetrachloroethane	<0.36	ug/L	2.0	0.36	2		06/22/17 03:17	630-20-6	
1,1,2,2-Tetrachloroethane	<0.50	ug/L	2.0	0.50	2		06/22/17 03:17	79-34-5	
Tetrachloroethene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	127-18-4	
Toluene	4.8	ug/L	2.0	1.0	2		06/22/17 03:17	108-88-3	
1,2,3-Trichlorobenzene	<4.3	ug/L	10.0	4.3	2		06/22/17 03:17	87-61-6	
1,2,4-Trichlorobenzene	<4.4	ug/L	10.0	4.4	2		06/22/17 03:17	120-82-1	
1,1,1-Trichloroethane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	71-55-6	
1,1,2-Trichloroethane	<0.39	ug/L	2.0	0.39	2		06/22/17 03:17	79-00-5	
Trichloroethene	1.4J	ug/L	2.0	0.66	2		06/22/17 03:17	79-01-6	
Trichlorofluoromethane	<0.37	ug/L	2.0	0.37	2		06/22/17 03:17	75-69-4	
1,2,3-Trichloropropane	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	96-18-4	
1,2,4-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	95-63-6	
1,3,5-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	108-67-8	
Vinyl chloride	189	ug/L	2.0	0.35	2		06/22/17 03:17	75-01-4	
m&p-Xylene	3.6J	ug/L	4.0	2.0	2		06/22/17 03:17	179601-23-1	
o-Xylene	<1.0	ug/L	2.0	1.0	2		06/22/17 03:17	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	61-130		2		06/22/17 03:17	460-00-4	
Dibromofluoromethane (S)	98	%	67-130		2		06/22/17 03:17	1868-53-7	
Toluene-d8 (S)	102	%	70-130		2		06/22/17 03:17	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	379	mg/L	40.0	10.0	20		06/26/17 12:27	16887-00-6	
Sulfate	<5.0	mg/L	15.0	5.0	5		06/23/17 15:15	14808-79-8	D3,M0
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	548J	mg/L	587	176	25		06/23/17 09:51		D3
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1430	mg/L	504	151	600		06/20/17 10:14	7440-44-0	M0

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW15-TOS **Lab ID:** 40151851002 Collected: 06/14/17 10:15 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	22.0	ug/L	5.6	0.58	1		06/19/17 11:43	74-84-0	
Ethene	136	ug/L	5.0	0.52	1		06/19/17 11:43	74-85-1	
Methane	1720	ug/L	28.0	13.7	10		06/19/17 13:50	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	1090	ug/L	100	15.5	1		06/22/17 14:18	7439-89-6	P4
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	378	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:17	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:17	7440-47-3	
Iron	25400	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:17	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:17	7439-92-1	
Nickel	0.50J	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:17	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	6.8	ug/L	5.0	2.5	5		06/20/17 23:56	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		06/20/17 23:56	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		06/20/17 23:56	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		06/20/17 23:56	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		06/20/17 23:56	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		06/20/17 23:56	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	108-90-7	
Chloroethane	62.6	ug/L	5.0	1.9	5		06/20/17 23:56	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		06/20/17 23:56	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		06/20/17 23:56	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		06/20/17 23:56	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		06/20/17 23:56	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		06/20/17 23:56	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		06/20/17 23:56	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		06/20/17 23:56	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		06/20/17 23:56	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		06/20/17 23:56	75-35-4	
cis-1,2-Dichloroethene	472	ug/L	5.0	1.3	5		06/20/17 23:56	156-59-2	
trans-1,2-Dichloroethene	3.4J	ug/L	5.0	1.3	5		06/20/17 23:56	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		06/20/17 23:56	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW15-TOS Lab ID: 40151851002 Collected: 06/14/17 10:15 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		06/20/17 23:56	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		06/20/17 23:56	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		06/20/17 23:56	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	108-20-3	
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		06/20/17 23:56	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		06/20/17 23:56	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		06/20/17 23:56	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		06/20/17 23:56	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		06/20/17 23:56	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		06/20/17 23:56	630-20-6	
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		06/20/17 23:56	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	127-18-4	
Toluene	2.7J	ug/L	5.0	2.5	5		06/20/17 23:56	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		06/20/17 23:56	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		06/20/17 23:56	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		06/20/17 23:56	79-00-5	
Trichloroethene	<1.7	ug/L	5.0	1.7	5		06/20/17 23:56	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		06/20/17 23:56	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	108-67-8	
Vinyl chloride	710	ug/L	5.0	0.88	5		06/20/17 23:56	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		06/20/17 23:56	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		06/20/17 23:56	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	61-130		5		06/20/17 23:56	460-00-4	
Dibromofluoromethane (S)	99	%	67-130		5		06/20/17 23:56	1868-53-7	
Toluene-d8 (S)	100	%	70-130		5		06/20/17 23:56	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	684	mg/L	40.0	10.0	20		06/26/17 13:00	16887-00-6	
Sulfate	<5.0	mg/L	15.0	5.0	5		06/23/17 15:47	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	419J	mg/L	587	176	25		06/23/17 09:51		D3
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	368	mg/L	168	50.4	200		06/20/17 11:10	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW10-TOS **Lab ID:** 40151851003 Collected: 06/14/17 11:07 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	14.8	ug/L	5.6	0.58	1		06/19/17 11:50	74-84-0	
Ethene	57.0	ug/L	5.0	0.52	1		06/19/17 11:50	74-85-1	
Methane	1290	ug/L	28.0	13.7	10		06/19/17 13:57	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	<15.5	ug/L	100	15.5	1		06/22/17 14:21	7439-89-6	P4
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	158	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:23	7440-39-3	
Chromium	3.4J	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:23	7440-47-3	
Iron	21100	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:23	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:23	7439-92-1	
Nickel	2.5	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:23	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.2	ug/L	2.0	1.0	2		06/21/17 00:19	71-43-2	
Bromobenzene	<0.46	ug/L	2.0	0.46	2		06/21/17 00:19	108-86-1	
Bromochloromethane	<0.68	ug/L	2.0	0.68	2		06/21/17 00:19	74-97-5	
Bromodichloromethane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	75-27-4	
Bromoform	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	75-25-2	
Bromomethane	<4.9	ug/L	10.0	4.9	2		06/21/17 00:19	74-83-9	
n-Butylbenzene	1.2J	ug/L	2.0	1.0	2		06/21/17 00:19	104-51-8	
sec-Butylbenzene	<4.4	ug/L	10.0	4.4	2		06/21/17 00:19	135-98-8	
tert-Butylbenzene	<0.36	ug/L	2.0	0.36	2		06/21/17 00:19	98-06-6	
Carbon tetrachloride	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	56-23-5	
Chlorobenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	108-90-7	
Chloroethane	38.7	ug/L	2.0	0.75	2		06/21/17 00:19	75-00-3	
Chloroform	<5.0	ug/L	10.0	5.0	2		06/21/17 00:19	67-66-3	
Chloromethane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	74-87-3	
2-Chlorotoluene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	95-49-8	
4-Chlorotoluene	<0.43	ug/L	2.0	0.43	2		06/21/17 00:19	106-43-4	
1,2-Dibromo-3-chloropropane	<4.3	ug/L	10.0	4.3	2		06/21/17 00:19	96-12-8	
Dibromochloromethane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	124-48-1	
1,2-Dibromoethane (EDB)	<0.36	ug/L	2.0	0.36	2		06/21/17 00:19	106-93-4	
Dibromomethane	<0.85	ug/L	2.0	0.85	2		06/21/17 00:19	74-95-3	
1,2-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	95-50-1	
1,3-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	541-73-1	
1,4-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	106-46-7	
Dichlorodifluoromethane	<0.45	ug/L	2.0	0.45	2		06/21/17 00:19	75-71-8	
1,1-Dichloroethane	<0.48	ug/L	2.0	0.48	2		06/21/17 00:19	75-34-3	
1,2-Dichloroethane	<0.34	ug/L	2.0	0.34	2		06/21/17 00:19	107-06-2	
1,1-Dichloroethene	<0.82	ug/L	2.0	0.82	2		06/21/17 00:19	75-35-4	
cis-1,2-Dichloroethene	150	ug/L	2.0	0.51	2		06/21/17 00:19	156-59-2	
trans-1,2-Dichloroethene	<0.51	ug/L	2.0	0.51	2		06/21/17 00:19	156-60-5	
1,2-Dichloropropane	<0.47	ug/L	2.0	0.47	2		06/21/17 00:19	78-87-5	
1,3-Dichloropropane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW10-TOS **Lab ID:** 40151851003 Collected: 06/14/17 11:07 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.97	ug/L	2.0	0.97	2		06/21/17 00:19	594-20-7	
1,1-Dichloropropene	<0.88	ug/L	2.0	0.88	2		06/21/17 00:19	563-58-6	
cis-1,3-Dichloropropene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	10061-01-5	
trans-1,3-Dichloropropene	<0.46	ug/L	2.0	0.46	2		06/21/17 00:19	10061-02-6	
Diisopropyl ether	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	108-20-3	
Ethylbenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	100-41-4	
Hexachloro-1,3-butadiene	<4.2	ug/L	10.0	4.2	2		06/21/17 00:19	87-68-3	
Isopropylbenzene (Cumene)	0.62J	ug/L	2.0	0.29	2		06/21/17 00:19	98-82-8	
p-Isopropyltoluene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	99-87-6	
Methylene Chloride	<0.47	ug/L	2.0	0.47	2		06/21/17 00:19	75-09-2	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		06/21/17 00:19	1634-04-4	
Naphthalene	<5.0	ug/L	10.0	5.0	2		06/21/17 00:19	91-20-3	
n-Propylbenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	103-65-1	
Styrene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	100-42-5	
1,1,1,2-Tetrachloroethane	<0.36	ug/L	2.0	0.36	2		06/21/17 00:19	630-20-6	
1,1,2,2-Tetrachloroethane	<0.50	ug/L	2.0	0.50	2		06/21/17 00:19	79-34-5	
Tetrachloroethene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	127-18-4	
Toluene	2.9	ug/L	2.0	1.0	2		06/21/17 00:19	108-88-3	
1,2,3-Trichlorobenzene	<4.3	ug/L	10.0	4.3	2		06/21/17 00:19	87-61-6	
1,2,4-Trichlorobenzene	<4.4	ug/L	10.0	4.4	2		06/21/17 00:19	120-82-1	
1,1,1-Trichloroethane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	71-55-6	
1,1,2-Trichloroethane	<0.39	ug/L	2.0	0.39	2		06/21/17 00:19	79-00-5	
Trichloroethene	0.97J	ug/L	2.0	0.66	2		06/21/17 00:19	79-01-6	
Trichlorofluoromethane	<0.37	ug/L	2.0	0.37	2		06/21/17 00:19	75-69-4	
1,2,3-Trichloropropane	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	96-18-4	
1,2,4-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	95-63-6	
1,3,5-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	108-67-8	
Vinyl chloride	133	ug/L	2.0	0.35	2		06/21/17 00:19	75-01-4	
m&p-Xylene	<2.0	ug/L	4.0	2.0	2		06/21/17 00:19	179601-23-1	
o-Xylene	<1.0	ug/L	2.0	1.0	2		06/21/17 00:19	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		2		06/21/17 00:19	460-00-4	
Dibromofluoromethane (S)	96	%	67-130		2		06/21/17 00:19	1868-53-7	
Toluene-d8 (S)	96	%	70-130		2		06/21/17 00:19	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	278	mg/L	10.0	2.5	5		06/23/17 15:58	16887-00-6	
Sulfate	<5.0	mg/L	15.0	5.0	5		06/23/17 15:58	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	776	mg/L	587	176	25		06/23/17 09:52		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	606	mg/L	168	50.4	200		06/20/17 11:29	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW15-BOS **Lab ID:** 40151851004 Collected: 06/14/17 11:24 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	33.7	ug/L	5.6	0.58	1		06/19/17 11:57	74-84-0	
Ethene	240	ug/L	5.0	0.52	1		06/19/17 11:57	74-85-1	
Methane	2270	ug/L	28.0	13.7	10		06/19/17 14:04	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	6770	ug/L	100	15.5	1		06/22/17 14:23	7439-89-6	P4
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	482	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:30	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:30	7440-47-3	
Iron	34100	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:30	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:30	7439-92-1	
Nickel	0.44J	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:30	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	71-43-2	
Bromobenzene	<4.6	ug/L	20.0	4.6	20		06/21/17 00:41	108-86-1	
Bromochloromethane	<6.8	ug/L	20.0	6.8	20		06/21/17 00:41	74-97-5	
Bromodichloromethane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	75-27-4	
Bromoform	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	75-25-2	
Bromomethane	<48.7	ug/L	100	48.7	20		06/21/17 00:41	74-83-9	
n-Butylbenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	104-51-8	
sec-Butylbenzene	<43.7	ug/L	100	43.7	20		06/21/17 00:41	135-98-8	
tert-Butylbenzene	<3.6	ug/L	20.0	3.6	20		06/21/17 00:41	98-06-6	
Carbon tetrachloride	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	56-23-5	
Chlorobenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	108-90-7	
Chloroethane	82.8	ug/L	20.0	7.5	20		06/21/17 00:41	75-00-3	
Chloroform	<50.0	ug/L	100	50.0	20		06/21/17 00:41	67-66-3	
Chloromethane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	74-87-3	
2-Chlorotoluene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	95-49-8	
4-Chlorotoluene	<4.3	ug/L	20.0	4.3	20		06/21/17 00:41	106-43-4	
1,2-Dibromo-3-chloropropane	<43.3	ug/L	100	43.3	20		06/21/17 00:41	96-12-8	
Dibromochloromethane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	124-48-1	
1,2-Dibromoethane (EDB)	<3.6	ug/L	20.0	3.6	20		06/21/17 00:41	106-93-4	
Dibromomethane	<8.5	ug/L	20.0	8.5	20		06/21/17 00:41	74-95-3	
1,2-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	95-50-1	
1,3-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	541-73-1	
1,4-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	106-46-7	
Dichlorodifluoromethane	<4.5	ug/L	20.0	4.5	20		06/21/17 00:41	75-71-8	
1,1-Dichloroethane	<4.8	ug/L	20.0	4.8	20		06/21/17 00:41	75-34-3	
1,2-Dichloroethane	<3.4	ug/L	20.0	3.4	20		06/21/17 00:41	107-06-2	
1,1-Dichloroethene	<8.2	ug/L	20.0	8.2	20		06/21/17 00:41	75-35-4	
cis-1,2-Dichloroethene	798	ug/L	20.0	5.1	20		06/21/17 00:41	156-59-2	
trans-1,2-Dichloroethene	<5.1	ug/L	20.0	5.1	20		06/21/17 00:41	156-60-5	
1,2-Dichloropropane	<4.7	ug/L	20.0	4.7	20		06/21/17 00:41	78-87-5	
1,3-Dichloropropane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD6-TW-NW15-BOS **Lab ID: 40151851004** Collected: 06/14/17 11:24 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<9.7	ug/L	20.0	9.7	20		06/21/17 00:41	594-20-7	
1,1-Dichloropropene	<8.8	ug/L	20.0	8.8	20		06/21/17 00:41	563-58-6	
cis-1,3-Dichloropropene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	10061-01-5	
trans-1,3-Dichloropropene	<4.6	ug/L	20.0	4.6	20		06/21/17 00:41	10061-02-6	
Diisopropyl ether	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	108-20-3	
Ethylbenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	100-41-4	
Hexachloro-1,3-butadiene	<42.1	ug/L	100	42.1	20		06/21/17 00:41	87-68-3	
Isopropylbenzene (Cumene)	<2.9	ug/L	20.0	2.9	20		06/21/17 00:41	98-82-8	
p-Isopropyltoluene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	99-87-6	
Methylene Chloride	<4.7	ug/L	20.0	4.7	20		06/21/17 00:41	75-09-2	
Methyl-tert-butyl ether	<3.5	ug/L	20.0	3.5	20		06/21/17 00:41	1634-04-4	
Naphthalene	<50.0	ug/L	100	50.0	20		06/21/17 00:41	91-20-3	
n-Propylbenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	103-65-1	
Styrene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	100-42-5	
1,1,1,2-Tetrachloroethane	<3.6	ug/L	20.0	3.6	20		06/21/17 00:41	630-20-6	
1,1,2,2-Tetrachloroethane	<5.0	ug/L	20.0	5.0	20		06/21/17 00:41	79-34-5	
Tetrachloroethene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	127-18-4	
Toluene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	108-88-3	
1,2,3-Trichlorobenzene	<42.7	ug/L	100	42.7	20		06/21/17 00:41	87-61-6	
1,2,4-Trichlorobenzene	<44.2	ug/L	100	44.2	20		06/21/17 00:41	120-82-1	
1,1,1-Trichloroethane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	71-55-6	
1,1,2-Trichloroethane	<3.9	ug/L	20.0	3.9	20		06/21/17 00:41	79-00-5	
Trichloroethene	<6.6	ug/L	20.0	6.6	20		06/21/17 00:41	79-01-6	
Trichlorofluoromethane	<3.7	ug/L	20.0	3.7	20		06/21/17 00:41	75-69-4	
1,2,3-Trichloropropane	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	96-18-4	
1,2,4-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	95-63-6	
1,3,5-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	108-67-8	
Vinyl chloride	995	ug/L	20.0	3.5	20		06/21/17 00:41	75-01-4	
m&p-Xylene	<20.0	ug/L	40.0	20.0	20		06/21/17 00:41	179601-23-1	
o-Xylene	<10.0	ug/L	20.0	10.0	20		06/21/17 00:41	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		20		06/21/17 00:41	460-00-4	
Dibromofluoromethane (S)	98	%	67-130		20		06/21/17 00:41	1868-53-7	
Toluene-d8 (S)	95	%	70-130		20		06/21/17 00:41	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	795	mg/L	40.0	10.0	20		06/26/17 13:11	16887-00-6	
Sulfate	<5.0	mg/L	15.0	5.0	5		06/23/17 16:09	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	405J	mg/L	587	176	25		06/23/17 09:53		D3
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	887	mg/L	252	75.6	300		06/20/17 11:57	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-807 **Lab ID: 40151851005** Collected: 06/14/17 13:21 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	<0.58	ug/L	5.6	0.58	1		06/19/17 12:04	74-84-0	
Ethene	<0.52	ug/L	5.0	0.52	1		06/19/17 12:04	74-85-1	
Methane	<1.4	ug/L	2.8	1.4	1		06/19/17 12:04	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	24.5J	ug/L	100	15.5	1		06/22/17 14:26	7439-89-6	P4
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	48.1	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:37	7440-39-3	
Chromium	15.8	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:37	7440-47-3	
Iron	9680	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:37	7439-89-6	
Lead	5.6	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:37	7439-92-1	
Nickel	9.9	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:37	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		06/20/17 22:25	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		06/20/17 22:25	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		06/20/17 22:25	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 22:25	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		06/20/17 22:25	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		06/20/17 22:25	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		06/20/17 22:25	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		06/20/17 22:25	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		06/20/17 22:25	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		06/20/17 22:25	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		06/20/17 22:25	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		06/20/17 22:25	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		06/20/17 22:25	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		06/20/17 22:25	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		06/20/17 22:25	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 22:25	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 22:25	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		06/20/17 22:25	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-807 **Lab ID: 40151851005** Collected: 06/14/17 13:21 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		06/20/17 22:25	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		06/20/17 22:25	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		06/20/17 22:25	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		06/20/17 22:25	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		06/20/17 22:25	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		06/20/17 22:25	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/20/17 22:25	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/20/17 22:25	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		06/20/17 22:25	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		06/20/17 22:25	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		06/20/17 22:25	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 22:25	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		06/20/17 22:25	79-00-5	
Trichloroethene	0.64J	ug/L	1.0	0.33	1		06/20/17 22:25	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		06/20/17 22:25	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		06/20/17 22:25	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/20/17 22:25	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:25	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		1		06/20/17 22:25	460-00-4	
Dibromofluoromethane (S)	99	%	67-130		1		06/20/17 22:25	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		06/20/17 22:25	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	35.0	mg/L	10.0	2.5	5		06/23/17 16:20	16887-00-6	
Sulfate	33.9	mg/L	15.0	5.0	5		06/23/17 16:20	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	<176	mg/L	587	176	25		06/23/17 09:53		D3
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.0	mg/L	0.84	0.25	1		06/20/17 12:35	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS4-PZ-75 **Lab ID: 40151851006** Collected: 06/14/17 13:28 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	15.5	ug/L	5.6	0.58	1		06/19/17 12:11	74-84-0	
Ethene	2.4J	ug/L	5.0	0.52	1		06/19/17 12:11	74-85-1	
Methane	436	ug/L	7.0	3.4	2.5		06/19/17 14:11	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	<15.5	ug/L	100	15.5	1		06/22/17 14:28	7439-89-6	P4
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	249	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:44	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:44	7440-47-3	
Iron	3020	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:44	7439-89-6	
Lead	0.23J	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:44	7439-92-1	
Nickel	2.5	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:44	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		06/20/17 22:48	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		06/20/17 22:48	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		06/20/17 22:48	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 22:48	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		06/20/17 22:48	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		06/20/17 22:48	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		06/20/17 22:48	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		06/20/17 22:48	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		06/20/17 22:48	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		06/20/17 22:48	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		06/20/17 22:48	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		06/20/17 22:48	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		06/20/17 22:48	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		06/20/17 22:48	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		06/20/17 22:48	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 22:48	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 22:48	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		06/20/17 22:48	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP
Pace Project No.: 40151851

Sample: CS4-PZ-75 **Lab ID: 40151851006** Collected: 06/14/17 13:28 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		06/20/17 22:48	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		06/20/17 22:48	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		06/20/17 22:48	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		06/20/17 22:48	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		06/20/17 22:48	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		06/20/17 22:48	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/20/17 22:48	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/20/17 22:48	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		06/20/17 22:48	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		06/20/17 22:48	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		06/20/17 22:48	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 22:48	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		06/20/17 22:48	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		06/20/17 22:48	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		06/20/17 22:48	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	108-67-8	
Vinyl chloride	18.6	ug/L	1.0	0.18	1		06/20/17 22:48	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/20/17 22:48	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/20/17 22:48	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	91	%	61-130		1		06/20/17 22:48	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		1		06/20/17 22:48	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		06/20/17 22:48	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	539	mg/L	20.0	5.0	10		06/23/17 16:30	16887-00-6	
Sulfate	102	mg/L	30.0	10.0	10		06/23/17 16:30	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	399	mg/L	117	35.2	5		06/23/17 09:54		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	1.1J	mg/L	2.5	0.76	3		06/21/17 09:12	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD1-TW-NW10-TOS **Lab ID:** 40151851007 Collected: 06/15/17 09:38 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	63.0	ug/L	5.6	0.58	1		06/19/17 12:18	74-84-0	
Ethene	4.0J	ug/L	5.0	0.52	1		06/19/17 12:18	74-85-1	
Methane	1770	ug/L	28.0	13.7	10		06/19/17 14:18	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	4580	ug/L	100	15.5	1		06/22/17 14:31	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	339	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 15:22	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 15:22	7440-47-3	
Iron	4500	ug/L	368	111	1	06/22/17 08:05	06/23/17 15:22	7439-89-6	
Lead	0.22J	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 15:22	7439-92-1	
Nickel	0.42J	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 15:22	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	71-43-2	
Bromobenzene	<0.92	ug/L	4.0	0.92	4		06/21/17 01:04	108-86-1	
Bromochloromethane	<1.4	ug/L	4.0	1.4	4		06/21/17 01:04	74-97-5	
Bromodichloromethane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	75-27-4	
Bromoform	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	75-25-2	
Bromomethane	<9.7	ug/L	20.0	9.7	4		06/21/17 01:04	74-83-9	
n-Butylbenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	104-51-8	
sec-Butylbenzene	<8.7	ug/L	20.0	8.7	4		06/21/17 01:04	135-98-8	
tert-Butylbenzene	<0.72	ug/L	4.0	0.72	4		06/21/17 01:04	98-06-6	
Carbon tetrachloride	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	56-23-5	
Chlorobenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	108-90-7	
Chloroethane	119	ug/L	4.0	1.5	4		06/21/17 01:04	75-00-3	
Chloroform	<10.0	ug/L	20.0	10.0	4		06/21/17 01:04	67-66-3	
Chloromethane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	74-87-3	
2-Chlorotoluene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	95-49-8	
4-Chlorotoluene	<0.85	ug/L	4.0	0.85	4		06/21/17 01:04	106-43-4	
1,2-Dibromo-3-chloropropane	<8.7	ug/L	20.0	8.7	4		06/21/17 01:04	96-12-8	
Dibromochloromethane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	124-48-1	
1,2-Dibromoethane (EDB)	<0.71	ug/L	4.0	0.71	4		06/21/17 01:04	106-93-4	
Dibromomethane	<1.7	ug/L	4.0	1.7	4		06/21/17 01:04	74-95-3	
1,2-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	95-50-1	
1,3-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	541-73-1	
1,4-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	106-46-7	
Dichlorodifluoromethane	<0.90	ug/L	4.0	0.90	4		06/21/17 01:04	75-71-8	
1,1-Dichloroethane	<0.97	ug/L	4.0	0.97	4		06/21/17 01:04	75-34-3	
1,2-Dichloroethane	<0.67	ug/L	4.0	0.67	4		06/21/17 01:04	107-06-2	
1,1-Dichloroethene	<1.6	ug/L	4.0	1.6	4		06/21/17 01:04	75-35-4	
cis-1,2-Dichloroethene	329	ug/L	4.0	1.0	4		06/21/17 01:04	156-59-2	
trans-1,2-Dichloroethene	4.2	ug/L	4.0	1.0	4		06/21/17 01:04	156-60-5	
1,2-Dichloropropane	<0.93	ug/L	4.0	0.93	4		06/21/17 01:04	78-87-5	
1,3-Dichloropropane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD1-TW-NW10-TOS **Lab ID:** 40151851007 Collected: 06/15/17 09:38 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
2,2-Dichloropropane	<1.9	ug/L	4.0	1.9	4		06/21/17 01:04	594-20-7	
1,1-Dichloropropene	<1.8	ug/L	4.0	1.8	4		06/21/17 01:04	563-58-6	
cis-1,3-Dichloropropene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	10061-01-5	
trans-1,3-Dichloropropene	<0.92	ug/L	4.0	0.92	4		06/21/17 01:04	10061-02-6	
Diisopropyl ether	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	108-20-3	
Ethylbenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	100-41-4	
Hexachloro-1,3-butadiene	<8.4	ug/L	20.0	8.4	4		06/21/17 01:04	87-68-3	
Isopropylbenzene (Cumene)	<0.57	ug/L	4.0	0.57	4		06/21/17 01:04	98-82-8	
p-Isopropyltoluene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	99-87-6	
Methylene Chloride	<0.93	ug/L	4.0	0.93	4		06/21/17 01:04	75-09-2	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		06/21/17 01:04	1634-04-4	
Naphthalene	<10.0	ug/L	20.0	10.0	4		06/21/17 01:04	91-20-3	
n-Propylbenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	103-65-1	
Styrene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	100-42-5	
1,1,1,2-Tetrachloroethane	<0.72	ug/L	4.0	0.72	4		06/21/17 01:04	630-20-6	
1,1,2,2-Tetrachloroethane	<1.0	ug/L	4.0	1.0	4		06/21/17 01:04	79-34-5	
Tetrachloroethene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	127-18-4	
Toluene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	108-88-3	
1,2,3-Trichlorobenzene	<8.5	ug/L	20.0	8.5	4		06/21/17 01:04	87-61-6	
1,2,4-Trichlorobenzene	<8.8	ug/L	20.0	8.8	4		06/21/17 01:04	120-82-1	
1,1,1-Trichloroethane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	71-55-6	
1,1,2-Trichloroethane	<0.79	ug/L	4.0	0.79	4		06/21/17 01:04	79-00-5	
Trichloroethene	13.0	ug/L	4.0	1.3	4		06/21/17 01:04	79-01-6	
Trichlorofluoromethane	<0.74	ug/L	4.0	0.74	4		06/21/17 01:04	75-69-4	
1,2,3-Trichloropropane	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	96-18-4	
1,2,4-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	95-63-6	
1,3,5-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	108-67-8	
Vinyl chloride	24.0	ug/L	4.0	0.70	4		06/21/17 01:04	75-01-4	
m&p-Xylene	<4.0	ug/L	8.0	4.0	4		06/21/17 01:04	179601-23-1	
o-Xylene	<2.0	ug/L	4.0	2.0	4		06/21/17 01:04	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	90	%	61-130		4		06/21/17 01:04	460-00-4	
Dibromofluoromethane (S)	102	%	67-130		4		06/21/17 01:04	1868-53-7	
Toluene-d8 (S)	97	%	70-130		4		06/21/17 01:04	2037-26-5	
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	741	mg/L	40.0	10.0	20		06/26/17 17:33	16887-00-6	
Sulfate	9.5	mg/L	3.0	1.0	1		06/23/17 17:14	14808-79-8	
310.2 Alkalinity									
Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	511	mg/L	117	35.2	5		06/23/17 09:54		
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	9.5	mg/L	8.4	2.5	10		06/20/17 13:12	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-PZ-61 **Lab ID: 40151851008** Collected: 06/15/17 09:46 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	8.3	ug/L	5.6	0.58	1		06/19/17 12:25	74-84-0	
Ethene	27.1	ug/L	5.0	0.52	1		06/19/17 12:25	74-85-1	
Methane	279	ug/L	2.8	1.4	1		06/19/17 12:25	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	296000	ug/L	100	15.5	1		06/22/17 14:33	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	549	ug/L	5.7	1.7	5	06/22/17 08:05	06/23/17 16:51	7440-39-3	
Chromium	11.6J	ug/L	17.0	5.1	5	06/22/17 08:05	06/23/17 16:51	7440-47-3	D3
Iron	312000	ug/L	1840	553	5	06/22/17 08:05	06/23/17 16:51	7439-89-6	
Lead	0.98J	ug/L	5.0	0.98	5	06/22/17 08:05	06/23/17 16:51	7439-92-1	D3
Nickel	7.0	ug/L	6.7	2.0	5	06/22/17 08:05	06/23/17 16:51	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	71-43-2	
Bromobenzene	<11.5	ug/L	50.0	11.5	50		06/21/17 01:26	108-86-1	
Bromochloromethane	<17.0	ug/L	50.0	17.0	50		06/21/17 01:26	74-97-5	
Bromodichloromethane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	75-27-4	
Bromoform	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	75-25-2	
Bromomethane	<122	ug/L	250	122	50		06/21/17 01:26	74-83-9	
n-Butylbenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	104-51-8	
sec-Butylbenzene	<109	ug/L	250	109	50		06/21/17 01:26	135-98-8	
tert-Butylbenzene	<9.0	ug/L	50.0	9.0	50		06/21/17 01:26	98-06-6	
Carbon tetrachloride	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	56-23-5	
Chlorobenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	108-90-7	
Chloroethane	<18.7	ug/L	50.0	18.7	50		06/21/17 01:26	75-00-3	
Chloroform	<125	ug/L	250	125	50		06/21/17 01:26	67-66-3	
Chloromethane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	74-87-3	
2-Chlorotoluene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	95-49-8	
4-Chlorotoluene	<10.7	ug/L	50.0	10.7	50		06/21/17 01:26	106-43-4	
1,2-Dibromo-3-chloropropane	<108	ug/L	250	108	50		06/21/17 01:26	96-12-8	
Dibromochloromethane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	124-48-1	
1,2-Dibromoethane (EDB)	<8.9	ug/L	50.0	8.9	50		06/21/17 01:26	106-93-4	
Dibromomethane	<21.3	ug/L	50.0	21.3	50		06/21/17 01:26	74-95-3	
1,2-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	95-50-1	
1,3-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	541-73-1	
1,4-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	106-46-7	
Dichlorodifluoromethane	<11.2	ug/L	50.0	11.2	50		06/21/17 01:26	75-71-8	
1,1-Dichloroethane	<12.1	ug/L	50.0	12.1	50		06/21/17 01:26	75-34-3	
1,2-Dichloroethane	<8.4	ug/L	50.0	8.4	50		06/21/17 01:26	107-06-2	
1,1-Dichloroethene	<20.5	ug/L	50.0	20.5	50		06/21/17 01:26	75-35-4	
cis-1,2-Dichloroethene	5290	ug/L	50.0	12.8	50		06/21/17 01:26	156-59-2	
trans-1,2-Dichloroethene	78.0	ug/L	50.0	12.8	50		06/21/17 01:26	156-60-5	
1,2-Dichloropropane	<11.7	ug/L	50.0	11.7	50		06/21/17 01:26	78-87-5	
1,3-Dichloropropane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-PZ-61 **Lab ID: 40151851008** Collected: 06/15/17 09:46 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<24.2	ug/L	50.0	24.2	50		06/21/17 01:26	594-20-7	
1,1-Dichloropropene	<22.1	ug/L	50.0	22.1	50		06/21/17 01:26	563-58-6	
cis-1,3-Dichloropropene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	10061-01-5	
trans-1,3-Dichloropropene	<11.5	ug/L	50.0	11.5	50		06/21/17 01:26	10061-02-6	
Diisopropyl ether	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	108-20-3	
Ethylbenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	100-41-4	
Hexachloro-1,3-butadiene	<105	ug/L	250	105	50		06/21/17 01:26	87-68-3	
Isopropylbenzene (Cumene)	<7.2	ug/L	50.0	7.2	50		06/21/17 01:26	98-82-8	
p-Isopropyltoluene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	99-87-6	
Methylene Chloride	<11.6	ug/L	50.0	11.6	50		06/21/17 01:26	75-09-2	
Methyl-tert-butyl ether	<8.7	ug/L	50.0	8.7	50		06/21/17 01:26	1634-04-4	
Naphthalene	<125	ug/L	250	125	50		06/21/17 01:26	91-20-3	
n-Propylbenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	103-65-1	
Styrene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	100-42-5	
1,1,1,2-Tetrachloroethane	<9.0	ug/L	50.0	9.0	50		06/21/17 01:26	630-20-6	
1,1,2,2-Tetrachloroethane	<12.5	ug/L	50.0	12.5	50		06/21/17 01:26	79-34-5	
Tetrachloroethene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	127-18-4	
Toluene	32.5J	ug/L	50.0	25.0	50		06/21/17 01:26	108-88-3	
1,2,3-Trichlorobenzene	<107	ug/L	250	107	50		06/21/17 01:26	87-61-6	
1,2,4-Trichlorobenzene	<110	ug/L	250	110	50		06/21/17 01:26	120-82-1	
1,1,1-Trichloroethane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	71-55-6	
1,1,2-Trichloroethane	<9.9	ug/L	50.0	9.9	50		06/21/17 01:26	79-00-5	
Trichloroethene	251	ug/L	50.0	16.5	50		06/21/17 01:26	79-01-6	
Trichlorofluoromethane	<9.2	ug/L	50.0	9.2	50		06/21/17 01:26	75-69-4	
1,2,3-Trichloropropane	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	96-18-4	
1,2,4-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	95-63-6	
1,3,5-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	108-67-8	
Vinyl chloride	272	ug/L	50.0	8.8	50		06/21/17 01:26	75-01-4	
m&p-Xylene	<50.0	ug/L	100	50.0	50		06/21/17 01:26	179601-23-1	
o-Xylene	<25.0	ug/L	50.0	25.0	50		06/21/17 01:26	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	89	%	61-130		50		06/21/17 01:26	460-00-4	
Dibromofluoromethane (S)	102	%	67-130		50		06/21/17 01:26	1868-53-7	
Toluene-d8 (S)	93	%	70-130		50		06/21/17 01:26	2037-26-5	
2320B Alkalinity Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	1660	mg/L	10.0	5.0	1		06/23/17 13:18		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	1750	mg/L	200	50.0	100		06/23/17 17:25	16887-00-6	
Sulfate	<100	mg/L	300	100	100		06/23/17 17:25	14808-79-8	D3
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	4840	mg/L	2520	756	3000		06/20/17 13:31	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: ERD1-TW-NW10-BOS **Lab ID:** 40151851009 Collected: 06/15/17 11:02 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	64.5	ug/L	5.6	0.58	1		06/19/17 12:32	74-84-0	
Ethene	13.5	ug/L	5.0	0.52	1		06/19/17 12:32	74-85-1	
Methane	1790	ug/L	28.0	13.7	10		06/19/17 14:25	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	5800	ug/L	100	15.5	1		06/22/17 14:40	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	523	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 16:58	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 16:58	7440-47-3	
Iron	5650	ug/L	368	111	1	06/22/17 08:05	06/23/17 16:58	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 16:58	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 16:58	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		06/22/17 14:28	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		06/22/17 14:28	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		06/22/17 14:28	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		06/22/17 14:28	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		06/22/17 14:28	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	108-90-7	
Chloroethane	97.9	ug/L	5.0	1.9	5		06/22/17 14:28	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		06/22/17 14:28	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		06/22/17 14:28	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		06/22/17 14:28	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		06/22/17 14:28	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		06/22/17 14:28	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		06/22/17 14:28	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		06/22/17 14:28	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		06/22/17 14:28	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		06/22/17 14:28	75-35-4	
cis-1,2-Dichloroethene	628	ug/L	5.0	1.3	5		06/22/17 14:28	156-59-2	
trans-1,2-Dichloroethene	11.4	ug/L	5.0	1.3	5		06/22/17 14:28	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		06/22/17 14:28	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP
Pace Project No.: 40151851

Sample: ERD1-TW-NW10-BOS **Lab ID: 40151851009** Collected: 06/15/17 11:02 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		06/22/17 14:28	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		06/22/17 14:28	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		06/22/17 14:28	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	108-20-3	
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		06/22/17 14:28	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		06/22/17 14:28	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		06/22/17 14:28	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		06/22/17 14:28	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		06/22/17 14:28	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		06/22/17 14:28	630-20-6	
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		06/22/17 14:28	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	127-18-4	
Toluene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		06/22/17 14:28	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		06/22/17 14:28	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		06/22/17 14:28	79-00-5	
Trichloroethene	84.9	ug/L	5.0	1.7	5		06/22/17 14:28	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		06/22/17 14:28	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	108-67-8	
Vinyl chloride	46.3	ug/L	5.0	0.88	5		06/22/17 14:28	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		06/22/17 14:28	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		06/22/17 14:28	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	61-130		5		06/22/17 14:28	460-00-4	
Dibromofluoromethane (S)	105	%	67-130		5		06/22/17 14:28	1868-53-7	
Toluene-d8 (S)	98	%	70-130		5		06/22/17 14:28	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	944	mg/L	100	25.0	50		06/26/17 13:32	16887-00-6	
Sulfate	13.7J	mg/L	15.0	5.0	5		06/23/17 17:35	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	504	mg/L	117	35.2	5		06/23/17 09:55		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	10.1	mg/L	8.4	2.5	10		06/20/17 13:50	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-61 **Lab ID: 40151851010** Collected: 06/15/17 11:23 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	30.9	ug/L	5.6	0.58	1		06/19/17 12:39	74-84-0	
Ethene	244	ug/L	5.0	0.52	1		06/19/17 12:39	74-85-1	
Methane	2720	ug/L	56.0	27.4	20		06/19/17 14:32	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	2990	ug/L	100	15.5	1		06/22/17 14:43	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	297	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 17:04	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 17:04	7440-47-3	
Iron	3010	ug/L	368	111	1	06/22/17 08:05	06/23/17 17:04	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 17:04	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 17:04	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	16.0J	ug/L	25.0	12.5	25		06/21/17 02:12	71-43-2	
Bromobenzene	<5.8	ug/L	25.0	5.8	25		06/21/17 02:12	108-86-1	
Bromochloromethane	<8.5	ug/L	25.0	8.5	25		06/21/17 02:12	74-97-5	
Bromodichloromethane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	75-27-4	
Bromoform	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	75-25-2	
Bromomethane	<60.9	ug/L	125	60.9	25		06/21/17 02:12	74-83-9	
n-Butylbenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	104-51-8	
sec-Butylbenzene	<54.7	ug/L	125	54.7	25		06/21/17 02:12	135-98-8	
tert-Butylbenzene	<4.5	ug/L	25.0	4.5	25		06/21/17 02:12	98-06-6	
Carbon tetrachloride	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	56-23-5	
Chlorobenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	108-90-7	
Chloroethane	<9.4	ug/L	25.0	9.4	25		06/21/17 02:12	75-00-3	
Chloroform	<62.5	ug/L	125	62.5	25		06/21/17 02:12	67-66-3	
Chloromethane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	74-87-3	
2-Chlorotoluene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	95-49-8	
4-Chlorotoluene	<5.3	ug/L	25.0	5.3	25		06/21/17 02:12	106-43-4	
1,2-Dibromo-3-chloropropane	<54.1	ug/L	125	54.1	25		06/21/17 02:12	96-12-8	
Dibromochloromethane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	124-48-1	
1,2-Dibromoethane (EDB)	<4.4	ug/L	25.0	4.4	25		06/21/17 02:12	106-93-4	
Dibromomethane	<10.7	ug/L	25.0	10.7	25		06/21/17 02:12	74-95-3	
1,2-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	95-50-1	
1,3-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	541-73-1	
1,4-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	106-46-7	
Dichlorodifluoromethane	<5.6	ug/L	25.0	5.6	25		06/21/17 02:12	75-71-8	
1,1-Dichloroethane	<6.0	ug/L	25.0	6.0	25		06/21/17 02:12	75-34-3	
1,2-Dichloroethane	<4.2	ug/L	25.0	4.2	25		06/21/17 02:12	107-06-2	
1,1-Dichloroethene	<10.3	ug/L	25.0	10.3	25		06/21/17 02:12	75-35-4	
cis-1,2-Dichloroethene	1420	ug/L	25.0	6.4	25		06/21/17 02:12	156-59-2	
trans-1,2-Dichloroethene	42.6	ug/L	25.0	6.4	25		06/21/17 02:12	156-60-5	
1,2-Dichloropropane	<5.8	ug/L	25.0	5.8	25		06/21/17 02:12	78-87-5	
1,3-Dichloropropane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-61 **Lab ID: 40151851010** Collected: 06/15/17 11:23 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<12.1	ug/L	25.0	12.1	25		06/21/17 02:12	594-20-7	
1,1-Dichloropropene	<11.0	ug/L	25.0	11.0	25		06/21/17 02:12	563-58-6	
cis-1,3-Dichloropropene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	10061-01-5	
trans-1,3-Dichloropropene	<5.7	ug/L	25.0	5.7	25		06/21/17 02:12	10061-02-6	
Diisopropyl ether	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	108-20-3	
Ethylbenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	100-41-4	
Hexachloro-1,3-butadiene	<52.6	ug/L	125	52.6	25		06/21/17 02:12	87-68-3	
Isopropylbenzene (Cumene)	<3.6	ug/L	25.0	3.6	25		06/21/17 02:12	98-82-8	
p-Isopropyltoluene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	99-87-6	
Methylene Chloride	<5.8	ug/L	25.0	5.8	25		06/21/17 02:12	75-09-2	
Methyl-tert-butyl ether	<4.4	ug/L	25.0	4.4	25		06/21/17 02:12	1634-04-4	
Naphthalene	<62.5	ug/L	125	62.5	25		06/21/17 02:12	91-20-3	
n-Propylbenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	103-65-1	
Styrene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	100-42-5	
1,1,1,2-Tetrachloroethane	<4.5	ug/L	25.0	4.5	25		06/21/17 02:12	630-20-6	
1,1,2,2-Tetrachloroethane	<6.2	ug/L	25.0	6.2	25		06/21/17 02:12	79-34-5	
Tetrachloroethene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	127-18-4	
Toluene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	108-88-3	
1,2,3-Trichlorobenzene	<53.3	ug/L	125	53.3	25		06/21/17 02:12	87-61-6	
1,2,4-Trichlorobenzene	<55.2	ug/L	125	55.2	25		06/21/17 02:12	120-82-1	
1,1,1-Trichloroethane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	71-55-6	
1,1,2-Trichloroethane	<4.9	ug/L	25.0	4.9	25		06/21/17 02:12	79-00-5	
Trichloroethene	61.4	ug/L	25.0	8.3	25		06/21/17 02:12	79-01-6	
Trichlorofluoromethane	<4.6	ug/L	25.0	4.6	25		06/21/17 02:12	75-69-4	
1,2,3-Trichloropropane	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	96-18-4	
1,2,4-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	95-63-6	
1,3,5-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	108-67-8	
Vinyl chloride	760	ug/L	25.0	4.4	25		06/21/17 02:12	75-01-4	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		06/21/17 02:12	179601-23-1	
o-Xylene	<12.5	ug/L	25.0	12.5	25		06/21/17 02:12	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	61-130		25		06/21/17 02:12	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		25		06/21/17 02:12	1868-53-7	
Toluene-d8 (S)	100	%	70-130		25		06/21/17 02:12	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	431	mg/L	40.0	10.0	20		06/26/17 13:43	16887-00-6	
Sulfate	5.7J	mg/L	15.0	5.0	5		06/23/17 17:46	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	397	mg/L	235	70.4	10		06/23/17 09:58		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.9J	mg/L	2.5	0.76	3		06/21/17 09:31	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-61-DUP **Lab ID:** 40151851011 Collected: 06/15/17 11:23 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	2930	ug/L	100	15.5	1		06/22/17 14:45	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	298	ug/L	1.1	0.34	1	06/22/17 08:05	06/23/17 17:25	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	06/22/17 08:05	06/23/17 17:25	7440-47-3	
Iron	3100	ug/L	368	111	1	06/22/17 08:05	06/23/17 17:25	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	06/22/17 08:05	06/23/17 17:25	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	06/22/17 08:05	06/23/17 17:25	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	19.1J	ug/L	25.0	12.5	25		06/20/17 23:11	71-43-2	
Bromobenzene	<5.8	ug/L	25.0	5.8	25		06/20/17 23:11	108-86-1	
Bromochloromethane	<8.5	ug/L	25.0	8.5	25		06/20/17 23:11	74-97-5	
Bromodichloromethane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	75-27-4	
Bromoform	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	75-25-2	
Bromomethane	<60.9	ug/L	125	60.9	25		06/20/17 23:11	74-83-9	
n-Butylbenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	104-51-8	
sec-Butylbenzene	<54.7	ug/L	125	54.7	25		06/20/17 23:11	135-98-8	
tert-Butylbenzene	<4.5	ug/L	25.0	4.5	25		06/20/17 23:11	98-06-6	
Carbon tetrachloride	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	56-23-5	
Chlorobenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	108-90-7	
Chloroethane	<9.4	ug/L	25.0	9.4	25		06/20/17 23:11	75-00-3	
Chloroform	<62.5	ug/L	125	62.5	25		06/20/17 23:11	67-66-3	
Chloromethane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	74-87-3	
2-Chlorotoluene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	95-49-8	
4-Chlorotoluene	<5.3	ug/L	25.0	5.3	25		06/20/17 23:11	106-43-4	
1,2-Dibromo-3-chloropropane	<54.1	ug/L	125	54.1	25		06/20/17 23:11	96-12-8	
Dibromochloromethane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	124-48-1	
1,2-Dibromoethane (EDB)	<4.4	ug/L	25.0	4.4	25		06/20/17 23:11	106-93-4	
Dibromomethane	<10.7	ug/L	25.0	10.7	25		06/20/17 23:11	74-95-3	
1,2-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	95-50-1	
1,3-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	541-73-1	
1,4-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	106-46-7	
Dichlorodifluoromethane	<5.6	ug/L	25.0	5.6	25		06/20/17 23:11	75-71-8	
1,1-Dichloroethane	<6.0	ug/L	25.0	6.0	25		06/20/17 23:11	75-34-3	
1,2-Dichloroethane	<4.2	ug/L	25.0	4.2	25		06/20/17 23:11	107-06-2	
1,1-Dichloroethene	<10.3	ug/L	25.0	10.3	25		06/20/17 23:11	75-35-4	
cis-1,2-Dichloroethene	1280	ug/L	25.0	6.4	25		06/20/17 23:11	156-59-2	
trans-1,2-Dichloroethene	44.7	ug/L	25.0	6.4	25		06/20/17 23:11	156-60-5	
1,2-Dichloropropane	<5.8	ug/L	25.0	5.8	25		06/20/17 23:11	78-87-5	
1,3-Dichloropropane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	142-28-9	
2,2-Dichloropropane	<12.1	ug/L	25.0	12.1	25		06/20/17 23:11	594-20-7	
1,1-Dichloropropene	<11.0	ug/L	25.0	11.0	25		06/20/17 23:11	563-58-6	
cis-1,3-Dichloropropene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	10061-01-5	
trans-1,3-Dichloropropene	<5.7	ug/L	25.0	5.7	25		06/20/17 23:11	10061-02-6	
Diisopropyl ether	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	108-20-3	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: CS8-MW-61-DUP **Lab ID: 40151851011** Collected: 06/15/17 11:23 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
Ethylbenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	100-41-4	
Hexachloro-1,3-butadiene	<52.6	ug/L	125	52.6	25		06/20/17 23:11	87-68-3	
Isopropylbenzene (Cumene)	<3.6	ug/L	25.0	3.6	25		06/20/17 23:11	98-82-8	
p-Isopropyltoluene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	99-87-6	
Methylene Chloride	<5.8	ug/L	25.0	5.8	25		06/20/17 23:11	75-09-2	
Methyl-tert-butyl ether	<4.4	ug/L	25.0	4.4	25		06/20/17 23:11	1634-04-4	
Naphthalene	<62.5	ug/L	125	62.5	25		06/20/17 23:11	91-20-3	
n-Propylbenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	103-65-1	
Styrene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	100-42-5	
1,1,1,2-Tetrachloroethane	<4.5	ug/L	25.0	4.5	25		06/20/17 23:11	630-20-6	
1,1,2,2-Tetrachloroethane	<6.2	ug/L	25.0	6.2	25		06/20/17 23:11	79-34-5	
Tetrachloroethene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	127-18-4	
Toluene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	108-88-3	
1,2,3-Trichlorobenzene	<53.3	ug/L	125	53.3	25		06/20/17 23:11	87-61-6	
1,2,4-Trichlorobenzene	<55.2	ug/L	125	55.2	25		06/20/17 23:11	120-82-1	
1,1,1-Trichloroethane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	71-55-6	
1,1,2-Trichloroethane	<4.9	ug/L	25.0	4.9	25		06/20/17 23:11	79-00-5	
Trichloroethene	68.6	ug/L	25.0	8.3	25		06/20/17 23:11	79-01-6	
Trichlorofluoromethane	<4.6	ug/L	25.0	4.6	25		06/20/17 23:11	75-69-4	
1,2,3-Trichloropropane	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	96-18-4	
1,2,4-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	95-63-6	
1,3,5-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	108-67-8	
Vinyl chloride	752	ug/L	25.0	4.4	25		06/20/17 23:11	75-01-4	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		06/20/17 23:11	179601-23-1	
o-Xylene	<12.5	ug/L	25.0	12.5	25		06/20/17 23:11	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	85	%	61-130		25		06/20/17 23:11	460-00-4	
Dibromofluoromethane (S)	102	%	67-130		25		06/20/17 23:11	1868-53-7	
Toluene-d8 (S)	99	%	70-130		25		06/20/17 23:11	2037-26-5	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: TRIP BLANK **Lab ID: 40151851012** Collected: 06/14/17 09:30 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		06/20/17 19:01	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		06/20/17 19:01	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		06/20/17 19:01	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 19:01	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		06/20/17 19:01	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		06/20/17 19:01	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		06/20/17 19:01	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		06/20/17 19:01	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		06/20/17 19:01	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		06/20/17 19:01	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		06/20/17 19:01	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		06/20/17 19:01	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		06/20/17 19:01	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		06/20/17 19:01	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		06/20/17 19:01	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 19:01	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		06/20/17 19:01	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		06/20/17 19:01	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	142-28-9	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		06/20/17 19:01	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		06/20/17 19:01	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		06/20/17 19:01	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		06/20/17 19:01	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		06/20/17 19:01	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		06/20/17 19:01	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		06/20/17 19:01	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		06/20/17 19:01	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		06/20/17 19:01	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412 KEP

Pace Project No.: 40151851

Sample: TRIP BLANK **Lab ID: 40151851012** Collected: 06/14/17 09:30 Received: 06/16/17 14:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		06/20/17 19:01	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		06/20/17 19:01	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		06/20/17 19:01	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		06/20/17 19:01	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		06/20/17 19:01	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		06/20/17 19:01	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		06/20/17 19:01	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		06/20/17 19:01	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		06/20/17 19:01	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		1		06/20/17 19:01	460-00-4	
Dibromofluoromethane (S)	98	%	67-130		1		06/20/17 19:01	1868-53-7	
Toluene-d8 (S)	101	%	70-130		1		06/20/17 19:01	2037-26-5	

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 258910 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010

METHOD BLANK: 1525804 Matrix: Water
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	<0.58	5.6	06/19/17 08:49	
Ethene	ug/L	<0.52	5.0	06/19/17 08:49	
Methane	ug/L	<1.4	2.8	06/19/17 08:49	

LABORATORY CONTROL SAMPLE & LCSD: 1525805 1525806

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	53.6	53.2	53.6	99	100	80-120	1	20	
Ethene	ug/L	50	49.1	49.5	98	99	80-119	1	20	
Methane	ug/L	28.6	27.0	27.4	94	96	80-120	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526064 1526065

Parameter	Units	40151851005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	<0.58	53.6	53.6	54.6	52.4	102	98	79-120	4	20	
Ethene	ug/L	<0.52	50	50	50.4	48.4	101	97	78-119	4	20	
Methane	ug/L	<1.4	28.6	28.6	28.0	26.8	98	94	10-200	4	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

QC Batch: 259481

Analysis Method: EPA 6010

QC Batch Method: EPA 6010

Analysis Description: ICP Metals, Trace, Dissolved

Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010, 40151851011

METHOD BLANK: 1528274

Matrix: Water

Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010, 40151851011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	<15.5	100	06/22/17 13:48	

LABORATORY CONTROL SAMPLE: 1528275

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	5000	4790	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1528276 1528277

Parameter	Units	40151758003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	1.1 mg/L	5000	5000	5900	5850	96	95	75-125	1	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 259418 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010, 40151851011

METHOD BLANK: 1527979 Matrix: Water
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010, 40151851011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	<0.34	1.1	06/23/17 14:41	
Chromium	ug/L	<1.0	3.4	06/23/17 14:41	
Iron	ug/L	<111	368	06/23/17 14:41	
Lead	ug/L	<0.20	1.0	06/23/17 14:41	
Nickel	ug/L	<0.40	1.3	06/23/17 14:41	

LABORATORY CONTROL SAMPLE: 1527980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	490	98	80-120	
Chromium	ug/L	500	486	97	80-120	
Iron	ug/L	5000	4840	97	80-120	
Lead	ug/L	500	450	90	80-120	
Nickel	ug/L	500	483	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1527981 1527982

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40151851007 Result	Spike Conc.	Spike Conc.	MS Result						
Barium	ug/L	339	500	500	882	866	109	106	75-125	2	20
Chromium	ug/L	<1.0	500	500	495	502	99	100	75-125	1	20
Iron	ug/L	4500	5000	5000	9340	9470	97	99	75-125	1	20
Lead	ug/L	0.22J	500	500	497	500	99	100	75-125	1	20
Nickel	ug/L	0.42J	500	500	470	473	94	95	75-125	1	20

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 258964 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40151851001

METHOD BLANK: 1525970 Matrix: Water
Associated Lab Samples: 40151851001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/21/17 16:59	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/21/17 16:59	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/21/17 16:59	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/21/17 16:59	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/21/17 16:59	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/21/17 16:59	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/21/17 16:59	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/21/17 16:59	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/21/17 16:59	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/21/17 16:59	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/21/17 16:59	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/21/17 16:59	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/21/17 16:59	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/21/17 16:59	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/21/17 16:59	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/21/17 16:59	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/21/17 16:59	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/21/17 16:59	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/21/17 16:59	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/21/17 16:59	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/21/17 16:59	
2-Chlorotoluene	ug/L	<0.50	1.0	06/21/17 16:59	
4-Chlorotoluene	ug/L	<0.21	1.0	06/21/17 16:59	
Benzene	ug/L	<0.50	1.0	06/21/17 16:59	
Bromobenzene	ug/L	<0.23	1.0	06/21/17 16:59	
Bromochloromethane	ug/L	<0.34	1.0	06/21/17 16:59	
Bromodichloromethane	ug/L	<0.50	1.0	06/21/17 16:59	
Bromoform	ug/L	<0.50	1.0	06/21/17 16:59	
Bromomethane	ug/L	<2.4	5.0	06/21/17 16:59	
Carbon tetrachloride	ug/L	<0.50	1.0	06/21/17 16:59	
Chlorobenzene	ug/L	<0.50	1.0	06/21/17 16:59	
Chloroethane	ug/L	<0.37	1.0	06/21/17 16:59	
Chloroform	ug/L	<2.5	5.0	06/21/17 16:59	
Chloromethane	ug/L	<0.50	1.0	06/21/17 16:59	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/21/17 16:59	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/21/17 16:59	
Dibromochloromethane	ug/L	<0.50	1.0	06/21/17 16:59	
Dibromomethane	ug/L	<0.43	1.0	06/21/17 16:59	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/21/17 16:59	
Diisopropyl ether	ug/L	<0.50	1.0	06/21/17 16:59	
Ethylbenzene	ug/L	<0.50	1.0	06/21/17 16:59	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

METHOD BLANK: 1525970

Matrix: Water

Associated Lab Samples: 40151851001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/21/17 16:59	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/21/17 16:59	
m&p-Xylene	ug/L	<1.0	2.0	06/21/17 16:59	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/21/17 16:59	
Methylene Chloride	ug/L	<0.23	1.0	06/21/17 16:59	
n-Butylbenzene	ug/L	<0.50	1.0	06/21/17 16:59	
n-Propylbenzene	ug/L	<0.50	1.0	06/21/17 16:59	
Naphthalene	ug/L	<2.5	5.0	06/21/17 16:59	
o-Xylene	ug/L	<0.50	1.0	06/21/17 16:59	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/21/17 16:59	
sec-Butylbenzene	ug/L	<2.2	5.0	06/21/17 16:59	
Styrene	ug/L	<0.50	1.0	06/21/17 16:59	
tert-Butylbenzene	ug/L	<0.18	1.0	06/21/17 16:59	
Tetrachloroethene	ug/L	<0.50	1.0	06/21/17 16:59	
Toluene	ug/L	<0.50	1.0	06/21/17 16:59	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/21/17 16:59	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/21/17 16:59	
Trichloroethene	ug/L	<0.33	1.0	06/21/17 16:59	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/21/17 16:59	
Vinyl chloride	ug/L	<0.18	1.0	06/21/17 16:59	
4-Bromofluorobenzene (S)	%	97	61-130	06/21/17 16:59	
Dibromofluoromethane (S)	%	98	67-130	06/21/17 16:59	
Toluene-d8 (S)	%	104	70-130	06/21/17 16:59	

LABORATORY CONTROL SAMPLE: 1525971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.9	110	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	53.0	106	70-130	
1,1,2-Trichloroethane	ug/L	50	54.9	110	70-130	
1,1-Dichloroethane	ug/L	50	50.3	101	71-132	
1,1-Dichloroethene	ug/L	50	48.2	96	75-130	
1,2,4-Trichlorobenzene	ug/L	50	48.6	97	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	44.6	89	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	55.2	110	70-130	
1,2-Dichlorobenzene	ug/L	50	58.1	116	70-130	
1,2-Dichloroethane	ug/L	50	53.4	107	70-131	
1,2-Dichloropropane	ug/L	50	51.6	103	80-120	
1,3-Dichlorobenzene	ug/L	50	56.4	113	70-130	
1,4-Dichlorobenzene	ug/L	50	53.9	108	70-130	
Benzene	ug/L	50	51.5	103	73-145	
Bromodichloromethane	ug/L	50	55.4	111	70-130	
Bromoform	ug/L	50	51.0	102	67-130	
Bromomethane	ug/L	50	32.0	64	26-128	

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

LABORATORY CONTROL SAMPLE: 1525971

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	54.9	110	70-133	
Chlorobenzene	ug/L	50	56.2	112	70-130	
Chloroethane	ug/L	50	42.7	85	58-120	
Chloroform	ug/L	50	53.3	107	80-121	
Chloromethane	ug/L	50	29.3	59	40-127	
cis-1,2-Dichloroethene	ug/L	50	53.7	107	70-130	
cis-1,3-Dichloropropene	ug/L	50	52.6	105	70-130	
Dibromochloromethane	ug/L	50	51.1	102	70-130	
Dichlorodifluoromethane	ug/L	50	17.2	34	20-135	
Ethylbenzene	ug/L	50	56.6	113	87-129	
Isopropylbenzene (Cumene)	ug/L	50	56.1	112	70-130	
m&p-Xylene	ug/L	100	112	112	70-130	
Methyl-tert-butyl ether	ug/L	50	52.4	105	66-143	
Methylene Chloride	ug/L	50	50.6	101	70-130	
o-Xylene	ug/L	50	55.2	110	70-130	
Styrene	ug/L	50	54.0	108	70-130	
Tetrachloroethene	ug/L	50	56.0	112	70-130	
Toluene	ug/L	50	55.4	111	82-130	
trans-1,2-Dichloroethene	ug/L	50	54.2	108	75-132	
trans-1,3-Dichloropropene	ug/L	50	49.1	98	70-130	
Trichloroethene	ug/L	50	56.7	113	70-130	
Trichlorofluoromethane	ug/L	50	50.2	100	76-133	
Vinyl chloride	ug/L	50	38.5	77	57-136	
4-Bromofluorobenzene (S)	%			102	61-130	
Dibromofluoromethane (S)	%			100	67-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526421 1526422

Parameter	Units	40151845005		MSD		MSD		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
1,1,1-Trichloroethane	ug/L	<0.50	50	50	52.8	53.3	106	107	70-134	1	20		
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	52.5	50.7	105	101	70-130	3	20		
1,1,2-Trichloroethane	ug/L	<0.20	50	50	53.3	53.0	107	106	70-130	1	20		
1,1-Dichloroethane	ug/L	<0.24	50	50	50.7	48.3	101	97	71-133	5	20		
1,1-Dichloroethene	ug/L	<0.41	50	50	48.0	45.9	96	92	75-136	5	20		
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	48.2	45.3	96	91	70-130	6	20		
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	47.1	45.0	94	90	63-123	4	20		
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	52.8	54.2	106	108	70-130	3	20		
1,2-Dichlorobenzene	ug/L	<0.50	50	50	58.1	54.2	116	108	70-130	7	20		
1,2-Dichloroethane	ug/L	<0.17	50	50	50.1	50.7	100	101	70-131	1	20		
1,2-Dichloropropane	ug/L	<0.23	50	50	49.5	50.0	99	100	80-120	1	20		
1,3-Dichlorobenzene	ug/L	<0.50	50	50	56.8	54.1	114	108	70-130	5	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	56.3	51.0	113	102	70-130	10	20		

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526421		1526422		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40151845005 Result	MS Spike Conc.	MSD Spike Conc.	MSD Result								
Benzene	ug/L	<0.50	50	50	51.2	50.3	102	101	73-145	2	20		
Bromodichloromethane	ug/L	<0.50	50	50	53.9	53.1	108	106	70-130	2	20		
Bromoform	ug/L	<0.50	50	50	50.7	49.1	101	98	67-130	3	20		
Bromomethane	ug/L	<2.4	50	50	26.8	28.8	54	58	26-129	7	20		
Carbon tetrachloride	ug/L	<0.50	50	50	52.9	53.7	106	107	70-134	1	20		
Chlorobenzene	ug/L	<0.50	50	50	52.8	53.5	106	107	70-130	1	20		
Chloroethane	ug/L	<0.37	50	50	42.6	40.1	85	80	58-120	6	20		
Chloroform	ug/L	<2.5	50	50	51.9	52.0	104	104	80-121	0	20		
Chloromethane	ug/L	<0.50	50	50	27.8	28.2	56	56	40-128	2	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	53.3	52.3	107	105	70-130	2	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	51.3	50.8	103	102	70-130	1	20		
Dibromochloromethane	ug/L	<0.50	50	50	49.7	49.5	99	99	70-130	0	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	13.5	13.3	27	27	20-146	2	20		
Ethylbenzene	ug/L	<0.50	50	50	54.2	55.0	108	110	87-129	1	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	54.3	54.9	109	110	70-130	1	20		
m&p-Xylene	ug/L	<1.0	100	100	109	109	109	109	70-130	0	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	52.3	51.1	105	102	66-143	2	20		
Methylene Chloride	ug/L	<0.23	50	50	51.6	49.1	103	98	70-130	5	20		
o-Xylene	ug/L	<0.50	50	50	54.4	54.0	109	108	70-130	1	20		
Styrene	ug/L	<0.50	50	50	53.6	54.7	107	109	70-130	2	20		
Tetrachloroethene	ug/L	<0.50	50	50	53.4	54.2	107	108	70-130	2	20		
Toluene	ug/L	<0.50	50	50	53.8	52.6	108	105	82-131	2	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	53.8	52.0	108	104	75-135	3	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	46.7	48.1	93	96	70-130	3	20		
Trichloroethene	ug/L	<0.33	50	50	55.6	54.8	111	110	70-130	1	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	49.2	48.6	98	97	76-150	1	20		
Vinyl chloride	ug/L	<0.18	50	50	36.7	35.4	73	71	56-143	4	20		
4-Bromofluorobenzene (S)	%						101	104	61-130				
Dibromofluoromethane (S)	%						100	100	67-130				
Toluene-d8 (S)	%						100	101	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 259150 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851010, 40151851011, 40151851012

METHOD BLANK: 1526586 Matrix: Water
Associated Lab Samples: 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851010, 40151851011, 40151851012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/20/17 17:08	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/20/17 17:08	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/20/17 17:08	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/20/17 17:08	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/20/17 17:08	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/20/17 17:08	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/20/17 17:08	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/20/17 17:08	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/20/17 17:08	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/20/17 17:08	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/20/17 17:08	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/20/17 17:08	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/20/17 17:08	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/20/17 17:08	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/20/17 17:08	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/20/17 17:08	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/20/17 17:08	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/20/17 17:08	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/20/17 17:08	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/20/17 17:08	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/20/17 17:08	
2-Chlorotoluene	ug/L	<0.50	1.0	06/20/17 17:08	
4-Chlorotoluene	ug/L	<0.21	1.0	06/20/17 17:08	
Benzene	ug/L	<0.50	1.0	06/20/17 17:08	
Bromobenzene	ug/L	<0.23	1.0	06/20/17 17:08	
Bromochloromethane	ug/L	<0.34	1.0	06/20/17 17:08	
Bromodichloromethane	ug/L	<0.50	1.0	06/20/17 17:08	
Bromoform	ug/L	<0.50	1.0	06/20/17 17:08	
Bromomethane	ug/L	<2.4	5.0	06/20/17 17:08	
Carbon tetrachloride	ug/L	<0.50	1.0	06/20/17 17:08	
Chlorobenzene	ug/L	<0.50	1.0	06/20/17 17:08	
Chloroethane	ug/L	<0.37	1.0	06/20/17 17:08	
Chloroform	ug/L	<2.5	5.0	06/20/17 17:08	
Chloromethane	ug/L	<0.50	1.0	06/20/17 17:08	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/20/17 17:08	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/20/17 17:08	
Dibromochloromethane	ug/L	<0.50	1.0	06/20/17 17:08	
Dibromomethane	ug/L	<0.43	1.0	06/20/17 17:08	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/20/17 17:08	
Diisopropyl ether	ug/L	<0.50	1.0	06/20/17 17:08	

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

METHOD BLANK: 1526586 Matrix: Water
Associated Lab Samples: 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851010, 40151851011, 40151851012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/L	<0.50	1.0	06/20/17 17:08	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/20/17 17:08	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/20/17 17:08	
m&p-Xylene	ug/L	<1.0	2.0	06/20/17 17:08	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/20/17 17:08	
Methylene Chloride	ug/L	<0.23	1.0	06/20/17 17:08	
n-Butylbenzene	ug/L	<0.50	1.0	06/20/17 17:08	
n-Propylbenzene	ug/L	<0.50	1.0	06/20/17 17:08	
Naphthalene	ug/L	<2.5	5.0	06/20/17 17:08	
o-Xylene	ug/L	<0.50	1.0	06/20/17 17:08	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/20/17 17:08	
sec-Butylbenzene	ug/L	<2.2	5.0	06/20/17 17:08	
Styrene	ug/L	<0.50	1.0	06/20/17 17:08	
tert-Butylbenzene	ug/L	<0.18	1.0	06/20/17 17:08	
Tetrachloroethene	ug/L	<0.50	1.0	06/20/17 17:08	
Toluene	ug/L	<0.50	1.0	06/20/17 17:08	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/20/17 17:08	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/20/17 17:08	
Trichloroethene	ug/L	<0.33	1.0	06/20/17 17:08	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/20/17 17:08	
Vinyl chloride	ug/L	<0.18	1.0	06/20/17 17:08	
4-Bromofluorobenzene (S)	%	90	61-130	06/20/17 17:08	
Dibromofluoromethane (S)	%	95	67-130	06/20/17 17:08	
Toluene-d8 (S)	%	101	70-130	06/20/17 17:08	

LABORATORY CONTROL SAMPLE: 1526587

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	52.5	105	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	51.1	102	70-130	
1,1,2-Trichloroethane	ug/L	50	53.9	108	70-130	
1,1-Dichloroethane	ug/L	50	50.2	100	71-132	
1,1-Dichloroethene	ug/L	50	51.5	103	75-130	
1,2,4-Trichlorobenzene	ug/L	50	49.5	99	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	44.7	89	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	49.6	99	70-130	
1,2-Dichlorobenzene	ug/L	50	51.8	104	70-130	
1,2-Dichloroethane	ug/L	50	53.3	107	70-131	
1,2-Dichloropropane	ug/L	50	54.1	108	80-120	
1,3-Dichlorobenzene	ug/L	50	53.3	107	70-130	
1,4-Dichlorobenzene	ug/L	50	52.9	106	70-130	
Benzene	ug/L	50	52.2	104	73-145	
Bromodichloromethane	ug/L	50	52.5	105	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

LABORATORY CONTROL SAMPLE: 1526587

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromoform	ug/L	50	48.1	96	67-130	
Bromomethane	ug/L	50	35.1	70	26-128	
Carbon tetrachloride	ug/L	50	51.8	104	70-133	
Chlorobenzene	ug/L	50	53.4	107	70-130	
Chloroethane	ug/L	50	47.6	95	58-120	
Chloroform	ug/L	50	50.8	102	80-121	
Chloromethane	ug/L	50	42.8	86	40-127	
cis-1,2-Dichloroethene	ug/L	50	44.3	89	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.3	107	70-130	
Dibromochloromethane	ug/L	50	52.5	105	70-130	
Dichlorodifluoromethane	ug/L	50	36.9	74	20-135	
Ethylbenzene	ug/L	50	56.3	113	87-129	
Isopropylbenzene (Cumene)	ug/L	50	57.1	114	70-130	
m&p-Xylene	ug/L	100	112	112	70-130	
Methyl-tert-butyl ether	ug/L	50	50.3	101	66-143	
Methylene Chloride	ug/L	50	48.5	97	70-130	
o-Xylene	ug/L	50	57.2	114	70-130	
Styrene	ug/L	50	53.6	107	70-130	
Tetrachloroethene	ug/L	50	54.5	109	70-130	
Toluene	ug/L	50	54.7	109	82-130	
trans-1,2-Dichloroethene	ug/L	50	52.4	105	75-132	
trans-1,3-Dichloropropene	ug/L	50	49.5	99	70-130	
Trichloroethene	ug/L	50	53.5	107	70-130	
Trichlorofluoromethane	ug/L	50	50.9	102	76-133	
Vinyl chloride	ug/L	50	46.6	93	57-136	
4-Bromofluorobenzene (S)	%			99	61-130	
Dibromofluoromethane (S)	%			98	67-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526734 1526735

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40151859011 Result	Spike Conc.	Spike Conc.	MSD Result							
1,1,1-Trichloroethane	ug/L	<0.50	50	50	52.4	52.4	105	105	70-134	0	20	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	52.9	54.0	106	108	70-130	2	20	
1,1,2-Trichloroethane	ug/L	<0.20	50	50	53.1	57.1	106	114	70-130	7	20	
1,1-Dichloroethane	ug/L	<0.24	50	50	49.7	49.9	99	100	71-133	0	20	
1,1-Dichloroethene	ug/L	<0.41	50	50	47.9	50.6	96	101	75-136	6	20	
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	52.3	54.4	105	109	70-130	4	20	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	46.0	48.2	92	96	63-123	5	20	
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	48.5	51.9	97	104	70-130	7	20	
1,2-Dichlorobenzene	ug/L	<0.50	50	50	54.2	53.8	108	108	70-130	1	20	
1,2-Dichloroethane	ug/L	<0.17	50	50	50.8	52.3	102	105	70-131	3	20	
1,2-Dichloropropane	ug/L	<0.23	50	50	53.1	54.5	106	109	80-120	3	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526734		1526735		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40151859011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1,3-Dichlorobenzene	ug/L	<0.50	50	50	54.7	55.8	109	112	70-130	2	20		
1,4-Dichlorobenzene	ug/L	<0.50	50	50	54.4	56.1	109	112	70-130	3	20		
Benzene	ug/L	<0.50	50	50	52.5	54.4	105	109	73-145	4	20		
Bromodichloromethane	ug/L	<0.50	50	50	51.5	53.7	103	107	70-130	4	20		
Bromoform	ug/L	<0.50	50	50	47.5	51.4	95	103	67-130	8	20		
Bromomethane	ug/L	<2.4	50	50	36.8	39.2	74	78	26-129	6	20		
Carbon tetrachloride	ug/L	<0.50	50	50	51.6	52.8	103	106	70-134	2	20		
Chlorobenzene	ug/L	<0.50	50	50	53.2	55.7	106	111	70-130	5	20		
Chloroethane	ug/L	<0.37	50	50	48.5	50.4	97	101	58-120	4	20		
Chloroform	ug/L	<2.5	50	50	49.8	51.1	100	102	80-121	3	20		
Chloromethane	ug/L	<0.50	50	50	40.9	43.8	82	88	40-128	7	20		
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	53.0	53.8	106	108	70-130	2	20		
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	52.4	54.9	105	110	70-130	5	20		
Dibromochloromethane	ug/L	<0.50	50	50	52.4	54.8	105	110	70-130	4	20		
Dichlorodifluoromethane	ug/L	<0.22	50	50	32.8	33.9	66	68	20-146	3	20		
Ethylbenzene	ug/L	<0.50	50	50	55.7	58.3	111	117	87-129	5	20		
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	56.0	58.3	112	117	70-130	4	20		
m&p-Xylene	ug/L	<1.0	100	100	112	121	112	121	70-130	8	20		
Methyl-tert-butyl ether	ug/L	<0.17	50	50	52.4	54.2	105	108	66-143	3	20		
Methylene Chloride	ug/L	<0.23	50	50	48.0	48.9	96	98	70-130	2	20		
o-Xylene	ug/L	<0.50	50	50	56.9	60.2	114	120	70-130	6	20		
Styrene	ug/L	<0.50	50	50	51.4	56.0	103	112	70-130	9	20		
Tetrachloroethene	ug/L	<0.50	50	50	52.8	55.4	106	111	70-130	5	20		
Toluene	ug/L	<0.50	50	50	55.3	58.2	111	116	82-131	5	20		
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	50.7	52.9	101	106	75-135	4	20		
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	48.1	52.1	96	104	70-130	8	20		
Trichloroethene	ug/L	<0.33	50	50	51.5	54.8	103	110	70-130	6	20		
Trichlorofluoromethane	ug/L	<0.18	50	50	49.6	51.2	99	102	76-150	3	20		
Vinyl chloride	ug/L	<0.18	50	50	46.5	46.6	93	93	56-143	0	20		
4-Bromofluorobenzene (S)	%						102	102	61-130				
Dibromofluoromethane (S)	%						97	98	67-130				
Toluene-d8 (S)	%						98	101	70-130				

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 259258 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40151851009

METHOD BLANK: 1527136 Matrix: Water
Associated Lab Samples: 40151851009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	06/22/17 07:15	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	06/22/17 07:15	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	06/22/17 07:15	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	06/22/17 07:15	
1,1-Dichloroethane	ug/L	<0.24	1.0	06/22/17 07:15	
1,1-Dichloroethene	ug/L	<0.41	1.0	06/22/17 07:15	
1,1-Dichloropropene	ug/L	<0.44	1.0	06/22/17 07:15	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	06/22/17 07:15	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	06/22/17 07:15	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	06/22/17 07:15	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	06/22/17 07:15	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	06/22/17 07:15	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	06/22/17 07:15	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	06/22/17 07:15	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/22/17 07:15	
1,2-Dichloropropane	ug/L	<0.23	1.0	06/22/17 07:15	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	06/22/17 07:15	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	06/22/17 07:15	
1,3-Dichloropropane	ug/L	<0.50	1.0	06/22/17 07:15	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	06/22/17 07:15	
2,2-Dichloropropane	ug/L	<0.48	1.0	06/22/17 07:15	
2-Chlorotoluene	ug/L	<0.50	1.0	06/22/17 07:15	
4-Chlorotoluene	ug/L	<0.21	1.0	06/22/17 07:15	
Benzene	ug/L	<0.50	1.0	06/22/17 07:15	
Bromobenzene	ug/L	<0.23	1.0	06/22/17 07:15	
Bromochloromethane	ug/L	<0.34	1.0	06/22/17 07:15	
Bromodichloromethane	ug/L	<0.50	1.0	06/22/17 07:15	
Bromoform	ug/L	<0.50	1.0	06/22/17 07:15	
Bromomethane	ug/L	<2.4	5.0	06/22/17 07:15	
Carbon tetrachloride	ug/L	<0.50	1.0	06/22/17 07:15	
Chlorobenzene	ug/L	<0.50	1.0	06/22/17 07:15	
Chloroethane	ug/L	<0.37	1.0	06/22/17 07:15	
Chloroform	ug/L	<2.5	5.0	06/22/17 07:15	
Chloromethane	ug/L	<0.50	1.0	06/22/17 07:15	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	06/22/17 07:15	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	06/22/17 07:15	
Dibromochloromethane	ug/L	<0.50	1.0	06/22/17 07:15	
Dibromomethane	ug/L	<0.43	1.0	06/22/17 07:15	
Dichlorodifluoromethane	ug/L	<0.22	1.0	06/22/17 07:15	
Diisopropyl ether	ug/L	<0.50	1.0	06/22/17 07:15	
Ethylbenzene	ug/L	<0.50	1.0	06/22/17 07:15	

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

METHOD BLANK: 1527136

Matrix: Water

Associated Lab Samples: 40151851009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	06/22/17 07:15	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	06/22/17 07:15	
m&p-Xylene	ug/L	<1.0	2.0	06/22/17 07:15	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	06/22/17 07:15	
Methylene Chloride	ug/L	<0.23	1.0	06/22/17 07:15	
n-Butylbenzene	ug/L	<0.50	1.0	06/22/17 07:15	
n-Propylbenzene	ug/L	<0.50	1.0	06/22/17 07:15	
Naphthalene	ug/L	<2.5	5.0	06/22/17 07:15	
o-Xylene	ug/L	<0.50	1.0	06/22/17 07:15	
p-Isopropyltoluene	ug/L	<0.50	1.0	06/22/17 07:15	
sec-Butylbenzene	ug/L	<2.2	5.0	06/22/17 07:15	
Styrene	ug/L	<0.50	1.0	06/22/17 07:15	
tert-Butylbenzene	ug/L	<0.18	1.0	06/22/17 07:15	
Tetrachloroethene	ug/L	<0.50	1.0	06/22/17 07:15	
Toluene	ug/L	<0.50	1.0	06/22/17 07:15	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	06/22/17 07:15	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	06/22/17 07:15	
Trichloroethene	ug/L	<0.33	1.0	06/22/17 07:15	
Trichlorofluoromethane	ug/L	<0.18	1.0	06/22/17 07:15	
Vinyl chloride	ug/L	<0.18	1.0	06/22/17 07:15	
4-Bromofluorobenzene (S)	%	94	61-130	06/22/17 07:15	
Dibromofluoromethane (S)	%	99	67-130	06/22/17 07:15	
Toluene-d8 (S)	%	99	70-130	06/22/17 07:15	

LABORATORY CONTROL SAMPLE: 1527137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.5	109	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.7	99	70-130	
1,1,2-Trichloroethane	ug/L	50	53.3	107	70-130	
1,1-Dichloroethane	ug/L	50	50.8	102	71-132	
1,1-Dichloroethene	ug/L	50	53.1	106	75-130	
1,2,4-Trichlorobenzene	ug/L	50	51.0	102	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.5	91	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	48.9	98	70-130	
1,2-Dichlorobenzene	ug/L	50	51.9	104	70-130	
1,2-Dichloroethane	ug/L	50	53.8	108	70-131	
1,2-Dichloropropane	ug/L	50	51.7	103	80-120	
1,3-Dichlorobenzene	ug/L	50	52.3	105	70-130	
1,4-Dichlorobenzene	ug/L	50	48.8	98	70-130	
Benzene	ug/L	50	51.3	103	73-145	
Bromodichloromethane	ug/L	50	53.5	107	70-130	
Bromoform	ug/L	50	48.4	97	67-130	
Bromomethane	ug/L	50	39.2	78	26-128	

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

LABORATORY CONTROL SAMPLE: 1527137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	54.1	108	70-133	
Chlorobenzene	ug/L	50	51.9	104	70-130	
Chloroethane	ug/L	50	54.3	109	58-120	
Chloroform	ug/L	50	51.3	103	80-121	
Chloromethane	ug/L	50	48.3	97	40-127	
cis-1,2-Dichloroethene	ug/L	50	47.3	95	70-130	
cis-1,3-Dichloropropene	ug/L	50	50.6	101	70-130	
Dibromochloromethane	ug/L	50	50.9	102	70-130	
Dichlorodifluoromethane	ug/L	50	57.0	114	20-135	
Ethylbenzene	ug/L	50	54.2	108	87-129	
Isopropylbenzene (Cumene)	ug/L	50	56.1	112	70-130	
m&p-Xylene	ug/L	100	109	109	70-130	
Methyl-tert-butyl ether	ug/L	50	52.5	105	66-143	
Methylene Chloride	ug/L	50	49.6	99	70-130	
o-Xylene	ug/L	50	55.6	111	70-130	
Styrene	ug/L	50	52.4	105	70-130	
Tetrachloroethene	ug/L	50	52.5	105	70-130	
Toluene	ug/L	50	52.7	105	82-130	
trans-1,2-Dichloroethene	ug/L	50	53.1	106	75-132	
trans-1,3-Dichloropropene	ug/L	50	47.7	95	70-130	
Trichloroethene	ug/L	50	52.2	104	70-130	
Trichlorofluoromethane	ug/L	50	58.1	116	76-133	
Vinyl chloride	ug/L	50	54.2	108	57-136	
4-Bromofluorobenzene (S)	%			101	61-130	
Dibromofluoromethane (S)	%			100	67-130	
Toluene-d8 (S)	%			96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1527138 1527139

Parameter	Units	10392522001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	% Rec					
1,1,1-Trichloroethane	ug/L	ND	50	50	48.2	54.4	96	109	70-134	12	20		
1,1,2,2-Tetrachloroethane	ug/L	ND	50	50	47.1	48.9	94	98	70-130	4	20		
1,1,2-Trichloroethane	ug/L	ND	50	50	47.8	54.0	96	108	70-130	12	20		
1,1-Dichloroethane	ug/L	ND	50	50	46.0	51.0	92	102	71-133	10	20		
1,1-Dichloroethene	ug/L	ND	50	50	46.5	53.8	93	108	75-136	14	20		
1,2,4-Trichlorobenzene	ug/L	ND	50	50	47.2	47.9	94	96	70-130	1	20		
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	43.6	43.3	87	87	63-123	1	20		
1,2-Dibromoethane (EDB)	ug/L	ND	50	50	43.3	48.2	87	96	70-130	11	20		
1,2-Dichlorobenzene	ug/L	ND	50	50	50.4	51.4	101	103	70-130	2	20		
1,2-Dichloroethane	ug/L	ND	50	50	48.9	54.5	98	109	70-131	11	20		
1,2-Dichloropropane	ug/L	ND	50	50	47.9	49.3	96	99	80-120	3	20		
1,3-Dichlorobenzene	ug/L	ND	50	50	48.3	50.4	97	101	70-130	4	20		
1,4-Dichlorobenzene	ug/L	ND	50	50	50.2	51.6	100	103	70-130	3	20		

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

Parameter	Units	10392522001		1527138		1527139		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Benzene	ug/L	ND	50	50	46.9	52.1	94	104	73-145	10	20		
Bromodichloromethane	ug/L	ND	50	50	47.1	51.4	94	103	70-130	9	20		
Bromoform	ug/L	ND	50	50	44.0	47.5	88	95	67-130	8	20		
Bromomethane	ug/L	ND	50	50	40.6	46.4	81	93	26-129	13	20		
Carbon tetrachloride	ug/L	ND	50	50	49.4	53.7	99	107	70-134	8	20		
Chlorobenzene	ug/L	ND	50	50	48.7	51.0	97	102	70-130	5	20		
Chloroethane	ug/L	ND	50	50	50.2	54.1	100	108	58-120	7	20		
Chloroform	ug/L	ND	50	50	46.0	51.1	92	102	80-121	11	20		
Chloromethane	ug/L	ND	50	50	43.2	47.0	86	94	40-128	9	20		
cis-1,2-Dichloroethene	ug/L	ND	50	50	46.0	45.9	92	92	70-130	0	20		
cis-1,3-Dichloropropene	ug/L	ND	50	50	46.7	50.7	93	101	70-130	8	20		
Dibromochloromethane	ug/L	ND	50	50	48.4	50.4	97	101	70-130	4	20		
Dichlorodifluoromethane	ug/L	ND	50	50	51.2	53.2	102	106	20-146	4	20		
Ethylbenzene	ug/L	ND	50	50	50.2	53.8	100	108	87-129	7	20		
Isopropylbenzene (Cumene)	ug/L	ND	50	50	52.4	55.2	105	110	70-130	5	20		
m&p-Xylene	ug/L	ND	100	100	104	108	104	108	70-130	5	20		
Methyl-tert-butyl ether	ug/L	ND	50	50	48.0	52.9	96	106	66-143	10	20		
Methylene Chloride	ug/L	ND	50	50	45.6	49.9	91	100	70-130	9	20		
o-Xylene	ug/L	ND	50	50	50.8	55.0	102	110	70-130	8	20		
Styrene	ug/L	ND	50	50	48.4	51.9	97	104	70-130	7	20		
Tetrachloroethene	ug/L	ND	50	50	48.7	52.0	97	104	70-130	7	20		
Toluene	ug/L	ND	50	50	48.0	52.6	96	105	82-131	9	20		
trans-1,2-Dichloroethene	ug/L	ND	50	50	49.0	55.1	98	110	75-135	12	20		
trans-1,3-Dichloropropene	ug/L	ND	50	50	43.8	47.2	88	94	70-130	7	20		
Trichloroethene	ug/L	ND	50	50	48.3	51.5	97	103	70-130	6	20		
Trichlorofluoromethane	ug/L	ND	50	50	52.2	56.5	104	113	76-150	8	20		
Vinyl chloride	ug/L	ND	50	50	51.2	54.0	102	108	56-143	5	20		
4-Bromofluorobenzene (S)	%						101	99	61-130				
Dibromofluoromethane (S)	%						101	102	67-130				
Toluene-d8 (S)	%						100	98	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 259605 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 40151851008

METHOD BLANK: 1529066 Matrix: Water
Associated Lab Samples: 40151851008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<5.0	10.0	06/23/17 13:09	

LABORATORY CONTROL SAMPLE: 1529067

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	528	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1529068 1529069

Parameter	Units	40151851008		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Alkalinity, Total as CaCO3	mg/L	1660	500	500	2130	2110	96	90	80-120	1	20				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

QC Batch:	259389	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010		

METHOD BLANK:	1527855	Matrix:	Water
Associated Lab Samples:	40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	06/23/17 14:53	
Sulfate	mg/L	<1.0	3.0	06/23/17 14:53	

LABORATORY CONTROL SAMPLE: 1527856						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.3	97	90-110	
Sulfate	mg/L	20	19.2	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1527857													1527858		
Parameter	Units	40151851001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual			
Chloride	mg/L	379	400	400	779	779	100	100	90-110	0	15				
Sulfate	mg/L	<5.0	100	100	119	115	116	112	90-110	4	15 M0				

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1527859													1527860		
Parameter	Units	40151607001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual			
Chloride	mg/L	17.4J	200	200	243	234	113	108	90-110	4	15 M0				
Sulfate	mg/L	512	400	400	902	838	98	81	90-110	7	15 M0				

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QUALITY CONTROL DATA

Project: 60518412 KEP
Pace Project No.: 40151851

QC Batch: 259484 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851009, 40151851010

METHOD BLANK: 1528306 Matrix: Water
Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851009, 40151851010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<7.0	23.5	06/23/17 09:48	

LABORATORY CONTROL SAMPLE: 1528307

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	98.0	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1528308 1528309

Parameter	Units	40151851010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	397	1000	1000	1390	1360	100	96	90-110	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1528310 1528311

Parameter	Units	40151845005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO ₃	mg/L	337	200	200	535	532	99	97	90-110	1	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP

Pace Project No.: 40151851

QC Batch: 259063

Analysis Method: SM 5310C

QC Batch Method: SM 5310C

Analysis Description: 5310C Total Organic Carbon

Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010

METHOD BLANK: 1526326

Matrix: Water

Associated Lab Samples: 40151851001, 40151851002, 40151851003, 40151851004, 40151851005, 40151851006, 40151851007, 40151851008, 40151851009, 40151851010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	06/20/17 09:22	

LABORATORY CONTROL SAMPLE: 1526327

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.6	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1526328 1526329

Parameter	Units	1526328		1526329		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40151851001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Total Organic Carbon	mg/L	1430	600	600	2040	1890	103	77	80-120	8	10 M0

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QUALIFIERS

Project: 60518412 KEP
Pace Project No.: 40151851

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

P4 Sample field preservation does not meet EPA or method recommendations for this analysis.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412 KEP
Pace Project No.: 40151851

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151851001	ERD6-TW-NW10-BOS	EPA 8015B Modified	258910		
40151851002	ERD6-TW-NW15-TOS	EPA 8015B Modified	258910		
40151851003	ERD6-TW-NW10-TOS	EPA 8015B Modified	258910		
40151851004	ERD6-TW-NW15-BOS	EPA 8015B Modified	258910		
40151851005	CS8-MW-807	EPA 8015B Modified	258910		
40151851006	CS4-PZ-75	EPA 8015B Modified	258910		
40151851007	ERD1-TW-NW10-TOS	EPA 8015B Modified	258910		
40151851008	CS8-PZ-61	EPA 8015B Modified	258910		
40151851009	ERD1-TW-NW10-BOS	EPA 8015B Modified	258910		
40151851010	CS8-MW-61	EPA 8015B Modified	258910		
40151851001	ERD6-TW-NW10-BOS	EPA 6010	259481		
40151851002	ERD6-TW-NW15-TOS	EPA 6010	259481		
40151851003	ERD6-TW-NW10-TOS	EPA 6010	259481		
40151851004	ERD6-TW-NW15-BOS	EPA 6010	259481		
40151851005	CS8-MW-807	EPA 6010	259481		
40151851006	CS4-PZ-75	EPA 6010	259481		
40151851007	ERD1-TW-NW10-TOS	EPA 6010	259481		
40151851008	CS8-PZ-61	EPA 6010	259481		
40151851009	ERD1-TW-NW10-BOS	EPA 6010	259481		
40151851010	CS8-MW-61	EPA 6010	259481		
40151851011	CS8-MW-61-DUP	EPA 6010	259481		
40151851001	ERD6-TW-NW10-BOS	EPA 3010	259418	EPA 6020	259510
40151851002	ERD6-TW-NW15-TOS	EPA 3010	259418	EPA 6020	259510
40151851003	ERD6-TW-NW10-TOS	EPA 3010	259418	EPA 6020	259510
40151851004	ERD6-TW-NW15-BOS	EPA 3010	259418	EPA 6020	259510
40151851005	CS8-MW-807	EPA 3010	259418	EPA 6020	259510
40151851006	CS4-PZ-75	EPA 3010	259418	EPA 6020	259510
40151851007	ERD1-TW-NW10-TOS	EPA 3010	259418	EPA 6020	259510
40151851008	CS8-PZ-61	EPA 3010	259418	EPA 6020	259510
40151851009	ERD1-TW-NW10-BOS	EPA 3010	259418	EPA 6020	259510
40151851010	CS8-MW-61	EPA 3010	259418	EPA 6020	259510
40151851011	CS8-MW-61-DUP	EPA 3010	259418	EPA 6020	259510
40151851001	ERD6-TW-NW10-BOS	EPA 8260	258964		
40151851002	ERD6-TW-NW15-TOS	EPA 8260	259150		
40151851003	ERD6-TW-NW10-TOS	EPA 8260	259150		
40151851004	ERD6-TW-NW15-BOS	EPA 8260	259150		
40151851005	CS8-MW-807	EPA 8260	259150		
40151851006	CS4-PZ-75	EPA 8260	259150		
40151851007	ERD1-TW-NW10-TOS	EPA 8260	259150		
40151851008	CS8-PZ-61	EPA 8260	259150		
40151851009	ERD1-TW-NW10-BOS	EPA 8260	259258		
40151851010	CS8-MW-61	EPA 8260	259150		
40151851011	CS8-MW-61-DUP	EPA 8260	259150		
40151851012	TRIP BLANK	EPA 8260	259150		
40151851008	CS8-PZ-61	SM 2320B	259605		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412 KEP
Pace Project No.: 40151851

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40151851001	ERD6-TW-NW10-BOS	EPA 300.0	259389		
40151851002	ERD6-TW-NW15-TOS	EPA 300.0	259389		
40151851003	ERD6-TW-NW10-TOS	EPA 300.0	259389		
40151851004	ERD6-TW-NW15-BOS	EPA 300.0	259389		
40151851005	CS8-MW-807	EPA 300.0	259389		
40151851006	CS4-PZ-75	EPA 300.0	259389		
40151851007	ERD1-TW-NW10-TOS	EPA 300.0	259389		
40151851008	CS8-PZ-61	EPA 300.0	259389		
40151851009	ERD1-TW-NW10-BOS	EPA 300.0	259389		
40151851010	CS8-MW-61	EPA 300.0	259389		
40151851001	ERD6-TW-NW10-BOS	EPA 310.2	259484		
40151851002	ERD6-TW-NW15-TOS	EPA 310.2	259484		
40151851003	ERD6-TW-NW10-TOS	EPA 310.2	259484		
40151851004	ERD6-TW-NW15-BOS	EPA 310.2	259484		
40151851005	CS8-MW-807	EPA 310.2	259484		
40151851006	CS4-PZ-75	EPA 310.2	259484		
40151851007	ERD1-TW-NW10-TOS	EPA 310.2	259484		
40151851009	ERD1-TW-NW10-BOS	EPA 310.2	259484		
40151851010	CS8-MW-61	EPA 310.2	259484		
40151851001	ERD6-TW-NW10-BOS	SM 5310C	259063		
40151851002	ERD6-TW-NW15-TOS	SM 5310C	259063		
40151851003	ERD6-TW-NW10-TOS	SM 5310C	259063		
40151851004	ERD6-TW-NW15-BOS	SM 5310C	259063		
40151851005	CS8-MW-807	SM 5310C	259063		
40151851006	CS4-PZ-75	SM 5310C	259063		
40151851007	ERD1-TW-NW10-TOS	SM 5310C	259063		
40151851008	CS8-PZ-61	SM 5310C	259063		
40151851009	ERD1-TW-NW10-BOS	SM 5310C	259063		
40151851010	CS8-MW-61	SM 5310C	259063		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

SSM

4015185 | Page 56 of 78

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: AECOM - Milw	Report To: Lanette Altenbach	Attention: Accounts Payable/Finance Department
Address: 1555 N. River Center Dr., Suite 214	Copy To: Susan Petrofske	Company Name: City of Kenosha
Milwaukee, WI 53212		Address: 652 52nd St., Kenosha, WI 53140
Email To: Lanette.Altенbach@aecom.com	Purchase Order No.:	Pace Quote Reference:
Phone: 414-577-1363 Fax:	Project Name:	Pace Project Manager: Chris Hyska
Requested Due Date/TAT: Standard	Project Number: 60510412	Pace Profile #: (2430) Kenosha_work

REGULATORY AGENCY	
<input type="checkbox"/> NPDES	<input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
SITE	<input type="checkbox"/> GA <input type="checkbox"/> IL <input type="checkbox"/> IN <input type="checkbox"/> MI <input type="checkbox"/> NC
LOCATION	<input type="checkbox"/> OH <input type="checkbox"/> SC <input checked="" type="checkbox"/> WI <input type="checkbox"/> OTHER
Filtered (Y/N)	N N N N N Y N
Requested Ant	<input checked="" type="checkbox"/> VOCs 8260 <input checked="" type="checkbox"/> TOC <input checked="" type="checkbox"/> Alkalinity, Cl, SO4 <input checked="" type="checkbox"/> Methane, Ethane, Ethanol <input checked="" type="checkbox"/> Total Metals <input checked="" type="checkbox"/> Diss. Metals <input checked="" type="checkbox"/> Volatile Fatty Acids <input checked="" type="checkbox"/> Residual Chlorine (Y/N)
Item #	Pace Project Number Lab I.D.

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / . -) Samples IDs MUST BE UNIQUE	Valid Matrix Codes MATRIX DRINKING WATER DW WATER WT WASTE WATER WW PRODUCT P SOIL/SOLID SL OIL OL WIPE WP AIR AR OTHER OT TISSUE TS	MATRIX CODE	SAMPLE TYPE G+GRAB C=COMP	COLLECTED				SAMPLE TEMP AT COLLECTION	#OF CONTAINERS	Preservatives							Filtered (Y/N)	Requested Ant	Pace Project Number Lab I.D.							
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol				Other						
					DATE	TIME	DATE	TIME																			
1	ERD6-TW-NW10-BOS 3-250mlp ADD		WT	G	6/14/17	12:25	10:04		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX	40mlv	WB25
2	ERD6-TW-NW15-TDS		WT	G	6/14/17		10:15		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
3	ERD6-TW-NW10-TDS		WT	G	6/14/17		11:07		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
4	ERD6-TW-NW15-BOS		WT	G	6/14/17		11:24		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
5	CS8-MW-807		WT	G	6/14/17		13:21		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
6	CS4-PZ-75		WT	G	6/14/17		13:28		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
7	ERD1-TW-NW10-TDS		WT	G	6/15/17		09:38		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
8	CS8-PZ-101		WT	G	6/15/17		09:46		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
9	ERD1-TW-NW10-BOS		WT	G	6/15/17		11:02		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
10	CS8-MW-101		WT	G	6/15/17		11:23		12	1	1	2	6			2	XX	XX	XX	XX	XX	XX	XX	XX	XX		
11	CS8-MW-101-DUP		WT	G	6/15/17		11:23		5	#2	3						X									3-40mlv ^B	
12	Trip Blank		WT	G	6/14/17		09:30		2			2					X									2-40mlv ^B	

Additional Comments: For item #s 5 & 6, please disregard crossed out #2s & X's. these will in fact be included.

* The following samples need to be filtered in the lab for dissolved iron: they were not field filtered. HNO₃ was rinsed from sample bottles: ERD6-TW-NW15-TDS, ERD6-TW-NW10-TDS, ERD6-TW-NW15-BOS, CS8-MW-807, CS4-PZ-75

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS		
Alex Stecker/AECOM	6/14/17	10:00am	Mary Fanning	6/16/17	10:35	Y/N	Y/N	Y/N
Mary Fanning	6/16/17	12:40	Kimberly Retteke Pace	6/16/17	2:40	Y/N	Y/N	Y/N
Kimberly Retteke Pace	6/16/17	4:15	Stacie Albert	6/16/17	4:15	ROI	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Alex Stecker / Zach Albert / Stacie Albert / Elizabeth Elbert

SIGNATURE of SAMPLER: Alex Stecker / Stacie Albert / Elizabeth Elbert

DATE Signed (MM/DD/YY): 6/15/17

Temp in °C

Received on Ice

Custody Sealed Cooler

Samples Intact



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Project #: **WO# : 40151851**

Client Name: AECOM

Courier: Fed Ex UPS Client Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used: NA Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature: Uncorr: _____ /Corr: ROL Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Person examining contents:
Date: 6/16/17
Initials: KS

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. 002-006 1-250ml ² added for lab filter
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	11. ¹
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. Oil ID does not have "DUP"
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: (VOA) coliform, (TOC) TOX, TOH, O&G, WIDROW, Phenolics, OTHER: <u>BAK</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed: <u>KS</u> Lab Std #/ID of preservative: _____ Date/Time: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>381</u>		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____
Comments/ Resolution: per client note 002-006 client washed acid out of 1-250ml² and requests lab filter for dissolved metals

② differentiated from O10 by received in separate bags and oil ID is handwritten, O10 ID is typed

Project Manager Review: _____ Date: 6-19-17



Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

June 29, 2017

Christopher Hyska
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302

RE: **60518412 KEP / 40151851**

Pace Workorder: 23027

Dear Christopher Hyska:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, June 20, 2017. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 06/29/2017
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 21

Report ID: 23027 - 940038

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).



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SAMPLE SUMMARY

Workorder: 23027 60518412 KEP / 40151851

Lab ID	Sample ID	Matrix	Date Collected	Date Received
230270001	ERD6-TW-NW10-BOS	Water	6/14/2017 10:04	6/20/2017 10:30
230270002	ERD6-TW-NW15-TOS	Water	6/14/2017 10:15	6/20/2017 10:30
230270003	ERD6-TW-NW10-TOS	Water	6/14/2017 11:07	6/20/2017 10:30
230270004	ERD6-TW-NW15-BOS	Water	6/14/2017 11:24	6/20/2017 10:30
230270005	CS8-MW-807	Water	6/14/2017 13:21	6/20/2017 10:30
230270006	CS4-PZ-75	Water	6/14/2017 13:28	6/20/2017 10:30
230270007	ERD1-TW-NW10-TOS	Water	6/15/2017 09:38	6/20/2017 10:30
230270008	CS8-PZ-61	Water	6/15/2017 09:46	6/20/2017 10:30
230270009	ERD1-TW-NW10-BOS	Water	6/15/2017 11:02	6/20/2017 10:30
230270010	CS8-MW-61	Water	6/15/2017 11:23	6/20/2017 10:30



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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 23027 60518412 KEP / 40151851

Workorder Comments

The analysis for volatile fatty acids, method AM23G, was reported at dilution for samples 23027 (0001-0010) due to the measured chloride concentration within the sample; matrix interfering compound.



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270001** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD6-TW-NW10-BOS** Date Collected: 6/14/2017 10:04

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	8.6	mg/l	2.0	0.20	10	6/24/2017 01:35	KB	d
Acetic Acid	660	mg/l	100	20	1000	6/26/2017 23:14	KB	d,B
Propionic Acid	380	mg/l	10	0.61	100	6/26/2017 22:10	KB	d
Formic Acid	5.7	mg/l	2.0	0.69	10	6/24/2017 01:35	KB	d
Butyric Acid	150	mg/l	10	1.4	100	6/26/2017 22:10	KB	d
Pyruvic Acid	3.0	mg/l	1.0	0.16	10	6/24/2017 01:35	KB	d
i-Pentanoic Acid	1.9	mg/l	1.0	0.055	10	6/24/2017 01:35	KB	d
Pentanoic Acid	9.1	mg/l	1.0	0.12	10	6/24/2017 01:35	KB	d
i-Hexanoic Acid	0.82J	mg/l	2.0	0.41	10	6/24/2017 01:35	KB	d
Hexanoic Acid	4.0	mg/l	2.0	0.38	10	6/24/2017 01:35	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270002** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD6-TW-NW15-TOS** Date Collected: 6/14/2017 10:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.28J	mg/l	2.0	0.20	10	6/24/2017 02:39	KB	d
Acetic Acid	230	mg/l	10	2.0	100	6/27/2017 00:17	KB	d,B
Propionic Acid	96	mg/l	10	0.61	100	6/27/2017 00:17	KB	d
Formic Acid	2.5	mg/l	2.0	0.69	10	6/24/2017 02:39	KB	d
Butyric Acid	82	mg/l	10	1.4	100	6/27/2017 00:17	KB	d
Pyruvic Acid	1.2	mg/l	1.0	0.16	10	6/24/2017 02:39	KB	d
i-Pentanoic Acid	0.79J	mg/l	1.0	0.055	10	6/24/2017 02:39	KB	d
Pentanoic Acid	4.8	mg/l	1.0	0.12	10	6/24/2017 02:39	KB	d
i-Hexanoic Acid	0.60J	mg/l	2.0	0.41	10	6/24/2017 02:39	KB	d
Hexanoic Acid	0.94J	mg/l	2.0	0.38	10	6/24/2017 02:39	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270003** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD6-TW-NW10-TOS** Date Collected: 6/14/2017 11:07

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	8.7	mg/l	2.0	0.20	10	6/24/2017 03:42	KB	d
Acetic Acid	600	mg/l	100	20	1000	6/27/2017 02:24	KB	d,B
Propionic Acid	350	mg/l	10	0.61	100	6/27/2017 01:20	KB	d
Formic Acid	3.3	mg/l	2.0	0.69	10	6/24/2017 03:42	KB	d
Butyric Acid	44	mg/l	1.0	0.14	10	6/24/2017 03:42	KB	d
Pyruvic Acid	2.3	mg/l	1.0	0.16	10	6/24/2017 03:42	KB	d
i-Pentanoic Acid	1.7	mg/l	1.0	0.055	10	6/24/2017 03:42	KB	d
Pentanoic Acid	4.9	mg/l	1.0	0.12	10	6/24/2017 03:42	KB	d
i-Hexanoic Acid	0.41J	mg/l	2.0	0.41	10	6/24/2017 03:42	KB	d
Hexanoic Acid	5.4	mg/l	2.0	0.38	10	6/24/2017 03:42	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270004** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD6-TW-NW15-BOS** Date Collected: 6/14/2017 11:24

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G Analytical Method: AM23G

Lactic Acid	7.1J	mg/l	20	2.0	100	6/27/2017 03:27	KB	d
Acetic Acid	350	mg/l	10	2.0	100	6/27/2017 03:27	KB	d,B
Propionic Acid	150	mg/l	10	0.61	100	6/27/2017 03:27	KB	d
Formic Acid	10J	mg/l	20	6.9	100	6/27/2017 03:27	KB	d
Butyric Acid	170	mg/l	10	1.4	100	6/27/2017 03:27	KB	d
Pyruvic Acid	1.5	mg/l	1.0	0.16	10	6/24/2017 04:45	KB	d
i-Pentanoic Acid	0.80J	mg/l	1.0	0.055	10	6/24/2017 04:45	KB	d
Pentanoic Acid	9.4	mg/l	1.0	0.12	10	6/24/2017 04:45	KB	d
i-Hexanoic Acid	1.2J	mg/l	2.0	0.41	10	6/24/2017 04:45	KB	d
Hexanoic Acid	1.2J	mg/l	2.0	0.38	10	6/24/2017 04:45	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270005** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **CS8-MW-807** Date Collected: 6/14/2017 13:21

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.20U	mg/l	2.0	0.20	10	6/24/2017 05:49	KB	d
Acetic Acid	0.55J	mg/l	1.0	0.20	10	6/24/2017 05:49	KB	d,B
Propionic Acid	0.10J	mg/l	1.0	0.061	10	6/24/2017 05:49	KB	d
Formic Acid	1.7J	mg/l	2.0	0.69	10	6/24/2017 05:49	KB	d
Butyric Acid	0.14J	mg/l	1.0	0.14	10	6/24/2017 05:49	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	6/24/2017 05:49	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	6/24/2017 05:49	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	6/24/2017 05:49	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	6/24/2017 05:49	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	6/24/2017 05:49	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270006** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **CS4-PZ-75** Date Collected: 6/14/2017 13:28

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.20U	mg/l	2.0	0.20	10	6/24/2017 06:52	KB	d
Acetic Acid	0.40J	mg/l	1.0	0.20	10	6/24/2017 06:52	KB	d,B
Propionic Acid	0.061U	mg/l	1.0	0.061	10	6/24/2017 06:52	KB	d
Formic Acid	0.76J	mg/l	2.0	0.69	10	6/24/2017 06:52	KB	d
Butyric Acid	0.14U	mg/l	1.0	0.14	10	6/24/2017 06:52	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	6/24/2017 06:52	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	6/24/2017 06:52	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	6/24/2017 06:52	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	6/24/2017 06:52	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	6/24/2017 06:52	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270007** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD1-TW-NW10-TOS** Date Collected: 6/15/2017 09:38

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.20U	mg/l	2.0	0.20	10	6/24/2017 07:55	KB	d
Acetic Acid	21	mg/l	1.0	0.20	10	6/24/2017 07:55	KB	d,B
Propionic Acid	11	mg/l	1.0	0.061	10	6/24/2017 07:55	KB	d
Formic Acid	1.1J	mg/l	2.0	0.69	10	6/24/2017 07:55	KB	d
Butyric Acid	0.54J	mg/l	1.0	0.14	10	6/24/2017 07:55	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	6/24/2017 07:55	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	6/24/2017 07:55	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	6/24/2017 07:55	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	6/24/2017 07:55	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	6/24/2017 07:55	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270008** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **CS8-PZ-61** Date Collected: 6/15/2017 09:46

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	140	mg/l	20	2.0	100	6/27/2017 04:30	KB	d
Acetic Acid	1300	mg/l	100	20	1000	6/27/2017 05:34	KB	d,B
Propionic Acid	760	mg/l	100	6.1	1000	6/27/2017 05:34	KB	d
Formic Acid	63	mg/l	20	6.9	100	6/27/2017 04:30	KB	d
Butyric Acid	1400	mg/l	100	14	1000	6/27/2017 05:34	KB	d
Pyruvic Acid	6.5J	mg/l	10	1.6	100	6/27/2017 04:30	KB	d
i-Pentanoic Acid	2.5J	mg/l	10	0.55	100	6/27/2017 04:30	KB	d
Pentanoic Acid	55	mg/l	10	1.2	100	6/27/2017 04:30	KB	d
i-Hexanoic Acid	5.7	mg/l	2.0	0.41	10	6/24/2017 08:59	KB	d
Hexanoic Acid	8.0	mg/l	2.0	0.38	10	6/24/2017 08:59	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270009** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **ERD1-TW-NW10-BOS** Date Collected: 6/15/2017 11:02

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
------------	---------	-------	-----	-----	----	----------	----	------------

EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
Lactic Acid	0.20U	mg/l	2.0	0.20	10	6/24/2017 10:02	KB	d
Acetic Acid	35	mg/l	1.0	0.20	10	6/24/2017 10:02	KB	d,B
Propionic Acid	18	mg/l	1.0	0.061	10	6/24/2017 10:02	KB	d
Formic Acid	1.2J	mg/l	2.0	0.69	10	6/24/2017 10:02	KB	d
Butyric Acid	1.3	mg/l	1.0	0.14	10	6/24/2017 10:02	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	6/24/2017 10:02	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	6/24/2017 10:02	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	6/24/2017 10:02	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	6/24/2017 10:02	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	6/24/2017 10:02	KB	d



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ANALYTICAL RESULTS

Workorder: 23027 60518412 KEP / 40151851

Lab ID: **230270010** Date Received: 6/20/2017 10:30 Matrix: Water
 Sample ID: **CS8-MW-61** Date Collected: 6/15/2017 11:23

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G Analytical Method: AM23G

Lactic Acid	0.20U	mg/l	2.0	0.20	10	6/24/2017 13:12	KB	d
Acetic Acid	7.4	mg/l	1.0	0.20	10	6/24/2017 13:12	KB	d,B
Propionic Acid	0.18J	mg/l	1.0	0.061	10	6/24/2017 13:12	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	6/24/2017 13:12	KB	d
Butyric Acid	0.37J	mg/l	1.0	0.14	10	6/24/2017 13:12	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	6/24/2017 13:12	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	6/24/2017 13:12	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	6/24/2017 13:12	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	6/24/2017 13:12	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	6/24/2017 13:12	KB	d



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ANALYTICAL RESULTS QUALIFIERS

Workorder: 23027 60518412 KEP / 40151851

DEFINITIONS/QUALIFIERS

- MDL Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
- PQL Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
- ND Not detected at or above reporting limit.
- DF Dilution Factor.
- S Surrogate.
- RPD Relative Percent Difference.
- % Rec Percent Recovery.
- U Indicates the compound was analyzed for, but not detected at or above the noted concentration.
- J Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
-
- B The analyte was detected in the associated blank.
- d The analyte concentration was determined from a dilution.



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QUALITY CONTROL DATA

Workorder: 23027 60518412 KEP / 40151851

QC Batch: EDON/3412 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 230270001, 230270002, 230270003, 230270004, 230270005, 230270006, 230270007, 230270008, 230270009, 230270010

METHOD BLANK: 49538

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	0.020U	0.020	
Acetic Acid	mg/l	0.024J	0.020	B
Propionic Acid	mg/l	0.0061U	0.0061	
Formic Acid	mg/l	0.069U	0.069	
Butyric Acid	mg/l	0.014U	0.014	
Pyruvic Acid	mg/l	0.016U	0.016	
i-Pentanoic Acid	mg/l	0.0055U	0.0055	
Pentanoic Acid	mg/l	0.012U	0.012	
i-Hexanoic Acid	mg/l	0.041U	0.041	
Hexanoic Acid	mg/l	0.038U	0.038	

LABORATORY CONTROL SAMPLE: 49539

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	1.9	97	70-130	
Acetic Acid	mg/l	2	2.1	104	70-130	B
Propionic Acid	mg/l	2	2.1	103	70-130	
Formic Acid	mg/l	2	1.7	86	70-130	
Butyric Acid	mg/l	2	2.1	104	70-130	
Pyruvic Acid	mg/l	2	2.2	110	70-130	
i-Pentanoic Acid	mg/l	2	2.1	103	70-130	
Pentanoic Acid	mg/l	2	2.0	102	70-130	
i-Hexanoic Acid	mg/l	2	2.1	107	70-130	
Hexanoic Acid	mg/l	2	1.9	95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 49540 49541 Original: 230270009

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	Max RPD	Max RPD	Qualifiers
EDonors											



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QUALITY CONTROL DATA

Workorder: 23027 60518412 KEP / 40151851

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 49540 49541 Original: 230270009

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Lactic Acid	mg/l	0.069	20	17	18	87	89	70-130	2.3	30	d
Acetic Acid	mg/l	35	20	55	55	102	101	70-130	0.99	30	d,B
Propionic Acid	mg/l	18	20	38	37	99	98	70-130	1	30	d
Formic Acid	mg/l	1.2	20	18	18	84	85	70-130	1.2	30	d
Butyric Acid	mg/l	1.3	20	22	21	102	100	70-130	2	30	d
Pyruvic Acid	mg/l	0.056	20	20	21	102	103	70-130	0.98	30	d
i-Pentanoic Acid	mg/l	0.054	20	21	20	103	101	70-130	2	30	d
Pentanoic Acid	mg/l	0.081	20	21	21	106	103	70-130	2.9	30	d
i-Hexanoic Acid	mg/l	0	20	23	22	113	113	70-130	0	30	d
Hexanoic Acid	mg/l	0	20	21	21	107	107	70-130	0	30	d



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QUALITY CONTROL DATA

Workorder: 23027 60518412 KEP / 40151851

QC Batch: EDON/3419 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 230270001, 230270002, 230270003, 230270004, 230270008

METHOD BLANK: 49606

Parameter	Units	Blank Result	Reporting Limit Qualifiers
EDonors			
Lactic Acid	mg/l	0.020U	0.020
Acetic Acid	mg/l	0.037J	0.020 B
Propionic Acid	mg/l	0.0061U	0.0061
Formic Acid	mg/l	0.069U	0.069
Butyric Acid	mg/l	0.014U	0.014
Pyruvic Acid	mg/l	0.016U	0.016
i-Pentanoic Acid	mg/l	0.0055U	0.0055
Pentanoic Acid	mg/l	0.012U	0.012

LABORATORY CONTROL SAMPLE: 49607

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	1.9	96	70-130	
Acetic Acid	mg/l	2	2.1	104	70-130	B
Propionic Acid	mg/l	2	2.0	103	70-130	
Formic Acid	mg/l	2	1.7	85	70-130	
Butyric Acid	mg/l	2	2.1	104	70-130	
Pyruvic Acid	mg/l	2	2.2	109	70-130	
i-Pentanoic Acid	mg/l	2	2.0	102	70-130	
Pentanoic Acid	mg/l	2	2.0	103	70-130	



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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 23027 60518412 KEP / 40151851

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
230270001	ERD6-TW-NW10-BOS			AM23G	EDON/3412
230270002	ERD6-TW-NW15-TOS			AM23G	EDON/3412
230270003	ERD6-TW-NW10-TOS			AM23G	EDON/3412
230270004	ERD6-TW-NW15-BOS			AM23G	EDON/3412
230270005	CS8-MW-807			AM23G	EDON/3412
230270006	CS4-PZ-75			AM23G	EDON/3412
230270007	ERD1-TW-NW10-TOS			AM23G	EDON/3412
230270008	CS8-PZ-61			AM23G	EDON/3412
230270009	ERD1-TW-NW10-BOS			AM23G	EDON/3412
230270010	CS8-MW-61			AM23G	EDON/3412
230270001	ERD6-TW-NW10-BOS			AM23G	EDON/3419
230270002	ERD6-TW-NW15-TOS			AM23G	EDON/3419
230270003	ERD6-TW-NW10-TOS			AM23G	EDON/3419
230270004	ERD6-TW-NW15-BOS			AM23G	EDON/3419
230270008	CS8-PZ-61			AM23G	EDON/3419



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Cooler Receipt Form

Client Name: Pace GB Project: 60518412KEP Lab Work Order: 23027

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other _____ Air bill Present: Yes No

Tracking Number: 932518919991

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 20C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	<input checked="" type="checkbox"/>			
Chain of Custody relinquished	<input checked="" type="checkbox"/>			
Sampler Name & Signature on CDC			<input checked="" type="checkbox"/>	
Containers intact	<input checked="" type="checkbox"/>			
Were samples in separate bags		<input checked="" type="checkbox"/>		
Sample container labels match CDC	<input checked="" type="checkbox"/>			
Sample name/date and time collected	<input checked="" type="checkbox"/>			
Sufficient volume provided	<input checked="" type="checkbox"/>			
PAES containers used	<input checked="" type="checkbox"/>			
Are containers properly preserved for the requested testing? (as labeled)	<input checked="" type="checkbox"/>			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			<input checked="" type="checkbox"/>	If yes, see DR form
Was volume for dissolved testing field filtered, as noted on the CDC? Was volume received in a preserved container?			<input checked="" type="checkbox"/>	

Comments: _____

Cooler contents examined/received by: LG Date: 6.20.17

Project Manager Review: Jem Date: 6/20/17



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

Client: Lanette Altenbach
AECOM
1555 N Rivercenter Dr
Suite 214
Milwaukee, WI 53212

Phone: 414-944-6186

Fax: 414-944-6080

Identifier: 0710F

Date Rec: 06/15/2017

Report Date: 06/22/2017

Client Project #: 60518412

Client Project Name: KEP Pilot Wells

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

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Client: AECOM
Project: KEP Pilot Wells

MI Project Number: 0710F
Date Received: 06/15/2017

Sample Information

Client Sample ID:	ERD6-TW-NW10 -BOS	ERD6-TW-NW15 -TOS	ERD6-TW-NW10 -TOS	ERD6-TW-NW15 -BOS	CS8-MW-807
Sample Date:	06/14/2017	06/14/2017	06/14/2017	06/14/2017	06/14/2017
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst:	CB	CB	CB	CB	CB

Dechlorinating Bacteria

		ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	CS8-MW-807
<i>Dehalococcoides</i>	DHC	5.97E+03	1.14E+04	1.41E+04	3.39E+03	<4.00E+00
tceA Reductase	TCE	2.72E+02	4.49E+01	7.60E+01	4.52E+01	<4.00E+00
BAV1 Vinyl Chloride Reductase	BVC	6.82E+02	2.59E+03	3.14E+03	6.86E+02	<4.00E+00
Vinyl Chloride Reductase	VCR	9.16E+02	3.98E+03	5.20E+03	1.51E+03	<4.00E+00

Functional Genes

		ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	CS8-MW-807
Sulfate Reducing Bacteria	APS	7.35E+02	9.32E+03	5.08E+02	4.33E+02	<4.00E+01
Methanogens	MGN	3.61E+04	8.31E+04	2.10E+04	7.89E+03	1.87E+01 (J)

Legend:

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

Client: AECOM
Project: KEP Pilot Wells

MI Project Number: 0710F
Date Received: 06/15/2017

Sample Information

Client Sample ID:	CS4-PZ-75	ERD1-TW-NW10 -TOS	CS8-PZ-61	ERD1-TW-NW10 -BOS	CS8-MW-61
Sample Date:	06/14/2017	06/15/2017	06/15/2017	06/15/2017	06/15/2017
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst:	CB	CB	CB	CB	CB

Dechlorinating Bacteria

		1.79E+02	3.05E+04	7.36E+02	4.34E+04	1.04E+05
<i>Dehalococcoides</i>	DHC					
tceA Reductase	TCE	<5.00E-01	3.33E+01	4.56E+02	8.26E+01	5.10E+01
BAV1 Vinyl Chloride Reductase	BVC	4.51E+01	2.64E+04	<2.94E+01	4.65E+04	9.05E+04
Vinyl Chloride Reductase	VCR	2.60E+03	4.58E+04	4.42E+02	8.08E+04	5.69E+04

Functional Genes

		1.56E+05	1.37E+06	1.04E+03	1.98E+06	1.52E+06
Sulfate Reducing Bacteria	APS					
Methanogens	MGN	1.58E+03	2.22E+04	1.16E+03	2.25E+04	5.48E+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 6/15/2017

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	06/15/2017	06/22/2017	3 °C	106%	non-detect	non-detect
TCE	06/15/2017	06/22/2017	3 °C	103%	non-detect	non-detect
VCR	06/15/2017	06/22/2017	3 °C	111%	non-detect	non-detect
MGN	06/15/2017	06/22/2017	3 °C	87%	non-detect	non-detect
DHC	06/15/2017	06/22/2017	3 °C	99%	non-detect	non-detect
BVC	06/15/2017	06/22/2017	0 °C	106%	non-detect	non-detect
TCE	06/15/2017	06/22/2017	0 °C	103%	non-detect	non-detect
VCR	06/15/2017	06/22/2017	0 °C	111%	non-detect	non-detect
MGN	06/15/2017	06/22/2017	0 °C	87%	non-detect	non-detect
DHC	06/15/2017	06/22/2017	0 °C	99%	non-detect	non-detect

Samples Received 6/16/2017

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	06/16/2017	06/22/2017	0 °C	99%	non-detect	non-detect
BVC	06/16/2017	06/22/2017	0 °C	106%	non-detect	non-detect
TCE	06/16/2017	06/22/2017	0 °C	103%	non-detect	non-detect
VCR	06/16/2017	06/22/2017	0 °C	111%	non-detect	non-detect
MGN	06/16/2017	06/22/2017	0 °C	87%	non-detect	non-detect

October 03, 2017

Lanette Altenbach
AECOM, Inc.
1555 N River Center Drive
Suite 214
Milwaukee, WI 53212

RE: Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

Dear Lanette Altenbach:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40156890001	ERD6-TW-NW15-TOS	Water	09/13/17 10:50	09/16/17 09:00
40156890002	ERD6-TW-NW10-BOS	Water	09/13/17 10:53	09/16/17 09:00
40156890003	ERD6-TW-NW15-BOS	Water	09/13/17 12:04	09/16/17 09:00
40156890004	ERD6-TW-NW10-TOS	Water	09/13/17 12:17	09/16/17 09:00
40156890005	CS-8-MW-61	Water	09/13/17 13:20	09/16/17 09:00
40156890006	CS-8-PZ-61	Water	09/13/17 13:37	09/16/17 09:00
40156890007	CS-8-MW-807	Water	09/14/17 09:45	09/16/17 09:00
40156890008	ERD1-TW-NW10-TOS	Water	09/14/17 09:57	09/16/17 09:00
40156890009	ERD1-TW-NW10-TOS-DUP	Water	09/14/17 09:57	09/16/17 09:00
40156890010	ERD1-TW-NW10-BOS	Water	09/14/17 11:16	09/16/17 09:00
40156890011	CS-4-PZ-75	Water	09/14/17 11:24	09/16/17 09:00
40156890012	TRIP BLANK	Water	09/13/17 08:00	09/16/17 09:00

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SAMPLE ANALYTE COUNT

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40156890001	ERD6-TW-NW15-TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40156890002	ERD6-TW-NW10-BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40156890003	ERD6-TW-NW15-BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40156890004	ERD6-TW-NW10-TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40156890005	CS-8-MW-61	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G

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SAMPLE ANALYTE COUNT

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40156890006	CS-8-PZ-61	EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
40156890007	CS-8-MW-807	SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
40156890008	ERD1-TW-NW10-TOS	EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
40156890009	ERD1-TW-NW10-TOS-DUP	EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 6010	DLB	1	PASI-G
40156890010	ERD1-TW-NW10-BOS	EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40156890011	CS-4-PZ-75	SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	DLB	1	PASI-G
		EPA 6020	SDW	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		SM 4500-S F (2000)	DEY	1	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
40156890012	TRIP BLANK	SM 5310C	TJJ	1	PASI-G
		EPA 8260	LAP	64	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40156890001	ERD6-TW-NW15-TOS					
EPA 8015B Modified	Ethane	55.8	ug/L	5.6	09/19/17 09:14	
EPA 8015B Modified	Ethene	193	ug/L	5.0	09/19/17 09:14	
EPA 8015B Modified	Methane	2930	ug/L	70.0	09/19/17 10:53	
EPA 6010	Iron, Dissolved	34300	ug/L	100	09/19/17 16:05	
EPA 6020	Barium	282	ug/L	1.1	09/21/17 04:34	
EPA 6020	Iron	29400	ug/L	3680	09/21/17 04:07	
EPA 8260	Benzene	8.3	ug/L	1.0	09/21/17 10:11	
EPA 8260	Chloroethane	16.9	ug/L	1.0	09/21/17 10:11	
EPA 8260	cis-1,2-Dichloroethene	2.2	ug/L	1.0	09/21/17 10:11	
EPA 8260	Isopropylbenzene (Cumene)	0.29J	ug/L	1.0	09/21/17 10:11	
EPA 8260	Methyl-tert-butyl ether	0.37J	ug/L	1.0	09/21/17 10:11	
EPA 8260	Toluene	1.1	ug/L	1.0	09/21/17 10:11	
EPA 8260	Vinyl chloride	24.0	ug/L	1.0	09/21/17 10:11	
EPA 8260	m&p-Xylene	1.1J	ug/L	2.0	09/21/17 10:11	
EPA 300.0	Chloride	558	mg/L	40.0	09/18/17 14:14	
EPA 310.2	Alkalinity, Total as CaCO3	541	mg/L	47.0	09/22/17 11:50	
SM 5310C	Total Organic Carbon	130	mg/L	84.0	09/19/17 11:05	
40156890002	ERD6-TW-NW10-BOS					
EPA 8015B Modified	Ethane	28.1	ug/L	5.6	09/19/17 09:20	
EPA 8015B Modified	Ethene	209	ug/L	5.0	09/19/17 09:20	
EPA 8015B Modified	Methane	1450	ug/L	28.0	09/19/17 11:00	
EPA 6010	Iron, Dissolved	120000	ug/L	100	09/19/17 16:12	
EPA 6020	Barium	710	ug/L	1.1	09/21/17 05:15	
EPA 6020	Iron	138000	ug/L	1840	09/21/17 11:17	
EPA 8260	Benzene	5.1	ug/L	5.0	09/21/17 12:05	
EPA 8260	Chloroethane	26.7	ug/L	5.0	09/21/17 12:05	
EPA 8260	cis-1,2-Dichloroethene	433	ug/L	5.0	09/21/17 12:05	
EPA 8260	trans-1,2-Dichloroethene	3.1J	ug/L	5.0	09/21/17 12:05	
EPA 8260	Ethylbenzene	6.8	ug/L	5.0	09/21/17 12:05	
EPA 8260	Toluene	4.0J	ug/L	5.0	09/21/17 12:05	
EPA 8260	Vinyl chloride	388	ug/L	5.0	09/21/17 12:05	
EPA 300.0	Chloride	709	mg/L	40.0	09/18/17 14:25	
EPA 310.2	Alkalinity, Total as CaCO3	717	mg/L	47.0	09/22/17 11:50	
SM 5310C	Total Organic Carbon	1260	mg/L	252	09/19/17 12:07	
40156890003	ERD6-TW-NW15-BOS					
EPA 8015B Modified	Ethane	80.4	ug/L	5.6	09/19/17 09:27	
EPA 8015B Modified	Ethene	336	ug/L	5.0	09/19/17 09:27	
EPA 8015B Modified	Methane	3360	ug/L	70.0	09/19/17 11:07	
EPA 6010	Iron, Dissolved	50100	ug/L	100	09/19/17 16:19	
EPA 6020	Barium	574	ug/L	1.1	09/21/17 05:28	
EPA 6020	Chromium	1.4J	ug/L	3.4	09/21/17 05:28	
EPA 6020	Iron	44200	ug/L	368	09/21/17 05:28	
EPA 6020	Nickel	0.89J	ug/L	1.3	09/21/17 05:28	
EPA 8260	Benzene	7.0	ug/L	1.0	09/21/17 11:42	
EPA 8260	Chloroethane	19.0	ug/L	1.0	09/21/17 11:42	
EPA 8260	cis-1,2-Dichloroethene	123	ug/L	1.0	09/21/17 11:42	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40156890003	ERD6-TW-NW15-BOS					
EPA 8260	trans-1,2-Dichloroethene	1.3	ug/L	1.0	09/21/17 11:42	
EPA 8260	Isopropylbenzene (Cumene)	0.17J	ug/L	1.0	09/21/17 11:42	
EPA 8260	Toluene	1.8	ug/L	1.0	09/21/17 11:42	
EPA 8260	Vinyl chloride	104	ug/L	1.0	09/21/17 11:42	
EPA 8260	m&p-Xylene	1.5J	ug/L	2.0	09/21/17 11:42	
EPA 300.0	Chloride	658	mg/L	40.0	09/18/17 14:35	
EPA 310.2	Alkalinity, Total as CaCO3	692	mg/L	47.0	09/22/17 11:51	
SM 5310C	Total Organic Carbon	448	mg/L	252	09/19/17 12:40	
40156890004	ERD6-TW-NW10-TOS					
EPA 8015B Modified	Ethane	70.2	ug/L	5.6	09/19/17 09:34	
EPA 8015B Modified	Ethene	128	ug/L	5.0	09/19/17 09:34	
EPA 8015B Modified	Methane	1860	ug/L	56.0	09/19/17 11:14	
EPA 6010	Iron, Dissolved	21000	ug/L	100	09/19/17 16:22	
EPA 6020	Barium	206	ug/L	1.1	09/21/17 05:35	
EPA 6020	Chromium	1.1J	ug/L	3.4	09/21/17 05:35	
EPA 6020	Iron	19500	ug/L	368	09/21/17 05:35	
EPA 6020	Nickel	1.0J	ug/L	1.3	09/21/17 05:35	
EPA 8260	Benzene	5.2	ug/L	1.0	09/21/17 10:34	
EPA 8260	Chloroethane	54.0	ug/L	1.0	09/21/17 10:34	
EPA 8260	cis-1,2-Dichloroethene	30.5	ug/L	1.0	09/21/17 10:34	
EPA 8260	trans-1,2-Dichloroethene	0.48J	ug/L	1.0	09/21/17 10:34	
EPA 8260	Isopropylbenzene (Cumene)	0.28J	ug/L	1.0	09/21/17 10:34	
EPA 8260	Methyl-tert-butyl ether	0.38J	ug/L	1.0	09/21/17 10:34	
EPA 8260	Toluene	1.5	ug/L	1.0	09/21/17 10:34	
EPA 8260	Trichloroethene	0.45J	ug/L	1.0	09/21/17 10:34	
EPA 8260	Vinyl chloride	125	ug/L	1.0	09/21/17 10:34	
EPA 300.0	Chloride	499	mg/L	20.0	09/18/17 15:19	
EPA 310.2	Alkalinity, Total as CaCO3	569	mg/L	117	09/22/17 11:51	
SM 5310C	Total Organic Carbon	102	mg/L	25.2	09/19/17 13:21	
40156890005	CS-8-MW-61					
EPA 8015B Modified	Ethane	23.6	ug/L	5.6	09/19/17 09:41	
EPA 8015B Modified	Ethene	195	ug/L	5.0	09/19/17 09:41	
EPA 8015B Modified	Methane	1870	ug/L	28.0	09/19/17 11:21	
EPA 6010	Iron, Dissolved	1800	ug/L	100	09/19/17 16:24	
EPA 6020	Barium	294	ug/L	1.1	09/21/17 05:42	
EPA 6020	Iron	1590	ug/L	368	09/21/17 05:42	
EPA 8260	Benzene	18.8J	ug/L	20.0	09/21/17 12:27	
EPA 8260	cis-1,2-Dichloroethene	2160	ug/L	20.0	09/21/17 12:27	
EPA 8260	trans-1,2-Dichloroethene	103	ug/L	20.0	09/21/17 12:27	
EPA 8260	Trichloroethene	111	ug/L	20.0	09/21/17 12:27	
EPA 8260	Vinyl chloride	835	ug/L	20.0	09/21/17 12:27	
EPA 300.0	Chloride	350	mg/L	20.0	09/19/17 11:10	
EPA 300.0	Sulfate	25.8	mg/L	3.0	09/18/17 15:29	
EPA 310.2	Alkalinity, Total as CaCO3	428	mg/L	117	09/22/17 11:52	
SM 5310C	Total Organic Carbon	2.5	mg/L	1.7	09/20/17 09:27	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40156890006	CS-8-PZ-61					
EPA 8015B Modified	Ethane	34.8	ug/L	5.6	09/19/17 09:48	pH
EPA 8015B Modified	Ethene	54.0	ug/L	5.0	09/19/17 09:48	
EPA 8015B Modified	Methane	403	ug/L	11.2	09/19/17 11:28	pH
EPA 6010	Iron, Dissolved	896000	ug/L	1000	09/20/17 10:38	
EPA 6020	Barium	1670	ug/L	5.7	09/21/17 11:44	
EPA 6020	Iron	968000	ug/L	3680	09/21/17 11:37	
EPA 6020	Nickel	4.4J	ug/L	13.4	09/21/17 11:37	D3
EPA 8260	cis-1,2-Dichloroethene	2880	ug/L	50.0	09/21/17 12:50	
EPA 8260	Trichloroethene	37.9J	ug/L	50.0	09/21/17 12:50	
EPA 8260	Vinyl chloride	203	ug/L	50.0	09/21/17 12:50	
EPA 300.0	Chloride	1020	mg/L	100	09/19/17 11:21	
EPA 300.0	Sulfate	13.4J	mg/L	30.0	09/18/17 15:40	D3
EPA 310.2	Alkalinity, Total as CaCO3	1320	mg/L	117	09/22/17 11:54	
SM 5310C	Total Organic Carbon	5680	mg/L	2520	09/19/17 14:03	
40156890007	CS-8-MW-807					
EPA 8015B Modified	Ethane	5.0J	ug/L	5.6	09/19/17 09:55	
EPA 8015B Modified	Ethene	10.6	ug/L	5.0	09/19/17 09:55	
EPA 8015B Modified	Methane	218	ug/L	2.8	09/19/17 09:55	M1
EPA 6010	Iron, Dissolved	278	ug/L	100	09/19/17 16:30	
EPA 6020	Barium	51.8	ug/L	1.1	09/21/17 05:55	
EPA 6020	Iron	419	ug/L	368	09/21/17 05:55	
EPA 6020	Lead	0.23J	ug/L	1.0	09/21/17 05:55	
EPA 6020	Nickel	0.77J	ug/L	1.3	09/21/17 05:55	
EPA 8260	Trichloroethene	0.62J	ug/L	1.0	09/21/17 10:57	
EPA 8260	Vinyl chloride	64.8	ug/L	1.0	09/21/17 10:57	
EPA 300.0	Chloride	169	mg/L	20.0	09/19/17 11:32	
EPA 300.0	Sulfate	45.2	mg/L	3.0	09/18/17 15:51	
EPA 310.2	Alkalinity, Total as CaCO3	287	mg/L	117	09/22/17 11:55	
SM 5310C	Total Organic Carbon	0.54J	mg/L	0.84	09/19/17 14:24	
40156890008	ERD1-TW-NW10-TOS					
EPA 8015B Modified	Ethane	105	ug/L	5.6	09/19/17 10:02	
EPA 8015B Modified	Ethene	5.8	ug/L	5.0	09/19/17 10:02	
EPA 8015B Modified	Methane	2650	ug/L	70.0	09/19/17 11:35	
EPA 6010	Iron, Dissolved	3090	ug/L	100	09/19/17 16:32	
EPA 6020	Barium	258	ug/L	1.1	09/21/17 06:02	
EPA 6020	Iron	2640	ug/L	368	09/21/17 06:02	
EPA 6020	Lead	0.31J	ug/L	1.0	09/21/17 06:02	
EPA 8260	Chloroethane	149	ug/L	4.0	09/21/17 13:13	
EPA 8260	cis-1,2-Dichloroethene	335	ug/L	4.0	09/21/17 13:13	
EPA 8260	trans-1,2-Dichloroethene	4.2	ug/L	4.0	09/21/17 13:13	
EPA 8260	Trichloroethene	3.5J	ug/L	4.0	09/21/17 13:13	
EPA 8260	Vinyl chloride	27.2	ug/L	4.0	09/21/17 13:13	
EPA 300.0	Chloride	462	mg/L	40.0	09/18/17 16:02	
EPA 310.2	Alkalinity, Total as CaCO3	473	mg/L	117	09/22/17 11:56	
SM 5310C	Total Organic Carbon	1.5J	mg/L	1.7	09/20/17 09:48	D3

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40156890009	ERD1-TW-NW10-TOS-DUP					
EPA 6010	Iron, Dissolved	2970	ug/L	100	09/19/17 16:35	
EPA 6020	Barium	275	ug/L	1.1	09/21/17 06:09	
EPA 6020	Iron	2750	ug/L	368	09/21/17 06:09	
EPA 8260	Chloroethane	149	ug/L	5.0	09/21/17 13:35	
EPA 8260	cis-1,2-Dichloroethene	428	ug/L	5.0	09/21/17 13:35	
EPA 8260	trans-1,2-Dichloroethene	5.3	ug/L	5.0	09/21/17 13:35	
EPA 8260	Trichloroethene	4.8J	ug/L	5.0	09/21/17 13:35	
EPA 8260	Vinyl chloride	31.2	ug/L	5.0	09/21/17 13:35	
40156890010	ERD1-TW-NW10-BOS					
EPA 8015B Modified	Ethane	39.3	ug/L	5.6	09/19/17 10:09	
EPA 8015B Modified	Ethene	95.8	ug/L	5.0	09/19/17 10:09	
EPA 8015B Modified	Methane	770	ug/L	14.0	09/19/17 11:42	
EPA 6010	Iron, Dissolved	10500	ug/L	100	09/19/17 16:37	
EPA 6020	Barium	919	ug/L	1.1	09/21/17 06:16	
EPA 6020	Iron	10100	ug/L	1840	09/21/17 12:04	
EPA 8260	cis-1,2-Dichloroethene	1710	ug/L	40.0	09/21/17 13:58	
EPA 8260	trans-1,2-Dichloroethene	79.8	ug/L	40.0	09/21/17 13:58	
EPA 8260	Methylene Chloride	15.7J	ug/L	40.0	09/21/17 13:58	
EPA 8260	Trichloroethene	61.0	ug/L	40.0	09/21/17 13:58	
EPA 8260	Vinyl chloride	105	ug/L	40.0	09/21/17 13:58	
EPA 300.0	Chloride	1200	mg/L	200	09/19/17 11:42	
EPA 300.0	Sulfate	34.1J	mg/L	60.0	09/18/17 16:13	D3
EPA 310.2	Alkalinity, Total as CaCO3	553	mg/L	117	09/22/17 11:56	
SM 5310C	Total Organic Carbon	21.5	mg/L	8.4	09/19/17 15:06	
40156890011	CS-4-PZ-75					
EPA 8015B Modified	Ethane	12.1	ug/L	5.6	09/19/17 10:16	
EPA 8015B Modified	Ethene	23.3	ug/L	5.0	09/19/17 10:16	
EPA 8015B Modified	Methane	542	ug/L	14.0	09/19/17 11:49	
EPA 6010	Iron, Dissolved	4090	ug/L	100	09/19/17 16:40	
EPA 6020	Barium	236	ug/L	1.1	09/21/17 06:36	
EPA 6020	Iron	3890	ug/L	368	09/21/17 06:36	
EPA 6020	Nickel	6.3	ug/L	1.3	09/21/17 06:36	
EPA 8260	Vinyl chloride	65.1	ug/L	1.0	09/21/17 11:19	
EPA 300.0	Chloride	506	mg/L	20.0	09/19/17 11:53	
EPA 300.0	Sulfate	118	mg/L	30.0	09/19/17 11:53	
EPA 310.2	Alkalinity, Total as CaCO3	397	mg/L	23.5	09/22/17 13:10	
SM 5310C	Total Organic Carbon	10.3	mg/L	8.4	09/19/17 15:27	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW15-TOS **Lab ID:** 40156890001 Collected: 09/13/17 10:50 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	55.8	ug/L	5.6	0.58	1		09/19/17 09:14	74-84-0	
Ethene	193	ug/L	5.0	0.52	1		09/19/17 09:14	74-85-1	
Methane	2930	ug/L	70.0	34.2	25		09/19/17 10:53	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	34300	ug/L	100	15.5	1		09/19/17 16:05	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	282	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 04:34	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 04:34	7440-47-3	
Iron	29400	ug/L	3680	1110	10	09/19/17 08:48	09/21/17 04:07	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 04:34	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 04:34	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	8.3	ug/L	1.0	0.50	1		09/21/17 10:11	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:11	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 10:11	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 10:11	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:11	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 10:11	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	108-90-7	
Chloroethane	16.9	ug/L	1.0	0.37	1		09/21/17 10:11	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 10:11	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 10:11	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 10:11	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 10:11	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 10:11	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 10:11	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 10:11	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 10:11	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 10:11	75-35-4	
cis-1,2-Dichloroethene	2.2	ug/L	1.0	0.26	1		09/21/17 10:11	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 10:11	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 10:11	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW15-TOS **Lab ID:** 40156890001 Collected: 09/13/17 10:50 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 10:11	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 10:11	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:11	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:11	87-68-3	
Isopropylbenzene (Cumene)	0.29J	ug/L	1.0	0.14	1		09/21/17 10:11	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 10:11	75-09-2	
Methyl-tert-butyl ether	0.37J	ug/L	1.0	0.17	1		09/21/17 10:11	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 10:11	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:11	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 10:11	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	127-18-4	
Toluene	1.1	ug/L	1.0	0.50	1		09/21/17 10:11	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:11	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:11	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 10:11	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		09/21/17 10:11	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:11	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	108-67-8	
Vinyl chloride	24.0	ug/L	1.0	0.18	1		09/21/17 10:11	75-01-4	
m&p-Xylene	1.1J	ug/L	2.0	1.0	1		09/21/17 10:11	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:11	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	61-130		1		09/21/17 10:11	460-00-4	
Dibromofluoromethane (S)	100	%	67-130		1		09/21/17 10:11	1868-53-7	
Toluene-d8 (S)	97	%	70-130		1		09/21/17 10:11	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:30		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	558	mg/L	40.0	10.0	20		09/18/17 14:14	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		09/18/17 14:14	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	541	mg/L	47.0	14.1	2		09/22/17 11:50		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW15-TOS **Lab ID: 40156890001** Collected: 09/13/17 10:50 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	130	mg/L	84.0	25.2	100		09/19/17 11:05	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-BOS Lab ID: 40156890002 Collected: 09/13/17 10:53 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	28.1	ug/L	5.6	0.58	1		09/19/17 09:20	74-84-0	
Ethene	209	ug/L	5.0	0.52	1		09/19/17 09:20	74-85-1	
Methane	1450	ug/L	28.0	13.7	10		09/19/17 11:00	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	120000	ug/L	100	15.5	1		09/19/17 16:12	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	710	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 05:15	7440-39-3	
Chromium	<5.1	ug/L	17.0	5.1	5	09/19/17 08:48	09/21/17 11:17	7440-47-3	D3
Iron	138000	ug/L	1840	553	5	09/19/17 08:48	09/21/17 11:17	7439-89-6	
Lead	<0.98	ug/L	5.0	0.98	5	09/19/17 08:48	09/21/17 11:17	7439-92-1	D3
Nickel	<2.0	ug/L	6.7	2.0	5	09/19/17 08:48	09/21/17 11:17	7440-02-0	D3
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.1	ug/L	5.0	2.5	5		09/21/17 12:05	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		09/21/17 12:05	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		09/21/17 12:05	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		09/21/17 12:05	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		09/21/17 12:05	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		09/21/17 12:05	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	108-90-7	
Chloroethane	26.7	ug/L	5.0	1.9	5		09/21/17 12:05	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		09/21/17 12:05	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		09/21/17 12:05	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		09/21/17 12:05	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		09/21/17 12:05	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		09/21/17 12:05	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		09/21/17 12:05	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		09/21/17 12:05	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		09/21/17 12:05	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		09/21/17 12:05	75-35-4	
cis-1,2-Dichloroethene	433	ug/L	5.0	1.3	5		09/21/17 12:05	156-59-2	
trans-1,2-Dichloroethene	3.1J	ug/L	5.0	1.3	5		09/21/17 12:05	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		09/21/17 12:05	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-BOS Lab ID: 40156890002 Collected: 09/13/17 10:53 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		09/21/17 12:05	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		09/21/17 12:05	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		09/21/17 12:05	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	108-20-3	
Ethylbenzene	6.8	ug/L	5.0	2.5	5		09/21/17 12:05	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		09/21/17 12:05	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		09/21/17 12:05	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		09/21/17 12:05	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		09/21/17 12:05	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		09/21/17 12:05	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		09/21/17 12:05	630-20-6	
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		09/21/17 12:05	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	127-18-4	
Toluene	4.0J	ug/L	5.0	2.5	5		09/21/17 12:05	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		09/21/17 12:05	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		09/21/17 12:05	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		09/21/17 12:05	79-00-5	
Trichloroethene	<1.7	ug/L	5.0	1.7	5		09/21/17 12:05	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		09/21/17 12:05	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	108-67-8	
Vinyl chloride	388	ug/L	5.0	0.88	5		09/21/17 12:05	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		09/21/17 12:05	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		09/21/17 12:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	61-130		5		09/21/17 12:05	460-00-4	
Dibromofluoromethane (S)	100	%	67-130		5		09/21/17 12:05	1868-53-7	
Toluene-d8 (S)	92	%	70-130		5		09/21/17 12:05	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:32		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	709	mg/L	40.0	10.0	20		09/18/17 14:25	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		09/18/17 14:25	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	717	mg/L	47.0	14.1	2		09/22/17 11:50		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-BOS **Lab ID: 40156890002** Collected: 09/13/17 10:53 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	1260	mg/L	252	75.6	300		09/19/17 12:07	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

Sample: ERD6-TW-NW15-BOS **Lab ID:** 40156890003 Collected: 09/13/17 12:04 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	80.4	ug/L	5.6	0.58	1		09/19/17 09:27	74-84-0	
Ethene	336	ug/L	5.0	0.52	1		09/19/17 09:27	74-85-1	
Methane	3360	ug/L	70.0	34.2	25		09/19/17 11:07	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	50100	ug/L	100	15.5	1		09/19/17 16:19	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	574	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 05:28	7440-39-3	
Chromium	1.4J	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 05:28	7440-47-3	
Iron	44200	ug/L	368	111	1	09/19/17 08:48	09/21/17 05:28	7439-89-6	
Lead	<0.39	ug/L	2.0	0.39	2	09/19/17 08:48	09/21/17 11:30	7439-92-1	D3
Nickel	0.89J	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 05:28	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	7.0	ug/L	1.0	0.50	1		09/21/17 11:42	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 11:42	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 11:42	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 11:42	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 11:42	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 11:42	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	108-90-7	
Chloroethane	19.0	ug/L	1.0	0.37	1		09/21/17 11:42	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 11:42	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 11:42	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 11:42	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 11:42	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 11:42	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 11:42	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 11:42	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 11:42	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 11:42	75-35-4	
cis-1,2-Dichloroethene	123	ug/L	1.0	0.26	1		09/21/17 11:42	156-59-2	
trans-1,2-Dichloroethene	1.3	ug/L	1.0	0.26	1		09/21/17 11:42	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 11:42	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW15-BOS Lab ID: 40156890003 Collected: 09/13/17 12:04 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 11:42	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 11:42	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 11:42	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 11:42	87-68-3	
Isopropylbenzene (Cumene)	0.17J	ug/L	1.0	0.14	1		09/21/17 11:42	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 11:42	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		09/21/17 11:42	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 11:42	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 11:42	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 11:42	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	127-18-4	
Toluene	1.8	ug/L	1.0	0.50	1		09/21/17 11:42	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 11:42	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 11:42	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 11:42	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		09/21/17 11:42	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 11:42	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	108-67-8	
Vinyl chloride	104	ug/L	1.0	0.18	1		09/21/17 11:42	75-01-4	
m&p-Xylene	1.5J	ug/L	2.0	1.0	1		09/21/17 11:42	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:42	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		1		09/21/17 11:42	460-00-4	
Dibromofluoromethane (S)	100	%	67-130		1		09/21/17 11:42	1868-53-7	
Toluene-d8 (S)	91	%	70-130		1		09/21/17 11:42	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:34		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	658	mg/L	40.0	10.0	20		09/18/17 14:35	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		09/18/17 14:35	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	692	mg/L	47.0	14.1	2		09/22/17 11:51		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW15-BOS **Lab ID: 40156890003** Collected: 09/13/17 12:04 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	448	mg/L	252	75.6	300		09/19/17 12:40	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-TOS Lab ID: 40156890004 Collected: 09/13/17 12:17 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	70.2	ug/L	5.6	0.58	1		09/19/17 09:34	74-84-0	
Ethene	128	ug/L	5.0	0.52	1		09/19/17 09:34	74-85-1	
Methane	1860	ug/L	56.0	27.4	20		09/19/17 11:14	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	21000	ug/L	100	15.5	1		09/19/17 16:22	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	206	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 05:35	7440-39-3	
Chromium	1.1J	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 05:35	7440-47-3	
Iron	19500	ug/L	368	111	1	09/19/17 08:48	09/21/17 05:35	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 05:35	7439-92-1	
Nickel	1.0J	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 05:35	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.2	ug/L	1.0	0.50	1		09/21/17 10:34	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:34	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 10:34	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 10:34	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:34	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 10:34	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	108-90-7	
Chloroethane	54.0	ug/L	1.0	0.37	1		09/21/17 10:34	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 10:34	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 10:34	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 10:34	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 10:34	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 10:34	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 10:34	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 10:34	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 10:34	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 10:34	75-35-4	
cis-1,2-Dichloroethene	30.5	ug/L	1.0	0.26	1		09/21/17 10:34	156-59-2	
trans-1,2-Dichloroethene	0.48J	ug/L	1.0	0.26	1		09/21/17 10:34	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 10:34	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-TOS **Lab ID:** 40156890004 Collected: 09/13/17 12:17 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 10:34	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 10:34	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:34	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:34	87-68-3	
Isopropylbenzene (Cumene)	0.28J	ug/L	1.0	0.14	1		09/21/17 10:34	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 10:34	75-09-2	
Methyl-tert-butyl ether	0.38J	ug/L	1.0	0.17	1		09/21/17 10:34	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 10:34	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:34	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 10:34	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	127-18-4	
Toluene	1.5	ug/L	1.0	0.50	1		09/21/17 10:34	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:34	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:34	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 10:34	79-00-5	
Trichloroethene	0.45J	ug/L	1.0	0.33	1		09/21/17 10:34	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:34	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	108-67-8	
Vinyl chloride	125	ug/L	1.0	0.18	1		09/21/17 10:34	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		09/21/17 10:34	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:34	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	61-130		1		09/21/17 10:34	460-00-4	
Dibromofluoromethane (S)	100	%	67-130		1		09/21/17 10:34	1868-53-7	
Toluene-d8 (S)	93	%	70-130		1		09/21/17 10:34	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	499	mg/L	20.0	5.0	10		09/18/17 15:19	16887-00-6	
Sulfate	<10.0	mg/L	30.0	10.0	10		09/18/17 15:19	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	569	mg/L	117	35.2	5		09/22/17 11:51		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD6-TW-NW10-TOS **Lab ID: 40156890004** Collected: 09/13/17 12:17 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	102	mg/L	25.2	7.6	30		09/19/17 13:21	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-61 **Lab ID: 40156890005** Collected: 09/13/17 13:20 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	23.6	ug/L	5.6	0.58	1		09/19/17 09:41	74-84-0	
Ethene	195	ug/L	5.0	0.52	1		09/19/17 09:41	74-85-1	
Methane	1870	ug/L	28.0	13.7	10		09/19/17 11:21	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	1800	ug/L	100	15.5	1		09/19/17 16:24	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	294	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 05:42	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 05:42	7440-47-3	
Iron	1590	ug/L	368	111	1	09/19/17 08:48	09/21/17 05:42	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 05:42	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 05:42	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	18.8J	ug/L	20.0	10.0	20		09/21/17 12:27	71-43-2	
Bromobenzene	<4.6	ug/L	20.0	4.6	20		09/21/17 12:27	108-86-1	
Bromochloromethane	<6.8	ug/L	20.0	6.8	20		09/21/17 12:27	74-97-5	
Bromodichloromethane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	75-27-4	
Bromoform	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	75-25-2	
Bromomethane	<48.7	ug/L	100	48.7	20		09/21/17 12:27	74-83-9	
n-Butylbenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	104-51-8	
sec-Butylbenzene	<43.7	ug/L	100	43.7	20		09/21/17 12:27	135-98-8	
tert-Butylbenzene	<3.6	ug/L	20.0	3.6	20		09/21/17 12:27	98-06-6	
Carbon tetrachloride	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	56-23-5	
Chlorobenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	108-90-7	
Chloroethane	<7.5	ug/L	20.0	7.5	20		09/21/17 12:27	75-00-3	
Chloroform	<50.0	ug/L	100	50.0	20		09/21/17 12:27	67-66-3	
Chloromethane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	74-87-3	
2-Chlorotoluene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	95-49-8	
4-Chlorotoluene	<4.3	ug/L	20.0	4.3	20		09/21/17 12:27	106-43-4	
1,2-Dibromo-3-chloropropane	<43.3	ug/L	100	43.3	20		09/21/17 12:27	96-12-8	
Dibromochloromethane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	124-48-1	
1,2-Dibromoethane (EDB)	<3.6	ug/L	20.0	3.6	20		09/21/17 12:27	106-93-4	
Dibromomethane	<8.5	ug/L	20.0	8.5	20		09/21/17 12:27	74-95-3	
1,2-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	95-50-1	
1,3-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	541-73-1	
1,4-Dichlorobenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	106-46-7	
Dichlorodifluoromethane	<4.5	ug/L	20.0	4.5	20		09/21/17 12:27	75-71-8	
1,1-Dichloroethane	<4.8	ug/L	20.0	4.8	20		09/21/17 12:27	75-34-3	
1,2-Dichloroethane	<3.4	ug/L	20.0	3.4	20		09/21/17 12:27	107-06-2	
1,1-Dichloroethene	<8.2	ug/L	20.0	8.2	20		09/21/17 12:27	75-35-4	
cis-1,2-Dichloroethene	2160	ug/L	20.0	5.1	20		09/21/17 12:27	156-59-2	
trans-1,2-Dichloroethene	103	ug/L	20.0	5.1	20		09/21/17 12:27	156-60-5	
1,2-Dichloropropane	<4.7	ug/L	20.0	4.7	20		09/21/17 12:27	78-87-5	
1,3-Dichloropropane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-61 **Lab ID: 40156890005** Collected: 09/13/17 13:20 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<9.7	ug/L	20.0	9.7	20		09/21/17 12:27	594-20-7	
1,1-Dichloropropene	<8.8	ug/L	20.0	8.8	20		09/21/17 12:27	563-58-6	
cis-1,3-Dichloropropene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	10061-01-5	
trans-1,3-Dichloropropene	<4.6	ug/L	20.0	4.6	20		09/21/17 12:27	10061-02-6	
Diisopropyl ether	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	108-20-3	
Ethylbenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	100-41-4	
Hexachloro-1,3-butadiene	<42.1	ug/L	100	42.1	20		09/21/17 12:27	87-68-3	
Isopropylbenzene (Cumene)	<2.9	ug/L	20.0	2.9	20		09/21/17 12:27	98-82-8	
p-Isopropyltoluene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	99-87-6	
Methylene Chloride	<4.7	ug/L	20.0	4.7	20		09/21/17 12:27	75-09-2	
Methyl-tert-butyl ether	<3.5	ug/L	20.0	3.5	20		09/21/17 12:27	1634-04-4	
Naphthalene	<50.0	ug/L	100	50.0	20		09/21/17 12:27	91-20-3	
n-Propylbenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	103-65-1	
Styrene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	100-42-5	
1,1,1,2-Tetrachloroethane	<3.6	ug/L	20.0	3.6	20		09/21/17 12:27	630-20-6	
1,1,2,2-Tetrachloroethane	<5.0	ug/L	20.0	5.0	20		09/21/17 12:27	79-34-5	
Tetrachloroethene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	127-18-4	
Toluene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	108-88-3	
1,2,3-Trichlorobenzene	<42.7	ug/L	100	42.7	20		09/21/17 12:27	87-61-6	
1,2,4-Trichlorobenzene	<44.2	ug/L	100	44.2	20		09/21/17 12:27	120-82-1	
1,1,1-Trichloroethane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	71-55-6	
1,1,2-Trichloroethane	<3.9	ug/L	20.0	3.9	20		09/21/17 12:27	79-00-5	
Trichloroethene	111	ug/L	20.0	6.6	20		09/21/17 12:27	79-01-6	
Trichlorofluoromethane	<3.7	ug/L	20.0	3.7	20		09/21/17 12:27	75-69-4	
1,2,3-Trichloropropane	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	96-18-4	
1,2,4-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	95-63-6	
1,3,5-Trimethylbenzene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	108-67-8	
Vinyl chloride	835	ug/L	20.0	3.5	20		09/21/17 12:27	75-01-4	
m&p-Xylene	<20.0	ug/L	40.0	20.0	20		09/21/17 12:27	179601-23-1	
o-Xylene	<10.0	ug/L	20.0	10.0	20		09/21/17 12:27	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	90	%	61-130		20		09/21/17 12:27	460-00-4	
Dibromofluoromethane (S)	101	%	67-130		20		09/21/17 12:27	1868-53-7	
Toluene-d8 (S)	94	%	70-130		20		09/21/17 12:27	2037-26-5	
4500S2F Sulfide, Iodometric Analytical Method: SM 4500-S F (2000)									
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:36		P4
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	350	mg/L	20.0	5.0	10		09/19/17 11:10	16887-00-6	
Sulfate	25.8	mg/L	3.0	1.0	1		09/18/17 15:29	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	428	mg/L	117	35.2	5		09/22/17 11:52		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-61 **Lab ID: 40156890005** Collected: 09/13/17 13:20 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	2.5	mg/L	1.7	0.50	2		09/20/17 09:27	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-PZ-61 **Lab ID: 40156890006** Collected: 09/13/17 13:37 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	34.8	ug/L	5.6	0.58	1		09/19/17 09:48	74-84-0	pH
Ethene	54.0	ug/L	5.0	0.52	1		09/19/17 09:48	74-85-1	
Methane	403	ug/L	11.2	5.5	4		09/19/17 11:28	74-82-8	pH
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	896000	ug/L	1000	155	10		09/20/17 10:38	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	1670	ug/L	5.7	1.7	5	09/19/17 08:48	09/21/17 11:44	7440-39-3	
Chromium	<10.2	ug/L	34.0	10.2	10	09/19/17 08:48	09/21/17 11:37	7440-47-3	D3
Iron	968000	ug/L	3680	1110	10	09/19/17 08:48	09/21/17 11:37	7439-89-6	
Lead	<0.98	ug/L	5.0	0.98	5	09/19/17 08:48	09/21/17 11:44	7439-92-1	D3
Nickel	4.4J	ug/L	13.4	4.0	10	09/19/17 08:48	09/21/17 11:37	7440-02-0	D3
8260 MSV		Analytical Method: EPA 8260							
Benzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	71-43-2	
Bromobenzene	<11.5	ug/L	50.0	11.5	50		09/21/17 12:50	108-86-1	
Bromochloromethane	<17.0	ug/L	50.0	17.0	50		09/21/17 12:50	74-97-5	
Bromodichloromethane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	75-27-4	
Bromoform	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	75-25-2	
Bromomethane	<122	ug/L	250	122	50		09/21/17 12:50	74-83-9	
n-Butylbenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	104-51-8	
sec-Butylbenzene	<109	ug/L	250	109	50		09/21/17 12:50	135-98-8	
tert-Butylbenzene	<9.0	ug/L	50.0	9.0	50		09/21/17 12:50	98-06-6	
Carbon tetrachloride	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	56-23-5	
Chlorobenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	108-90-7	
Chloroethane	<18.7	ug/L	50.0	18.7	50		09/21/17 12:50	75-00-3	
Chloroform	<125	ug/L	250	125	50		09/21/17 12:50	67-66-3	
Chloromethane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	74-87-3	
2-Chlorotoluene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	95-49-8	
4-Chlorotoluene	<10.7	ug/L	50.0	10.7	50		09/21/17 12:50	106-43-4	
1,2-Dibromo-3-chloropropane	<108	ug/L	250	108	50		09/21/17 12:50	96-12-8	
Dibromochloromethane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	124-48-1	
1,2-Dibromoethane (EDB)	<8.9	ug/L	50.0	8.9	50		09/21/17 12:50	106-93-4	
Dibromomethane	<21.3	ug/L	50.0	21.3	50		09/21/17 12:50	74-95-3	
1,2-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	95-50-1	
1,3-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	541-73-1	
1,4-Dichlorobenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	106-46-7	
Dichlorodifluoromethane	<11.2	ug/L	50.0	11.2	50		09/21/17 12:50	75-71-8	
1,1-Dichloroethane	<12.1	ug/L	50.0	12.1	50		09/21/17 12:50	75-34-3	
1,2-Dichloroethane	<8.4	ug/L	50.0	8.4	50		09/21/17 12:50	107-06-2	
1,1-Dichloroethene	<20.5	ug/L	50.0	20.5	50		09/21/17 12:50	75-35-4	
cis-1,2-Dichloroethene	2880	ug/L	50.0	12.8	50		09/21/17 12:50	156-59-2	
trans-1,2-Dichloroethene	<12.8	ug/L	50.0	12.8	50		09/21/17 12:50	156-60-5	
1,2-Dichloropropane	<11.7	ug/L	50.0	11.7	50		09/21/17 12:50	78-87-5	
1,3-Dichloropropane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-PZ-61 **Lab ID: 40156890006** Collected: 09/13/17 13:37 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<24.2	ug/L	50.0	24.2	50		09/21/17 12:50	594-20-7	
1,1-Dichloropropene	<22.1	ug/L	50.0	22.1	50		09/21/17 12:50	563-58-6	
cis-1,3-Dichloropropene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	10061-01-5	
trans-1,3-Dichloropropene	<11.5	ug/L	50.0	11.5	50		09/21/17 12:50	10061-02-6	
Diisopropyl ether	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	108-20-3	
Ethylbenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	100-41-4	
Hexachloro-1,3-butadiene	<105	ug/L	250	105	50		09/21/17 12:50	87-68-3	
Isopropylbenzene (Cumene)	<7.2	ug/L	50.0	7.2	50		09/21/17 12:50	98-82-8	
p-Isopropyltoluene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	99-87-6	
Methylene Chloride	<11.6	ug/L	50.0	11.6	50		09/21/17 12:50	75-09-2	
Methyl-tert-butyl ether	<8.7	ug/L	50.0	8.7	50		09/21/17 12:50	1634-04-4	
Naphthalene	<125	ug/L	250	125	50		09/21/17 12:50	91-20-3	
n-Propylbenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	103-65-1	
Styrene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	100-42-5	
1,1,1,2-Tetrachloroethane	<9.0	ug/L	50.0	9.0	50		09/21/17 12:50	630-20-6	
1,1,2,2-Tetrachloroethane	<12.5	ug/L	50.0	12.5	50		09/21/17 12:50	79-34-5	
Tetrachloroethene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	127-18-4	
Toluene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	108-88-3	
1,2,3-Trichlorobenzene	<107	ug/L	250	107	50		09/21/17 12:50	87-61-6	
1,2,4-Trichlorobenzene	<110	ug/L	250	110	50		09/21/17 12:50	120-82-1	
1,1,1-Trichloroethane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	71-55-6	
1,1,2-Trichloroethane	<9.9	ug/L	50.0	9.9	50		09/21/17 12:50	79-00-5	
Trichloroethene	37.9J	ug/L	50.0	16.5	50		09/21/17 12:50	79-01-6	
Trichlorofluoromethane	<9.2	ug/L	50.0	9.2	50		09/21/17 12:50	75-69-4	
1,2,3-Trichloropropane	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	96-18-4	
1,2,4-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	95-63-6	
1,3,5-Trimethylbenzene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	108-67-8	
Vinyl chloride	203	ug/L	50.0	8.8	50		09/21/17 12:50	75-01-4	
m&p-Xylene	<50.0	ug/L	100	50.0	50		09/21/17 12:50	179601-23-1	
o-Xylene	<25.0	ug/L	50.0	25.0	50		09/21/17 12:50	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	61-130		50		09/21/17 12:50	460-00-4	pH
Dibromofluoromethane (S)	101	%	67-130		50		09/21/17 12:50	1868-53-7	
Toluene-d8 (S)	95	%	70-130		50		09/21/17 12:50	2037-26-5	
4500S2F Sulfide, Iodometric Analytical Method: SM 4500-S F (2000)									
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:38		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	1020	mg/L	100	25.0	50		09/19/17 11:21	16887-00-6	
Sulfate	13.4J	mg/L	30.0	10.0	10		09/18/17 15:40	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	1320	mg/L	117	35.2	5		09/22/17 11:54		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-PZ-61 **Lab ID: 40156890006** Collected: 09/13/17 13:37 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	5680	mg/L	2520	756	3000		09/19/17 14:03	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-807 **Lab ID: 40156890007** Collected: 09/14/17 09:45 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	5.0J	ug/L	5.6	0.58	1		09/19/17 09:55	74-84-0	
Ethene	10.6	ug/L	5.0	0.52	1		09/19/17 09:55	74-85-1	
Methane	218	ug/L	2.8	1.4	1		09/19/17 09:55	74-82-8	M1
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	278	ug/L	100	15.5	1		09/19/17 16:30	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	51.8	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 05:55	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 05:55	7440-47-3	
Iron	419	ug/L	368	111	1	09/19/17 08:48	09/21/17 05:55	7439-89-6	
Lead	0.23J	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 05:55	7439-92-1	
Nickel	0.77J	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 05:55	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:57	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 10:57	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 10:57	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:57	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 10:57	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		09/21/17 10:57	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 10:57	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 10:57	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 10:57	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 10:57	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 10:57	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 10:57	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 10:57	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 10:57	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 10:57	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 10:57	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 10:57	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 10:57	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-807 **Lab ID: 40156890007** Collected: 09/14/17 09:45 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 10:57	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 10:57	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 10:57	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:57	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		09/21/17 10:57	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 10:57	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		09/21/17 10:57	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 10:57	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:57	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 10:57	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 10:57	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 10:57	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 10:57	79-00-5	
Trichloroethene	0.62J	ug/L	1.0	0.33	1		09/21/17 10:57	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 10:57	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	108-67-8	
Vinyl chloride	64.8	ug/L	1.0	0.18	1		09/21/17 10:57	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		09/21/17 10:57	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 10:57	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	90	%	61-130		1		09/21/17 10:57	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		1		09/21/17 10:57	1868-53-7	
Toluene-d8 (S)	94	%	70-130		1		09/21/17 10:57	2037-26-5	
4500S2F Sulfide, Iodometric Analytical Method: SM 4500-S F (2000)									
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:40		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	169	mg/L	20.0	5.0	10		09/19/17 11:32	16887-00-6	
Sulfate	45.2	mg/L	3.0	1.0	1		09/18/17 15:51	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	287	mg/L	117	35.2	5		09/22/17 11:55		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-8-MW-807 **Lab ID: 40156890007** Collected: 09/14/17 09:45 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	0.54J	mg/L	0.84	0.25	1		09/19/17 14:24	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-TOS **Lab ID:** 40156890008 Collected: 09/14/17 09:57 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	105	ug/L	5.6	0.58	1		09/19/17 10:02	74-84-0	
Ethene	5.8	ug/L	5.0	0.52	1		09/19/17 10:02	74-85-1	
Methane	2650	ug/L	70.0	34.2	25		09/19/17 11:35	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	3090	ug/L	100	15.5	1		09/19/17 16:32	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	258	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 06:02	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 06:02	7440-47-3	
Iron	2640	ug/L	368	111	1	09/19/17 08:48	09/21/17 06:02	7439-89-6	
Lead	0.31J	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 06:02	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 06:02	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	71-43-2	
Bromobenzene	<0.92	ug/L	4.0	0.92	4		09/21/17 13:13	108-86-1	
Bromochloromethane	<1.4	ug/L	4.0	1.4	4		09/21/17 13:13	74-97-5	
Bromodichloromethane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	75-27-4	
Bromoform	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	75-25-2	
Bromomethane	<9.7	ug/L	20.0	9.7	4		09/21/17 13:13	74-83-9	
n-Butylbenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	104-51-8	
sec-Butylbenzene	<8.7	ug/L	20.0	8.7	4		09/21/17 13:13	135-98-8	
tert-Butylbenzene	<0.72	ug/L	4.0	0.72	4		09/21/17 13:13	98-06-6	
Carbon tetrachloride	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	56-23-5	
Chlorobenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	108-90-7	
Chloroethane	149	ug/L	4.0	1.5	4		09/21/17 13:13	75-00-3	
Chloroform	<10.0	ug/L	20.0	10.0	4		09/21/17 13:13	67-66-3	
Chloromethane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	74-87-3	
2-Chlorotoluene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	95-49-8	
4-Chlorotoluene	<0.85	ug/L	4.0	0.85	4		09/21/17 13:13	106-43-4	
1,2-Dibromo-3-chloropropane	<8.7	ug/L	20.0	8.7	4		09/21/17 13:13	96-12-8	
Dibromochloromethane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	124-48-1	
1,2-Dibromoethane (EDB)	<0.71	ug/L	4.0	0.71	4		09/21/17 13:13	106-93-4	
Dibromomethane	<1.7	ug/L	4.0	1.7	4		09/21/17 13:13	74-95-3	
1,2-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	95-50-1	
1,3-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	541-73-1	
1,4-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	106-46-7	
Dichlorodifluoromethane	<0.90	ug/L	4.0	0.90	4		09/21/17 13:13	75-71-8	
1,1-Dichloroethane	<0.97	ug/L	4.0	0.97	4		09/21/17 13:13	75-34-3	
1,2-Dichloroethane	<0.67	ug/L	4.0	0.67	4		09/21/17 13:13	107-06-2	
1,1-Dichloroethene	<1.6	ug/L	4.0	1.6	4		09/21/17 13:13	75-35-4	
cis-1,2-Dichloroethene	335	ug/L	4.0	1.0	4		09/21/17 13:13	156-59-2	
trans-1,2-Dichloroethene	4.2	ug/L	4.0	1.0	4		09/21/17 13:13	156-60-5	
1,2-Dichloropropane	<0.93	ug/L	4.0	0.93	4		09/21/17 13:13	78-87-5	
1,3-Dichloropropane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-TOS Lab ID: 40156890008 Collected: 09/14/17 09:57 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<1.9	ug/L	4.0	1.9	4		09/21/17 13:13	594-20-7	
1,1-Dichloropropene	<1.8	ug/L	4.0	1.8	4		09/21/17 13:13	563-58-6	
cis-1,3-Dichloropropene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	10061-01-5	
trans-1,3-Dichloropropene	<0.92	ug/L	4.0	0.92	4		09/21/17 13:13	10061-02-6	
Diisopropyl ether	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	108-20-3	
Ethylbenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	100-41-4	
Hexachloro-1,3-butadiene	<8.4	ug/L	20.0	8.4	4		09/21/17 13:13	87-68-3	
Isopropylbenzene (Cumene)	<0.57	ug/L	4.0	0.57	4		09/21/17 13:13	98-82-8	
p-Isopropyltoluene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	99-87-6	
Methylene Chloride	<0.93	ug/L	4.0	0.93	4		09/21/17 13:13	75-09-2	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		09/21/17 13:13	1634-04-4	
Naphthalene	<10.0	ug/L	20.0	10.0	4		09/21/17 13:13	91-20-3	
n-Propylbenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	103-65-1	
Styrene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	100-42-5	
1,1,1,2-Tetrachloroethane	<0.72	ug/L	4.0	0.72	4		09/21/17 13:13	630-20-6	
1,1,2,2-Tetrachloroethane	<1.0	ug/L	4.0	1.0	4		09/21/17 13:13	79-34-5	
Tetrachloroethene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	127-18-4	
Toluene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	108-88-3	
1,2,3-Trichlorobenzene	<8.5	ug/L	20.0	8.5	4		09/21/17 13:13	87-61-6	
1,2,4-Trichlorobenzene	<8.8	ug/L	20.0	8.8	4		09/21/17 13:13	120-82-1	
1,1,1-Trichloroethane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	71-55-6	
1,1,2-Trichloroethane	<0.79	ug/L	4.0	0.79	4		09/21/17 13:13	79-00-5	
Trichloroethene	3.5J	ug/L	4.0	1.3	4		09/21/17 13:13	79-01-6	
Trichlorofluoromethane	<0.74	ug/L	4.0	0.74	4		09/21/17 13:13	75-69-4	
1,2,3-Trichloropropane	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	96-18-4	
1,2,4-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	95-63-6	
1,3,5-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	108-67-8	
Vinyl chloride	27.2	ug/L	4.0	0.70	4		09/21/17 13:13	75-01-4	
m&p-Xylene	<4.0	ug/L	8.0	4.0	4		09/21/17 13:13	179601-23-1	
o-Xylene	<2.0	ug/L	4.0	2.0	4		09/21/17 13:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	92	%	61-130		4		09/21/17 13:13	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		4		09/21/17 13:13	1868-53-7	
Toluene-d8 (S)	91	%	70-130		4		09/21/17 13:13	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:42		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	462	mg/L	40.0	10.0	20		09/18/17 16:02	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		09/18/17 16:02	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	473	mg/L	117	35.2	5		09/22/17 11:56		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-TOS **Lab ID: 40156890008** Collected: 09/14/17 09:57 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	1.5J	mg/L	1.7	0.50	2		09/20/17 09:48	7440-44-0	D3

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-TOS-DUP Lab ID: 40156890009 Collected: 09/14/17 09:57 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	2970	ug/L	100	15.5	1		09/19/17 16:35	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	275	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 06:09	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 06:09	7440-47-3	
Iron	2750	ug/L	368	111	1	09/19/17 08:48	09/21/17 06:09	7439-89-6	
Lead	<0.39	ug/L	2.0	0.39	2	09/19/17 08:48	09/21/17 11:51	7439-92-1	D3
Nickel	<0.40	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 06:09	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		09/21/17 13:35	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		09/21/17 13:35	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		09/21/17 13:35	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		09/21/17 13:35	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		09/21/17 13:35	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	108-90-7	
Chloroethane	149	ug/L	5.0	1.9	5		09/21/17 13:35	75-00-3	
Chloroform	<12.5	ug/L	25.0	12.5	5		09/21/17 13:35	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		09/21/17 13:35	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		09/21/17 13:35	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		09/21/17 13:35	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		09/21/17 13:35	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		09/21/17 13:35	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		09/21/17 13:35	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		09/21/17 13:35	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		09/21/17 13:35	75-35-4	
cis-1,2-Dichloroethene	428	ug/L	5.0	1.3	5		09/21/17 13:35	156-59-2	
trans-1,2-Dichloroethene	5.3	ug/L	5.0	1.3	5		09/21/17 13:35	156-60-5	
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		09/21/17 13:35	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	142-28-9	
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		09/21/17 13:35	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		09/21/17 13:35	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		09/21/17 13:35	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	108-20-3	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-TOS-DUP Lab ID: 40156890009 Collected: 09/14/17 09:57 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		09/21/17 13:35	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		09/21/17 13:35	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		09/21/17 13:35	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		09/21/17 13:35	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		09/21/17 13:35	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		09/21/17 13:35	630-20-6	
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		09/21/17 13:35	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	127-18-4	
Toluene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		09/21/17 13:35	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		09/21/17 13:35	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		09/21/17 13:35	79-00-5	
Trichloroethene	4.8J	ug/L	5.0	1.7	5		09/21/17 13:35	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		09/21/17 13:35	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	108-67-8	
Vinyl chloride	31.2	ug/L	5.0	0.88	5		09/21/17 13:35	75-01-4	
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		09/21/17 13:35	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		09/21/17 13:35	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	91	%	61-130		5		09/21/17 13:35	460-00-4	
Dibromofluoromethane (S)	107	%	67-130		5		09/21/17 13:35	1868-53-7	
Toluene-d8 (S)	95	%	70-130		5		09/21/17 13:35	2037-26-5	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-BOS Lab ID: 40156890010 Collected: 09/14/17 11:16 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	39.3	ug/L	5.6	0.58	1		09/19/17 10:09	74-84-0	
Ethene	95.8	ug/L	5.0	0.52	1		09/19/17 10:09	74-85-1	
Methane	770	ug/L	14.0	6.8	5		09/19/17 11:42	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	10500	ug/L	100	15.5	1		09/19/17 16:37	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	919	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 06:16	7440-39-3	
Chromium	<5.1	ug/L	17.0	5.1	5	09/19/17 08:48	09/21/17 12:04	7440-47-3	D3
Iron	10100	ug/L	1840	553	5	09/19/17 08:48	09/21/17 12:04	7439-89-6	
Lead	<0.98	ug/L	5.0	0.98	5	09/19/17 08:48	09/21/17 12:04	7439-92-1	D3
Nickel	<2.0	ug/L	6.7	2.0	5	09/19/17 08:48	09/21/17 12:04	7440-02-0	D3
8260 MSV		Analytical Method: EPA 8260							
Benzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	71-43-2	
Bromobenzene	<9.2	ug/L	40.0	9.2	40		09/21/17 13:58	108-86-1	
Bromochloromethane	<13.6	ug/L	40.0	13.6	40		09/21/17 13:58	74-97-5	
Bromodichloromethane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	75-27-4	
Bromoform	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	75-25-2	
Bromomethane	<97.4	ug/L	200	97.4	40		09/21/17 13:58	74-83-9	
n-Butylbenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	104-51-8	
sec-Butylbenzene	<87.4	ug/L	200	87.4	40		09/21/17 13:58	135-98-8	
tert-Butylbenzene	<7.2	ug/L	40.0	7.2	40		09/21/17 13:58	98-06-6	
Carbon tetrachloride	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	56-23-5	
Chlorobenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	108-90-7	
Chloroethane	<15.0	ug/L	40.0	15.0	40		09/21/17 13:58	75-00-3	
Chloroform	<100	ug/L	200	100	40		09/21/17 13:58	67-66-3	
Chloromethane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	74-87-3	
2-Chlorotoluene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	95-49-8	
4-Chlorotoluene	<8.5	ug/L	40.0	8.5	40		09/21/17 13:58	106-43-4	
1,2-Dibromo-3-chloropropane	<86.6	ug/L	200	86.6	40		09/21/17 13:58	96-12-8	
Dibromochloromethane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	124-48-1	
1,2-Dibromoethane (EDB)	<7.1	ug/L	40.0	7.1	40		09/21/17 13:58	106-93-4	
Dibromomethane	<17.1	ug/L	40.0	17.1	40		09/21/17 13:58	74-95-3	
1,2-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	95-50-1	
1,3-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	541-73-1	
1,4-Dichlorobenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	106-46-7	
Dichlorodifluoromethane	<9.0	ug/L	40.0	9.0	40		09/21/17 13:58	75-71-8	
1,1-Dichloroethane	<9.7	ug/L	40.0	9.7	40		09/21/17 13:58	75-34-3	
1,2-Dichloroethane	<6.7	ug/L	40.0	6.7	40		09/21/17 13:58	107-06-2	
1,1-Dichloroethene	<16.4	ug/L	40.0	16.4	40		09/21/17 13:58	75-35-4	
cis-1,2-Dichloroethene	1710	ug/L	40.0	10.2	40		09/21/17 13:58	156-59-2	
trans-1,2-Dichloroethene	79.8	ug/L	40.0	10.3	40		09/21/17 13:58	156-60-5	
1,2-Dichloropropane	<9.3	ug/L	40.0	9.3	40		09/21/17 13:58	78-87-5	
1,3-Dichloropropane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-BOS Lab ID: 40156890010 Collected: 09/14/17 11:16 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<19.4	ug/L	40.0	19.4	40		09/21/17 13:58	594-20-7	
1,1-Dichloropropene	<17.6	ug/L	40.0	17.6	40		09/21/17 13:58	563-58-6	
cis-1,3-Dichloropropene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	10061-01-5	
trans-1,3-Dichloropropene	<9.2	ug/L	40.0	9.2	40		09/21/17 13:58	10061-02-6	
Diisopropyl ether	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	108-20-3	
Ethylbenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	100-41-4	
Hexachloro-1,3-butadiene	<84.2	ug/L	200	84.2	40		09/21/17 13:58	87-68-3	
Isopropylbenzene (Cumene)	<5.7	ug/L	40.0	5.7	40		09/21/17 13:58	98-82-8	
p-Isopropyltoluene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	99-87-6	
Methylene Chloride	15.7J	ug/L	40.0	9.3	40		09/21/17 13:58	75-09-2	
Methyl-tert-butyl ether	<7.0	ug/L	40.0	7.0	40		09/21/17 13:58	1634-04-4	
Naphthalene	<100	ug/L	200	100	40		09/21/17 13:58	91-20-3	
n-Propylbenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	103-65-1	
Styrene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	100-42-5	
1,1,1,2-Tetrachloroethane	<7.2	ug/L	40.0	7.2	40		09/21/17 13:58	630-20-6	
1,1,2,2-Tetrachloroethane	<10	ug/L	40.0	10	40		09/21/17 13:58	79-34-5	
Tetrachloroethene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	127-18-4	
Toluene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	108-88-3	
1,2,3-Trichlorobenzene	<85.3	ug/L	200	85.3	40		09/21/17 13:58	87-61-6	
1,2,4-Trichlorobenzene	<88.4	ug/L	200	88.4	40		09/21/17 13:58	120-82-1	
1,1,1-Trichloroethane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	71-55-6	
1,1,2-Trichloroethane	<7.9	ug/L	40.0	7.9	40		09/21/17 13:58	79-00-5	
Trichloroethene	61.0	ug/L	40.0	13.2	40		09/21/17 13:58	79-01-6	
Trichlorofluoromethane	<7.4	ug/L	40.0	7.4	40		09/21/17 13:58	75-69-4	
1,2,3-Trichloropropane	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	96-18-4	
1,2,4-Trimethylbenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	95-63-6	
1,3,5-Trimethylbenzene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	108-67-8	
Vinyl chloride	105	ug/L	40.0	7.0	40		09/21/17 13:58	75-01-4	
m&p-Xylene	<40.0	ug/L	80.0	40.0	40		09/21/17 13:58	179601-23-1	
o-Xylene	<20.0	ug/L	40.0	20.0	40		09/21/17 13:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	87	%	61-130		40		09/21/17 13:58	460-00-4	
Dibromofluoromethane (S)	102	%	67-130		40		09/21/17 13:58	1868-53-7	
Toluene-d8 (S)	96	%	70-130		40		09/21/17 13:58	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:45		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	1200	mg/L	200	50.0	100		09/19/17 11:42	16887-00-6	
Sulfate	34.1J	mg/L	60.0	20.0	20		09/18/17 16:13	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	553	mg/L	117	35.2	5		09/22/17 11:56		

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: ERD1-TW-NW10-BOS **Lab ID: 40156890010** Collected: 09/14/17 11:16 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	21.5	mg/L	8.4	2.5	10		09/19/17 15:06	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-4-PZ-75 **Lab ID:** 40156890011 Collected: 09/14/17 11:24 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	12.1	ug/L	5.6	0.58	1		09/19/17 10:16	74-84-0	
Ethene	23.3	ug/L	5.0	0.52	1		09/19/17 10:16	74-85-1	
Methane	542	ug/L	14.0	6.8	5		09/19/17 11:49	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	4090	ug/L	100	15.5	1		09/19/17 16:40	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	236	ug/L	1.1	0.34	1	09/19/17 08:48	09/21/17 06:36	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	09/19/17 08:48	09/21/17 06:36	7440-47-3	
Iron	3890	ug/L	368	111	1	09/19/17 08:48	09/21/17 06:36	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	09/19/17 08:48	09/21/17 06:36	7439-92-1	
Nickel	6.3	ug/L	1.3	0.40	1	09/19/17 08:48	09/21/17 06:36	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 11:19	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 11:19	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 11:19	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 11:19	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 11:19	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		09/21/17 11:19	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 11:19	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 11:19	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 11:19	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 11:19	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 11:19	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 11:19	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 11:19	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 11:19	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 11:19	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 11:19	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 11:19	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 11:19	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-4-PZ-75 **Lab ID: 40156890011** Collected: 09/14/17 11:24 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 11:19	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 11:19	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 11:19	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 11:19	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		09/21/17 11:19	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 11:19	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		09/21/17 11:19	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 11:19	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 11:19	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 11:19	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 11:19	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 11:19	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 11:19	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		09/21/17 11:19	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 11:19	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	108-67-8	
Vinyl chloride	65.1	ug/L	1.0	0.18	1		09/21/17 11:19	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		09/21/17 11:19	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 11:19	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	90	%	61-130		1		09/21/17 11:19	460-00-4	
Dibromofluoromethane (S)	108	%	67-130		1		09/21/17 11:19	1868-53-7	
Toluene-d8 (S)	95	%	70-130		1		09/21/17 11:19	2037-26-5	
4500S2F Sulfide, Iodometric		Analytical Method: SM 4500-S F (2000)							
Sulfide	<1.2	mg/L	4.0	1.2	1		09/19/17 10:48		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	506	mg/L	20.0	5.0	10		09/19/17 11:53	16887-00-6	
Sulfate	118	mg/L	30.0	10.0	10		09/19/17 11:53	14808-79-8	
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	397	mg/L	23.5	7.0	1		09/22/17 13:10		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: CS-4-PZ-75 **Lab ID: 40156890011** Collected: 09/14/17 11:24 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	10.3	mg/L	8.4	2.5	10		09/19/17 15:27	7440-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: TRIP BLANK **Lab ID: 40156890012** Collected: 09/13/17 08:00 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		09/21/17 08:18	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		09/21/17 08:18	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		09/21/17 08:18	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 08:18	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		09/21/17 08:18	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		09/21/17 08:18	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		09/21/17 08:18	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		09/21/17 08:18	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		09/21/17 08:18	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		09/21/17 08:18	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		09/21/17 08:18	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		09/21/17 08:18	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		09/21/17 08:18	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		09/21/17 08:18	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		09/21/17 08:18	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 08:18	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		09/21/17 08:18	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		09/21/17 08:18	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	142-28-9	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		09/21/17 08:18	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		09/21/17 08:18	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		09/21/17 08:18	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		09/21/17 08:18	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		09/21/17 08:18	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		09/21/17 08:18	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		09/21/17 08:18	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		09/21/17 08:18	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		09/21/17 08:18	630-20-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Sample: TRIP BLANK **Lab ID: 40156890012** Collected: 09/13/17 08:00 Received: 09/16/17 09:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		09/21/17 08:18	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		09/21/17 08:18	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		09/21/17 08:18	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		09/21/17 08:18	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		09/21/17 08:18	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		09/21/17 08:18	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		09/21/17 08:18	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		09/21/17 08:18	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		09/21/17 08:18	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	89	%	61-130		1		09/21/17 08:18	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		1		09/21/17 08:18	1868-53-7	
Toluene-d8 (S)	96	%	70-130		1		09/21/17 08:18	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

QC Batch: 267935 Analysis Method: EPA 8015B Modified
 QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

METHOD BLANK: 1574050 Matrix: Water
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	<0.58	5.6	09/19/17 08:33	
Ethene	ug/L	<0.52	5.0	09/19/17 08:33	
Methane	ug/L	<1.4	2.8	09/19/17 08:33	

LABORATORY CONTROL SAMPLE & LCSD: 1574051 1574052

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	53.6	54.7	54.0	102	101	80-120	1	20	
Ethene	ug/L	50	50.6	50.0	101	100	80-119	1	20	
Methane	ug/L	28.6	28.9	28.6	101	100	80-120	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574251 1574252

Parameter	Units	40156890007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	5.0J	53.6	53.6	59.9	58.2	102	99	79-120	3	20	
Ethene	ug/L	10.6	50	50	63.0	60.7	105	100	78-119	4	20	
Methane	ug/L	218	28.6	28.6	321	301	360	290	10-200	6	20	E,M1

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

QC Batch: 267955 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890009, 40156890010, 40156890011

METHOD BLANK: 1574107 Matrix: Water
Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890009, 40156890010, 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	<0.34	1.1	09/21/17 03:53	
Chromium	ug/L	<1.0	3.4	09/21/17 03:53	
Iron	ug/L	<111	368	09/21/17 03:53	
Lead	ug/L	<0.20	1.0	09/21/17 03:53	
Nickel	ug/L	<0.40	1.3	09/21/17 03:53	

LABORATORY CONTROL SAMPLE: 1574108

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	531	106	80-120	
Chromium	ug/L	500	523	105	80-120	
Iron	ug/L	5000	5120	102	80-120	
Lead	ug/L	500	497	99	80-120	
Nickel	ug/L	500	522	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574109 1574110

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40156890001 Result	Spike Conc.	Spike Conc.	MS Result						
Barium	ug/L	282	500	500	828	804	109	104	75-125	3	20
Chromium	ug/L	<1.0	500	500	522	508	104	101	75-125	3	20
Iron	ug/L	29400	5000	5000	35600	34600	125	104	75-125	3	20
Lead	ug/L	<0.20	500	500	525	498	105	99	75-125	5	20
Nickel	ug/L	<0.40	500	500	501	487	100	97	75-125	3	20

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

QC Batch: 268079 Analysis Method: EPA 8260
 QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890009, 40156890010, 40156890011, 40156890012

METHOD BLANK: 1574813 Matrix: Water
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890009, 40156890010, 40156890011, 40156890012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	09/20/17 09:31	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	09/20/17 09:31	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	09/20/17 09:31	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	09/20/17 09:31	
1,1-Dichloroethane	ug/L	<0.24	1.0	09/20/17 09:31	
1,1-Dichloroethene	ug/L	<0.41	1.0	09/20/17 09:31	
1,1-Dichloropropene	ug/L	<0.44	1.0	09/20/17 09:31	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	09/20/17 09:31	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	09/20/17 09:31	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	09/20/17 09:31	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	09/20/17 09:31	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	09/20/17 09:31	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	09/20/17 09:31	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	09/20/17 09:31	
1,2-Dichloroethane	ug/L	<0.17	1.0	09/20/17 09:31	
1,2-Dichloropropane	ug/L	<0.23	1.0	09/20/17 09:31	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	09/20/17 09:31	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	09/20/17 09:31	
1,3-Dichloropropane	ug/L	<0.50	1.0	09/20/17 09:31	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	09/20/17 09:31	
2,2-Dichloropropane	ug/L	<0.48	1.0	09/20/17 09:31	
2-Chlorotoluene	ug/L	<0.50	1.0	09/20/17 09:31	
4-Chlorotoluene	ug/L	<0.21	1.0	09/20/17 09:31	
Benzene	ug/L	<0.50	1.0	09/20/17 09:31	
Bromobenzene	ug/L	<0.23	1.0	09/20/17 09:31	
Bromochloromethane	ug/L	<0.34	1.0	09/20/17 09:31	
Bromodichloromethane	ug/L	<0.50	1.0	09/20/17 09:31	
Bromoform	ug/L	<0.50	1.0	09/20/17 09:31	
Bromomethane	ug/L	<2.4	5.0	09/20/17 09:31	
Carbon tetrachloride	ug/L	<0.50	1.0	09/20/17 09:31	
Chlorobenzene	ug/L	<0.50	1.0	09/20/17 09:31	
Chloroethane	ug/L	<0.37	1.0	09/20/17 09:31	
Chloroform	ug/L	<2.5	5.0	09/20/17 09:31	
Chloromethane	ug/L	<0.50	1.0	09/20/17 09:31	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	09/20/17 09:31	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	09/20/17 09:31	
Dibromochloromethane	ug/L	<0.50	1.0	09/20/17 09:31	
Dibromomethane	ug/L	<0.43	1.0	09/20/17 09:31	
Dichlorodifluoromethane	ug/L	<0.22	1.0	09/20/17 09:31	
Diisopropyl ether	ug/L	<0.50	1.0	09/20/17 09:31	

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

METHOD BLANK: 1574813

Matrix: Water

Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890009, 40156890010, 40156890011, 40156890012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/L	<0.50	1.0	09/20/17 09:31	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	09/20/17 09:31	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	09/20/17 09:31	
m&p-Xylene	ug/L	<1.0	2.0	09/20/17 09:31	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	09/20/17 09:31	
Methylene Chloride	ug/L	<0.23	1.0	09/20/17 09:31	
n-Butylbenzene	ug/L	<0.50	1.0	09/20/17 09:31	
n-Propylbenzene	ug/L	<0.50	1.0	09/20/17 09:31	
Naphthalene	ug/L	<2.5	5.0	09/20/17 09:31	
o-Xylene	ug/L	<0.50	1.0	09/20/17 09:31	
p-Isopropyltoluene	ug/L	<0.50	1.0	09/20/17 09:31	
sec-Butylbenzene	ug/L	<2.2	5.0	09/20/17 09:31	
Styrene	ug/L	<0.50	1.0	09/20/17 09:31	
tert-Butylbenzene	ug/L	<0.18	1.0	09/20/17 09:31	
Tetrachloroethene	ug/L	<0.50	1.0	09/20/17 09:31	
Toluene	ug/L	<0.50	1.0	09/20/17 09:31	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	09/20/17 09:31	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	09/20/17 09:31	
Trichloroethene	ug/L	<0.33	1.0	09/20/17 09:31	
Trichlorofluoromethane	ug/L	<0.18	1.0	09/20/17 09:31	
Vinyl chloride	ug/L	<0.18	1.0	09/20/17 09:31	
4-Bromofluorobenzene (S)	%	88	61-130	09/20/17 09:31	
Dibromofluoromethane (S)	%	102	67-130	09/20/17 09:31	
Toluene-d8 (S)	%	93	70-130	09/20/17 09:31	

LABORATORY CONTROL SAMPLE: 1574814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	56.4	113	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	47.8	96	70-130	
1,1,2-Trichloroethane	ug/L	50	48.6	97	70-130	
1,1-Dichloroethane	ug/L	50	56.7	113	71-132	
1,1-Dichloroethene	ug/L	50	54.8	110	75-130	
1,2,4-Trichlorobenzene	ug/L	50	47.9	96	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.5	91	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	51.7	103	70-130	
1,2-Dichlorobenzene	ug/L	50	51.0	102	70-130	
1,2-Dichloroethane	ug/L	50	58.6	117	70-131	
1,2-Dichloropropane	ug/L	50	53.0	106	80-120	
1,3-Dichlorobenzene	ug/L	50	54.8	110	70-130	
1,4-Dichlorobenzene	ug/L	50	53.0	106	70-130	
Benzene	ug/L	50	54.8	110	73-145	
Bromodichloromethane	ug/L	50	55.2	110	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

LABORATORY CONTROL SAMPLE: 1574814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromoform	ug/L	50	46.8	94	67-130	
Bromomethane	ug/L	50	40.0	80	26-128	
Carbon tetrachloride	ug/L	50	57.2	114	70-133	
Chlorobenzene	ug/L	50	53.4	107	70-130	
Chloroethane	ug/L	50	42.7	85	58-120	
Chloroform	ug/L	50	54.9	110	80-121	
Chloromethane	ug/L	50	38.6	77	40-127	
cis-1,2-Dichloroethene	ug/L	50	55.2	110	70-130	
cis-1,3-Dichloropropene	ug/L	50	48.5	97	70-130	
Dibromochloromethane	ug/L	50	50.6	101	70-130	
Dichlorodifluoromethane	ug/L	50	39.0	78	20-135	
Ethylbenzene	ug/L	50	53.0	106	87-129	
Isopropylbenzene (Cumene)	ug/L	50	55.8	112	70-130	
m&p-Xylene	ug/L	100	110	110	70-130	
Methyl-tert-butyl ether	ug/L	50	54.6	109	66-143	
Methylene Chloride	ug/L	50	52.4	105	70-130	
o-Xylene	ug/L	50	55.0	110	70-130	
Styrene	ug/L	50	50.5	101	70-130	
Tetrachloroethene	ug/L	50	52.8	106	70-130	
Toluene	ug/L	50	50.6	101	82-130	
trans-1,2-Dichloroethene	ug/L	50	57.3	115	75-132	
trans-1,3-Dichloropropene	ug/L	50	42.6	85	70-130	
Trichloroethene	ug/L	50	57.5	115	70-130	
Trichlorofluoromethane	ug/L	50	55.5	111	76-133	
Vinyl chloride	ug/L	50	41.9	84	57-136	
4-Bromofluorobenzene (S)	%			97	61-130	
Dibromofluoromethane (S)	%			101	67-130	
Toluene-d8 (S)	%			95	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574881 1574882

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		Spike Conc.	Result	Spike Conc.	Result							
1,1,1-Trichloroethane	ug/L	87.1	50	50	175	225	175	275	70-134	25	20	M1, R1
1,1,2,2-Tetrachloroethane	ug/L	<6.2	50	50	50.4	46.2	101	92	70-130	9	20	
1,1,2-Trichloroethane	ug/L	<4.9	50	50	49.2	49.5	98	99	70-130	1	20	
1,1-Dichloroethane	ug/L	629	50	50	824	1180	389	1100	71-133	36	20	E, M1, R1
1,1-Dichloroethene	ug/L	15.7J	50	50	75.5	89.4	120	147	75-136	17	20	M1
1,2,4-Trichlorobenzene	ug/L	<55.2	50	50	45.0	43.6	90	87	70-130	3	20	
1,2-Dibromo-3-chloropropane	ug/L	<54.1	50	50	48.1	47.0	96	94	63-123	2	20	
1,2-Dibromoethane (EDB)	ug/L	<4.4	50	50	51.3	51.7	103	103	70-130	1	20	
1,2-Dichlorobenzene	ug/L	<12.5	50	50	52.6	49.7	105	99	70-130	6	20	
1,2-Dichloroethane	ug/L	<4.2	50	50	56.7	58.7	113	117	70-131	4	20	
1,2-Dichloropropane	ug/L	<5.8	50	50	55.7	50.1	111	100	80-120	11	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Parameter	Units	40156970002		1574881		1574882		% Rec	% Rec	Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
1,3-Dichlorobenzene	ug/L	<12.5	50	50	55.4	51.0	111	102	70-130	8	20		
1,4-Dichlorobenzene	ug/L	<12.5	50	50	54.1	49.1	108	98	70-130	10	20		
Benzene	ug/L	<12.5	50	50	53.5	54.5	107	109	73-145	2	20		
Bromodichloromethane	ug/L	<12.5	50	50	57.1	54.8	114	110	70-130	4	20		
Bromoform	ug/L	<12.5	50	50	46.4	45.6	93	91	67-130	2	20		
Bromomethane	ug/L	<60.9	50	50	41.5	41.4	83	83	26-129	0	20		
Carbon tetrachloride	ug/L	<12.5	50	50	61.0	63.3	122	127	70-134	4	20		
Chlorobenzene	ug/L	<12.5	50	50	52.5	50.5	105	101	70-130	4	20		
Chloroethane	ug/L	56.8	50	50	85.8	107	58	101	58-120	22	20	R1	
Chloroform	ug/L	<62.5	50	50	60.5	65.4	103	113	80-121	8	20		
Chloromethane	ug/L	<12.5	50	50	37.8	39.8	76	80	40-128	5	20		
cis-1,2-Dichloroethene	ug/L	18.6J	50	50	74.0	86.7	111	136	70-130	16	20	M1	
cis-1,3-Dichloropropene	ug/L	<12.5	50	50	48.3	45.5	97	91	70-130	6	20		
Dibromochloromethane	ug/L	<12.5	50	50	50.5	49.2	101	98	70-130	3	20		
Dichlorodifluoromethane	ug/L	<5.6	50	50	37.8	38.9	76	78	20-146	3	20		
Ethylbenzene	ug/L	<12.5	50	50	53.2	52.4	106	105	87-129	2	20		
Isopropylbenzene (Cumene)	ug/L	<3.6	50	50	55.5	53.5	111	107	70-130	4	20		
m&p-Xylene	ug/L	29.3J	100	100	108	104	79	75	70-130	4	20		
Methyl-tert-butyl ether	ug/L	<4.4	50	50	54.6	56.1	109	112	66-143	3	20		
Methylene Chloride	ug/L	12.6J	50	50	51.7	52.3	78	79	70-130	1	20		
o-Xylene	ug/L	15.3J	50	50	53.1	53.2	76	76	70-130	0	20		
Styrene	ug/L	<12.5	50	50	50.3	48.9	101	98	70-130	3	20		
Tetrachloroethene	ug/L	<12.5	50	50	50.8	51.4	102	103	70-130	1	20		
Toluene	ug/L	<12.5	50	50	51.3	50.4	103	101	82-131	2	20		
trans-1,2-Dichloroethene	ug/L	<6.4	50	50	56.5	61.0	113	122	75-135	8	20		
trans-1,3-Dichloropropene	ug/L	<5.7	50	50	44.0	44.2	88	88	70-130	0	20		
Trichloroethene	ug/L	1790	50	50	2550	3540	1520	3500	70-130	33	20	E, M1, R1	
Trichlorofluoromethane	ug/L	<4.6	50	50	54.8	55.0	110	110	76-150	0	20		
Vinyl chloride	ug/L	<4.4	50	50	44.4	46.6	89	93	56-143	5	20		
4-Bromofluorobenzene (S)	%						97	99	61-130				
Dibromofluoromethane (S)	%						101	108	67-130				
Toluene-d8 (S)	%						92	95	70-130				

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

QC Batch: 267953 Analysis Method: SM 4500-S F (2000)
 QC Batch Method: SM 4500-S F (2000) Analysis Description: 4500S2F Sulfide, Iodometric
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

METHOD BLANK: 1574103 Matrix: Water
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide	mg/L	<1.2	4.0	09/19/17 10:13	

LABORATORY CONTROL SAMPLE: 1574104

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	mg/L	49.6	46.0	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574105 1574106

Parameter	Units	40156623006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	mg/L	<1.2	49.6	49.6	46.8	48.4	94	98	80-120	3	10	

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

QC Batch: 267852 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890010, 40156890011

METHOD BLANK: 1573677 Matrix: Water
Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890010, 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	09/18/17 12:58	
Sulfate	mg/L	<1.0	3.0	09/18/17 12:58	

LABORATORY CONTROL SAMPLE: 1573678

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.6	98	90-110	
Sulfate	mg/L	20	20.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1573679 1573680

Parameter	Units	40156886009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	3.4	20	20	24.2	24.2	104	104	90-110	0	15	
Sulfate	mg/L	144	200	200	348	335	102	96	90-110	4	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1573681 1573682

Parameter	Units	40156808020 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	25.6	20	20	47.7	48.1	111	113	90-110	1	15	M0
Sulfate	mg/L	5.3	20	20	27.0	27.5	109	111	90-110	2	15	M0

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

QC Batch: 268276

Analysis Method: EPA 310.2

QC Batch Method: EPA 310.2

Analysis Description: 310.2 Alkalinity

Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890010

METHOD BLANK: 1575866

Matrix: Water

Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007, 40156890008, 40156890010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	09/22/17 11:48	

LABORATORY CONTROL SAMPLE: 1575867

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	98.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1575868 1575869

Parameter	Units	40156890010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	mg/L	553	500	500	1030	1030	96	95	90-110	1	20	

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS
Pace Project No.: 40156890

QC Batch: 268420 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40156890011

METHOD BLANK: 1576671 Matrix: Water
Associated Lab Samples: 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	09/22/17 13:08	

LABORATORY CONTROL SAMPLE: 1576672

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	97.7	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1576673 1576674

Parameter	Units	40156717001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
Alkalinity, Total as CaCO3	mg/L	161	200	200	353	349	96	94	90-110	1	20				

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1576675 1576676

Parameter	Units	40156791001		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Conc.	Result	Result	% Rec	% Rec						
Alkalinity, Total as CaCO3	mg/L	8650	5000	5000	12800	13100	84	88	90-110	2	20	M0			

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QUALITY CONTROL DATA

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

QC Batch: 267930 Analysis Method: SM 5310C
 QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

METHOD BLANK: 1574029 Matrix: Water
 Associated Lab Samples: 40156890001, 40156890002, 40156890003, 40156890004, 40156890005, 40156890006, 40156890007,
 40156890008, 40156890010, 40156890011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	09/19/17 10:02	

LABORATORY CONTROL SAMPLE: 1574030

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.5	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574031 1574032

Parameter	Units	40156890001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	130	100	100	235	237	105	107	80-120	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1574033 1574034

Parameter	Units	10403251001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	ND	1	1	1.5	1.5	95	99	80-120	3	10	

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QUALIFIERS

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

P4 Sample field preservation does not meet EPA or method recommendations for this analysis.

R1 RPD value was outside control limits.

pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40156890001	ERD6-TW-NW15-TOS	EPA 8015B Modified	267935		
40156890002	ERD6-TW-NW10-BOS	EPA 8015B Modified	267935		
40156890003	ERD6-TW-NW15-BOS	EPA 8015B Modified	267935		
40156890004	ERD6-TW-NW10-TOS	EPA 8015B Modified	267935		
40156890005	CS-8-MW-61	EPA 8015B Modified	267935		
40156890006	CS-8-PZ-61	EPA 8015B Modified	267935		
40156890007	CS-8-MW-807	EPA 8015B Modified	267935		
40156890008	ERD1-TW-NW10-TOS	EPA 8015B Modified	267935		
40156890010	ERD1-TW-NW10-BOS	EPA 8015B Modified	267935		
40156890011	CS-4-PZ-75	EPA 8015B Modified	267935		
40156890001	ERD6-TW-NW15-TOS	EPA 6010	267998		
40156890002	ERD6-TW-NW10-BOS	EPA 6010	267998		
40156890003	ERD6-TW-NW15-BOS	EPA 6010	267998		
40156890004	ERD6-TW-NW10-TOS	EPA 6010	267998		
40156890005	CS-8-MW-61	EPA 6010	267998		
40156890006	CS-8-PZ-61	EPA 6010	267998		
40156890007	CS-8-MW-807	EPA 6010	267998		
40156890008	ERD1-TW-NW10-TOS	EPA 6010	267998		
40156890009	ERD1-TW-NW10-TOS-DUP	EPA 6010	267998		
40156890010	ERD1-TW-NW10-BOS	EPA 6010	267998		
40156890011	CS-4-PZ-75	EPA 6010	267998		
40156890001	ERD6-TW-NW15-TOS	EPA 3010	267955	EPA 6020	268067
40156890002	ERD6-TW-NW10-BOS	EPA 3010	267955	EPA 6020	268067
40156890003	ERD6-TW-NW15-BOS	EPA 3010	267955	EPA 6020	268067
40156890004	ERD6-TW-NW10-TOS	EPA 3010	267955	EPA 6020	268067
40156890005	CS-8-MW-61	EPA 3010	267955	EPA 6020	268067
40156890006	CS-8-PZ-61	EPA 3010	267955	EPA 6020	268067
40156890007	CS-8-MW-807	EPA 3010	267955	EPA 6020	268067
40156890008	ERD1-TW-NW10-TOS	EPA 3010	267955	EPA 6020	268067
40156890009	ERD1-TW-NW10-TOS-DUP	EPA 3010	267955	EPA 6020	268067
40156890010	ERD1-TW-NW10-BOS	EPA 3010	267955	EPA 6020	268067
40156890011	CS-4-PZ-75	EPA 3010	267955	EPA 6020	268067
40156890001	ERD6-TW-NW15-TOS	EPA 8260	268079		
40156890002	ERD6-TW-NW10-BOS	EPA 8260	268079		
40156890003	ERD6-TW-NW15-BOS	EPA 8260	268079		
40156890004	ERD6-TW-NW10-TOS	EPA 8260	268079		
40156890005	CS-8-MW-61	EPA 8260	268079		
40156890006	CS-8-PZ-61	EPA 8260	268079		
40156890007	CS-8-MW-807	EPA 8260	268079		
40156890008	ERD1-TW-NW10-TOS	EPA 8260	268079		
40156890009	ERD1-TW-NW10-TOS-DUP	EPA 8260	268079		
40156890010	ERD1-TW-NW10-BOS	EPA 8260	268079		
40156890011	CS-4-PZ-75	EPA 8260	268079		
40156890012	TRIP BLANK	EPA 8260	268079		
40156890001	ERD6-TW-NW15-TOS	SM 4500-S F (2000)	267953		
40156890002	ERD6-TW-NW10-BOS	SM 4500-S F (2000)	267953		
40156890003	ERD6-TW-NW15-BOS	SM 4500-S F (2000)	267953		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412 KEP PILOT TESTS

Pace Project No.: 40156890

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40156890004	ERD6-TW-NW10-TOS	SM 4500-S F (2000)	267953		
40156890005	CS-8-MW-61	SM 4500-S F (2000)	267953		
40156890006	CS-8-PZ-61	SM 4500-S F (2000)	267953		
40156890007	CS-8-MW-807	SM 4500-S F (2000)	267953		
40156890008	ERD1-TW-NW10-TOS	SM 4500-S F (2000)	267953		
40156890010	ERD1-TW-NW10-BOS	SM 4500-S F (2000)	267953		
40156890011	CS-4-PZ-75	SM 4500-S F (2000)	267953		
40156890001	ERD6-TW-NW15-TOS	EPA 300.0	267852		
40156890002	ERD6-TW-NW10-BOS	EPA 300.0	267852		
40156890003	ERD6-TW-NW15-BOS	EPA 300.0	267852		
40156890004	ERD6-TW-NW10-TOS	EPA 300.0	267852		
40156890005	CS-8-MW-61	EPA 300.0	267852		
40156890006	CS-8-PZ-61	EPA 300.0	267852		
40156890007	CS-8-MW-807	EPA 300.0	267852		
40156890008	ERD1-TW-NW10-TOS	EPA 300.0	267852		
40156890010	ERD1-TW-NW10-BOS	EPA 300.0	267852		
40156890011	CS-4-PZ-75	EPA 300.0	267852		
40156890001	ERD6-TW-NW15-TOS	EPA 310.2	268276		
40156890002	ERD6-TW-NW10-BOS	EPA 310.2	268276		
40156890003	ERD6-TW-NW15-BOS	EPA 310.2	268276		
40156890004	ERD6-TW-NW10-TOS	EPA 310.2	268276		
40156890005	CS-8-MW-61	EPA 310.2	268276		
40156890006	CS-8-PZ-61	EPA 310.2	268276		
40156890007	CS-8-MW-807	EPA 310.2	268276		
40156890008	ERD1-TW-NW10-TOS	EPA 310.2	268276		
40156890010	ERD1-TW-NW10-BOS	EPA 310.2	268276		
40156890011	CS-4-PZ-75	EPA 310.2	268420		
40156890001	ERD6-TW-NW15-TOS	SM 5310C	267930		
40156890002	ERD6-TW-NW10-BOS	SM 5310C	267930		
40156890003	ERD6-TW-NW15-BOS	SM 5310C	267930		
40156890004	ERD6-TW-NW10-TOS	SM 5310C	267930		
40156890005	CS-8-MW-61	SM 5310C	267930		
40156890006	CS-8-PZ-61	SM 5310C	267930		
40156890007	CS-8-MW-807	SM 5310C	267930		
40156890008	ERD1-TW-NW10-TOS	SM 5310C	267930		
40156890010	ERD1-TW-NW10-BOS	SM 5310C	267930		
40156890011	CS-4-PZ-75	SM 5310C	267930		

REPORT OF LABORATORY ANALYSIS

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Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: AECOM - Milw	Report To: Lanette Altenbach	Attention: Accounts Payable/Finance Department
Address: 1555 N. River Center Dr., Suite 214	Copy To:	Company Name: City of Kenosha
Milwaukee, WI 53212		Address: 652 52nd St., Kenosha, WI 53140
Email To: Lanette.Altенbach@aecom.com	Purchase Order No.:	Pace Quote Reference:
Phone: 414-577-1363 Fax:	Project Name: KEP Pilot Tests	Pace Project Manager: Chris Hyska
Requested Due Date/TAT: Standard	Project Number: 60518412	Pace Profile #: (2430) Kenosha work

REGULATORY AGENCY	
<input type="checkbox"/> NPDES	<input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
<input type="checkbox"/> UST	<input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
SITE	<input type="checkbox"/> GA <input type="checkbox"/> IL <input type="checkbox"/> IN <input type="checkbox"/> MI <input type="checkbox"/> NC
LOCATION	<input type="checkbox"/> OH <input type="checkbox"/> SC <input checked="" type="checkbox"/> WI <input type="checkbox"/> OTHER
Filtered (Y/N)	N N N N N Y N
Requested Analytes	<input checked="" type="checkbox"/> VOCs 8260 <input checked="" type="checkbox"/> ToC <input checked="" type="checkbox"/> Alkalinity, Cl, SO4 <input checked="" type="checkbox"/> Methane, Ethane, Ethene <input checked="" type="checkbox"/> Total Metals <input checked="" type="checkbox"/> Diss. Metals <input checked="" type="checkbox"/> Volatile Fatty Acids <input checked="" type="checkbox"/> Sulfide <input checked="" type="checkbox"/> Residual Chlorine (Y/N)
Pace Project Number Lab I.D.	

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / . -) Samples IDs MUST BE UNIQUE	Valid Matrix Codes		MATRIX CODE	SAMPLE TYPE G-GRAB C-COMP	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives																								
		MATRIX	CODE			COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other*																	
		DRINKING WATER	DW			DATE	TIME	DATE	TIME																											
		WATER	WT																																	
1	ERD6-TW-NW15-TDS		001	WT	G	-	-	9/13/17	1050	-	13	1	1	2	6				3																	
2	ERD6-TW-NW10-BOS		002	WT	G	-	-	9/13/17	1053	-	13	1	1	2	6				3																	
3	ERD6-TW-NW15-BOS		003	WT	G	-	-	9/13/17	1204	-	13	1	1	2	6				3																	
4	ERD6-TW-NW10-TDS		004	WT	G	-	-	9/13/17	1217	-	13	1	1	2	6				3																	
5	CS-8-MW-61		005	WT	G	-	-	9/13/17	1320	-	13	1	1	2	6				3																	
6	CS-8-PZ-61		006	WT	G	-	-	9/13/17	1337	-	13	1	1	2	6				3																	
7	CS-8-MW-807		007	WT	G	-	-	9/14/17	0945	-	13	1	1	2	6				3																	
8	ERD1-TW-NW10-TDS		008	WT	G	-	-	9/14/17	0957	-	13	1	1	2	6				3																	
9	ERD1-TW-NW10-TDS-DUP		009	WT	G	-	-	9/14/17	0957	-	5			2	3																					
10	ERD1-TW-NW10-BOS		010	WT	G	-	-	9/14/17	1116	-	13	1	1	2	6				3																	
11	CS-4-PZ-75		011	WT	G	-	-	9/14/17	1124	-	13	1	1	2	6				3																	
12	TRIP BLANK		012	WT	G	-	-	9/13/17	0800	-	13	1	1	2	6				3																	

See additional sheet 9/14/17

Additional Comments:
Total Metals: Fe, Ba, Cr, Pb, Ni
Dissolved Metals: Fe
Preservatives: OTHER
*BAK(2) & NaOH & Zinc Acetate(1)

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
A/E/AECOM	9/15/17	1000AM	Mary Fanni	9/15/17	1146		Y/N	Y/N	Y/N
Mary Fanni	9/14/17	1500					Y/N	Y/N	Y/N
CS Logistics	9/14/17	0900	Kate Schumann-Pace	9/16/17	0900	201	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE		Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
PRINT Name of SAMPLER: Alex Stocker / Zach Albert	SIGNATURE of SAMPLER: <i>[Signature]</i>				



Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Sample Condition Upon Receipt

Client Name: AECOM Project # 10156890

Additional Comments/Resolution: _____

001	1-500mlp ^J	3-250mlp ^{DAD}	1-125mlag ^C	7-40mlv ^{5B2J}
002				8-40mlv ^{6B2J}
003				
004				
005				
006				7-40mlv ^{6B1J}
007				
008				
009		2-250mlp ^D		3-40mlv ^B
010				
011				
012				2-40mlv ^B

KJ 9/16/17

KJ 9/16/17

KJ 9/16/17

Project Manager Review: _____

Date: 9/18/17

Sample Condition Upon Receipt

Pace Analytical Services, LLC. - Green Bay WI
1241 Bellevue Street, Suite 9
Green Bay, WI 54302



Client Name: AECOM

Project # WO# : 40156890

Courier: Fed Ex UPS Client Pace Other: CS Logistics



Tracking #: _____
Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: _____ /Corr: ROI Biological Tissue is Frozen: yes no

Temp Blank Present: yes no

Person examining contents:
Date: 9/16/17
Initials: KJ

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8. <u>no MS/MSD, 001 1-vial^B rec'd empty, 006</u>
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9. <u>1-vial^B rec'd empty</u>
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<u>KJ 9/16/17</u>
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. <u>KJ 9/16/17</u>
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked. (Non-Compliance noted in 13.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input checked="" type="checkbox"/> NaOH + ZnAct
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO ₃ , H ₂ SO ₄ ≤2; NaOH+ZnAct ≥9, NaOH ≥12)	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>006 500mLpH pH=7, 2-250mLpH pH=4, after adding 2.5mL HNO₃ to each both pH 5.2</u>
exceptions: (VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER: <u>BAK</u>)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed: <u>KJ</u> Lab Std #ID of preservative: <u>175371</u> Date/Time: <u>9/16/17@</u>
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	14.
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	<u>386</u>	

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: _____ Date: 9/15/17



Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

October 2, 2017

Christopher Hyska
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302

RE: **60518412 KEP PILOT / 40156890**

Pace Workorder: 23924

Dear Christopher Hyska:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, September 19, 2017. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 10/02/2017
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 25

Report ID: 23924 - 972470

Page 1 of 20



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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water; Solid and Chemical Materials
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water; Solid and Hazardous Waste
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).



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SAMPLE SUMMARY

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID	Sample ID	Matrix	Date Collected	Date Received
239240001	ERD6-TW-NW15-TOS	Water	9/13/2017 10:50	9/19/2017 11:15
239240002	ERD6-TW-NW10-BOS	Water	9/13/2017 10:53	9/19/2017 11:15
239240003	ERD6-TW-NW15-BOS	Water	9/13/2017 12:04	9/19/2017 11:15
239240004	ERD6-TW-NW10-TOS	Water	9/13/2017 12:17	9/19/2017 11:15
239240005	CS-8-MW-61	Water	9/13/2017 13:20	9/19/2017 11:15
239240006	CS-8-PZ-61	Water	9/13/2017 13:37	9/19/2017 11:15
239240007	CS-8-MW-807	Water	9/14/2017 09:45	9/19/2017 11:15
239240008	ERD1-TW-NW10-TOS	Water	9/14/2017 09:57	9/19/2017 11:15
239240009	ERD1-TW-NW10-BOS	Water	9/14/2017 11:16	9/19/2017 11:15
239240010	CS-4-PZ-5	Water	9/14/2017 11:24	9/19/2017 11:15



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PROJECT SUMMARY

Workorder: 23924 60518412 KEP PILOT / 40156890

Workorder Comments

Samples 23924 (0006) were analyzed outside the hold time of 14 days from collection for the Volatile Fatty acids. Method AM23G.

The original analysis of the samples 23924 (0001-0004) was conducted within the procedural holdtime of 14 days from collection; method AM23G. Subsequent dilutions and/or re-analysis of the samples were conducted outside the assigned holding time period.

Batch Comments

Batch: EDON/3510 - Low Level Volatile Fatty Acids

The percent recovery for the calibration verification analysis was below laboratory control limits. Analytes Formic acid. Results associated to the analytes in samples may be bias low.

The matrix spike and/or spike duplicate, recovery or relative percent difference; accuracy influenced by the concentration of the reference sample 239240001. Analyte Acetic acid. Batch acceptance based on laboratory control sample recovery.

Batch: EDON/3514 - Low Level Volatile Fatty Acids

The percent recovery for the calibration verification analysis was below laboratory control limits. Analytes Formic acid. Results associated to the analytes in samples may be bias low.



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240001** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD6-TW-NW15-TOS** Date Collected: 9/13/2017 10:50

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.11U	mg/l	2.0	0.11	10	9/27/2017 18:37	KB	d,B
Acetic Acid	160	mg/l	10	1.2	100	9/28/2017 16:24	KB	d,H1,B
Propionic Acid	42	mg/l	1.0	0.055	10	9/27/2017 18:37	KB	d
Formic Acid	0.92J	mg/l	2.0	0.33	10	9/27/2017 18:37	KB	d,B,M1
Butyric Acid	14	mg/l	1.0	0.055	10	9/27/2017 18:37	KB	d
Pyruvic Acid	2.4	mg/l	1.0	0.089	10	9/27/2017 18:37	KB	d
i-Pentanoic Acid	0.53J	mg/l	1.0	0.098	10	9/27/2017 18:37	KB	d
Pentanoic Acid	2.3	mg/l	1.0	0.082	10	9/27/2017 18:37	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/27/2017 18:37	KB	d
Hexanoic Acid	2.1	mg/l	2.0	0.095	10	9/27/2017 18:37	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240002** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD6-TW-NW10-BOS** Date Collected: 9/13/2017 10:53

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
------------	---------	-------	-----	-----	----	----------	----	------------

EDonors - PAES

Analysis Desc: AM23G Analytical Method: AM23G

Lactic Acid	7.3	mg/l	2.0	0.11	10	9/27/2017 21:17	KB	d,B
Acetic Acid	970	mg/l	100	12	1000	9/28/2017 18:10	KB	d,H1,B
Propionic Acid	450	mg/l	100	5.5	1000	9/28/2017 18:10	KB	d,H1
Formic Acid	11	mg/l	2.0	0.33	10	9/27/2017 21:17	KB	d,B,M1
Butyric Acid	480	mg/l	100	5.5	1000	9/28/2017 18:10	KB	d,H1
Pyruvic Acid	17	mg/l	1.0	0.089	10	9/27/2017 21:17	KB	d
i-Pentanoic Acid	4.0	mg/l	1.0	0.098	10	9/27/2017 21:17	KB	d
Pentanoic Acid	65	mg/l	10	0.82	100	9/28/2017 17:17	KB	d,H1
i-Hexanoic Acid	2.6	mg/l	2.0	0.11	10	9/27/2017 21:17	KB	d
Hexanoic Acid	19	mg/l	2.0	0.095	10	9/27/2017 21:17	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240003** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD6-TW-NW15-BOS** Date Collected: 9/13/2017 12:04

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	1.1U	mg/l	20	1.1	100	9/28/2017 19:04	KB	d,H1,B
Acetic Acid	370	mg/l	10	1.2	100	9/28/2017 19:04	KB	d,H1,B
Propionic Acid	220	mg/l	10	0.55	100	9/28/2017 19:04	KB	d,H1
Formic Acid	1.8J	mg/l	2.0	0.33	10	9/27/2017 22:10	KB	d,B,M1
Butyric Acid	160	mg/l	10	0.55	100	9/28/2017 19:04	KB	d,H1
Pyruvic Acid	3.5	mg/l	1.0	0.089	10	9/27/2017 22:10	KB	d
i-Pentanoic Acid	0.69J	mg/l	1.0	0.098	10	9/27/2017 22:10	KB	d
Pentanoic Acid	13	mg/l	1.0	0.082	10	9/27/2017 22:10	KB	d
i-Hexanoic Acid	0.80J	mg/l	2.0	0.11	10	9/27/2017 22:10	KB	d
Hexanoic Acid	2.9	mg/l	2.0	0.095	10	9/27/2017 22:10	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240004** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD6-TW-NW10-TOS** Date Collected: 9/13/2017 12:17

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.17J	mg/l	2.0	0.11	10	9/27/2017 23:04	KB	d,B
Acetic Acid	110	mg/l	10	1.2	100	9/28/2017 19:57	KB	d,H1,B
Propionic Acid	54	mg/l	10	0.55	100	9/28/2017 19:57	KB	d,H1
Formic Acid	0.99J	mg/l	2.0	0.33	10	9/27/2017 23:04	KB	d,B,M1
Butyric Acid	13	mg/l	1.0	0.055	10	9/27/2017 23:04	KB	d
Pyruvic Acid	3.1	mg/l	1.0	0.089	10	9/27/2017 23:04	KB	d
i-Pentanoic Acid	0.84J	mg/l	1.0	0.098	10	9/27/2017 23:04	KB	d
Pentanoic Acid	4.7	mg/l	1.0	0.082	10	9/27/2017 23:04	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/27/2017 23:04	KB	d
Hexanoic Acid	1.3J	mg/l	2.0	0.095	10	9/27/2017 23:04	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240005** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **CS-8-MW-61** Date Collected: 9/13/2017 13:20

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	0.38J	mg/l	2.0	0.11	10	9/27/2017 23:57	KB	d,B
Acetic Acid	3.0	mg/l	1.0	0.12	10	9/27/2017 23:57	KB	d,M3,B,M5
Propionic Acid	0.055U	mg/l	1.0	0.055	10	9/27/2017 23:57	KB	d
Formic Acid	0.36J	mg/l	2.0	0.33	10	9/27/2017 23:57	KB	d,B,M1
Butyric Acid	0.055U	mg/l	1.0	0.055	10	9/27/2017 23:57	KB	d
Pyruvic Acid	0.089U	mg/l	1.0	0.089	10	9/27/2017 23:57	KB	d
i-Pentanoic Acid	0.098U	mg/l	1.0	0.098	10	9/27/2017 23:57	KB	d
Pentanoic Acid	0.082U	mg/l	1.0	0.082	10	9/27/2017 23:57	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/27/2017 23:57	KB	d
Hexanoic Acid	0.095U	mg/l	2.0	0.095	10	9/27/2017 23:57	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240006** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **CS-8-PZ-61** Date Collected: 9/13/2017 13:37

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	4.5	mg/l	2.0	0.11	10	9/28/2017 00:50	KB	d,H1,B
Acetic Acid	3200	mg/l	100	12	1000	9/28/2017 21:44	KB	d,H1,B
Propionic Acid	1900	mg/l	100	5.5	1000	9/28/2017 21:44	KB	d,H1
Formic Acid	96J	mg/l	200	33	1000	9/28/2017 21:44	KB	d,H1,B,M1
Butyric Acid	2600	mg/l	100	5.5	1000	9/28/2017 21:44	KB	d,H1
Pyruvic Acid	15J	mg/l	100	8.9	1000	9/28/2017 21:44	KB	d,H1
i-Pentanoic Acid	9.6J	mg/l	10	0.98	100	9/28/2017 20:50	KB	d,H1
Pentanoic Acid	270	mg/l	10	0.82	100	9/28/2017 20:50	KB	d,H1
i-Hexanoic Acid	9.6	mg/l	2.0	0.11	10	9/28/2017 00:50	KB	d,H1
Hexanoic Acid	48	mg/l	20	0.95	100	9/28/2017 20:50	KB	d,H1



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240007** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **CS-8-MW-807** Date Collected: 9/14/2017 09:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.19J	mg/l	2.0	0.11	10	9/28/2017 01:44	KB	d,B
Acetic Acid	0.42J	mg/l	1.0	0.12	10	9/28/2017 01:44	KB	d,M3,B,M5
Propionic Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 01:44	KB	d
Formic Acid	0.90J	mg/l	2.0	0.33	10	9/28/2017 01:44	KB	d,B,M1
Butyric Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 01:44	KB	d
Pyruvic Acid	0.089U	mg/l	1.0	0.089	10	9/28/2017 01:44	KB	d
i-Pentanoic Acid	0.098U	mg/l	1.0	0.098	10	9/28/2017 01:44	KB	d
Pentanoic Acid	0.082U	mg/l	1.0	0.082	10	9/28/2017 01:44	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/28/2017 01:44	KB	d
Hexanoic Acid	0.095U	mg/l	2.0	0.095	10	9/28/2017 01:44	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240008** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD1-TW-NW10-TOS** Date Collected: 9/14/2017 09:57

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
EDonors - PAES								
Analysis Desc: AM23G			Analytical Method: AM23G					
Lactic Acid	0.20J	mg/l	2.0	0.11	10	9/28/2017 02:37	KB	d,B
Acetic Acid	0.26J	mg/l	1.0	0.12	10	9/28/2017 02:37	KB	d,M3,B,M5
Propionic Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 02:37	KB	d
Formic Acid	0.55J	mg/l	2.0	0.33	10	9/28/2017 02:37	KB	d,B,M1
Butyric Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 02:37	KB	d
Pyruvic Acid	0.089U	mg/l	1.0	0.089	10	9/28/2017 02:37	KB	d
i-Pentanoic Acid	0.098U	mg/l	1.0	0.098	10	9/28/2017 02:37	KB	d
Pentanoic Acid	0.082U	mg/l	1.0	0.082	10	9/28/2017 02:37	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/28/2017 02:37	KB	d
Hexanoic Acid	0.095U	mg/l	2.0	0.095	10	9/28/2017 02:37	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240009** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **ERD1-TW-NW10-BOS** Date Collected: 9/14/2017 11:16

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	0.15J	mg/l	2.0	0.11	10	9/28/2017 03:30	KB	d,B
Acetic Acid	64	mg/l	10	1.2	100	9/28/2017 22:37	KB	d,B
Propionic Acid	36	mg/l	10	0.55	100	9/28/2017 22:37	KB	d
Formic Acid	0.50J	mg/l	2.0	0.33	10	9/28/2017 03:30	KB	d,B,M1
Butyric Acid	0.28J	mg/l	1.0	0.055	10	9/28/2017 03:30	KB	d
Pyruvic Acid	0.24J	mg/l	1.0	0.089	10	9/28/2017 03:30	KB	d
i-Pentanoic Acid	0.098U	mg/l	1.0	0.098	10	9/28/2017 03:30	KB	d
Pentanoic Acid	0.31J	mg/l	1.0	0.082	10	9/28/2017 03:30	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/28/2017 03:30	KB	d
Hexanoic Acid	0.095U	mg/l	2.0	0.095	10	9/28/2017 03:30	KB	d



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ANALYTICAL RESULTS

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID: **239240010** Date Received: 9/19/2017 11:15 Matrix: Water
 Sample ID: **CS-4-PZ-5** Date Collected: 9/14/2017 11:24

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	0.18J	mg/l	2.0	0.11	10	9/28/2017 04:24	KB	d,B
Acetic Acid	0.31J	mg/l	1.0	0.12	10	9/28/2017 04:24	KB	d,M3,B,M5
Propionic Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 04:24	KB	d
Formic Acid	0.72J	mg/l	2.0	0.33	10	9/28/2017 04:24	KB	d,B,M1
Butyric Acid	0.055U	mg/l	1.0	0.055	10	9/28/2017 04:24	KB	d
Pyruvic Acid	0.089U	mg/l	1.0	0.089	10	9/28/2017 04:24	KB	d
i-Pentanoic Acid	0.098U	mg/l	1.0	0.098	10	9/28/2017 04:24	KB	d
Pentanoic Acid	0.082U	mg/l	1.0	0.082	10	9/28/2017 04:24	KB	d
i-Hexanoic Acid	0.11U	mg/l	2.0	0.11	10	9/28/2017 04:24	KB	d
Hexanoic Acid	0.097J	mg/l	2.0	0.095	10	9/28/2017 04:24	KB	d



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ANALYTICAL RESULTS QUALIFIERS

Workorder: 23924 60518412 KEP PILOT / 40156890

DEFINITIONS/QUALIFIERS

- MDL Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
- PQL Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
- ND Not detected at or above reporting limit.
- DF Dilution Factor.
- S Surrogate.
- RPD Relative Percent Difference.
- % Rec Percent Recovery.
- U Indicates the compound was analyzed for, but not detected at or above the noted concentration.
- J Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).
-
- H1 The sample was prepared or the analysis was conducted outside the method specific holding time.
- B The analyte was detected in the associated blank.
- d The analyte concentration was determined from a dilution.
- M1 The continuing calibration verification recovery was outside laboratory control limits.
- M5 The matrix spike duplicate sample recovery was outside laboratory control limits.
- M3 The matrix spike sample recovery was outside laboratory control limits.



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QUALITY CONTROL DATA

Workorder: 23924 60518412 KEP PILOT / 40156890

QC Batch: EDON/3510 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 239240001, 239240002, 239240003, 239240004, 239240005, 239240006, 239240007, 239240008, 239240009, 239240010

METHOD BLANK: 51140

Parameter	Units	Blank Result	Reporting Limit Qualifiers
EDonors			
Lactic Acid	mg/l	0.019J	0.011 B
Acetic Acid	mg/l	0.014J	0.012 M3,B,M5
Propionic Acid	mg/l	0.0055U	0.0055
Formic Acid	mg/l	0.080J	0.033 B,M1
Butyric Acid	mg/l	0.0055U	0.0055
Pyruvic Acid	mg/l	0.0089U	0.0089
i-Pentanoic Acid	mg/l	0.0098U	0.0098
Pentanoic Acid	mg/l	0.0082U	0.0082
i-Hexanoic Acid	mg/l	0.011U	0.011
Hexanoic Acid	mg/l	0.0095U	0.0095

LABORATORY CONTROL SAMPLE: 51141

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.0	99	70-130	B
Acetic Acid	mg/l	2	2.0	103	70-130	M3,B,M5
Propionic Acid	mg/l	2	2.0	100	70-130	
Formic Acid	mg/l	2	1.7	84	70-130	B,M1
Butyric Acid	mg/l	2	2.0	99	70-130	
Pyruvic Acid	mg/l	2	2.3	113	70-130	
i-Pentanoic Acid	mg/l	2	1.9	94	70-130	
Pentanoic Acid	mg/l	2	1.9	95	70-130	
i-Hexanoic Acid	mg/l	2	2.0	98	70-130	
Hexanoic Acid	mg/l	2	1.7	85	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 51142 51143 Original: 239240001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	Max RPD	RPD	Qualifiers
EDonors											



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QUALITY CONTROL DATA

Workorder: 23924 60518412 KEP PILOT / 40156890

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 51142 51143 Original: 239240001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Lactic Acid	mg/l	0.1	20	18	19	92	93	70-130	1.1	30	d,B
Acetic Acid	mg/l	160	20	160	160	13	10	70-130	26	30	d,M3,B,M5
Propionic Acid	mg/l	42	20	61	60	91	89	70-130	2.2	30	d
Formic Acid	mg/l	0.92	20	19	19	91	91	70-130	0	30	d,B,M1
Butyric Acid	mg/l	14	20	34	34	102	100	70-130	2	30	d
Pyruvic Acid	mg/l	2.4	20	25	25	114	115	70-130	0.87	30	d
i-Pentanoic Acid	mg/l	0.53	20	21	20	101	98	70-130	3	30	d
Pentanoic Acid	mg/l	2.3	20	24	23	107	103	70-130	3.8	30	d
i-Hexanoic Acid	mg/l	0	20	22	22	109	108	70-130	0.92	30	d
Hexanoic Acid	mg/l	2.1	20	23	22	105	99	70-130	5.9	30	d



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QUALITY CONTROL DATA

Workorder: 23924 60518412 KEP PILOT / 40156890

QC Batch: EDON/3514 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 239240001, 239240002, 239240003, 239240004, 239240006, 239240009

METHOD BLANK: 51238

Parameter	Units	Blank Result	Reporting Limit Qualifiers
EDonors			
Lactic Acid	mg/l	0.028J	0.011 B
Acetic Acid	mg/l	0.017J	0.012 B
Propionic Acid	mg/l	0.0055U	0.0055
Formic Acid	mg/l	0.092J	0.033 B,M1
Butyric Acid	mg/l	0.0055U	0.0055
Pyruvic Acid	mg/l	0.0089U	0.0089
i-Pentanoic Acid	mg/l	0.0098U	0.0098
Pentanoic Acid	mg/l	0.0082U	0.0082
Hexanoic Acid	mg/l	0.0095U	0.0095

LABORATORY CONTROL SAMPLE: 51239

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.0	100	70-130	B
Acetic Acid	mg/l	2	2.1	103	70-130	B
Propionic Acid	mg/l	2	2.0	101	70-130	
Formic Acid	mg/l	2	1.7	84	70-130	B,M1
Butyric Acid	mg/l	2	2.0	100	70-130	
Pyruvic Acid	mg/l	2	2.2	112	70-130	
i-Pentanoic Acid	mg/l	2	1.9	96	70-130	
Pentanoic Acid	mg/l	2	1.9	96	70-130	
Hexanoic Acid	mg/l	2	1.7	86	70-130	



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QUALITY CONTROL DATA QUALIFIERS

Workorder: 23924 60518412 KEP PILOT / 40156890

QUALITY CONTROL PARAMETER QUALIFIERS

- B The analyte was detected in the associated blank.
- M1 The continuing calibration verification recovery was outside laboratory control limits.
- M3 The matrix spike sample recovery was outside laboratory control limits.
- M5 The matrix spike duplicate sample recovery was outside laboratory control limits.
- d The analyte concentration was determined from a dilution.



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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 23924 60518412 KEP PILOT / 40156890

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
239240001	ERD6-TW-NW15-TOS			AM23G	EDON/3510
239240002	ERD6-TW-NW10-BOS			AM23G	EDON/3510
239240003	ERD6-TW-NW15-BOS			AM23G	EDON/3510
239240004	ERD6-TW-NW10-TOS			AM23G	EDON/3510
239240005	CS-8-MW-61			AM23G	EDON/3510
239240006	CS-8-PZ-61			AM23G	EDON/3510
239240007	CS-8-MW-807			AM23G	EDON/3510
239240008	ERD1-TW-NW10-TOS			AM23G	EDON/3510
239240009	ERD1-TW-NW10-BOS			AM23G	EDON/3510
239240010	CS-4-PZ-5			AM23G	EDON/3510
239240001	ERD6-TW-NW15-TOS			AM23G	EDON/3514
239240002	ERD6-TW-NW10-BOS			AM23G	EDON/3514
239240003	ERD6-TW-NW15-BOS			AM23G	EDON/3514
239240004	ERD6-TW-NW10-TOS			AM23G	EDON/3514
239240006	CS-8-PZ-61			AM23G	EDON/3514
239240009	ERD1-TW-NW10-BOS			AM23G	EDON/3514



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Chain of Custody



00 9-19-17
22923
23924

Workorder: 40156890 Workorder Name: 60518412 KEP PILOT TESTS Results Requested By: 9/27/2017

Report / Invoice To
 Christopher Hyska
 Pace Analytical Green Bay
 1241 Bellevue Street
 Suite 9
 Green Bay, WI 54302
 Phone (920)469-2436
 Email: christopher.hyska@pacelabs.com

Subcontract To
 Pace Analytical Energy Services
 220 Willian Pitt Way
 Pittsburg, PA 15238

State of Sample Origin: WI LOD/LOQ

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers		Requested Analysis
					B	A	
1	ERD6-TW-NW15-TOS	9/13/2017 10:50	40156890001	Water	2		AM23G Volatile Fatty Acids
2	ERD6-TW-NW10-BOS	9/13/2017 10:53	40156890002	Water	2		
3	ERD6-TW-NW15-BOS	9/13/2017 12:04	40156890003	Water	2		
4	ERD6-TW-NW10-TOS	9/13/2017 12:17	40156890004	Water	2		
5	CS-8-MW-61	9/13/2017 13:20	40156890005	Water	2		
6	CS-8-PZ-61	9/13/2017 13:37	40156890006	Water	1		
7	CS-8-MW-807	9/14/2017 09:45	40156890007	Water	2		
8	ERD1-TW-NW10-TOS	9/14/2017 09:57	40156890008	Water	2		
9	ERD1-TW-NW10-BOS	9/14/2017 11:16	40156890010	Water	2		
10	CS-4-PZ-75	9/14/2017 11:24	40156890011	Water	2		

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	Rachel Vany Pace	9/18/17 10:00	Jawad PADES	9-19-17				
2								
3								

Cooler Temperature on Receipt: _____ °C Custody Seal: Y or N Received on Ice: Y or N Samples Intact: Y or N

Comments

Cooler Receipt Form

Client Name: Pace - GB Project: 60518412 Lab Work Order: 23924
23923

KEP Pilot Tests

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 9325 1892 3023

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 1°C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC	✓			
Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments: _____

Cooler contents examined/received by: LY Date: 9-19-17

Project Manager Review: RW Date: 9-19-17



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

Client: Lanette Altenbach
AECOM
1555 N Rivercenter Dr
Suite 214
Milwaukee, WI 53212

Phone: 414-944-6186

Fax: 414-944-6080

Identifier: 03901

Date Rec: 09/14/2017

Report Date: 09/22/2017

Client Project #: 60518412

Client Project Name: KEP Pilot Wells

Purchase Order #:

Analysis Requested: 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.

Client: AECOM
Project: KEP Pilot Wells

MI Project Number: 0390I
Date Received: 09/14/2017

Sample Information

Client Sample ID:	ERD6-TW-NW15 -TOS	ERD6-TW-NW10 -BOS	ERD6-TW-NW15 -BOS	ERD6-TW-NW10 -TOS	CS-8-MW-61
Sample Date:	09/13/2017	09/13/2017	09/13/2017	09/13/2017	09/13/2017
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	JS	JS	JS	JS	JS

Dechlorinating Bacteria

		ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	CS-8-MW-61
<i>Dehalococcoides</i>	DHC	2.09E+04	1.86E+04	3.24E+04	1.55E+05	9.40E+04
tceA Reductase	TCE	3.68E+01	1.95E+01	3.81E+01	1.23E+02	1.79E+01
BAV1 Vinyl Chloride Reductase	BVC	2.66E+03	3.15E+03	5.43E+03	2.05E+04	2.96E+04
Vinyl Chloride Reductase	VCR	1.32E+04	4.24E+03	1.70E+04	6.44E+04	5.99E+04

Functional Genes

		ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	CS-8-MW-61
Sulfate Reducing Bacteria	APS	2.46E+03	1.27E+03	4.00E+03	1.22E+04	6.09E+05
Methanogens	MGN	2.55E+04	3.09E+03	2.64E+04	3.51E+04	8.94E+04

Legend:

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

Client: AECOM
Project: KEP Pilot Wells

MI Project Number: 0390I
Date Received: 09/14/2017

Sample Information

Client Sample ID:	CS-8-PZ-61	CS-8-MW-807	ERD1-TW-NW10 -TOS	ERD1-TW-NW10 -BOS	CS-4-PZ-75
Sample Date:	09/13/2017	09/14/2017	09/14/2017	09/14/2017	09/14/2017
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	JS	JS	JS	JS	JS

Dechlorinating Bacteria

		CS-8-PZ-61	CS-8-MW-807	ERD1-TW-NW10 -TOS	ERD1-TW-NW10 -BOS	CS-4-PZ-75
<i>Dehalococcoides</i>	DHC	1.79E+04	<1.00E+00	8.04E+03	1.13E+05	3.45E+02
tceA Reductase	TCE	1.64E+02	<1.00E+00	1.01E+01	2.09E+04	<5.00E-01
BAV1 Vinyl Chloride Reductase	BVC	3.39E+03	<1.00E+00	1.61E+03	3.09E+04	2.04E+01
Vinyl Chloride Reductase	VCR	8.51E+03	<1.00E+00	1.73E+04	1.60E+05	1.78E+03

Functional Genes

		CS-8-PZ-61	CS-8-MW-807	ERD1-TW-NW10 -TOS	ERD1-TW-NW10 -BOS	CS-4-PZ-75
Sulfate Reducing Bacteria	APS	1.96E+04	<1.02E+01	4.40E+03	2.48E+04	9.78E+03
Methanogens	MGN	5.86E+02	<1.02E+01	1.54E+02	9.32E+03	3.42E+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 9/14/2017

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	09/14/2017	09/22/2017	0 °C	111%	non-detect	non-detect
BVC	09/14/2017	09/22/2017	0 °C	101%	non-detect	non-detect
TCE	09/14/2017	09/22/2017	0 °C	102%	non-detect	non-detect
VCR	09/14/2017	09/22/2017	0 °C	106%	non-detect	non-detect
MGN	09/14/2017	09/22/2017	0 °C	98%	non-detect	non-detect
APS	09/14/2017	09/22/2017	0 °C	99%	non-detect	non-detect

Samples Received 9/16/2017

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	09/16/2017	09/22/2017	1 °C	107%	non-detect	non-detect
BVC	09/16/2017	09/22/2017	1 °C	104%	non-detect	non-detect
TCE	09/16/2017	09/22/2017	1 °C	101%	non-detect	non-detect
VCR	09/16/2017	09/22/2017	1 °C	105%	non-detect	non-detect
APS	09/16/2017	09/22/2017	1 °C	99%	non-detect	non-detect
MGN	09/16/2017	09/22/2017	1 °C	98%	non-detect	non-detect

April 04, 2018

Lanette Altenbach
AECOM, Inc.
1555 N River Center Drive
Suite 214
Milwaukee, WI 53212

RE: Project: 60518412.1 KEP
Pace Project No.: 40166427

Dear Lanette Altenbach:

Enclosed are the analytical results for sample(s) received by the laboratory on March 24, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40166427001	ERD6-TW-NW10 TOS	Water	03/21/18 10:55	03/24/18 08:45
40166427002	ERD6-TW-NW15 TOS	Water	03/21/18 11:02	03/24/18 08:45
40166427003	ERD6-TW-NW10 BOS	Water	03/21/18 12:05	03/24/18 08:45
40166427004	ERD6-TW-NW15 BOS	Water	03/21/18 12:10	03/24/18 08:45
40166427005	CS8-MW-61	Water	03/21/18 13:25	03/24/18 08:45
40166427006	CS8-MW-61-DUP	Water	03/21/18 13:25	03/24/18 08:45
40166427007	CS8-PZ-61	Water	03/21/18 13:45	03/24/18 08:45
40166427008	TRIP BLANK-ERD-01	Water	03/21/18 09:00	03/24/18 08:45
40166427009	ERD1-TW-NW10 TOS	Water	03/22/18 10:10	03/24/18 08:45
40166427010	CS4-PZ-75	Water	03/22/18 10:15	03/24/18 08:45
40166427011	ERD1-TW-NW10 BOS	Water	03/22/18 11:15	03/24/18 08:45
40166427012	CS8-MW-807	Water	03/22/18 11:15	03/24/18 08:45
40166427013	TRIP BLANK-ERD-02	Water	03/22/18 12:00	03/24/18 08:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40166427001	ERD6-TW-NW10 TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427002	ERD6-TW-NW15 TOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427003	ERD6-TW-NW10 BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427004	ERD6-TW-NW15 BOS	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427005	CS8-MW-61	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427006	CS8-MW-61-DUP	EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP
Pace Project No.: 40166427

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40166427007	CS8-PZ-61	EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
40166427008	TRIP BLANK-ERD-01	EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427009	ERD1-TW-NW10 TOS	EPA 8260	LAP	64	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
40166427010	CS4-PZ-75	EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
40166427011	ERD1-TW-NW10 BOS	EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
		EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
		EPA 8015B Modified	ALD	3	PASI-G
40166427012	CS8-MW-807	EPA 6010	JLD	1	PASI-G
		EPA 6020	DS1	5	PASI-G

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260	LAP	64	PASI-G
		EPA 300.0	HMB	2	PASI-G
		EPA 310.2	DAW	1	PASI-G
		SM 5310C	TJJ	1	PASI-G
40166427013	TRIP BLANK-ERD-02	EPA 8260	LAP	64	PASI-G

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40166427001	ERD6-TW-NW10 TOS					
EPA 8015B Modified	Ethane	86.1	ug/L	5.6	03/27/18 08:58	
EPA 8015B Modified	Ethene	51.9	ug/L	5.0	03/27/18 08:58	
EPA 8015B Modified	Methane	2660	ug/L	112	03/27/18 11:57	
EPA 6010	Iron, Dissolved	27600	ug/L	100	04/02/18 23:24	
EPA 6020	Barium	152	ug/L	1.1	03/29/18 23:48	
EPA 6020	Chromium	10.2	ug/L	3.4	03/29/18 23:48	
EPA 6020	Iron	31000	ug/L	3680	03/30/18 20:13	P6
EPA 6020	Lead	0.26J	ug/L	1.0	03/29/18 23:48	
EPA 6020	Nickel	6.8	ug/L	1.3	03/29/18 23:48	
EPA 8260	Benzene	2.7	ug/L	2.0	03/29/18 11:45	
EPA 8260	cis-1,2-Dichloroethene	16.4	ug/L	2.0	03/29/18 11:45	
EPA 8260	Isopropylbenzene (Cumene)	1.2J	ug/L	2.0	03/29/18 11:45	
EPA 8260	n-Propylbenzene	1.6J	ug/L	2.0	03/29/18 11:45	
EPA 8260	Vinyl chloride	218	ug/L	2.0	03/29/18 11:45	
EPA 300.0	Chloride	329	mg/L	40.0	03/26/18 17:08	
EPA 310.2	Alkalinity, Total as CaCO3	473	mg/L	117	04/02/18 14:23	
SM 5310C	Total Organic Carbon	58.7	mg/L	25.2	03/28/18 08:30	
40166427002	ERD6-TW-NW15 TOS					
EPA 8015B Modified	Ethane	167	ug/L	5.6	03/27/18 09:05	
EPA 8015B Modified	Ethene	189	ug/L	5.0	03/27/18 09:05	
EPA 8015B Modified	Methane	6860	ug/L	140	03/27/18 12:04	
EPA 6010	Iron, Dissolved	7140	ug/L	100	04/02/18 23:32	
EPA 6020	Barium	79.8	ug/L	1.1	03/30/18 00:14	
EPA 6020	Iron	6700	ug/L	368	03/30/18 00:14	
EPA 6020	Nickel	0.78J	ug/L	1.3	03/30/18 00:14	
EPA 8260	Benzene	6.7	ug/L	1.0	03/30/18 08:35	
EPA 8260	cis-1,2-Dichloroethene	11.6	ug/L	1.0	03/30/18 08:35	
EPA 8260	Isopropylbenzene (Cumene)	0.37J	ug/L	1.0	03/30/18 08:35	
EPA 8260	Toluene	0.72J	ug/L	1.0	03/30/18 08:35	
EPA 8260	Vinyl chloride	60.4	ug/L	1.0	03/30/18 08:35	
EPA 300.0	Chloride	349	mg/L	40.0	03/26/18 18:01	
EPA 310.2	Alkalinity, Total as CaCO3	465	mg/L	117	04/02/18 14:07	MO
SM 5310C	Total Organic Carbon	5.6	mg/L	2.5	03/27/18 17:05	
40166427003	ERD6-TW-NW10 BOS					
EPA 8015B Modified	Ethane	32.0	ug/L	5.6	03/27/18 09:38	
EPA 8015B Modified	Ethene	28.6	ug/L	5.0	03/27/18 09:38	
EPA 8015B Modified	Methane	2070	ug/L	56.0	03/27/18 13:21	
EPA 6010	Iron, Dissolved	9030	ug/L	100	04/02/18 23:39	
EPA 6020	Barium	173	ug/L	1.1	03/30/18 00:27	
EPA 6020	Chromium	4.2	ug/L	3.4	03/30/18 00:27	
EPA 6020	Iron	16200	ug/L	368	03/30/18 00:27	
EPA 6020	Nickel	3.4	ug/L	1.3	03/30/18 00:27	
EPA 8260	Benzene	2.5J	ug/L	4.0	03/29/18 12:30	
EPA 8260	cis-1,2-Dichloroethene	49.3	ug/L	4.0	03/29/18 12:30	
EPA 8260	Isopropylbenzene (Cumene)	0.66J	ug/L	4.0	03/29/18 12:30	
EPA 8260	Vinyl chloride	456	ug/L	4.0	03/29/18 12:30	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40166427003	ERD6-TW-NW10 BOS					
EPA 300.0	Chloride	408	mg/L	40.0	03/26/18 18:15	
EPA 310.2	Alkalinity, Total as CaCO3	406	mg/L	117	04/02/18 14:24	
SM 5310C	Total Organic Carbon	23.2	mg/L	5.0	03/27/18 18:28	
40166427004	ERD6-TW-NW15 BOS					
EPA 8015B Modified	Ethane	62.6	ug/L	5.6	03/27/18 09:44	
EPA 8015B Modified	Ethene	94.2	ug/L	5.0	03/27/18 09:44	
EPA 8015B Modified	Methane	5790	ug/L	70.0	03/27/18 12:18	
EPA 6010	Iron, Dissolved	32000	ug/L	100	04/02/18 23:42	
EPA 6020	Barium	283	ug/L	1.1	03/30/18 00:33	
EPA 6020	Chromium	8.9	ug/L	3.4	03/30/18 00:33	
EPA 6020	Iron	33800	ug/L	368	03/30/18 00:33	
EPA 6020	Lead	1.3	ug/L	1.0	03/30/18 00:33	
EPA 6020	Nickel	5.8	ug/L	1.3	03/30/18 00:33	
EPA 8260	Benzene	5.8	ug/L	1.0	03/30/18 07:47	
EPA 8260	cis-1,2-Dichloroethene	58.6	ug/L	1.0	03/30/18 07:47	
EPA 8260	Isopropylbenzene (Cumene)	0.24J	ug/L	1.0	03/30/18 07:47	
EPA 8260	Toluene	0.93J	ug/L	1.0	03/30/18 07:47	
EPA 8260	Vinyl chloride	115	ug/L	1.0	03/30/18 07:47	
EPA 300.0	Chloride	457	mg/L	40.0	03/26/18 18:28	
EPA 310.2	Alkalinity, Total as CaCO3	556	mg/L	117	04/02/18 14:26	
SM 5310C	Total Organic Carbon	206	mg/L	126	03/28/18 09:45	
40166427005	CS8-MW-61					
EPA 8015B Modified	Ethane	70.0	ug/L	5.6	03/27/18 09:51	
EPA 8015B Modified	Ethene	74.1	ug/L	5.0	03/27/18 09:51	
EPA 8015B Modified	Methane	1390	ug/L	28.0	03/27/18 13:28	
EPA 6010	Iron, Dissolved	2250	ug/L	100	04/02/18 23:44	
EPA 6020	Barium	322	ug/L	1.1	03/30/18 00:53	
EPA 6020	Iron	2220	ug/L	368	03/30/18 00:53	
EPA 6020	Lead	0.46J	ug/L	1.0	03/30/18 00:53	
EPA 8260	Benzene	16.6J	ug/L	25.0	03/29/18 13:15	
EPA 8260	cis-1,2-Dichloroethene	2540	ug/L	25.0	03/29/18 13:15	
EPA 8260	Trichloroethene	104	ug/L	25.0	03/29/18 13:15	
EPA 8260	Vinyl chloride	3280	ug/L	25.0	03/29/18 13:15	
EPA 300.0	Chloride	551	mg/L	40.0	03/26/18 18:41	
EPA 300.0	Sulfate	29.4J	mg/L	60.0	03/26/18 18:41	D3
EPA 310.2	Alkalinity, Total as CaCO3	389	mg/L	23.5	04/02/18 14:10	
SM 5310C	Total Organic Carbon	0.94	mg/L	0.84	03/28/18 10:06	
40166427006	CS8-MW-61-DUP					
EPA 8015B Modified	Ethane	82.3	ug/L	5.6	03/27/18 09:58	
EPA 8015B Modified	Ethene	87.2	ug/L	5.0	03/27/18 09:58	
EPA 8015B Modified	Methane	1240	ug/L	28.0	03/27/18 13:35	
EPA 6010	Iron, Dissolved	2300	ug/L	100	04/02/18 23:47	
EPA 6020	Barium	339	ug/L	1.1	03/30/18 00:59	
EPA 6020	Iron	2240	ug/L	368	03/30/18 00:59	
EPA 8260	Benzene	16.3J	ug/L	25.0	03/29/18 13:38	
EPA 8260	cis-1,2-Dichloroethene	2560	ug/L	25.0	03/29/18 13:38	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab Sample ID	Client Sample ID	Result	Units	Report Limit	Analyzed	Qualifiers
Method	Parameters					
40166427006	CS8-MW-61-DUP					
EPA 8260	Trichloroethene	116	ug/L	25.0	03/29/18 13:38	
EPA 8260	Vinyl chloride	3140	ug/L	25.0	03/29/18 13:38	
EPA 300.0	Chloride	599	mg/L	40.0	03/26/18 18:55	
EPA 300.0	Sulfate	32.5J	mg/L	60.0	03/26/18 18:55	D3
EPA 310.2	Alkalinity, Total as CaCO3	418	mg/L	117	04/02/18 14:11	
SM 5310C	Total Organic Carbon	0.98	mg/L	0.84	03/28/18 10:27	
40166427007	CS8-PZ-61					
EPA 8015B Modified	Ethane	9.2	ug/L	5.6	03/27/18 10:05	
EPA 8015B Modified	Ethene	68.9	ug/L	5.0	03/27/18 10:05	
EPA 8015B Modified	Methane	4460	ug/L	112	03/27/18 14:03	
EPA 6010	Iron, Dissolved	756000	ug/L	10000	04/03/18 12:37	
EPA 6020	Barium	1260	ug/L	11.4	03/30/18 01:06	
EPA 6020	Iron	570000	ug/L	3680	03/30/18 01:06	
EPA 6020	Lead	6.5J	ug/L	10.0	03/30/18 01:06	D3
EPA 6020	Nickel	4.8J	ug/L	13.4	03/30/18 01:06	D3
EPA 8260	cis-1,2-Dichloroethene	1210	ug/L	10.0	03/30/18 08:58	
EPA 8260	Trichloroethene	4.2J	ug/L	10.0	03/30/18 08:58	
EPA 8260	Vinyl chloride	81.2	ug/L	10.0	03/30/18 08:58	
EPA 300.0	Chloride	360	mg/L	40.0	03/26/18 19:08	
EPA 310.2	Alkalinity, Total as CaCO3	1460	mg/L	117	04/03/18 11:34	
SM 5310C	Total Organic Carbon	2050	mg/L	504	03/28/18 10:48	
40166427009	ERD1-TW-NW10 TOS					
EPA 8015B Modified	Ethane	85.1	ug/L	5.6	03/27/18 10:12	
EPA 8015B Modified	Ethene	177	ug/L	5.0	03/27/18 10:12	
EPA 8015B Modified	Methane	1880	ug/L	56.0	03/27/18 13:00	
EPA 6010	Iron, Dissolved	1850	ug/L	100	04/02/18 23:52	
EPA 6020	Barium	246	ug/L	1.1	03/30/18 01:12	
EPA 6020	Iron	2180	ug/L	368	03/30/18 01:12	
EPA 8260	Chloroethane	134	ug/L	1.0	03/30/18 08:13	L1
EPA 8260	cis-1,2-Dichloroethene	158	ug/L	1.0	03/30/18 08:13	
EPA 8260	Methyl-tert-butyl ether	0.26J	ug/L	1.0	03/30/18 08:13	
EPA 8260	Trichloroethene	0.76J	ug/L	1.0	03/30/18 08:13	
EPA 8260	Vinyl chloride	36.4	ug/L	1.0	03/30/18 08:13	
EPA 300.0	Chloride	533	mg/L	40.0	03/26/18 19:22	
EPA 300.0	Sulfate	32.7J	mg/L	60.0	03/26/18 19:22	D3
EPA 310.2	Alkalinity, Total as CaCO3	520	mg/L	117	04/03/18 11:35	
SM 5310C	Total Organic Carbon	3.4	mg/L	2.5	03/27/18 20:12	
40166427010	CS4-PZ-75					
EPA 8015B Modified	Ethane	11.7	ug/L	5.6	03/27/18 10:19	
EPA 8015B Modified	Ethene	52.1	ug/L	5.0	03/27/18 10:19	
EPA 8015B Modified	Methane	716	ug/L	14.0	03/27/18 13:07	
EPA 6010	Iron, Dissolved	400	ug/L	100	04/02/18 23:55	
EPA 6020	Barium	223	ug/L	1.1	03/30/18 01:18	
EPA 6020	Iron	614	ug/L	368	03/30/18 01:18	
EPA 6020	Lead	0.75J	ug/L	1.0	03/30/18 01:18	
EPA 6020	Nickel	10.2	ug/L	1.3	03/30/18 01:18	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: 60518412.1 KEP
Pace Project No.: 40166427

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40166427010	CS4-PZ-75					
EPA 8260	Vinyl chloride	673	ug/L	5.0	03/29/18 14:45	M1
EPA 300.0	Chloride	542	mg/L	20.0	03/26/18 20:02	
EPA 300.0	Sulfate	103	mg/L	30.0	03/26/18 20:02	
EPA 310.2	Alkalinity, Total as CaCO3	417	mg/L	47.0	04/03/18 11:11	
SM 5310C	Total Organic Carbon	3.1	mg/L	2.5	03/27/18 20:32	
40166427011	ERD1-TW-NW10 BOS					
EPA 8015B Modified	Ethane	54.0	ug/L	5.6	03/27/18 10:26	
EPA 8015B Modified	Ethene	1190	ug/L	200	03/27/18 13:14	
EPA 8015B Modified	Methane	7890	ug/L	112	03/27/18 13:14	
EPA 6010	Iron, Dissolved	6030	ug/L	100	04/02/18 23:57	
EPA 6020	Barium	659	ug/L	1.1	03/30/18 01:25	
EPA 6020	Iron	6980	ug/L	1840	03/30/18 20:52	
EPA 8260	Chloroethane	15.6	ug/L	1.0	03/29/18 11:22	L1
EPA 8260	1,1-Dichloroethene	1.2	ug/L	1.0	03/29/18 11:22	
EPA 8260	cis-1,2-Dichloroethene	578	ug/L	5.0	03/30/18 09:21	
EPA 8260	Trichloroethene	5.3	ug/L	1.0	03/29/18 11:22	
EPA 8260	Vinyl chloride	138	ug/L	1.0	03/29/18 11:22	
EPA 300.0	Chloride	1170	mg/L	100	03/27/18 11:03	
EPA 300.0	Sulfate	15.4J	mg/L	30.0	03/26/18 20:55	D3
EPA 310.2	Alkalinity, Total as CaCO3	590	mg/L	117	04/03/18 11:37	
SM 5310C	Total Organic Carbon	7.3	mg/L	2.5	03/27/18 20:53	
40166427012	CS8-MW-807					
EPA 6010	Iron, Dissolved	84.6J	ug/L	100	04/03/18 00:00	
EPA 6020	Barium	39.1	ug/L	1.1	03/30/18 01:31	
EPA 6020	Chromium	10.5	ug/L	3.4	03/30/18 01:31	
EPA 6020	Iron	4100	ug/L	368	03/30/18 01:31	
EPA 6020	Lead	2.2	ug/L	1.0	03/30/18 01:31	
EPA 6020	Nickel	4.2	ug/L	1.3	03/30/18 01:31	
EPA 8260	Trichloroethene	0.56J	ug/L	1.0	03/29/18 15:08	
EPA 300.0	Chloride	29.1	mg/L	10.0	03/27/18 11:17	
EPA 300.0	Sulfate	48.4	mg/L	15.0	03/27/18 11:17	
EPA 310.2	Alkalinity, Total as CaCO3	221	mg/L	23.5	04/03/18 11:12	
SM 5310C	Total Organic Carbon	1.5	mg/L	0.84	03/27/18 21:14	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW10 TOS **Lab ID:** 40166427001 Collected: 03/21/18 10:55 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	86.1	ug/L	5.6	0.58	1		03/27/18 08:58	74-84-0	
Ethene	51.9	ug/L	5.0	0.52	1		03/27/18 08:58	74-85-1	
Methane	2660	ug/L	112	54.8	40		03/27/18 11:57	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	27600	ug/L	100	15.5	1		04/02/18 23:24	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	152	ug/L	1.1	0.34	1	03/28/18 07:09	03/29/18 23:48	7440-39-3	
Chromium	10.2	ug/L	3.4	1.0	1	03/28/18 07:09	03/29/18 23:48	7440-47-3	
Iron	31000	ug/L	3680	1110	10	03/28/18 07:09	03/30/18 20:13	7439-89-6	P6
Lead	0.26J	ug/L	1.0	0.20	1	03/28/18 07:09	03/29/18 23:48	7439-92-1	
Nickel	6.8	ug/L	1.3	0.40	1	03/28/18 07:09	03/29/18 23:48	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	2.7	ug/L	2.0	1.0	2		03/29/18 11:45	71-43-2	
Bromobenzene	<0.46	ug/L	2.0	0.46	2		03/29/18 11:45	108-86-1	
Bromochloromethane	<0.68	ug/L	2.0	0.68	2		03/29/18 11:45	74-97-5	
Bromodichloromethane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	75-27-4	
Bromoform	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	75-25-2	
Bromomethane	<4.9	ug/L	10.0	4.9	2		03/29/18 11:45	74-83-9	
n-Butylbenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	104-51-8	
sec-Butylbenzene	<4.4	ug/L	10.0	4.4	2		03/29/18 11:45	135-98-8	
tert-Butylbenzene	<0.36	ug/L	2.0	0.36	2		03/29/18 11:45	98-06-6	
Carbon tetrachloride	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	56-23-5	
Chlorobenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	108-90-7	
Chloroethane	<0.75	ug/L	2.0	0.75	2		03/29/18 11:45	75-00-3	L1
Chloroform	<5.0	ug/L	10.0	5.0	2		03/29/18 11:45	67-66-3	
Chloromethane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	74-87-3	
2-Chlorotoluene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	95-49-8	
4-Chlorotoluene	<0.43	ug/L	2.0	0.43	2		03/29/18 11:45	106-43-4	
1,2-Dibromo-3-chloropropane	<4.3	ug/L	10.0	4.3	2		03/29/18 11:45	96-12-8	
Dibromochloromethane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	124-48-1	
1,2-Dibromoethane (EDB)	<0.36	ug/L	2.0	0.36	2		03/29/18 11:45	106-93-4	
Dibromomethane	<0.85	ug/L	2.0	0.85	2		03/29/18 11:45	74-95-3	
1,2-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	95-50-1	
1,3-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	541-73-1	
1,4-Dichlorobenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	106-46-7	
Dichlorodifluoromethane	<0.45	ug/L	2.0	0.45	2		03/29/18 11:45	75-71-8	
1,1-Dichloroethane	<0.48	ug/L	2.0	0.48	2		03/29/18 11:45	75-34-3	
1,2-Dichloroethane	<0.34	ug/L	2.0	0.34	2		03/29/18 11:45	107-06-2	
1,1-Dichloroethene	<0.82	ug/L	2.0	0.82	2		03/29/18 11:45	75-35-4	
cis-1,2-Dichloroethene	16.4	ug/L	2.0	0.51	2		03/29/18 11:45	156-59-2	
trans-1,2-Dichloroethene	<0.51	ug/L	2.0	0.51	2		03/29/18 11:45	156-60-5	L1
1,2-Dichloropropane	<0.47	ug/L	2.0	0.47	2		03/29/18 11:45	78-87-5	
1,3-Dichloropropane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW10 TOS **Lab ID: 40166427001** Collected: 03/21/18 10:55 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.97	ug/L	2.0	0.97	2		03/29/18 11:45	594-20-7	
1,1-Dichloropropene	<0.88	ug/L	2.0	0.88	2		03/29/18 11:45	563-58-6	
cis-1,3-Dichloropropene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	10061-01-5	
trans-1,3-Dichloropropene	<0.46	ug/L	2.0	0.46	2		03/29/18 11:45	10061-02-6	
Diisopropyl ether	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	108-20-3	
Ethylbenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	100-41-4	
Hexachloro-1,3-butadiene	<4.2	ug/L	10.0	4.2	2		03/29/18 11:45	87-68-3	
Isopropylbenzene (Cumene)	1.2J	ug/L	2.0	0.29	2		03/29/18 11:45	98-82-8	
p-Isopropyltoluene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	99-87-6	
Methylene Chloride	<0.47	ug/L	2.0	0.47	2		03/29/18 11:45	75-09-2	
Methyl-tert-butyl ether	<0.35	ug/L	2.0	0.35	2		03/29/18 11:45	1634-04-4	
Naphthalene	<5.0	ug/L	10.0	5.0	2		03/29/18 11:45	91-20-3	
n-Propylbenzene	1.6J	ug/L	2.0	1.0	2		03/29/18 11:45	103-65-1	
Styrene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	100-42-5	
1,1,1,2-Tetrachloroethane	<0.36	ug/L	2.0	0.36	2		03/29/18 11:45	630-20-6	
1,1,2,2-Tetrachloroethane	<0.50	ug/L	2.0	0.50	2		03/29/18 11:45	79-34-5	
Tetrachloroethene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	127-18-4	
Toluene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	108-88-3	
1,2,3-Trichlorobenzene	<4.3	ug/L	10.0	4.3	2		03/29/18 11:45	87-61-6	
1,2,4-Trichlorobenzene	<4.4	ug/L	10.0	4.4	2		03/29/18 11:45	120-82-1	
1,1,1-Trichloroethane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	71-55-6	
1,1,2-Trichloroethane	<0.39	ug/L	2.0	0.39	2		03/29/18 11:45	79-00-5	
Trichloroethene	<0.66	ug/L	2.0	0.66	2		03/29/18 11:45	79-01-6	
Trichlorofluoromethane	<0.37	ug/L	2.0	0.37	2		03/29/18 11:45	75-69-4	
1,2,3-Trichloropropane	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	96-18-4	
1,2,4-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	95-63-6	
1,3,5-Trimethylbenzene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	108-67-8	
Vinyl chloride	218	ug/L	2.0	0.35	2		03/29/18 11:45	75-01-4	
m&p-Xylene	<2.0	ug/L	4.0	2.0	2		03/29/18 11:45	179601-23-1	
o-Xylene	<1.0	ug/L	2.0	1.0	2		03/29/18 11:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	61-130		2		03/29/18 11:45	460-00-4	
Dibromofluoromethane (S)	105	%	67-130		2		03/29/18 11:45	1868-53-7	
Toluene-d8 (S)	103	%	70-130		2		03/29/18 11:45	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	329	mg/L	40.0	10.0	20		03/26/18 17:08	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		03/26/18 17:08	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	473	mg/L	117	35.2	5		04/02/18 14:23		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	58.7	mg/L	25.2	7.6	30		03/28/18 08:30	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW15 TOS **Lab ID:** 40166427002 Collected: 03/21/18 11:02 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	167	ug/L	5.6	0.58	1		03/27/18 09:05	74-84-0	
Ethene	189	ug/L	5.0	0.52	1		03/27/18 09:05	74-85-1	
Methane	6860	ug/L	140	68.5	50		03/27/18 12:04	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	7140	ug/L	100	15.5	1		04/02/18 23:32	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	79.8	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 00:14	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 00:14	7440-47-3	
Iron	6700	ug/L	368	111	1	03/28/18 07:09	03/30/18 00:14	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 00:14	7439-92-1	
Nickel	0.78J	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 00:14	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	6.7	ug/L	1.0	0.50	1		03/30/18 08:35	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/30/18 08:35	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/30/18 08:35	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/30/18 08:35	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 08:35	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/30/18 08:35	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		03/30/18 08:35	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/30/18 08:35	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/30/18 08:35	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/30/18 08:35	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/30/18 08:35	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/30/18 08:35	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/30/18 08:35	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/30/18 08:35	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/30/18 08:35	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/30/18 08:35	75-35-4	
cis-1,2-Dichloroethene	11.6	ug/L	1.0	0.26	1		03/30/18 08:35	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/30/18 08:35	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/30/18 08:35	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP
Pace Project No.: 40166427

Sample: ERD6-TW-NW15 TOS **Lab ID: 40166427002** Collected: 03/21/18 11:02 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/30/18 08:35	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/30/18 08:35	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/30/18 08:35	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/30/18 08:35	87-68-3	
Isopropylbenzene (Cumene)	0.37J	ug/L	1.0	0.14	1		03/30/18 08:35	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/30/18 08:35	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/30/18 08:35	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/30/18 08:35	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/30/18 08:35	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/30/18 08:35	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	127-18-4	
Toluene	0.72J	ug/L	1.0	0.50	1		03/30/18 08:35	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/30/18 08:35	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 08:35	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/30/18 08:35	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		03/30/18 08:35	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/30/18 08:35	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	108-67-8	
Vinyl chloride	60.4	ug/L	1.0	0.18	1		03/30/18 08:35	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/30/18 08:35	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:35	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	61-130		1		03/30/18 08:35	460-00-4	
Dibromofluoromethane (S)	104	%	67-130		1		03/30/18 08:35	1868-53-7	
Toluene-d8 (S)	104	%	70-130		1		03/30/18 08:35	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	349	mg/L	40.0	10.0	20		03/26/18 18:01	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		03/26/18 18:01	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	465	mg/L	117	35.2	5		04/02/18 14:07		M0
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	5.6	mg/L	2.5	0.76	3		03/27/18 17:05	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW10 BOS **Lab ID:** 40166427003 Collected: 03/21/18 12:05 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	32.0	ug/L	5.6	0.58	1		03/27/18 09:38	74-84-0	
Ethene	28.6	ug/L	5.0	0.52	1		03/27/18 09:38	74-85-1	
Methane	2070	ug/L	56.0	27.4	20		03/27/18 13:21	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	9030	ug/L	100	15.5	1		04/02/18 23:39	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	173	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 00:27	7440-39-3	
Chromium	4.2	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 00:27	7440-47-3	
Iron	16200	ug/L	368	111	1	03/28/18 07:09	03/30/18 00:27	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 00:27	7439-92-1	
Nickel	3.4	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 00:27	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	2.5J	ug/L	4.0	2.0	4		03/29/18 12:30	71-43-2	
Bromobenzene	<0.92	ug/L	4.0	0.92	4		03/29/18 12:30	108-86-1	
Bromochloromethane	<1.4	ug/L	4.0	1.4	4		03/29/18 12:30	74-97-5	
Bromodichloromethane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	75-27-4	
Bromoform	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	75-25-2	
Bromomethane	<9.7	ug/L	20.0	9.7	4		03/29/18 12:30	74-83-9	
n-Butylbenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	104-51-8	
sec-Butylbenzene	<8.7	ug/L	20.0	8.7	4		03/29/18 12:30	135-98-8	
tert-Butylbenzene	<0.72	ug/L	4.0	0.72	4		03/29/18 12:30	98-06-6	
Carbon tetrachloride	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	56-23-5	
Chlorobenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	108-90-7	
Chloroethane	<1.5	ug/L	4.0	1.5	4		03/29/18 12:30	75-00-3	L1
Chloroform	<10.0	ug/L	20.0	10.0	4		03/29/18 12:30	67-66-3	
Chloromethane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	74-87-3	
2-Chlorotoluene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	95-49-8	
4-Chlorotoluene	<0.85	ug/L	4.0	0.85	4		03/29/18 12:30	106-43-4	
1,2-Dibromo-3-chloropropane	<8.7	ug/L	20.0	8.7	4		03/29/18 12:30	96-12-8	
Dibromochloromethane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	124-48-1	
1,2-Dibromoethane (EDB)	<0.71	ug/L	4.0	0.71	4		03/29/18 12:30	106-93-4	
Dibromomethane	<1.7	ug/L	4.0	1.7	4		03/29/18 12:30	74-95-3	
1,2-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	95-50-1	
1,3-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	541-73-1	
1,4-Dichlorobenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	106-46-7	
Dichlorodifluoromethane	<0.90	ug/L	4.0	0.90	4		03/29/18 12:30	75-71-8	
1,1-Dichloroethane	<0.97	ug/L	4.0	0.97	4		03/29/18 12:30	75-34-3	
1,2-Dichloroethane	<0.67	ug/L	4.0	0.67	4		03/29/18 12:30	107-06-2	
1,1-Dichloroethene	<1.6	ug/L	4.0	1.6	4		03/29/18 12:30	75-35-4	
cis-1,2-Dichloroethene	49.3	ug/L	4.0	1.0	4		03/29/18 12:30	156-59-2	
trans-1,2-Dichloroethene	<1.0	ug/L	4.0	1.0	4		03/29/18 12:30	156-60-5	L1
1,2-Dichloropropane	<0.93	ug/L	4.0	0.93	4		03/29/18 12:30	78-87-5	
1,3-Dichloropropane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW10 BOS **Lab ID: 40166427003** Collected: 03/21/18 12:05 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<1.9	ug/L	4.0	1.9	4		03/29/18 12:30	594-20-7	
1,1-Dichloropropene	<1.8	ug/L	4.0	1.8	4		03/29/18 12:30	563-58-6	
cis-1,3-Dichloropropene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	10061-01-5	
trans-1,3-Dichloropropene	<0.92	ug/L	4.0	0.92	4		03/29/18 12:30	10061-02-6	
Diisopropyl ether	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	108-20-3	
Ethylbenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	100-41-4	
Hexachloro-1,3-butadiene	<8.4	ug/L	20.0	8.4	4		03/29/18 12:30	87-68-3	
Isopropylbenzene (Cumene)	0.66J	ug/L	4.0	0.57	4		03/29/18 12:30	98-82-8	
p-Isopropyltoluene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	99-87-6	
Methylene Chloride	<0.93	ug/L	4.0	0.93	4		03/29/18 12:30	75-09-2	
Methyl-tert-butyl ether	<0.70	ug/L	4.0	0.70	4		03/29/18 12:30	1634-04-4	
Naphthalene	<10.0	ug/L	20.0	10.0	4		03/29/18 12:30	91-20-3	
n-Propylbenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	103-65-1	
Styrene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	100-42-5	
1,1,1,2-Tetrachloroethane	<0.72	ug/L	4.0	0.72	4		03/29/18 12:30	630-20-6	
1,1,2,2-Tetrachloroethane	<1.0	ug/L	4.0	1.0	4		03/29/18 12:30	79-34-5	
Tetrachloroethene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	127-18-4	
Toluene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	108-88-3	
1,2,3-Trichlorobenzene	<8.5	ug/L	20.0	8.5	4		03/29/18 12:30	87-61-6	
1,2,4-Trichlorobenzene	<8.8	ug/L	20.0	8.8	4		03/29/18 12:30	120-82-1	
1,1,1-Trichloroethane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	71-55-6	
1,1,2-Trichloroethane	<0.79	ug/L	4.0	0.79	4		03/29/18 12:30	79-00-5	
Trichloroethene	<1.3	ug/L	4.0	1.3	4		03/29/18 12:30	79-01-6	
Trichlorofluoromethane	<0.74	ug/L	4.0	0.74	4		03/29/18 12:30	75-69-4	
1,2,3-Trichloropropane	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	96-18-4	
1,2,4-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	95-63-6	
1,3,5-Trimethylbenzene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	108-67-8	
Vinyl chloride	456	ug/L	4.0	0.70	4		03/29/18 12:30	75-01-4	
m&p-Xylene	<4.0	ug/L	8.0	4.0	4		03/29/18 12:30	179601-23-1	
o-Xylene	<2.0	ug/L	4.0	2.0	4		03/29/18 12:30	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	105	%	61-130		4		03/29/18 12:30	460-00-4	
Dibromofluoromethane (S)	105	%	67-130		4		03/29/18 12:30	1868-53-7	
Toluene-d8 (S)	106	%	70-130		4		03/29/18 12:30	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	408	mg/L	40.0	10.0	20		03/26/18 18:15	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		03/26/18 18:15	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	406	mg/L	117	35.2	5		04/02/18 14:24		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	23.2	mg/L	5.0	1.5	6		03/27/18 18:28	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP
Pace Project No.: 40166427

Sample: ERD6-TW-NW15 BOS **Lab ID: 40166427004** Collected: 03/21/18 12:10 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	62.6	ug/L	5.6	0.58	1		03/27/18 09:44	74-84-0	
Ethene	94.2	ug/L	5.0	0.52	1		03/27/18 09:44	74-85-1	
Methane	5790	ug/L	70.0	34.2	25		03/27/18 12:18	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	32000	ug/L	100	15.5	1		04/02/18 23:42	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	283	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 00:33	7440-39-3	
Chromium	8.9	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 00:33	7440-47-3	
Iron	33800	ug/L	368	111	1	03/28/18 07:09	03/30/18 00:33	7439-89-6	
Lead	1.3	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 00:33	7439-92-1	
Nickel	5.8	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 00:33	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	5.8	ug/L	1.0	0.50	1		03/30/18 07:47	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/30/18 07:47	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/30/18 07:47	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/30/18 07:47	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 07:47	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/30/18 07:47	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		03/30/18 07:47	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/30/18 07:47	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/30/18 07:47	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/30/18 07:47	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/30/18 07:47	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/30/18 07:47	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/30/18 07:47	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/30/18 07:47	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/30/18 07:47	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/30/18 07:47	75-35-4	
cis-1,2-Dichloroethene	58.6	ug/L	1.0	0.26	1		03/30/18 07:47	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/30/18 07:47	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/30/18 07:47	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD6-TW-NW15 BOS **Lab ID: 40166427004** Collected: 03/21/18 12:10 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/30/18 07:47	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/30/18 07:47	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/30/18 07:47	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/30/18 07:47	87-68-3	
Isopropylbenzene (Cumene)	0.24J	ug/L	1.0	0.14	1		03/30/18 07:47	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/30/18 07:47	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/30/18 07:47	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/30/18 07:47	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/30/18 07:47	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/30/18 07:47	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	127-18-4	
Toluene	0.93J	ug/L	1.0	0.50	1		03/30/18 07:47	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/30/18 07:47	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 07:47	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/30/18 07:47	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		03/30/18 07:47	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/30/18 07:47	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	108-67-8	
Vinyl chloride	115	ug/L	1.0	0.18	1		03/30/18 07:47	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/30/18 07:47	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/30/18 07:47	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	61-130		1		03/30/18 07:47	460-00-4	
Dibromofluoromethane (S)	109	%	67-130		1		03/30/18 07:47	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		03/30/18 07:47	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	457	mg/L	40.0	10.0	20		03/26/18 18:28	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		03/26/18 18:28	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	556	mg/L	117	35.2	5		04/02/18 14:26		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	206	mg/L	126	37.8	150		03/28/18 09:45	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-MW-61 **Lab ID: 40166427005** Collected: 03/21/18 13:25 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Ethane	70.0	ug/L	5.6	0.58	1		03/27/18 09:51	74-84-0	
Ethene	74.1	ug/L	5.0	0.52	1		03/27/18 09:51	74-85-1	
Methane	1390	ug/L	28.0	13.7	10		03/27/18 13:28	74-82-8	
6010 MET ICP, Dissolved Analytical Method: EPA 6010									
Iron, Dissolved	2250	ug/L	100	15.5	1		04/02/18 23:44	7439-89-6	
6020 MET ICPMS Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Barium	322	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 00:53	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 00:53	7440-47-3	
Iron	2220	ug/L	368	111	1	03/28/18 07:09	03/30/18 00:53	7439-89-6	
Lead	0.46J	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 00:53	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 00:53	7440-02-0	
8260 MSV Analytical Method: EPA 8260									
Benzene	16.6J	ug/L	25.0	12.5	25		03/29/18 13:15	71-43-2	
Bromobenzene	<5.8	ug/L	25.0	5.8	25		03/29/18 13:15	108-86-1	
Bromochloromethane	<8.5	ug/L	25.0	8.5	25		03/29/18 13:15	74-97-5	
Bromodichloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	75-27-4	
Bromoform	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	75-25-2	
Bromomethane	<60.9	ug/L	125	60.9	25		03/29/18 13:15	74-83-9	
n-Butylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	104-51-8	
sec-Butylbenzene	<54.7	ug/L	125	54.7	25		03/29/18 13:15	135-98-8	
tert-Butylbenzene	<4.5	ug/L	25.0	4.5	25		03/29/18 13:15	98-06-6	
Carbon tetrachloride	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	56-23-5	
Chlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	108-90-7	
Chloroethane	<9.4	ug/L	25.0	9.4	25		03/29/18 13:15	75-00-3	L1
Chloroform	<62.5	ug/L	125	62.5	25		03/29/18 13:15	67-66-3	
Chloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	74-87-3	
2-Chlorotoluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	95-49-8	
4-Chlorotoluene	<5.3	ug/L	25.0	5.3	25		03/29/18 13:15	106-43-4	
1,2-Dibromo-3-chloropropane	<54.1	ug/L	125	54.1	25		03/29/18 13:15	96-12-8	
Dibromochloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	124-48-1	
1,2-Dibromoethane (EDB)	<4.4	ug/L	25.0	4.4	25		03/29/18 13:15	106-93-4	
Dibromomethane	<10.7	ug/L	25.0	10.7	25		03/29/18 13:15	74-95-3	
1,2-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	95-50-1	
1,3-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	541-73-1	
1,4-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	106-46-7	
Dichlorodifluoromethane	<5.6	ug/L	25.0	5.6	25		03/29/18 13:15	75-71-8	
1,1-Dichloroethane	<6.0	ug/L	25.0	6.0	25		03/29/18 13:15	75-34-3	
1,2-Dichloroethane	<4.2	ug/L	25.0	4.2	25		03/29/18 13:15	107-06-2	
1,1-Dichloroethene	<10.3	ug/L	25.0	10.3	25		03/29/18 13:15	75-35-4	
cis-1,2-Dichloroethene	2540	ug/L	25.0	6.4	25		03/29/18 13:15	156-59-2	
trans-1,2-Dichloroethene	<6.4	ug/L	25.0	6.4	25		03/29/18 13:15	156-60-5	L1
1,2-Dichloropropane	<5.8	ug/L	25.0	5.8	25		03/29/18 13:15	78-87-5	
1,3-Dichloropropane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP
Pace Project No.: 40166427

Sample: CS8-MW-61 **Lab ID: 40166427005** Collected: 03/21/18 13:25 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<12.1	ug/L	25.0	12.1	25		03/29/18 13:15	594-20-7	
1,1-Dichloropropene	<11.0	ug/L	25.0	11.0	25		03/29/18 13:15	563-58-6	
cis-1,3-Dichloropropene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	10061-01-5	
trans-1,3-Dichloropropene	<5.7	ug/L	25.0	5.7	25		03/29/18 13:15	10061-02-6	
Diisopropyl ether	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	108-20-3	
Ethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	100-41-4	
Hexachloro-1,3-butadiene	<52.6	ug/L	125	52.6	25		03/29/18 13:15	87-68-3	
Isopropylbenzene (Cumene)	<3.6	ug/L	25.0	3.6	25		03/29/18 13:15	98-82-8	
p-Isopropyltoluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	99-87-6	
Methylene Chloride	<5.8	ug/L	25.0	5.8	25		03/29/18 13:15	75-09-2	
Methyl-tert-butyl ether	<4.4	ug/L	25.0	4.4	25		03/29/18 13:15	1634-04-4	
Naphthalene	<62.5	ug/L	125	62.5	25		03/29/18 13:15	91-20-3	
n-Propylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	103-65-1	
Styrene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	100-42-5	
1,1,1,2-Tetrachloroethane	<4.5	ug/L	25.0	4.5	25		03/29/18 13:15	630-20-6	
1,1,2,2-Tetrachloroethane	<6.2	ug/L	25.0	6.2	25		03/29/18 13:15	79-34-5	
Tetrachloroethene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	127-18-4	
Toluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	108-88-3	
1,2,3-Trichlorobenzene	<53.3	ug/L	125	53.3	25		03/29/18 13:15	87-61-6	
1,2,4-Trichlorobenzene	<55.2	ug/L	125	55.2	25		03/29/18 13:15	120-82-1	
1,1,1-Trichloroethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	71-55-6	
1,1,2-Trichloroethane	<4.9	ug/L	25.0	4.9	25		03/29/18 13:15	79-00-5	
Trichloroethene	104	ug/L	25.0	8.3	25		03/29/18 13:15	79-01-6	
Trichlorofluoromethane	<4.6	ug/L	25.0	4.6	25		03/29/18 13:15	75-69-4	
1,2,3-Trichloropropane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	96-18-4	
1,2,4-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	95-63-6	
1,3,5-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	108-67-8	
Vinyl chloride	3280	ug/L	25.0	4.4	25		03/29/18 13:15	75-01-4	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		03/29/18 13:15	179601-23-1	
o-Xylene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:15	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	61-130		25		03/29/18 13:15	460-00-4	
Dibromofluoromethane (S)	105	%	67-130		25		03/29/18 13:15	1868-53-7	
Toluene-d8 (S)	104	%	70-130		25		03/29/18 13:15	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	551	mg/L	40.0	10.0	20		03/26/18 18:41	16887-00-6	
Sulfate	29.4J	mg/L	60.0	20.0	20		03/26/18 18:41	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	389	mg/L	23.5	7.0	1		04/02/18 14:10		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	0.94	mg/L	0.84	0.25	1		03/28/18 10:06	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-MW-61-DUP **Lab ID:** 40166427006 Collected: 03/21/18 13:25 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	82.3	ug/L	5.6	0.58	1		03/27/18 09:58	74-84-0	
Ethene	87.2	ug/L	5.0	0.52	1		03/27/18 09:58	74-85-1	
Methane	1240	ug/L	28.0	13.7	10		03/27/18 13:35	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	2300	ug/L	100	15.5	1		04/02/18 23:47	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	339	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 00:59	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 00:59	7440-47-3	
Iron	2240	ug/L	368	111	1	03/28/18 07:09	03/30/18 00:59	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 00:59	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 00:59	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	16.3J	ug/L	25.0	12.5	25		03/29/18 13:38	71-43-2	
Bromobenzene	<5.8	ug/L	25.0	5.8	25		03/29/18 13:38	108-86-1	
Bromochloromethane	<8.5	ug/L	25.0	8.5	25		03/29/18 13:38	74-97-5	
Bromodichloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	75-27-4	
Bromoform	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	75-25-2	
Bromomethane	<60.9	ug/L	125	60.9	25		03/29/18 13:38	74-83-9	
n-Butylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	104-51-8	
sec-Butylbenzene	<54.7	ug/L	125	54.7	25		03/29/18 13:38	135-98-8	
tert-Butylbenzene	<4.5	ug/L	25.0	4.5	25		03/29/18 13:38	98-06-6	
Carbon tetrachloride	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	56-23-5	
Chlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	108-90-7	
Chloroethane	<9.4	ug/L	25.0	9.4	25		03/29/18 13:38	75-00-3	L1
Chloroform	<62.5	ug/L	125	62.5	25		03/29/18 13:38	67-66-3	
Chloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	74-87-3	
2-Chlorotoluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	95-49-8	
4-Chlorotoluene	<5.3	ug/L	25.0	5.3	25		03/29/18 13:38	106-43-4	
1,2-Dibromo-3-chloropropane	<54.1	ug/L	125	54.1	25		03/29/18 13:38	96-12-8	
Dibromochloromethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	124-48-1	
1,2-Dibromoethane (EDB)	<4.4	ug/L	25.0	4.4	25		03/29/18 13:38	106-93-4	
Dibromomethane	<10.7	ug/L	25.0	10.7	25		03/29/18 13:38	74-95-3	
1,2-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	95-50-1	
1,3-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	541-73-1	
1,4-Dichlorobenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	106-46-7	
Dichlorodifluoromethane	<5.6	ug/L	25.0	5.6	25		03/29/18 13:38	75-71-8	
1,1-Dichloroethane	<6.0	ug/L	25.0	6.0	25		03/29/18 13:38	75-34-3	
1,2-Dichloroethane	<4.2	ug/L	25.0	4.2	25		03/29/18 13:38	107-06-2	
1,1-Dichloroethene	<10.3	ug/L	25.0	10.3	25		03/29/18 13:38	75-35-4	
cis-1,2-Dichloroethene	2560	ug/L	25.0	6.4	25		03/29/18 13:38	156-59-2	
trans-1,2-Dichloroethene	<6.4	ug/L	25.0	6.4	25		03/29/18 13:38	156-60-5	L1
1,2-Dichloropropane	<5.8	ug/L	25.0	5.8	25		03/29/18 13:38	78-87-5	
1,3-Dichloropropane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-MW-61-DUP **Lab ID: 40166427006** Collected: 03/21/18 13:25 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<12.1	ug/L	25.0	12.1	25		03/29/18 13:38	594-20-7	
1,1-Dichloropropene	<11.0	ug/L	25.0	11.0	25		03/29/18 13:38	563-58-6	
cis-1,3-Dichloropropene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	10061-01-5	
trans-1,3-Dichloropropene	<5.7	ug/L	25.0	5.7	25		03/29/18 13:38	10061-02-6	
Diisopropyl ether	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	108-20-3	
Ethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	100-41-4	
Hexachloro-1,3-butadiene	<52.6	ug/L	125	52.6	25		03/29/18 13:38	87-68-3	
Isopropylbenzene (Cumene)	<3.6	ug/L	25.0	3.6	25		03/29/18 13:38	98-82-8	
p-Isopropyltoluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	99-87-6	
Methylene Chloride	<5.8	ug/L	25.0	5.8	25		03/29/18 13:38	75-09-2	
Methyl-tert-butyl ether	<4.4	ug/L	25.0	4.4	25		03/29/18 13:38	1634-04-4	
Naphthalene	<62.5	ug/L	125	62.5	25		03/29/18 13:38	91-20-3	
n-Propylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	103-65-1	
Styrene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	100-42-5	
1,1,1,2-Tetrachloroethane	<4.5	ug/L	25.0	4.5	25		03/29/18 13:38	630-20-6	
1,1,2,2-Tetrachloroethane	<6.2	ug/L	25.0	6.2	25		03/29/18 13:38	79-34-5	
Tetrachloroethene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	127-18-4	
Toluene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	108-88-3	
1,2,3-Trichlorobenzene	<53.3	ug/L	125	53.3	25		03/29/18 13:38	87-61-6	
1,2,4-Trichlorobenzene	<55.2	ug/L	125	55.2	25		03/29/18 13:38	120-82-1	
1,1,1-Trichloroethane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	71-55-6	
1,1,2-Trichloroethane	<4.9	ug/L	25.0	4.9	25		03/29/18 13:38	79-00-5	
Trichloroethene	116	ug/L	25.0	8.3	25		03/29/18 13:38	79-01-6	
Trichlorofluoromethane	<4.6	ug/L	25.0	4.6	25		03/29/18 13:38	75-69-4	
1,2,3-Trichloropropane	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	96-18-4	
1,2,4-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	95-63-6	
1,3,5-Trimethylbenzene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	108-67-8	
Vinyl chloride	3140	ug/L	25.0	4.4	25		03/29/18 13:38	75-01-4	
m&p-Xylene	<25.0	ug/L	50.0	25.0	25		03/29/18 13:38	179601-23-1	
o-Xylene	<12.5	ug/L	25.0	12.5	25		03/29/18 13:38	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	61-130		25		03/29/18 13:38	460-00-4	
Dibromofluoromethane (S)	105	%	67-130		25		03/29/18 13:38	1868-53-7	
Toluene-d8 (S)	104	%	70-130		25		03/29/18 13:38	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	599	mg/L	40.0	10.0	20		03/26/18 18:55	16887-00-6	
Sulfate	32.5J	mg/L	60.0	20.0	20		03/26/18 18:55	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	418	mg/L	117	35.2	5		04/02/18 14:11		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	0.98	mg/L	0.84	0.25	1		03/28/18 10:27	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-PZ-61 **Lab ID: 40166427007** Collected: 03/21/18 13:45 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	9.2	ug/L	5.6	0.58	1		03/27/18 10:05	74-84-0	
Ethene	68.9	ug/L	5.0	0.52	1		03/27/18 10:05	74-85-1	
Methane	4460	ug/L	112	54.8	40		03/27/18 14:03	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	756000	ug/L	10000	1550	100		04/03/18 12:37	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	1260	ug/L	11.4	3.4	10	03/28/18 07:09	03/30/18 01:06	7440-39-3	
Chromium	<10.2	ug/L	34.0	10.2	10	03/28/18 07:09	03/30/18 01:06	7440-47-3	D3
Iron	570000	ug/L	3680	1110	10	03/28/18 07:09	03/30/18 01:06	7439-89-6	
Lead	6.5J	ug/L	10.0	2.0	10	03/28/18 07:09	03/30/18 01:06	7439-92-1	D3
Nickel	4.8J	ug/L	13.4	4.0	10	03/28/18 07:09	03/30/18 01:06	7440-02-0	D3
8260 MSV		Analytical Method: EPA 8260							
Benzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	71-43-2	
Bromobenzene	<2.3	ug/L	10.0	2.3	10		03/30/18 08:58	108-86-1	
Bromochloromethane	<3.4	ug/L	10.0	3.4	10		03/30/18 08:58	74-97-5	
Bromodichloromethane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	75-27-4	
Bromoform	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	75-25-2	
Bromomethane	<24.3	ug/L	50.0	24.3	10		03/30/18 08:58	74-83-9	
n-Butylbenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	104-51-8	
sec-Butylbenzene	<21.9	ug/L	50.0	21.9	10		03/30/18 08:58	135-98-8	
tert-Butylbenzene	<1.8	ug/L	10.0	1.8	10		03/30/18 08:58	98-06-6	
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	56-23-5	
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	108-90-7	
Chloroethane	<3.7	ug/L	10.0	3.7	10		03/30/18 08:58	75-00-3	L1
Chloroform	<25.0	ug/L	50.0	25.0	10		03/30/18 08:58	67-66-3	
Chloromethane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	74-87-3	
2-Chlorotoluene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	95-49-8	
4-Chlorotoluene	<2.1	ug/L	10.0	2.1	10		03/30/18 08:58	106-43-4	
1,2-Dibromo-3-chloropropane	<21.6	ug/L	50.0	21.6	10		03/30/18 08:58	96-12-8	
Dibromochloromethane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	124-48-1	
1,2-Dibromoethane (EDB)	<1.8	ug/L	10.0	1.8	10		03/30/18 08:58	106-93-4	
Dibromomethane	<4.3	ug/L	10.0	4.3	10		03/30/18 08:58	74-95-3	
1,2-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	95-50-1	
1,3-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	541-73-1	
1,4-Dichlorobenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	106-46-7	
Dichlorodifluoromethane	<2.2	ug/L	10.0	2.2	10		03/30/18 08:58	75-71-8	
1,1-Dichloroethane	<2.4	ug/L	10.0	2.4	10		03/30/18 08:58	75-34-3	
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		03/30/18 08:58	107-06-2	
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		03/30/18 08:58	75-35-4	
cis-1,2-Dichloroethene	1210	ug/L	10.0	2.6	10		03/30/18 08:58	156-59-2	
trans-1,2-Dichloroethene	<2.6	ug/L	10.0	2.6	10		03/30/18 08:58	156-60-5	L1
1,2-Dichloropropane	<2.3	ug/L	10.0	2.3	10		03/30/18 08:58	78-87-5	
1,3-Dichloropropane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-PZ-61 **Lab ID: 40166427007** Collected: 03/21/18 13:45 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<4.8	ug/L	10.0	4.8	10		03/30/18 08:58	594-20-7	
1,1-Dichloropropene	<4.4	ug/L	10.0	4.4	10		03/30/18 08:58	563-58-6	
cis-1,3-Dichloropropene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	10061-01-5	
trans-1,3-Dichloropropene	<2.3	ug/L	10.0	2.3	10		03/30/18 08:58	10061-02-6	
Diisopropyl ether	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	108-20-3	
Ethylbenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	100-41-4	
Hexachloro-1,3-butadiene	<21.1	ug/L	50.0	21.1	10		03/30/18 08:58	87-68-3	
Isopropylbenzene (Cumene)	<1.4	ug/L	10.0	1.4	10		03/30/18 08:58	98-82-8	
p-Isopropyltoluene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	99-87-6	
Methylene Chloride	<2.3	ug/L	10.0	2.3	10		03/30/18 08:58	75-09-2	
Methyl-tert-butyl ether	<1.7	ug/L	10.0	1.7	10		03/30/18 08:58	1634-04-4	
Naphthalene	<25.0	ug/L	50.0	25.0	10		03/30/18 08:58	91-20-3	
n-Propylbenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	103-65-1	
Styrene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	100-42-5	
1,1,1,2-Tetrachloroethane	<1.8	ug/L	10.0	1.8	10		03/30/18 08:58	630-20-6	
1,1,2,2-Tetrachloroethane	<2.5	ug/L	10.0	2.5	10		03/30/18 08:58	79-34-5	
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	127-18-4	
Toluene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	108-88-3	
1,2,3-Trichlorobenzene	<21.3	ug/L	50.0	21.3	10		03/30/18 08:58	87-61-6	
1,2,4-Trichlorobenzene	<22.1	ug/L	50.0	22.1	10		03/30/18 08:58	120-82-1	
1,1,1-Trichloroethane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	71-55-6	
1,1,2-Trichloroethane	<2.0	ug/L	10.0	2.0	10		03/30/18 08:58	79-00-5	
Trichloroethene	4.2J	ug/L	10.0	3.3	10		03/30/18 08:58	79-01-6	
Trichlorofluoromethane	<1.8	ug/L	10.0	1.8	10		03/30/18 08:58	75-69-4	
1,2,3-Trichloropropane	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	96-18-4	
1,2,4-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	95-63-6	
1,3,5-Trimethylbenzene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	108-67-8	
Vinyl chloride	81.2	ug/L	10.0	1.8	10		03/30/18 08:58	75-01-4	
m&p-Xylene	<10.0	ug/L	20.0	10.0	10		03/30/18 08:58	179601-23-1	
o-Xylene	<5.0	ug/L	10.0	5.0	10		03/30/18 08:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	61-130		10		03/30/18 08:58	460-00-4	
Dibromofluoromethane (S)	106	%	67-130		10		03/30/18 08:58	1868-53-7	
Toluene-d8 (S)	106	%	70-130		10		03/30/18 08:58	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	360	mg/L	40.0	10.0	20		03/26/18 19:08	16887-00-6	
Sulfate	<20.0	mg/L	60.0	20.0	20		03/26/18 19:08	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	1460	mg/L	117	35.2	5		04/03/18 11:34		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	2050	mg/L	504	151	600		03/28/18 10:48	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: TRIP BLANK-ERD-01 **Lab ID: 40166427008** Collected: 03/21/18 09:00 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/29/18 16:51	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/29/18 16:51	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/29/18 16:51	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 16:51	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/29/18 16:51	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		03/29/18 16:51	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/29/18 16:51	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/29/18 16:51	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/29/18 16:51	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/29/18 16:51	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/29/18 16:51	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/29/18 16:51	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/29/18 16:51	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/29/18 16:51	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/29/18 16:51	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/29/18 16:51	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/29/18 16:51	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/29/18 16:51	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	142-28-9	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/29/18 16:51	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/29/18 16:51	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/29/18 16:51	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/29/18 16:51	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		03/29/18 16:51	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/29/18 16:51	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/29/18 16:51	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/29/18 16:51	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/29/18 16:51	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: TRIP BLANK-ERD-01 **Lab ID: 40166427008** Collected: 03/21/18 09:00 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/29/18 16:51	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/29/18 16:51	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 16:51	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/29/18 16:51	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		03/29/18 16:51	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/29/18 16:51	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		03/29/18 16:51	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/29/18 16:51	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/29/18 16:51	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	61-130		1		03/29/18 16:51	460-00-4	
Dibromofluoromethane (S)	104	%	67-130		1		03/29/18 16:51	1868-53-7	
Toluene-d8 (S)	103	%	70-130		1		03/29/18 16:51	2037-26-5	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD1-TW-NW10 TOS **Lab ID: 40166427009** Collected: 03/22/18 10:10 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	85.1	ug/L	5.6	0.58	1		03/27/18 10:12	74-84-0	
Ethene	177	ug/L	5.0	0.52	1		03/27/18 10:12	74-85-1	
Methane	1880	ug/L	56.0	27.4	20		03/27/18 13:00	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	1850	ug/L	100	15.5	1		04/02/18 23:52	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	246	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 01:12	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 01:12	7440-47-3	
Iron	2180	ug/L	368	111	1	03/28/18 07:09	03/30/18 01:12	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 01:12	7439-92-1	
Nickel	<0.40	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 01:12	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/30/18 08:13	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/30/18 08:13	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/30/18 08:13	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 08:13	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/30/18 08:13	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	108-90-7	
Chloroethane	134	ug/L	1.0	0.37	1		03/30/18 08:13	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/30/18 08:13	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/30/18 08:13	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/30/18 08:13	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/30/18 08:13	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/30/18 08:13	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/30/18 08:13	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/30/18 08:13	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/30/18 08:13	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/30/18 08:13	75-35-4	
cis-1,2-Dichloroethene	158	ug/L	1.0	0.26	1		03/30/18 08:13	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/30/18 08:13	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/30/18 08:13	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD1-TW-NW10 TOS Lab ID: 40166427009 Collected: 03/22/18 10:10 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/30/18 08:13	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/30/18 08:13	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/30/18 08:13	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/30/18 08:13	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		03/30/18 08:13	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/30/18 08:13	75-09-2	
Methyl-tert-butyl ether	0.26J	ug/L	1.0	0.17	1		03/30/18 08:13	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/30/18 08:13	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/30/18 08:13	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/30/18 08:13	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/30/18 08:13	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/30/18 08:13	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/30/18 08:13	79-00-5	
Trichloroethene	0.76J	ug/L	1.0	0.33	1		03/30/18 08:13	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/30/18 08:13	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	108-67-8	
Vinyl chloride	36.4	ug/L	1.0	0.18	1		03/30/18 08:13	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/30/18 08:13	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/30/18 08:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	104	%	61-130		1		03/30/18 08:13	460-00-4	
Dibromofluoromethane (S)	110	%	67-130		1		03/30/18 08:13	1868-53-7	
Toluene-d8 (S)	105	%	70-130		1		03/30/18 08:13	2037-26-5	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	533	mg/L	40.0	10.0	20		03/26/18 19:22	16887-00-6	
Sulfate	32.7J	mg/L	60.0	20.0	20		03/26/18 19:22	14808-79-8	D3
310.2 Alkalinity		Analytical Method: EPA 310.2							
Alkalinity, Total as CaCO3	520	mg/L	117	35.2	5		04/03/18 11:35		
5310C TOC		Analytical Method: SM 5310C							
Total Organic Carbon	3.4	mg/L	2.5	0.76	3		03/27/18 20:12	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS4-PZ-75 Lab ID: 40166427010 Collected: 03/22/18 10:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	11.7	ug/L	5.6	0.58	1		03/27/18 10:19	74-84-0	
Ethene	52.1	ug/L	5.0	0.52	1		03/27/18 10:19	74-85-1	
Methane	716	ug/L	14.0	6.8	5		03/27/18 13:07	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	400	ug/L	100	15.5	1		04/02/18 23:55	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	223	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 01:18	7440-39-3	
Chromium	<1.0	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 01:18	7440-47-3	
Iron	614	ug/L	368	111	1	03/28/18 07:09	03/30/18 01:18	7439-89-6	
Lead	0.75J	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 01:18	7439-92-1	
Nickel	10.2	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 01:18	7440-02-0	
8260 MSV		Analytical Method: EPA 8260							
Benzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		03/29/18 14:45	108-86-1	
Bromochloromethane	<1.7	ug/L	5.0	1.7	5		03/29/18 14:45	74-97-5	
Bromodichloromethane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	75-27-4	
Bromoform	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	75-25-2	
Bromomethane	<12.2	ug/L	25.0	12.2	5		03/29/18 14:45	74-83-9	
n-Butylbenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	104-51-8	
sec-Butylbenzene	<10.9	ug/L	25.0	10.9	5		03/29/18 14:45	135-98-8	
tert-Butylbenzene	<0.90	ug/L	5.0	0.90	5		03/29/18 14:45	98-06-6	
Carbon tetrachloride	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	56-23-5	
Chlorobenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	108-90-7	
Chloroethane	<1.9	ug/L	5.0	1.9	5		03/29/18 14:45	75-00-3	L1,M0
Chloroform	<12.5	ug/L	25.0	12.5	5		03/29/18 14:45	67-66-3	
Chloromethane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	74-87-3	
2-Chlorotoluene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	95-49-8	
4-Chlorotoluene	<1.1	ug/L	5.0	1.1	5		03/29/18 14:45	106-43-4	
1,2-Dibromo-3-chloropropane	<10.8	ug/L	25.0	10.8	5		03/29/18 14:45	96-12-8	
Dibromochloromethane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	124-48-1	
1,2-Dibromoethane (EDB)	<0.89	ug/L	5.0	0.89	5		03/29/18 14:45	106-93-4	
Dibromomethane	<2.1	ug/L	5.0	2.1	5		03/29/18 14:45	74-95-3	
1,2-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	95-50-1	
1,3-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	541-73-1	
1,4-Dichlorobenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	106-46-7	
Dichlorodifluoromethane	<1.1	ug/L	5.0	1.1	5		03/29/18 14:45	75-71-8	
1,1-Dichloroethane	<1.2	ug/L	5.0	1.2	5		03/29/18 14:45	75-34-3	
1,2-Dichloroethane	<0.84	ug/L	5.0	0.84	5		03/29/18 14:45	107-06-2	
1,1-Dichloroethene	<2.1	ug/L	5.0	2.1	5		03/29/18 14:45	75-35-4	
cis-1,2-Dichloroethene	<1.3	ug/L	5.0	1.3	5		03/29/18 14:45	156-59-2	
trans-1,2-Dichloroethene	<1.3	ug/L	5.0	1.3	5		03/29/18 14:45	156-60-5	L1
1,2-Dichloropropane	<1.2	ug/L	5.0	1.2	5		03/29/18 14:45	78-87-5	
1,3-Dichloropropane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS4-PZ-75 **Lab ID: 40166427010** Collected: 03/22/18 10:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<2.4	ug/L	5.0	2.4	5		03/29/18 14:45	594-20-7	
1,1-Dichloropropene	<2.2	ug/L	5.0	2.2	5		03/29/18 14:45	563-58-6	
cis-1,3-Dichloropropene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	10061-01-5	
trans-1,3-Dichloropropene	<1.1	ug/L	5.0	1.1	5		03/29/18 14:45	10061-02-6	
Diisopropyl ether	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	108-20-3	
Ethylbenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	100-41-4	
Hexachloro-1,3-butadiene	<10.5	ug/L	25.0	10.5	5		03/29/18 14:45	87-68-3	
Isopropylbenzene (Cumene)	<0.72	ug/L	5.0	0.72	5		03/29/18 14:45	98-82-8	
p-Isopropyltoluene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	99-87-6	
Methylene Chloride	<1.2	ug/L	5.0	1.2	5		03/29/18 14:45	75-09-2	
Methyl-tert-butyl ether	<0.87	ug/L	5.0	0.87	5		03/29/18 14:45	1634-04-4	
Naphthalene	<12.5	ug/L	25.0	12.5	5		03/29/18 14:45	91-20-3	
n-Propylbenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	103-65-1	
Styrene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	100-42-5	
1,1,1,2-Tetrachloroethane	<0.90	ug/L	5.0	0.90	5		03/29/18 14:45	630-20-6	
1,1,2,2-Tetrachloroethane	<1.2	ug/L	5.0	1.2	5		03/29/18 14:45	79-34-5	
Tetrachloroethene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	127-18-4	
Toluene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	108-88-3	
1,2,3-Trichlorobenzene	<10.7	ug/L	25.0	10.7	5		03/29/18 14:45	87-61-6	
1,2,4-Trichlorobenzene	<11.0	ug/L	25.0	11.0	5		03/29/18 14:45	120-82-1	
1,1,1-Trichloroethane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	71-55-6	
1,1,2-Trichloroethane	<0.99	ug/L	5.0	0.99	5		03/29/18 14:45	79-00-5	
Trichloroethene	<1.7	ug/L	5.0	1.7	5		03/29/18 14:45	79-01-6	
Trichlorofluoromethane	<0.92	ug/L	5.0	0.92	5		03/29/18 14:45	75-69-4	
1,2,3-Trichloropropane	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	96-18-4	
1,2,4-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	95-63-6	
1,3,5-Trimethylbenzene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	108-67-8	
Vinyl chloride	673	ug/L	5.0	0.88	5		03/29/18 14:45	75-01-4	M1
m&p-Xylene	<5.0	ug/L	10.0	5.0	5		03/29/18 14:45	179601-23-1	
o-Xylene	<2.5	ug/L	5.0	2.5	5		03/29/18 14:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	61-130		5		03/29/18 14:45	460-00-4	
Dibromofluoromethane (S)	106	%	67-130		5		03/29/18 14:45	1868-53-7	
Toluene-d8 (S)	104	%	70-130		5		03/29/18 14:45	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	542	mg/L	20.0	5.0	10		03/26/18 20:02	16887-00-6	
Sulfate	103	mg/L	30.0	10.0	10		03/26/18 20:02	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	417	mg/L	47.0	14.1	2		04/03/18 11:11		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	3.1	mg/L	2.5	0.76	3		03/27/18 20:32	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD1-TW-NW10 BOS Lab ID: 40166427011 Collected: 03/22/18 11:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV		Analytical Method: EPA 8015B Modified							
Ethane	54.0	ug/L	5.6	0.58	1		03/27/18 10:26	74-84-0	
Ethene	1190	ug/L	200	21.0	40		03/27/18 13:14	74-85-1	
Methane	7890	ug/L	112	54.8	40		03/27/18 13:14	74-82-8	
6010 MET ICP, Dissolved		Analytical Method: EPA 6010							
Iron, Dissolved	6030	ug/L	100	15.5	1		04/02/18 23:57	7439-89-6	
6020 MET ICPMS		Analytical Method: EPA 6020 Preparation Method: EPA 3010							
Barium	659	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 01:25	7440-39-3	
Chromium	<5.1	ug/L	17.0	5.1	5	03/28/18 07:09	03/30/18 20:52	7440-47-3	D3
Iron	6980	ug/L	1840	553	5	03/28/18 07:09	03/30/18 20:52	7439-89-6	
Lead	<0.20	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 01:25	7439-92-1	
Nickel	<2.0	ug/L	6.7	2.0	5	03/28/18 07:09	03/30/18 20:52	7440-02-0	D3
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/29/18 11:22	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/29/18 11:22	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/29/18 11:22	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 11:22	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/29/18 11:22	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	108-90-7	
Chloroethane	15.6	ug/L	1.0	0.37	1		03/29/18 11:22	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/29/18 11:22	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/29/18 11:22	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/29/18 11:22	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/29/18 11:22	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/29/18 11:22	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/29/18 11:22	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/29/18 11:22	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/29/18 11:22	107-06-2	
1,1-Dichloroethene	1.2	ug/L	1.0	0.41	1		03/29/18 11:22	75-35-4	
cis-1,2-Dichloroethene	578	ug/L	5.0	1.3	5		03/30/18 09:21	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/29/18 11:22	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/29/18 11:22	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: ERD1-TW-NW10 BOS Lab ID: 40166427011 Collected: 03/22/18 11:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/29/18 11:22	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/29/18 11:22	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/29/18 11:22	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/29/18 11:22	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		03/29/18 11:22	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/29/18 11:22	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/29/18 11:22	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/29/18 11:22	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/29/18 11:22	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/29/18 11:22	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/29/18 11:22	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 11:22	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/29/18 11:22	79-00-5	
Trichloroethene	5.3	ug/L	1.0	0.33	1		03/29/18 11:22	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/29/18 11:22	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	108-67-8	
Vinyl chloride	138	ug/L	1.0	0.18	1		03/29/18 11:22	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/29/18 11:22	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/29/18 11:22	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	61-130		1		03/29/18 11:22	460-00-4	
Dibromofluoromethane (S)	106	%	67-130		1		03/29/18 11:22	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		03/29/18 11:22	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	1170	mg/L	100	25.0	50		03/27/18 11:03	16887-00-6	
Sulfate	15.4J	mg/L	30.0	10.0	10		03/26/18 20:55	14808-79-8	D3
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	590	mg/L	117	35.2	5		04/03/18 11:37		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	7.3	mg/L	2.5	0.76	3		03/27/18 20:53	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-MW-807 **Lab ID: 40166427012** Collected: 03/22/18 11:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Methane, Ethane, Ethene GCV Analytical Method: EPA 8015B Modified									
Ethane	<0.58	ug/L	5.6	0.58	1		03/27/18 10:33	74-84-0	
Ethene	<0.52	ug/L	5.0	0.52	1		03/27/18 10:33	74-85-1	
Methane	<1.4	ug/L	2.8	1.4	1		03/27/18 10:33	74-82-8	
6010 MET ICP, Dissolved Analytical Method: EPA 6010									
Iron, Dissolved	84.6J	ug/L	100	15.5	1		04/03/18 00:00	7439-89-6	
6020 MET ICPMS Analytical Method: EPA 6020 Preparation Method: EPA 3010									
Barium	39.1	ug/L	1.1	0.34	1	03/28/18 07:09	03/30/18 01:31	7440-39-3	
Chromium	10.5	ug/L	3.4	1.0	1	03/28/18 07:09	03/30/18 01:31	7440-47-3	
Iron	4100	ug/L	368	111	1	03/28/18 07:09	03/30/18 01:31	7439-89-6	
Lead	2.2	ug/L	1.0	0.20	1	03/28/18 07:09	03/30/18 01:31	7439-92-1	
Nickel	4.2	ug/L	1.3	0.40	1	03/28/18 07:09	03/30/18 01:31	7440-02-0	
8260 MSV Analytical Method: EPA 8260									
Benzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/29/18 15:08	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/29/18 15:08	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/29/18 15:08	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 15:08	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/29/18 15:08	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		03/29/18 15:08	75-00-3	L1
Chloroform	<2.5	ug/L	5.0	2.5	1		03/29/18 15:08	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/29/18 15:08	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/29/18 15:08	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/29/18 15:08	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/29/18 15:08	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/29/18 15:08	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/29/18 15:08	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/29/18 15:08	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/29/18 15:08	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/29/18 15:08	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/29/18 15:08	156-60-5	L1
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/29/18 15:08	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	142-28-9	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: CS8-MW-807 **Lab ID: 40166427012** Collected: 03/22/18 11:15 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/29/18 15:08	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/29/18 15:08	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/29/18 15:08	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/29/18 15:08	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		03/29/18 15:08	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/29/18 15:08	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/29/18 15:08	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/29/18 15:08	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/29/18 15:08	630-20-6	
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/29/18 15:08	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/29/18 15:08	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/29/18 15:08	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/29/18 15:08	79-00-5	
Trichloroethene	0.56J	ug/L	1.0	0.33	1		03/29/18 15:08	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/29/18 15:08	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		03/30/18 07:25	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/29/18 15:08	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/29/18 15:08	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	61-130		1		03/29/18 15:08	460-00-4	
Dibromofluoromethane (S)	106	%	67-130		1		03/29/18 15:08	1868-53-7	
Toluene-d8 (S)	100	%	70-130		1		03/29/18 15:08	2037-26-5	
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	29.1	mg/L	10.0	2.5	5		03/27/18 11:17	16887-00-6	
Sulfate	48.4	mg/L	15.0	5.0	5		03/27/18 11:17	14808-79-8	
310.2 Alkalinity Analytical Method: EPA 310.2									
Alkalinity, Total as CaCO3	221	mg/L	23.5	7.0	1		04/03/18 11:12		
5310C TOC Analytical Method: SM 5310C									
Total Organic Carbon	1.5	mg/L	0.84	0.25	1		03/27/18 21:14	7440-44-0	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: TRIP BLANK-ERD-02 Lab ID: 40166427013 Collected: 03/22/18 12:00 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	71-43-2	
Bromobenzene	<0.23	ug/L	1.0	0.23	1		03/28/18 17:10	108-86-1	
Bromochloromethane	<0.34	ug/L	1.0	0.34	1		03/28/18 17:10	74-97-5	
Bromodichloromethane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	75-27-4	
Bromoform	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	75-25-2	
Bromomethane	<2.4	ug/L	5.0	2.4	1		03/28/18 17:10	74-83-9	
n-Butylbenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	104-51-8	
sec-Butylbenzene	<2.2	ug/L	5.0	2.2	1		03/28/18 17:10	135-98-8	
tert-Butylbenzene	<0.18	ug/L	1.0	0.18	1		03/28/18 17:10	98-06-6	
Carbon tetrachloride	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	56-23-5	
Chlorobenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	108-90-7	
Chloroethane	<0.37	ug/L	1.0	0.37	1		03/28/18 17:10	75-00-3	
Chloroform	<2.5	ug/L	5.0	2.5	1		03/28/18 17:10	67-66-3	
Chloromethane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	74-87-3	
2-Chlorotoluene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	95-49-8	
4-Chlorotoluene	<0.21	ug/L	1.0	0.21	1		03/28/18 17:10	106-43-4	
1,2-Dibromo-3-chloropropane	<2.2	ug/L	5.0	2.2	1		03/28/18 17:10	96-12-8	
Dibromochloromethane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	124-48-1	
1,2-Dibromoethane (EDB)	<0.18	ug/L	1.0	0.18	1		03/28/18 17:10	106-93-4	
Dibromomethane	<0.43	ug/L	1.0	0.43	1		03/28/18 17:10	74-95-3	
1,2-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	95-50-1	
1,3-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	541-73-1	
1,4-Dichlorobenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	106-46-7	
Dichlorodifluoromethane	<0.22	ug/L	1.0	0.22	1		03/28/18 17:10	75-71-8	
1,1-Dichloroethane	<0.24	ug/L	1.0	0.24	1		03/28/18 17:10	75-34-3	
1,2-Dichloroethane	<0.17	ug/L	1.0	0.17	1		03/28/18 17:10	107-06-2	
1,1-Dichloroethene	<0.41	ug/L	1.0	0.41	1		03/28/18 17:10	75-35-4	
cis-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/28/18 17:10	156-59-2	
trans-1,2-Dichloroethene	<0.26	ug/L	1.0	0.26	1		03/28/18 17:10	156-60-5	
1,2-Dichloropropane	<0.23	ug/L	1.0	0.23	1		03/28/18 17:10	78-87-5	
1,3-Dichloropropane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	142-28-9	
2,2-Dichloropropane	<0.48	ug/L	1.0	0.48	1		03/28/18 17:10	594-20-7	
1,1-Dichloropropene	<0.44	ug/L	1.0	0.44	1		03/28/18 17:10	563-58-6	
cis-1,3-Dichloropropene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	10061-01-5	
trans-1,3-Dichloropropene	<0.23	ug/L	1.0	0.23	1		03/28/18 17:10	10061-02-6	
Diisopropyl ether	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	108-20-3	
Ethylbenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	100-41-4	
Hexachloro-1,3-butadiene	<2.1	ug/L	5.0	2.1	1		03/28/18 17:10	87-68-3	
Isopropylbenzene (Cumene)	<0.14	ug/L	1.0	0.14	1		03/28/18 17:10	98-82-8	
p-Isopropyltoluene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	99-87-6	
Methylene Chloride	<0.23	ug/L	1.0	0.23	1		03/28/18 17:10	75-09-2	
Methyl-tert-butyl ether	<0.17	ug/L	1.0	0.17	1		03/28/18 17:10	1634-04-4	
Naphthalene	<2.5	ug/L	5.0	2.5	1		03/28/18 17:10	91-20-3	
n-Propylbenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	103-65-1	
Styrene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	100-42-5	
1,1,1,2-Tetrachloroethane	<0.18	ug/L	1.0	0.18	1		03/28/18 17:10	630-20-6	

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ANALYTICAL RESULTS

Project: 60518412.1 KEP

Pace Project No.: 40166427

Sample: TRIP BLANK-ERD-02 **Lab ID: 40166427013** Collected: 03/22/18 12:00 Received: 03/24/18 08:45 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.25	ug/L	1.0	0.25	1		03/28/18 17:10	79-34-5	
Tetrachloroethene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	127-18-4	
Toluene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	108-88-3	
1,2,3-Trichlorobenzene	<2.1	ug/L	5.0	2.1	1		03/28/18 17:10	87-61-6	
1,2,4-Trichlorobenzene	<2.2	ug/L	5.0	2.2	1		03/28/18 17:10	120-82-1	
1,1,1-Trichloroethane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	71-55-6	
1,1,2-Trichloroethane	<0.20	ug/L	1.0	0.20	1		03/28/18 17:10	79-00-5	
Trichloroethene	<0.33	ug/L	1.0	0.33	1		03/28/18 17:10	79-01-6	
Trichlorofluoromethane	<0.18	ug/L	1.0	0.18	1		03/28/18 17:10	75-69-4	
1,2,3-Trichloropropane	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	96-18-4	
1,2,4-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	95-63-6	
1,3,5-Trimethylbenzene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	108-67-8	
Vinyl chloride	<0.18	ug/L	1.0	0.18	1		03/28/18 17:10	75-01-4	
m&p-Xylene	<1.0	ug/L	2.0	1.0	1		03/28/18 17:10	179601-23-1	
o-Xylene	<0.50	ug/L	1.0	0.50	1		03/28/18 17:10	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	100	%	61-130		1		03/28/18 17:10	460-00-4	
Dibromofluoromethane (S)	103	%	67-130		1		03/28/18 17:10	1868-53-7	
Toluene-d8 (S)	102	%	70-130		1		03/28/18 17:10	2037-26-5	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284326 Analysis Method: EPA 8015B Modified
QC Batch Method: EPA 8015B Modified Analysis Description: Methane, Ethane, Ethene GCV
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1664194 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethane	ug/L	<0.58	5.6	03/27/18 07:22	
Ethene	ug/L	<0.52	5.0	03/27/18 07:22	
Methane	ug/L	<1.4	2.8	03/27/18 07:22	

LABORATORY CONTROL SAMPLE & LCSD: 1664195 1664196

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Ethane	ug/L	53.6	56.6	59.0	106	110	80-120	4	20	
Ethene	ug/L	50	52.4	54.7	105	109	80-119	4	20	
Methane	ug/L	28.6	29.7	31.3	104	109	80-120	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1664358 1664359

Parameter	Units	2073072001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Ethane	ug/L	ND	53.6	53.6	53.7	52.9	100	99	79-120	2	20	
Ethene	ug/L	ND	50	50	50.0	49.1	100	98	78-119	2	20	
Methane	ug/L	ND	28.6	28.6	29.7	29.0	104	102	10-200	2	20	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40166427

QC Batch:	284277	Analysis Method:	EPA 6010
QC Batch Method:	EPA 6010	Analysis Description:	ICP Metals, Trace, Dissolved
Associated Lab Samples:	40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012		

METHOD BLANK:	1664053	Matrix:	Water
Associated Lab Samples:	40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Iron, Dissolved	ug/L	<15.5	100	04/02/18 23:20	

LABORATORY CONTROL SAMPLE: 1664054

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Iron, Dissolved	ug/L	5000	5020	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1664055 1664056

Parameter	Units	40166427001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Iron, Dissolved	ug/L	27600	5000	5000	31600	31500	80	79	75-125	0	20	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284462 Analysis Method: EPA 6020
QC Batch Method: EPA 3010 Analysis Description: 6020 MET
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1664812 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	<0.34	1.1	03/29/18 23:35	
Chromium	ug/L	<1.0	3.4	03/29/18 23:35	
Iron	ug/L	<111	368	03/29/18 23:35	
Lead	ug/L	<0.20	1.0	03/29/18 23:35	
Nickel	ug/L	<0.40	1.3	03/29/18 23:35	

LABORATORY CONTROL SAMPLE: 1664813

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	498	100	80-120	
Chromium	ug/L	500	499	100	80-120	
Iron	ug/L	5000	5110	102	80-120	
Lead	ug/L	500	476	95	80-120	
Nickel	ug/L	500	491	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1664814 1664815

Parameter	Units	40166427001		1664815		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Barium	ug/L	152	500	500	682	667	106	103	75-125	2	20
Chromium	ug/L	10.2	500	500	510	487	100	95	75-125	5	20
Iron	ug/L	31000	5000	5000	37400	36500	128	111	75-125	2	20 P6
Lead	ug/L	0.26J	500	500	478	469	96	94	75-125	2	20
Nickel	ug/L	6.8	500	500	483	475	95	94	75-125	2	20

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284233 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427008, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1663925 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427008, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	03/29/18 07:11	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	03/29/18 07:11	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	03/29/18 07:11	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	03/29/18 07:11	
1,1-Dichloroethane	ug/L	<0.24	1.0	03/29/18 07:11	
1,1-Dichloroethene	ug/L	<0.41	1.0	03/29/18 07:11	
1,1-Dichloropropene	ug/L	<0.44	1.0	03/29/18 07:11	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	03/29/18 07:11	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	03/29/18 07:11	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	03/29/18 07:11	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	03/29/18 07:11	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	03/29/18 07:11	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	03/29/18 07:11	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	03/29/18 07:11	
1,2-Dichloroethane	ug/L	<0.17	1.0	03/29/18 07:11	
1,2-Dichloropropane	ug/L	<0.23	1.0	03/29/18 07:11	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	03/29/18 07:11	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	03/29/18 07:11	
1,3-Dichloropropane	ug/L	<0.50	1.0	03/29/18 07:11	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	03/29/18 07:11	
2,2-Dichloropropane	ug/L	<0.48	1.0	03/29/18 07:11	
2-Chlorotoluene	ug/L	<0.50	1.0	03/29/18 07:11	
4-Chlorotoluene	ug/L	<0.21	1.0	03/29/18 07:11	
Benzene	ug/L	<0.50	1.0	03/29/18 07:11	
Bromobenzene	ug/L	<0.23	1.0	03/29/18 07:11	
Bromochloromethane	ug/L	<0.34	1.0	03/29/18 07:11	
Bromodichloromethane	ug/L	<0.50	1.0	03/29/18 07:11	
Bromoform	ug/L	<0.50	1.0	03/29/18 07:11	
Bromomethane	ug/L	<2.4	5.0	03/29/18 07:11	
Carbon tetrachloride	ug/L	<0.50	1.0	03/29/18 07:11	
Chlorobenzene	ug/L	<0.50	1.0	03/29/18 07:11	
Chloroethane	ug/L	<0.37	1.0	03/29/18 07:11	
Chloroform	ug/L	<2.5	5.0	03/29/18 07:11	
Chloromethane	ug/L	<0.50	1.0	03/29/18 07:11	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	03/29/18 07:11	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	03/29/18 07:11	
Dibromochloromethane	ug/L	<0.50	1.0	03/29/18 07:11	
Dibromomethane	ug/L	<0.43	1.0	03/29/18 07:11	
Dichlorodifluoromethane	ug/L	<0.22	1.0	03/29/18 07:11	
Diisopropyl ether	ug/L	<0.50	1.0	03/29/18 07:11	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

METHOD BLANK: 1663925 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427008, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylbenzene	ug/L	<0.50	1.0	03/29/18 07:11	
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	03/29/18 07:11	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	03/29/18 07:11	
m&p-Xylene	ug/L	<1.0	2.0	03/29/18 07:11	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	03/29/18 07:11	
Methylene Chloride	ug/L	<0.23	1.0	03/29/18 07:11	
n-Butylbenzene	ug/L	<0.50	1.0	03/29/18 07:11	
n-Propylbenzene	ug/L	<0.50	1.0	03/29/18 07:11	
Naphthalene	ug/L	<2.5	5.0	03/29/18 07:11	
o-Xylene	ug/L	<0.50	1.0	03/29/18 07:11	
p-Isopropyltoluene	ug/L	<0.50	1.0	03/29/18 07:11	
sec-Butylbenzene	ug/L	<2.2	5.0	03/29/18 07:11	
Styrene	ug/L	<0.50	1.0	03/29/18 07:11	
tert-Butylbenzene	ug/L	<0.18	1.0	03/29/18 07:11	
Tetrachloroethene	ug/L	<0.50	1.0	03/29/18 07:11	
Toluene	ug/L	<0.50	1.0	03/29/18 07:11	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	03/29/18 07:11	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	03/29/18 07:11	
Trichloroethene	ug/L	<0.33	1.0	03/29/18 07:11	
Trichlorofluoromethane	ug/L	<0.18	1.0	03/29/18 07:11	
Vinyl chloride	ug/L	<0.18	1.0	03/29/18 07:11	
4-Bromofluorobenzene (S)	%	97	61-130	03/29/18 07:11	
Dibromofluoromethane (S)	%	104	67-130	03/29/18 07:11	
Toluene-d8 (S)	%	102	70-130	03/29/18 07:11	

LABORATORY CONTROL SAMPLE: 1663926

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	57.3	115	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.5	101	70-130	
1,1,2-Trichloroethane	ug/L	50	51.9	104	70-130	
1,1-Dichloroethane	ug/L	50	60.9	122	71-132	
1,1-Dichloroethene	ug/L	50	61.5	123	75-130	
1,2,4-Trichlorobenzene	ug/L	50	47.1	94	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	45.4	91	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	50.0	100	70-130	
1,2-Dichlorobenzene	ug/L	50	50.1	100	70-130	
1,2-Dichloroethane	ug/L	50	61.3	123	70-131	
1,2-Dichloropropane	ug/L	50	54.3	109	80-120	
1,3-Dichlorobenzene	ug/L	50	51.6	103	70-130	
1,4-Dichlorobenzene	ug/L	50	51.0	102	70-130	
Benzene	ug/L	50	61.0	122	73-145	
Bromodichloromethane	ug/L	50	50.9	102	70-130	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40166427

LABORATORY CONTROL SAMPLE: 1663926

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Bromoform	ug/L	50	39.4	79	67-130	
Bromomethane	ug/L	50	44.3	89	26-128	
Carbon tetrachloride	ug/L	50	56.1	112	70-133	
Chlorobenzene	ug/L	50	52.2	104	70-130	
Chloroethane	ug/L	50	65.3	131	58-120	L1
Chloroform	ug/L	50	59.7	119	80-121	
Chloromethane	ug/L	50	53.4	107	40-127	
cis-1,2-Dichloroethene	ug/L	50	60.8	122	70-130	
cis-1,3-Dichloropropene	ug/L	50	52.4	105	70-130	
Dibromochloromethane	ug/L	50	45.4	91	70-130	
Dichlorodifluoromethane	ug/L	50	51.8	104	20-135	
Ethylbenzene	ug/L	50	54.8	110	87-129	
Isopropylbenzene (Cumene)	ug/L	50	55.6	111	70-130	
m&p-Xylene	ug/L	100	111	111	70-130	
Methyl-tert-butyl ether	ug/L	50	55.9	112	66-143	
Methylene Chloride	ug/L	50	65.0	130	70-130	
o-Xylene	ug/L	50	55.5	111	70-130	
Styrene	ug/L	50	53.6	107	70-130	
Tetrachloroethene	ug/L	50	50.0	100	70-130	
Toluene	ug/L	50	57.1	114	82-130	
trans-1,2-Dichloroethene	ug/L	50	68.3	137	75-132	L1
trans-1,3-Dichloropropene	ug/L	50	51.1	102	70-130	
Trichloroethene	ug/L	50	57.1	114	70-130	
Trichlorofluoromethane	ug/L	50	61.5	123	76-133	
Vinyl chloride	ug/L	50	61.2	122	57-136	
4-Bromofluorobenzene (S)	%			102	61-130	
Dibromofluoromethane (S)	%			111	67-130	
Toluene-d8 (S)	%			104	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1665683 1665684

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40166427010 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1-Trichloroethane	ug/L	<2.5	50	50	55.1	55.2	110	110	70-134	0	20	
1,1,2,2-Tetrachloroethane	ug/L	<1.2	50	50	52.6	52.1	105	104	70-130	1	20	
1,1,2-Trichloroethane	ug/L	<0.99	50	50	51.6	50.3	103	101	70-130	2	20	
1,1-Dichloroethane	ug/L	<1.2	50	50	60.4	59.4	121	119	71-133	2	20	
1,1-Dichloroethene	ug/L	<2.1	50	50	59.4	60.7	119	121	75-136	2	20	
1,2,4-Trichlorobenzene	ug/L	<11.0	50	50	48.1	45.2	96	90	70-130	6	20	
1,2-Dibromo-3-chloropropane	ug/L	<10.8	50	50	49.0	47.1	98	94	63-123	4	20	
1,2-Dibromoethane (EDB)	ug/L	<0.89	50	50	49.7	49.9	99	100	70-130	0	20	
1,2-Dichlorobenzene	ug/L	<2.5	50	50	51.6	51.1	103	102	70-130	1	20	
1,2-Dichloroethane	ug/L	<0.84	50	50	58.9	58.9	118	118	70-131	0	20	
1,2-Dichloropropane	ug/L	<1.2	50	50	52.4	53.0	105	106	80-120	1	20	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40166427

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1665683		1665684		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		40166427010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
1,3-Dichlorobenzene	ug/L	<2.5	50	50	51.7	50.7	103	101	70-130	2	20		
1,4-Dichlorobenzene	ug/L	<2.5	50	50	52.3	51.6	105	103	70-130	1	20		
Benzene	ug/L	<2.5	50	50	59.0	59.6	118	119	73-145	1	20		
Bromodichloromethane	ug/L	<2.5	50	50	48.7	47.5	97	95	70-130	3	20		
Bromoform	ug/L	<2.5	50	50	39.2	38.2	78	76	67-130	3	20		
Bromomethane	ug/L	<12.2	50	50	48.7	47.9	97	96	26-129	2	20		
Carbon tetrachloride	ug/L	<2.5	50	50	53.8	54.3	108	109	70-134	1	20		
Chlorobenzene	ug/L	<2.5	50	50	52.1	51.2	104	102	70-130	2	20		
Chloroethane	ug/L	<1.9	50	50	59.6	64.9	119	130	58-120	8	20	M0	
Chloroform	ug/L	<12.5	50	50	58.2	58.2	116	116	80-121	0	20		
Chloromethane	ug/L	<2.5	50	50	50.5	53.7	101	107	40-128	6	20		
cis-1,2-Dichloroethene	ug/L	<1.3	50	50	57.3	56.7	115	113	70-130	1	20		
cis-1,3-Dichloropropene	ug/L	<2.5	50	50	52.3	50.6	105	101	70-130	3	20		
Dibromochloromethane	ug/L	<2.5	50	50	45.9	43.6	92	87	70-130	5	20		
Dichlorodifluoromethane	ug/L	<1.1	50	50	47.1	47.4	94	95	20-146	1	20		
Ethylbenzene	ug/L	<2.5	50	50	53.3	54.5	107	109	87-129	2	20		
Isopropylbenzene (Cumene)	ug/L	<0.72	50	50	53.5	54.1	107	108	70-130	1	20		
m&p-Xylene	ug/L	<5.0	100	100	109	108	109	108	70-130	1	20		
Methyl-tert-butyl ether	ug/L	<0.87	50	50	54.8	55.4	110	111	66-143	1	20		
Methylene Chloride	ug/L	<1.2	50	50	63.2	63.8	126	128	70-130	1	20		
o-Xylene	ug/L	<2.5	50	50	54.1	53.4	108	107	70-130	1	20		
Styrene	ug/L	<2.5	50	50	53.4	53.1	107	106	70-130	1	20		
Tetrachloroethene	ug/L	<2.5	50	50	48.5	49.2	97	98	70-130	1	20		
Toluene	ug/L	<2.5	50	50	56.9	56.1	114	112	82-131	1	20		
trans-1,2-Dichloroethene	ug/L	<1.3	50	50	64.3	66.4	129	133	75-135	3	20		
trans-1,3-Dichloropropene	ug/L	<1.1	50	50	49.7	48.9	99	98	70-130	2	20		
Trichloroethene	ug/L	<1.7	50	50	54.5	54.3	109	109	70-130	0	20		
Trichlorofluoromethane	ug/L	<0.92	50	50	57.7	57.4	115	115	76-150	1	20		
Vinyl chloride	ug/L	673	50	50	686	708	26	69	56-143	3	20	E,M1	
4-Bromofluorobenzene (S)	%						100	101	61-130				
Dibromofluoromethane (S)	%						106	108	67-130				
Toluene-d8 (S)	%						104	103	70-130				

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284242 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40166427013

METHOD BLANK: 1663960 Matrix: Water
Associated Lab Samples: 40166427013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.18	1.0	03/28/18 07:42	
1,1,1-Trichloroethane	ug/L	<0.50	1.0	03/28/18 07:42	
1,1,2,2-Tetrachloroethane	ug/L	<0.25	1.0	03/28/18 07:42	
1,1,2-Trichloroethane	ug/L	<0.20	1.0	03/28/18 07:42	
1,1-Dichloroethane	ug/L	<0.24	1.0	03/28/18 07:42	
1,1-Dichloroethene	ug/L	<0.41	1.0	03/28/18 07:42	
1,1-Dichloropropene	ug/L	<0.44	1.0	03/28/18 07:42	
1,2,3-Trichlorobenzene	ug/L	<2.1	5.0	03/28/18 07:42	
1,2,3-Trichloropropane	ug/L	<0.50	1.0	03/28/18 07:42	
1,2,4-Trichlorobenzene	ug/L	<2.2	5.0	03/28/18 07:42	
1,2,4-Trimethylbenzene	ug/L	<0.50	1.0	03/28/18 07:42	
1,2-Dibromo-3-chloropropane	ug/L	<2.2	5.0	03/28/18 07:42	
1,2-Dibromoethane (EDB)	ug/L	<0.18	1.0	03/28/18 07:42	
1,2-Dichlorobenzene	ug/L	<0.50	1.0	03/28/18 07:42	
1,2-Dichloroethane	ug/L	<0.17	1.0	03/28/18 07:42	
1,2-Dichloropropane	ug/L	<0.23	1.0	03/28/18 07:42	
1,3,5-Trimethylbenzene	ug/L	<0.50	1.0	03/28/18 07:42	
1,3-Dichlorobenzene	ug/L	<0.50	1.0	03/28/18 07:42	
1,3-Dichloropropane	ug/L	<0.50	1.0	03/28/18 07:42	
1,4-Dichlorobenzene	ug/L	<0.50	1.0	03/28/18 07:42	
2,2-Dichloropropane	ug/L	<0.48	1.0	03/28/18 07:42	
2-Chlorotoluene	ug/L	<0.50	1.0	03/28/18 07:42	
4-Chlorotoluene	ug/L	<0.21	1.0	03/28/18 07:42	
Benzene	ug/L	<0.50	1.0	03/28/18 07:42	
Bromobenzene	ug/L	<0.23	1.0	03/28/18 07:42	
Bromochloromethane	ug/L	<0.34	1.0	03/28/18 07:42	
Bromodichloromethane	ug/L	<0.50	1.0	03/28/18 07:42	
Bromoform	ug/L	<0.50	1.0	03/28/18 07:42	
Bromomethane	ug/L	<2.4	5.0	03/28/18 07:42	
Carbon tetrachloride	ug/L	<0.50	1.0	03/28/18 07:42	
Chlorobenzene	ug/L	<0.50	1.0	03/28/18 07:42	
Chloroethane	ug/L	<0.37	1.0	03/28/18 07:42	
Chloroform	ug/L	<2.5	5.0	03/28/18 07:42	
Chloromethane	ug/L	<0.50	1.0	03/28/18 07:42	
cis-1,2-Dichloroethene	ug/L	<0.26	1.0	03/28/18 07:42	
cis-1,3-Dichloropropene	ug/L	<0.50	1.0	03/28/18 07:42	
Dibromochloromethane	ug/L	<0.50	1.0	03/28/18 07:42	
Dibromomethane	ug/L	<0.43	1.0	03/28/18 07:42	
Dichlorodifluoromethane	ug/L	<0.22	1.0	03/28/18 07:42	
Diisopropyl ether	ug/L	<0.50	1.0	03/28/18 07:42	
Ethylbenzene	ug/L	<0.50	1.0	03/28/18 07:42	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

METHOD BLANK: 1663960 Matrix: Water
Associated Lab Samples: 40166427013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	<2.1	5.0	03/28/18 07:42	
Isopropylbenzene (Cumene)	ug/L	<0.14	1.0	03/28/18 07:42	
m&p-Xylene	ug/L	<1.0	2.0	03/28/18 07:42	
Methyl-tert-butyl ether	ug/L	<0.17	1.0	03/28/18 07:42	
Methylene Chloride	ug/L	<0.23	1.0	03/28/18 07:42	
n-Butylbenzene	ug/L	<0.50	1.0	03/28/18 07:42	
n-Propylbenzene	ug/L	<0.50	1.0	03/28/18 07:42	
Naphthalene	ug/L	<2.5	5.0	03/28/18 07:42	
o-Xylene	ug/L	<0.50	1.0	03/28/18 07:42	
p-Isopropyltoluene	ug/L	<0.50	1.0	03/28/18 07:42	
sec-Butylbenzene	ug/L	<2.2	5.0	03/28/18 07:42	
Styrene	ug/L	<0.50	1.0	03/28/18 07:42	
tert-Butylbenzene	ug/L	<0.18	1.0	03/28/18 07:42	
Tetrachloroethene	ug/L	<0.50	1.0	03/28/18 07:42	
Toluene	ug/L	<0.50	1.0	03/28/18 07:42	
trans-1,2-Dichloroethene	ug/L	<0.26	1.0	03/28/18 07:42	
trans-1,3-Dichloropropene	ug/L	<0.23	1.0	03/28/18 07:42	
Trichloroethene	ug/L	<0.33	1.0	03/28/18 07:42	
Trichlorofluoromethane	ug/L	<0.18	1.0	03/28/18 07:42	
Vinyl chloride	ug/L	<0.18	1.0	03/28/18 07:42	
4-Bromofluorobenzene (S)	%	101	61-130	03/28/18 07:42	
Dibromofluoromethane (S)	%	105	67-130	03/28/18 07:42	
Toluene-d8 (S)	%	103	70-130	03/28/18 07:42	

LABORATORY CONTROL SAMPLE: 1663961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	55.7	111	70-130	
1,1,1,2-Tetrachloroethane	ug/L	50	52.4	105	70-130	
1,1,2-Trichloroethane	ug/L	50	52.0	104	70-130	
1,1-Dichloroethane	ug/L	50	57.6	115	71-132	
1,1-Dichloroethene	ug/L	50	56.9	114	75-130	
1,2,4-Trichlorobenzene	ug/L	50	48.5	97	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	52.2	104	63-123	
1,2-Dibromoethane (EDB)	ug/L	50	50.0	100	70-130	
1,2-Dichlorobenzene	ug/L	50	50.6	101	70-130	
1,2-Dichloroethane	ug/L	50	57.5	115	70-131	
1,2-Dichloropropane	ug/L	50	53.5	107	80-120	
1,3-Dichlorobenzene	ug/L	50	51.3	103	70-130	
1,4-Dichlorobenzene	ug/L	50	50.7	101	70-130	
Benzene	ug/L	50	58.0	116	73-145	
Bromodichloromethane	ug/L	50	50.4	101	70-130	
Bromoform	ug/L	50	44.7	89	67-130	
Bromomethane	ug/L	50	33.7	67	26-128	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

LABORATORY CONTROL SAMPLE: 1663961

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	55.6	111	70-133	
Chlorobenzene	ug/L	50	52.0	104	70-130	
Chloroethane	ug/L	50	59.7	119	58-120	
Chloroform	ug/L	50	57.7	115	80-121	
Chloromethane	ug/L	50	48.3	97	40-127	
cis-1,2-Dichloroethene	ug/L	50	59.9	120	70-130	
cis-1,3-Dichloropropene	ug/L	50	53.3	107	70-130	
Dibromochloromethane	ug/L	50	48.6	97	70-130	
Dichlorodifluoromethane	ug/L	50	51.8	104	20-135	
Ethylbenzene	ug/L	50	53.5	107	87-129	
Isopropylbenzene (Cumene)	ug/L	50	54.4	109	70-130	
m&p-Xylene	ug/L	100	109	109	70-130	
Methyl-tert-butyl ether	ug/L	50	55.8	112	66-143	
Methylene Chloride	ug/L	50	61.2	122	70-130	
o-Xylene	ug/L	50	54.3	109	70-130	
Styrene	ug/L	50	53.2	106	70-130	
Tetrachloroethene	ug/L	50	49.6	99	70-130	
Toluene	ug/L	50	55.7	111	82-130	
trans-1,2-Dichloroethene	ug/L	50	60.1	120	75-132	
trans-1,3-Dichloropropene	ug/L	50	53.0	106	70-130	
Trichloroethene	ug/L	50	55.2	110	70-130	
Trichlorofluoromethane	ug/L	50	56.8	114	76-133	
Vinyl chloride	ug/L	50	53.9	108	57-136	
4-Bromofluorobenzene (S)	%			102	61-130	
Dibromofluoromethane (S)	%			105	67-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1665667 1665668

Parameter	Units	40166411001		1665667		1665668		% Rec	% Rec	% Rec	Limits	RPD	RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec							
1,1,1-Trichloroethane	ug/L	4.4	50	50	59.1	60.3	109	112	70-134	2	20			
1,1,2,2-Tetrachloroethane	ug/L	<0.25	50	50	53.2	52.1	106	104	70-130	2	20			
1,1,2-Trichloroethane	ug/L	<0.20	50	50	52.5	50.5	105	101	70-130	4	20			
1,1-Dichloroethane	ug/L	<0.24	50	50	56.9	57.9	114	116	71-133	2	20			
1,1-Dichloroethene	ug/L	9.5	50	50	65.5	66.0	112	113	75-136	1	20			
1,2,4-Trichlorobenzene	ug/L	<2.2	50	50	47.6	48.3	95	97	70-130	1	20			
1,2-Dibromo-3-chloropropane	ug/L	<2.2	50	50	53.8	52.0	108	104	63-123	3	20			
1,2-Dibromoethane (EDB)	ug/L	<0.18	50	50	49.6	49.4	99	99	70-130	0	20			
1,2-Dichlorobenzene	ug/L	<0.50	50	50	51.3	49.7	102	99	70-130	3	20			
1,2-Dichloroethane	ug/L	<0.17	50	50	57.4	58.1	115	116	70-131	1	20			
1,2-Dichloropropane	ug/L	<0.23	50	50	52.1	51.3	104	103	80-120	2	20			
1,3-Dichlorobenzene	ug/L	<0.50	50	50	50.2	49.7	100	99	70-130	1	20			
1,4-Dichlorobenzene	ug/L	<0.50	50	50	51.8	50.6	104	101	70-130	2	20			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP

Pace Project No.: 40166427

Parameter	Units	1665667		1665668		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		40166411001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Benzene	ug/L	<0.50	50	50	57.1	58.3	114	117	73-145	2	20	
Bromodichloromethane	ug/L	<0.50	50	50	49.1	49.4	98	99	70-130	0	20	
Bromoform	ug/L	<0.50	50	50	44.6	44.2	89	88	67-130	1	20	
Bromomethane	ug/L	<2.4	50	50	41.2	43.5	82	87	26-129	5	20	
Carbon tetrachloride	ug/L	<0.50	50	50	53.8	54.8	108	110	70-134	2	20	
Chlorobenzene	ug/L	<0.50	50	50	51.4	50.7	103	101	70-130	2	20	
Chloroethane	ug/L	<0.37	50	50	59.4	60.3	119	121	58-120	2	20	M1
Chloroform	ug/L	<2.5	50	50	57.4	56.8	115	114	80-121	1	20	
Chloromethane	ug/L	<0.50	50	50	48.5	48.8	97	98	40-128	1	20	
cis-1,2-Dichloroethene	ug/L	<0.26	50	50	56.7	57.4	113	115	70-130	1	20	
cis-1,3-Dichloropropene	ug/L	<0.50	50	50	52.2	50.8	104	102	70-130	3	20	
Dibromochloromethane	ug/L	<0.50	50	50	48.4	47.6	97	95	70-130	2	20	
Dichlorodifluoromethane	ug/L	<0.22	50	50	48.1	49.4	96	99	20-146	3	20	
Ethylbenzene	ug/L	<0.50	50	50	52.9	52.6	106	105	87-129	0	20	
Isopropylbenzene (Cumene)	ug/L	<0.14	50	50	53.3	52.5	107	105	70-130	1	20	
m&p-Xylene	ug/L	<1.0	100	100	107	106	107	106	70-130	1	20	
Methyl-tert-butyl ether	ug/L	<0.17	50	50	56.2	54.4	112	109	66-143	3	20	
Methylene Chloride	ug/L	<0.23	50	50	61.2	61.3	122	123	70-130	0	20	
o-Xylene	ug/L	<0.50	50	50	53.7	53.8	107	108	70-130	0	20	
Styrene	ug/L	<0.50	50	50	52.4	52.1	105	104	70-130	1	20	
Tetrachloroethene	ug/L	<0.50	50	50	48.3	49.4	97	99	70-130	2	20	
Toluene	ug/L	<0.50	50	50	54.6	55.5	109	111	82-131	2	20	
trans-1,2-Dichloroethene	ug/L	<0.26	50	50	62.2	61.6	124	123	75-135	1	20	
trans-1,3-Dichloropropene	ug/L	<0.23	50	50	53.5	50.7	107	101	70-130	5	20	
Trichloroethene	ug/L	<0.33	50	50	54.8	53.3	110	107	70-130	3	20	
Trichlorofluoromethane	ug/L	<0.18	50	50	55.2	55.8	110	112	76-150	1	20	
Vinyl chloride	ug/L	<0.18	50	50	55.3	55.9	111	112	56-143	1	20	
4-Bromofluorobenzene (S)	%						100	101	61-130			
Dibromofluoromethane (S)	%						107	106	67-130			
Toluene-d8 (S)	%						102	101	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284234 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1663927 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	<0.50	2.0	03/26/18 15:34	
Sulfate	mg/L	<1.0	3.0	03/26/18 15:34	

LABORATORY CONTROL SAMPLE: 1663928

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	20	19.7	98	90-110	
Sulfate	mg/L	20	19.5	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663929 1663930

Parameter	Units	40166250009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	26.8	20	20	49.5	49.6	113	114	90-110	0	15	M0
Sulfate	mg/L	24.9	20	20	47.8	47.9	115	115	90-110	0	15	M0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1663931 1663932

Parameter	Units	40166427009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	533	400	400	935	955	101	106	90-110	2	15	
Sulfate	mg/L	32.7J	400	400	433	463	100	108	90-110	7	15	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284892 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006

METHOD BLANK: 1667648 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	04/02/18 13:57	

LABORATORY CONTROL SAMPLE: 1667649

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	102	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1667650 1667651

Parameter	Units	40166427002		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Alkalinity, Total as CaCO3	mg/L	465	500	500	880	938	83	95	90-110	6	20	M0	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1667652 1667653

Parameter	Units	40166427006		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec				
Alkalinity, Total as CaCO3	mg/L	418	500	500	890	882	95	93	90-110	1	20		

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284951 Analysis Method: EPA 310.2
QC Batch Method: EPA 310.2 Analysis Description: 310.2 Alkalinity
Associated Lab Samples: 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1667880 Matrix: Water
Associated Lab Samples: 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<7.0	23.5	04/03/18 11:09	

LABORATORY CONTROL SAMPLE: 1667881

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	110	110	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1667882 1667883

Parameter	Units	40166699004		1667882		1667883		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Alkalinity, Total as CaCO3	mg/L	281	200	200	478	471	99	95	90-110	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1667884 1667885

Parameter	Units	40166612002		1667884		1667885		% Rec Limits	RPD	Max RPD	Qual	
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
Alkalinity, Total as CaCO3	mg/L	204	200	200	337	373	67	85	90-110	10	20 M0	

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QUALITY CONTROL DATA

Project: 60518412.1 KEP
Pace Project No.: 40166427

QC Batch: 284342 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

METHOD BLANK: 1664246 Matrix: Water
Associated Lab Samples: 40166427001, 40166427002, 40166427003, 40166427004, 40166427005, 40166427006, 40166427007, 40166427009, 40166427010, 40166427011, 40166427012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	<0.25	0.84	03/27/18 15:20	

LABORATORY CONTROL SAMPLE: 1664247

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.5	2.5	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1664248 1664249

Parameter	Units	40166427001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	58.7	30	30	88.9	88.3	101	98	80-120	1	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1664250 1664251

Parameter	Units	40166427002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	5.6	3	3	8.2	8.3	87	90	80-120	1	10	

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QUALIFIERS

Project: 60518412.1 KEP
Pace Project No.: 40166427

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412.1 KEP

Pace Project No.: 40166427

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40166427001	ERD6-TW-NW10 TOS	EPA 8015B Modified	284326		
40166427002	ERD6-TW-NW15 TOS	EPA 8015B Modified	284326		
40166427003	ERD6-TW-NW10 BOS	EPA 8015B Modified	284326		
40166427004	ERD6-TW-NW15 BOS	EPA 8015B Modified	284326		
40166427005	CS8-MW-61	EPA 8015B Modified	284326		
40166427006	CS8-MW-61-DUP	EPA 8015B Modified	284326		
40166427007	CS8-PZ-61	EPA 8015B Modified	284326		
40166427009	ERD1-TW-NW10 TOS	EPA 8015B Modified	284326		
40166427010	CS4-PZ-75	EPA 8015B Modified	284326		
40166427011	ERD1-TW-NW10 BOS	EPA 8015B Modified	284326		
40166427012	CS8-MW-807	EPA 8015B Modified	284326		
40166427001	ERD6-TW-NW10 TOS	EPA 6010	284277		
40166427002	ERD6-TW-NW15 TOS	EPA 6010	284277		
40166427003	ERD6-TW-NW10 BOS	EPA 6010	284277		
40166427004	ERD6-TW-NW15 BOS	EPA 6010	284277		
40166427005	CS8-MW-61	EPA 6010	284277		
40166427006	CS8-MW-61-DUP	EPA 6010	284277		
40166427007	CS8-PZ-61	EPA 6010	284277		
40166427009	ERD1-TW-NW10 TOS	EPA 6010	284277		
40166427010	CS4-PZ-75	EPA 6010	284277		
40166427011	ERD1-TW-NW10 BOS	EPA 6010	284277		
40166427012	CS8-MW-807	EPA 6010	284277		
40166427001	ERD6-TW-NW10 TOS	EPA 3010	284462	EPA 6020	284570
40166427002	ERD6-TW-NW15 TOS	EPA 3010	284462	EPA 6020	284570
40166427003	ERD6-TW-NW10 BOS	EPA 3010	284462	EPA 6020	284570
40166427004	ERD6-TW-NW15 BOS	EPA 3010	284462	EPA 6020	284570
40166427005	CS8-MW-61	EPA 3010	284462	EPA 6020	284570
40166427006	CS8-MW-61-DUP	EPA 3010	284462	EPA 6020	284570
40166427007	CS8-PZ-61	EPA 3010	284462	EPA 6020	284570
40166427009	ERD1-TW-NW10 TOS	EPA 3010	284462	EPA 6020	284570
40166427010	CS4-PZ-75	EPA 3010	284462	EPA 6020	284570
40166427011	ERD1-TW-NW10 BOS	EPA 3010	284462	EPA 6020	284570
40166427012	CS8-MW-807	EPA 3010	284462	EPA 6020	284570
40166427001	ERD6-TW-NW10 TOS	EPA 8260	284233		
40166427002	ERD6-TW-NW15 TOS	EPA 8260	284233		
40166427003	ERD6-TW-NW10 BOS	EPA 8260	284233		
40166427004	ERD6-TW-NW15 BOS	EPA 8260	284233		
40166427005	CS8-MW-61	EPA 8260	284233		
40166427006	CS8-MW-61-DUP	EPA 8260	284233		
40166427007	CS8-PZ-61	EPA 8260	284233		
40166427008	TRIP BLANK-ERD-01	EPA 8260	284233		
40166427009	ERD1-TW-NW10 TOS	EPA 8260	284233		
40166427010	CS4-PZ-75	EPA 8260	284233		
40166427011	ERD1-TW-NW10 BOS	EPA 8260	284233		
40166427012	CS8-MW-807	EPA 8260	284233		
40166427013	TRIP BLANK-ERD-02	EPA 8260	284242		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 60518412.1 KEP
Pace Project No.: 40166427

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40166427001	ERD6-TW-NW10 TOS	EPA 300.0	284234		
40166427002	ERD6-TW-NW15 TOS	EPA 300.0	284234		
40166427003	ERD6-TW-NW10 BOS	EPA 300.0	284234		
40166427004	ERD6-TW-NW15 BOS	EPA 300.0	284234		
40166427005	CS8-MW-61	EPA 300.0	284234		
40166427006	CS8-MW-61-DUP	EPA 300.0	284234		
40166427007	CS8-PZ-61	EPA 300.0	284234		
40166427009	ERD1-TW-NW10 TOS	EPA 300.0	284234		
40166427010	CS4-PZ-75	EPA 300.0	284234		
40166427011	ERD1-TW-NW10 BOS	EPA 300.0	284234		
40166427012	CS8-MW-807	EPA 300.0	284234		
40166427001	ERD6-TW-NW10 TOS	EPA 310.2	284892		
40166427002	ERD6-TW-NW15 TOS	EPA 310.2	284892		
40166427003	ERD6-TW-NW10 BOS	EPA 310.2	284892		
40166427004	ERD6-TW-NW15 BOS	EPA 310.2	284892		
40166427005	CS8-MW-61	EPA 310.2	284892		
40166427006	CS8-MW-61-DUP	EPA 310.2	284892		
40166427007	CS8-PZ-61	EPA 310.2	284951		
40166427009	ERD1-TW-NW10 TOS	EPA 310.2	284951		
40166427010	CS4-PZ-75	EPA 310.2	284951		
40166427011	ERD1-TW-NW10 BOS	EPA 310.2	284951		
40166427012	CS8-MW-807	EPA 310.2	284951		
40166427001	ERD6-TW-NW10 TOS	SM 5310C	284342		
40166427002	ERD6-TW-NW15 TOS	SM 5310C	284342		
40166427003	ERD6-TW-NW10 BOS	SM 5310C	284342		
40166427004	ERD6-TW-NW15 BOS	SM 5310C	284342		
40166427005	CS8-MW-61	SM 5310C	284342		
40166427006	CS8-MW-61-DUP	SM 5310C	284342		
40166427007	CS8-PZ-61	SM 5310C	284342		
40166427009	ERD1-TW-NW10 TOS	SM 5310C	284342		
40166427010	CS4-PZ-75	SM 5310C	284342		
40166427011	ERD1-TW-NW10 BOS	SM 5310C	284342		
40166427012	CS8-MW-807	SM 5310C	284342		

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Client Name: AECOM

Sample Preservation Receipt Form

Project # 40166427

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

All containers needing preservation have been checked and noted below: Yes No N/A Lab Sid #ID of preservation (if pH adjusted):


Initial when completed:

Date/Time:

Pace Lab #	Glass	Plastic	Vials	Jars	General	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001	AG1U	BP1U	DG9A	JGFU	SP5T							2.5 / 5 / 10
002	AG1H	BP2N	DG9T	WGFU	ZPLC							2.5 / 5 / 10
003	AG4S	BP2Z	VG9U	WPFU	GN							2.5 / 5 / 10
004	AG4U	BP3U	VG9H									2.5 / 5 / 10
005	AG5U	BP3N	VG9M									2.5 / 5 / 10
006	AG2S	BP3S	VG9D									2.5 / 5 / 10
007	BG3U											2.5 / 5 / 10
008												2.5 / 5 / 10
009												2.5 / 5 / 10
010												2.5 / 5 / 10
011												2.5 / 5 / 10
012												2.5 / 5 / 10
013												2.5 / 5 / 10
014												2.5 / 5 / 10
015												2.5 / 5 / 10
016												2.5 / 5 / 10
017												2.5 / 5 / 10
018												2.5 / 5 / 10
019												2.5 / 5 / 10
020												2.5 / 5 / 10

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRQ, Phenolics, Other: NEA Headspace in VOA Vials (<6mm): Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 ml amber ascorbic	JGFU	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 ml plastic HNO3	DG9T	40 ml amber Na Thio	WGFU	4 oz clear jar unpres
AG4S	125 ml amber glass H2SO4	BP2Z	500 ml plastic NaOH, Znact	VG9U	40 ml clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 ml amber glass unpres	BP3U	250 ml plastic unpres	VG9H	40 ml clear vial HCL		
AG5U	100 ml amber glass unpres	BP3C	250 ml plastic NaOH	VG9M	40 ml clear vial MeOH	SP5T	120 ml plastic Na Thiosulfate
AG2S	500 ml amber glass H2SO4	BP3N	250 ml plastic HNO3	VG9D	40 ml clear vial DI	ZPLC	ziploc bag
BG3U	250 ml clear glass unpres	BP3S	250 ml plastic H2SO4			GN:	40ml vial amber glass BAK pres

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 31Jan2018
	Document No.: F-GB-C-031-rev.06	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: AECOM

Project #: _____

WO# : 40166427

Courier: CS Logistics Fed Ex Speedee UPS Walco
 Client Pace Other: _____



Tracking #: _____

Custody Seal on Cooler/Box Present: yes no **Seals intact:** yes no

Custody Seal on Samples Present: yes no **Seals intact:** yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - NA **Type of Ice:** Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: _____ /Corr: ROI

Temp Blank Present: yes no **Biological Tissue is Frozen:** yes no

Person examining contents:
 Date: 3/24/18
 Initials: [Signature]

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A MS/MSD <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>394</u>		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: [Signature]

Date: 3/26/18



Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

April 3, 2018

Christopher Hyska
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302

RE: **60518412.1 KEP / 40166427**

Pace Workorder: 26154

Dear Christopher Hyska:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, March 27, 2018. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh 04/03/2018
Ruth.Welsh@pacelabs.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email PAESfeedback@pacelabs.com.

Total Number of Pages 22

Report ID: 26154 - 1036995

Page 1 of 20



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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories
Accreditation ID:	02-00538
Scope:	NELAP Non-Potable Water
Accreditor:	West Virginia Department of Environmental Protection, Division of Water and Waste Management
Accreditation ID:	395
Scope:	Non-Potable Water
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification
Accreditation ID:	89009003
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)
Accreditor:	State of Virginia
Accreditation ID:	460201
Scope:	Non-Potable Water
Accreditor:	NELAP: New Jersey, Department of Environmental Protection
Accreditation ID:	PA026
Scope:	Non-Potable Water
Accreditor:	NELAP: New York, Department of Health Wadsworth Center
Accreditation ID:	11815
Scope:	Non-Potable Water
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health
Accreditation ID:	PH-0263
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)
Accreditor:	NELAP: Texas, Commission on Environmental Quality
Accreditation ID:	T104704453-09-TX
Scope:	Non-Potable Water
Accreditor:	State of New Hampshire
Accreditation ID:	299409
Scope:	Non-potable water
Accreditor:	State of Georgia
Accreditation ID:	Chapter 391-3-26
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, PAES is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).



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SAMPLE SUMMARY

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID	Sample ID	Matrix	Date Collected	Date Received
261540001	ERD6-TW-NW10 TOS	Water	3/21/2018 10:55	3/27/2018 11:00
261540002	ERD6-TW-NW15 TOS	Water	3/21/2018 11:02	3/27/2018 11:00
261540003	ERD6-TW-NW10 BOS	Water	3/21/2018 12:05	3/27/2018 11:00
261540004	ERD6-TW-NW15 BOS	Water	3/21/2018 12:10	3/27/2018 11:00
261540005	CS8-MW-61	Water	3/21/2018 13:25	3/27/2018 11:00
261540006	CS8-MW-61-DUP	Water	3/21/2018 13:25	3/27/2018 11:00
261540007	CS8-PZ-61	Water	3/21/2018 13:45	3/27/2018 11:00
261540008	ERD1-TW-NW10 TOS	Water	3/22/2018 10:10	3/27/2018 11:00
261540009	CS4-PZ-75	Water	3/22/2018 10:15	3/27/2018 11:00
261540010	ERD1-TW-NW10 BOS	Water	3/22/2018 11:15	3/27/2018 11:00
261540011	CS8-MW-807	Water	3/22/2018 11:15	3/27/2018 11:00



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Pace Analytical Energy Services LLC
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

PROJECT SUMMARY

Workorder: 26154 60518412.1 KEP / 40166427

Workorder Comments

The analysis for volatile fatty acids, method AM23G, was reported at dilution for samples 26154 (0001-0010) due to the measured chloride concentration within the sample; matrix interfering compound.



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540001** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD6-TW-NW10 TOS** Date Collected: 3/21/2018 10:55

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 04:18	KB	d
Acetic Acid	16	mg/l	1.0	0.20	10	3/28/2018 04:18	KB	d
Propionic Acid	48	mg/l	1.0	0.061	10	3/28/2018 04:18	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 04:18	KB	d
Butyric Acid	0.19J	mg/l	1.0	0.14	10	3/28/2018 04:18	KB	d
Pyruvic Acid	1.2	mg/l	1.0	0.16	10	3/28/2018 04:18	KB	d
i-Pentanoic Acid	0.32J	mg/l	1.0	0.055	10	3/28/2018 04:18	KB	d
Pentanoic Acid	0.36J	mg/l	1.0	0.12	10	3/28/2018 04:18	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 04:18	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 04:18	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540002** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD6-TW-NW15 TOS** Date Collected: 3/21/2018 11:02

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 06:58	KB	d
Acetic Acid	11	mg/l	1.0	0.20	10	3/28/2018 06:58	KB	d
Propionic Acid	1.2	mg/l	1.0	0.061	10	3/28/2018 06:58	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 06:58	KB	d
Butyric Acid	0.46J	mg/l	1.0	0.14	10	3/28/2018 06:58	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 06:58	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	3/28/2018 06:58	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	3/28/2018 06:58	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 06:58	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 06:58	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540003** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD6-TW-NW10 BOS** Date Collected: 3/21/2018 12:05

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 07:52	KB	d
Acetic Acid	11	mg/l	1.0	0.20	10	3/28/2018 07:52	KB	d
Propionic Acid	18	mg/l	1.0	0.061	10	3/28/2018 07:52	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 07:52	KB	d
Butyric Acid	0.44J	mg/l	1.0	0.14	10	3/28/2018 07:52	KB	d
Pyruvic Acid	0.40J	mg/l	1.0	0.16	10	3/28/2018 07:52	KB	d
i-Pentanoic Acid	0.11J	mg/l	1.0	0.055	10	3/28/2018 07:52	KB	d
Pentanoic Acid	0.25J	mg/l	1.0	0.12	10	3/28/2018 07:52	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 07:52	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 07:52	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540004** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD6-TW-NW15 BOS** Date Collected: 3/21/2018 12:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 08:45	KB	d
Acetic Acid	200	mg/l	10	2.0	100	3/29/2018 23:13	KB	d
Propionic Acid	130	mg/l	10	0.61	100	3/29/2018 23:13	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 08:45	KB	d
Butyric Acid	61	mg/l	10	1.4	100	3/29/2018 23:13	KB	d
Pyruvic Acid	1.7	mg/l	1.0	0.16	10	3/28/2018 08:45	KB	d
i-Pentanoic Acid	0.54J	mg/l	1.0	0.055	10	3/28/2018 08:45	KB	d
Pentanoic Acid	7.6	mg/l	1.0	0.12	10	3/28/2018 08:45	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 08:45	KB	d
Hexanoic Acid	1.4J	mg/l	2.0	0.38	10	3/28/2018 08:45	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540005** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **CS8-MW-61** Date Collected: 3/21/2018 13:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
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Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 09:39	KB	d
Acetic Acid	0.24J	mg/l	1.0	0.20	10	3/28/2018 09:39	KB	d
Propionic Acid	0.061U	mg/l	1.0	0.061	10	3/28/2018 09:39	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 09:39	KB	d
Butyric Acid	0.14U	mg/l	1.0	0.14	10	3/28/2018 09:39	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 09:39	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	3/28/2018 09:39	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	3/28/2018 09:39	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 09:39	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 09:39	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540006** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **CS8-MW-61-DUP** Date Collected: 3/21/2018 13:25

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 10:32	KB	d
Acetic Acid	0.25J	mg/l	1.0	0.20	10	3/28/2018 10:32	KB	d
Propionic Acid	0.061U	mg/l	1.0	0.061	10	3/28/2018 10:32	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 10:32	KB	d
Butyric Acid	0.14U	mg/l	1.0	0.14	10	3/28/2018 10:32	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 10:32	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	3/28/2018 10:32	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	3/28/2018 10:32	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 10:32	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 10:32	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540007** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **CS8-PZ-61** Date Collected: 3/21/2018 13:45

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
Lactic Acid	0.52J	mg/l	2.0	0.20	10	3/28/2018 11:25	KB	d
Acetic Acid	910	mg/l	100	20	1000	3/30/2018 01:53	KB	d
Propionic Acid	990	mg/l	100	6.1	1000	3/30/2018 01:53	KB	d
Formic Acid	130J	mg/l	200	69	1000	3/30/2018 01:53	KB	d
Butyric Acid	460	mg/l	100	14	1000	3/30/2018 01:53	KB	d
Pyruvic Acid	69	mg/l	10	1.6	100	3/30/2018 00:59	KB	d
i-Pentanoic Acid	8.0J	mg/l	10	0.55	100	3/30/2018 00:59	KB	d
Pentanoic Acid	160	mg/l	10	1.2	100	3/30/2018 00:59	KB	d
i-Hexanoic Acid	2.8	mg/l	2.0	0.41	10	3/28/2018 11:25	KB	d
Hexanoic Acid	38	mg/l	20	3.8	100	3/30/2018 00:59	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540008** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD1-TW-NW10 TOS** Date Collected: 3/22/2018 10:10

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G		Analytical Method: AM23G						
Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 12:19	KB	d
Acetic Acid	5.7	mg/l	1.0	0.20	10	3/28/2018 12:19	KB	d
Propionic Acid	0.64J	mg/l	1.0	0.061	10	3/28/2018 12:19	KB	d
Formic Acid	0.98J	mg/l	2.0	0.69	10	3/28/2018 12:19	KB	d
Butyric Acid	0.14U	mg/l	1.0	0.14	10	3/28/2018 12:19	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 12:19	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	3/28/2018 12:19	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	3/28/2018 12:19	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 12:19	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 12:19	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540009** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **CS4-PZ-75** Date Collected: 3/22/2018 10:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
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EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
----------------------	--------------------------	--	--	--	--	--	--	--

Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 13:12	KB	d
Acetic Acid	0.29J	mg/l	1.0	0.20	10	3/28/2018 13:12	KB	d
Propionic Acid	0.061U	mg/l	1.0	0.061	10	3/28/2018 13:12	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 13:12	KB	d
Butyric Acid	0.14U	mg/l	1.0	0.14	10	3/28/2018 13:12	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 13:12	KB	d
i-Pentanoic Acid	0.055U	mg/l	1.0	0.055	10	3/28/2018 13:12	KB	d
Pentanoic Acid	0.12U	mg/l	1.0	0.12	10	3/28/2018 13:12	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 13:12	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 13:12	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540010** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **ERD1-TW-NW10 BOS** Date Collected: 3/22/2018 11:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
------------	---------	-------	-----	-----	----	----------	----	------------

EDonors - PAES

Analysis Desc: AM23G	Analytical Method: AM23G							
----------------------	--------------------------	--	--	--	--	--	--	--

Lactic Acid	0.20U	mg/l	2.0	0.20	10	3/28/2018 14:06	KB	d
Acetic Acid	27	mg/l	1.0	0.20	10	3/28/2018 14:06	KB	d
Propionic Acid	15	mg/l	1.0	0.061	10	3/28/2018 14:06	KB	d
Formic Acid	0.69U	mg/l	2.0	0.69	10	3/28/2018 14:06	KB	d
Butyric Acid	0.15J	mg/l	1.0	0.14	10	3/28/2018 14:06	KB	d
Pyruvic Acid	0.16U	mg/l	1.0	0.16	10	3/28/2018 14:06	KB	d
i-Pentanoic Acid	0.073J	mg/l	1.0	0.055	10	3/28/2018 14:06	KB	d
Pentanoic Acid	0.26J	mg/l	1.0	0.12	10	3/28/2018 14:06	KB	d
i-Hexanoic Acid	0.41U	mg/l	2.0	0.41	10	3/28/2018 14:06	KB	d
Hexanoic Acid	0.38U	mg/l	2.0	0.38	10	3/28/2018 14:06	KB	d



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ANALYTICAL RESULTS

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID: **261540011** Date Received: 3/27/2018 11:00 Matrix: Water
 Sample ID: **CS8-MW-807** Date Collected: 3/22/2018 11:15

Parameters	Results	Units	PQL	MDL	DF	Analyzed	By	Qualifiers
------------	---------	-------	-----	-----	----	----------	----	------------

EDonors - PAES

Analysis Desc: AM23G Analytical Method: AM23G

Lactic Acid	0.020U	mg/l	0.20	0.020	1	3/28/2018 15:00	KB	
Acetic Acid	0.043J	mg/l	0.10	0.020	1	3/28/2018 15:00	KB	
Propionic Acid	0.0061U	mg/l	0.10	0.0061	1	3/28/2018 15:00	KB	
Formic Acid	0.080J	mg/l	0.20	0.069	1	3/28/2018 15:00	KB	
Butyric Acid	0.014U	mg/l	0.10	0.014	1	3/28/2018 15:00	KB	
Pyruvic Acid	0.016U	mg/l	0.10	0.016	1	3/28/2018 15:00	KB	
i-Pentanoic Acid	0.0055U	mg/l	0.10	0.0055	1	3/28/2018 15:00	KB	
Pentanoic Acid	0.012U	mg/l	0.10	0.012	1	3/28/2018 15:00	KB	
i-Hexanoic Acid	0.041U	mg/l	0.20	0.041	1	3/28/2018 15:00	KB	
Hexanoic Acid	0.038U	mg/l	0.20	0.038	1	3/28/2018 15:00	KB	



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ANALYTICAL RESULTS QUALIFIERS

Workorder: 26154 60518412.1 KEP / 40166427

DEFINITIONS/QUALIFIERS

- MDL Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
- PQL Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
- ND Not detected at or above reporting limit.
- DF Dilution Factor.
- S Surrogate.
- RPD Relative Percent Difference.
- % Rec Percent Recovery.
- U Indicates the compound was analyzed for, but not detected at or above the noted concentration.
- J Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).

- d The analyte concentration was determined from a dilution.



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QUALITY CONTROL DATA

Workorder: 26154 60518412.1 KEP / 40166427

QC Batch: EDON/3680 Analysis Method: AM23G

QC Batch Method: AM23G

Associated Lab Samples: 261540001, 261540002, 261540003, 261540004, 261540005, 261540006, 261540007, 261540008, 261540009, 261540010, 261540011

METHOD BLANK: 54396

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	0.020U	0.020	
Acetic Acid	mg/l	0.020U	0.020	
Propionic Acid	mg/l	0.0061U	0.0061	
Formic Acid	mg/l	0.069U	0.069	
Butyric Acid	mg/l	0.014U	0.014	
Pyruvic Acid	mg/l	0.016U	0.016	
i-Pentanoic Acid	mg/l	0.0055U	0.0055	
Pentanoic Acid	mg/l	0.012U	0.012	
i-Hexanoic Acid	mg/l	0.041U	0.041	
Hexanoic Acid	mg/l	0.038U	0.038	

LABORATORY CONTROL SAMPLE: 54397

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	1.9	96	70-130	
Acetic Acid	mg/l	2	1.9	96	70-130	
Propionic Acid	mg/l	2	1.9	94	70-130	
Formic Acid	mg/l	2	1.9	97	70-130	
Butyric Acid	mg/l	2	1.8	93	70-130	
Pyruvic Acid	mg/l	2	1.9	96	70-130	
i-Pentanoic Acid	mg/l	2	1.9	93	70-130	
Pentanoic Acid	mg/l	2	1.8	90	70-130	
i-Hexanoic Acid	mg/l	2	1.8	89	70-130	
Hexanoic Acid	mg/l	2	1.7	85	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 54398 54399 Original: 261540001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	Max RPD	Max RPD	Qualifiers
EDonors											



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QUALITY CONTROL DATA

Workorder: 26154 60518412.1 KEP / 40166427

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 54398 54399 Original: 261540001

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Lactic Acid	mg/l	0.019	20	20	20	98	99	70-130	1.4	30	d
Acetic Acid	mg/l	16	20	36	36	101	102	70-130	0.51	30	d
Propionic Acid	mg/l	48	20	68	68	103	102	70-130	0.31	30	d
Formic Acid	mg/l	0.48	20	20	22	99	105	70-130	5.5	30	d
Butyric Acid	mg/l	0.19	20	20	20	102	101	70-130	0.77	30	d
Pyruvic Acid	mg/l	1.2	20	21	22	101	102	70-130	0.42	30	d
i-Pentanoic Acid	mg/l	0.32	20	21	21	103	102	70-130	0.81	30	d
Pentanoic Acid	mg/l	0.36	20	21	21	104	103	70-130	0.41	30	d
i-Hexanoic Acid	mg/l	0.049	20	20	20	98	98	70-130	0.04	30	d
Hexanoic Acid	mg/l	0	20	19	19	96	97	70-130	0.56	30	d



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QUALITY CONTROL DATA

Workorder: 26154 60518412.1 KEP / 40166427

QC Batch: EDON/3686 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 261540004, 261540007

METHOD BLANK: 54523

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Acetic Acid	mg/l	0.020U	0.020	
Propionic Acid	mg/l	0.0061U	0.0061	
Formic Acid	mg/l	0.069U	0.069	
Butyric Acid	mg/l	0.014U	0.014	
Pyruvic Acid	mg/l	0.016U	0.016	
i-Pentanoic Acid	mg/l	0.0055U	0.0055	
Pentanoic Acid	mg/l	0.012U	0.012	
Hexanoic Acid	mg/l	0.038U	0.038	

LABORATORY CONTROL SAMPLE: 54524

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Acetic Acid	mg/l	2	1.9	96	70-130	
Propionic Acid	mg/l	2	1.8	93	70-130	
Formic Acid	mg/l	2	1.9	96	70-130	
Butyric Acid	mg/l	2	1.8	92	70-130	
Pyruvic Acid	mg/l	2	1.9	95	70-130	
i-Pentanoic Acid	mg/l	2	1.8	92	70-130	
Pentanoic Acid	mg/l	2	1.9	94	70-130	
Hexanoic Acid	mg/l	2	1.7	86	70-130	



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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 26154 60518412.1 KEP / 40166427

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
261540001	ERD6-TW-NW10 TOS			AM23G	EDON/3680
261540002	ERD6-TW-NW15 TOS			AM23G	EDON/3680
261540003	ERD6-TW-NW10 BOS			AM23G	EDON/3680
261540004	ERD6-TW-NW15 BOS			AM23G	EDON/3680
261540005	CS8-MW-61			AM23G	EDON/3680
261540006	CS8-MW-61-DUP			AM23G	EDON/3680
261540007	CS8-PZ-61			AM23G	EDON/3680
261540008	ERD1-TW-NW10 TOS			AM23G	EDON/3680
261540009	CS4-PZ-75			AM23G	EDON/3680
261540010	ERD1-TW-NW10 BOS			AM23G	EDON/3680
261540011	CS8-MW-807			AM23G	EDON/3680
261540004	ERD6-TW-NW15 BOS			AM23G	EDON/3686
261540007	CS8-PZ-61			AM23G	EDON/3686



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Cooler Receipt Form

Client Name: Pace Project: 60518412.1 KEP Lab Work Order: 26154

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 427891306868

Custody Seal on Cooler/Box Present: Yes No Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 1°C Radiation Screened: Yes No Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC			✓	
Containers intact	✓			
Were samples in separate bags		✓		
Sample container labels match COC	✓			
Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?	✓			

Comments: _____

Cooler contents examined/received by: LG Date: 3.27.18

Project Manager Review: [Signature] Date: 3/27/18

Client: Lanette Altenbach
AECOM
1555 N Rivercenter Dr
Suite 214
Milwaukee, WI 53212

Phone: 414-944-6186

Fax: 414-944-6080

Identifier: 098PC

Date Rec: 03/22/2018

Report Date: 03/30/2018

Client Project #: 60518412

Client Project Name: KEP

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:



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Client: AECOM
Project: KEP

MI Project Number: 098PC
Date Received: 03/22/2018

Sample Information

Client Sample ID:	ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	CS8-MW-61
	TOS	TOS	BOS	BOS	
Sample Date:	03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	CB	CB	CB	CB	CB

Dechlorinating Bacteria

		ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	CS8-MW-61
<i>Dehalococcoides</i>	DHC	4.00E+04	1.81E+04	3.94E+04	1.68E+04	5.61E+03
tceA Reductase	TCE	9.86E+02	4.92E+02	4.60E+02	5.68E+02	3.60E+00
BAV1 Vinyl Chloride Reductase	BVC	2.99E+04	4.83E+03	1.80E+04	3.54E+03	1.85E+03
Vinyl Chloride Reductase	VCR	2.85E+04	7.58E+03	2.07E+04	5.74E+03	2.04E+03

Functional Genes

		ERD6-TW-NW10	ERD6-TW-NW15	ERD6-TW-NW10	ERD6-TW-NW15	CS8-MW-61
Sulfate Reducing Bacteria	APS	2.37E+05	5.16E+05	3.30E+05	3.56E+05	5.90E+04
Methanogens	MGN	7.74E+05	5.65E+05	6.92E+05	4.54E+05	2.77E+03

Legend:

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

Client: AECOM
Project: KEP

MI Project Number: 098PC
Date Received: 03/22/2018

Sample Information

Client Sample ID:	CS8-PZ-61	ERD1-TW-NW10 TOS	CS4-PZ-75	ERD1-TW-NW10 BOS	CS8-MW-807
Sample Date:	03/21/2018	03/22/2018	03/22/2018	03/22/2018	03/22/2018
Units:	cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:	CB	CB	CB	CB	CB

Dechlorinating Bacteria

		CS8-PZ-61	ERD1-TW-NW10 TOS	CS4-PZ-75	ERD1-TW-NW10 BOS	CS8-MW-807
<i>Dehalococcoides</i>	DHC	5.06E+03	2.56E+04	9.20E+00	5.08E+04	<2.50E+00
tceA Reductase	TCE	2.39E+02	7.39E+03	2.00E-01 (J)	1.66E+04	<2.50E+00
BAV1 Vinyl Chloride Reductase	BVC	4.79E+03	4.83E+03	2.70E+00	5.25E+03	<2.50E+00
Vinyl Chloride Reductase	VCR	1.84E+03	1.41E+04	2.54E+01	1.97E+04	<2.50E+00

Functional Genes

		CS8-PZ-61	ERD1-TW-NW10 TOS	CS4-PZ-75	ERD1-TW-NW10 BOS	CS8-MW-807
Sulfate Reducing Bacteria	APS	1.24E+06	2.57E+04	2.64E+04	8.89E+04	<2.50E+01
Methanogens	MGN	3.46E+04	1.81E+03	1.40E+00 (J)	2.08E+04	<2.50E+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 3/22/2018

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
DHC	03/22/2018	03/30/2018	0 °C	104%	non-detect	non-detect
BVC	03/22/2018	03/30/2018	0 °C	101%	non-detect	non-detect
TCE	03/22/2018	03/30/2018	0 °C	100%	non-detect	non-detect
VCR	03/22/2018	03/30/2018	0 °C	107%	non-detect	non-detect
MGN	03/22/2018	03/30/2018	0 °C	98%	non-detect	non-detect
APS	03/22/2018	03/30/2018	0 °C	100%	non-detect	non-detect

Samples Received 3/23/2018

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	03/23/2018	03/30/2018	0 °C	101%	non-detect	non-detect
TCE	03/23/2018	03/30/2018	0 °C	101%	non-detect	non-detect
VCR	03/23/2018	03/30/2018	0 °C	107%	non-detect	non-detect
APS	03/23/2018	03/30/2018	0 °C	100%	non-detect	non-detect
MGN	03/23/2018	03/30/2018	0 °C	98%	non-detect	non-detect
DHC	03/23/2018	03/30/2018	0 °C	102%	non-detect	non-detect

Appendix F

Field Injection Report (REDOX Tech, 2016)

REDOX TECH, LLC



"Providing Innovative In Situ Soil and Groundwater Treatment"

March 13, 2017

Mr. Paul Lindquist
AECOM
1555 North RiverCenter Drive, Suite 214
Milwaukee, WI 53212
Email: paul.lindquist@aecom.com

RE: Summary letter for ABC⁺ augmented with RTB-1 injection at the former Kenosha Engine Plant located at 5555 30th Ave in Kenosha, WI.

Dear Mr. Lindquist;

The following letter provides a brief summary of the field events performed at the referenced site in March of 2017.

Injection of ABC⁺ augmented with RTB-1 was conducted via direct push drilling techniques in a total of 11 locations onsite at the Former Engine Plant. Three (3) injection locations were added to the proposed scope of work due to significant daylighting of injected material in certain target areas. Targeted depths of injection were 8 to 22 ft bgs and were spaced approximately 25 ft apart. Injections were conducted at 1 foot intervals vertically across the target depths. Injection specifics, as well as a summary table and sketch can be found in **Attachment A**.

A total of 7,692 lbs of ABC⁺ (i.e., 5,292 lbs of ABC[®] and 2,400 lbs of zero valent iron) was mixed with potable water to form 5,333 gallons of solution. Prior to mixing, sugar and yeast were added for the purpose of deoxygenating the water. The ABC⁺ solution was also augmented with 30 liters of RTB-1 (DHC) culture. The original scope of work required 5,800 gallons (approximately 10 weight percent ABC[®]) of solution to be injected; however, due to persistent surfacing in multiple locations, the total volume of solution was reduced near the completion of the project and the ABC[®] was mixed at approximately 20 weight percent. These specifics can also be found in **Attachment A**.

All injection activities were completed by March 9, 2017. Upon completion, locations were sealed using granular bentonite. Per AECOM, there was no patching of the surface pavement. All general trash was bagged and disposed of in a receptacle designated by AECOM.

If there are any questions regarding the work, please do not hesitate to email me at clarke@redox-tech.com, or via phone at (630) 705-0390.

Regards,

Kyle M. Clarke

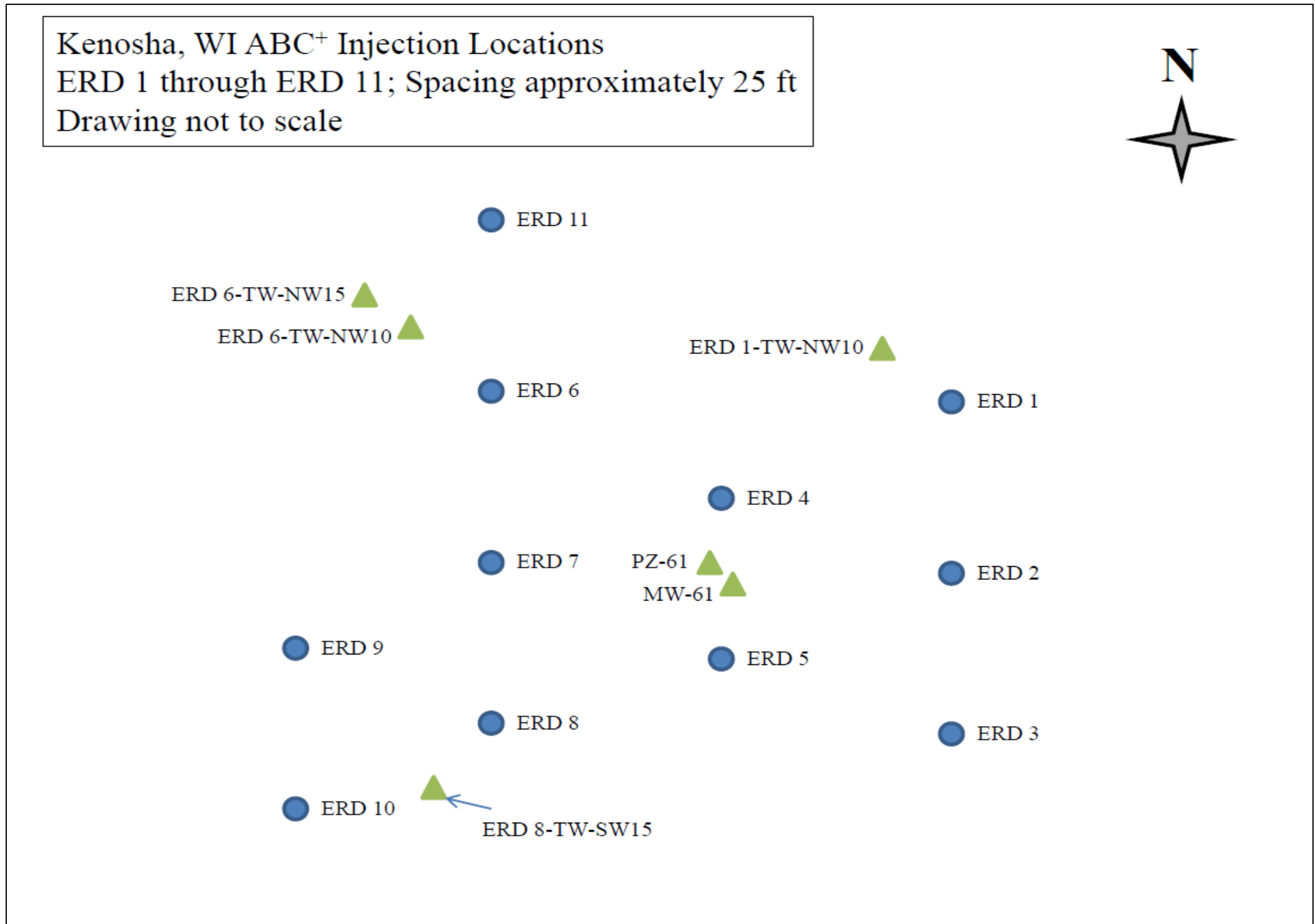
ATTACHMENT A
INJECTION LOGS, SUMMARY TABLE, AND SKETCH

Table 1: Injection Summary Table for ERD in Kenosha, WI

Injection Point	Date	Number of Intervals	Solution Injected (gal)	ABC Injected (lbs)	ABC Injected (gal)	ZVI Injected (lbs)	ABC⁺ Injected (lbs)	DHC Injected (L)
ERD 1	3/7/2017	15	725	662	74.4	300	962	3.75
ERD 2	3/9/2017	6	290	265	29.8	120	385	1.50
ERD 3	3/8/2017	15	687	627	70.4	284	911	3.55
ERD 4	3/8/2017	13	503	608	68.4	276	884	3.45
ERD 5	3/9/2017	4	147	176	19.8	80	256	1.00
ERD 6	3/7/2017	15	725	662	74.4	300	962	3.75
ERD 7	3/7/2017	14	677	617	69.4	280	897	3.50
ERD 8	3/7/2017	15	725	662	74.4	300	962	3.75
ERD 9	3/9/2017	5	242	221	24.8	100	321	1.25
ERD 10	3/9/2017	3	145	132	14.9	60	192	0.75
ERD 11	3/9/2017	15	468	662	74.4	300	962	3.75

Totals	5,333	5,292	595	2,400	7,692	30
---------------	--------------	--------------	------------	--------------	--------------	-----------

Figure 1: Injection Location Map for ABC⁺ in Kenosha, WI



Redox Tech Data Collection Sheet

Date:	3/7/2017	Data Taker:	Kyle Clarke	Page No:		1	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:		Area:	ERD				
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
1420	1424	22	12.1	200	100	48	
1424	1428	21	12.1	150	100	48	
1428	1432	20	12.1	100	100	48	
1432	1436	19	12.1	100	100	48	
1436	1440	18	12.1	100	80	48	back pressure
1453	1459	17	8.1	100	60	48	
1459	1504	16	9.7	100	60	48	
1504	1509	15	9.7	100	60	48	Finishes tank; back pressure; DL near ERD 3
1546	1555	14	5.4	75	40	48	
1555	1608	13	3.7	75	40	48	
1608	1617	12	5.4	75	40	48	
1617	1624	11	6.9	75	40	48	
1624	1631	10	6.9	75	40	48	
1631	1637	9	8.1	75	40	48	
1637	1644	8	6.9	75	40	48	

Redox Tech Data Collection Sheet

Date:	3/9/2017	Data Taker:	Kyle Clarke	Page No:		2	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 2		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
0841	0849	23	6.1	100	100	48	
0849	0858	22	5.4	100	100	48	
0858	0907	21	5.4	100	100	48	back pressure
0913	0922	20	5.4	100	20	48	
0922	0928	19	8.1	100	40	48	
0928	0934	18	8.1	100	40	48	daylighting near ERD 1; move to ERD 5
		17				0	
		16				0	
		15				0	
		14				0	
		13				0	
		12				0	
		11				0	
		10				0	
		9				0	
		8				0	

Redox Tech Data Collection Sheet

Date:	3/8/2017	Data Taker:	Kyle Clarke	Page No:		3	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 3		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
0946	0950	22	12.1	125	100	48	
0950	0954	21	12.1	100	100	48	
0954	0958	20	12.1	100	100	48	
0958	1004	19	8.1	100	50	48	
1004	1009	18	9.7	100	50	48	Finishes tank; back pressure
1059	1104	17	9.7	100	50	48	
1104	1108	16	12.1	100	50	48	
1108	1112	15	12.1	100	50	48	
1112	1116	14	12.1	100	50	48	
1116	1120	13	12.1	100	50	48	back pressure
1144	1148	12	12.1	100	50	48	
1148	1153	11	9.7	100	50	48	
1153	1158	10	9.7	100	50	48	
1158	1203	9	9.7	100	40	48	
1203	1204	8	10	100	40	10	Daylighting through concrete; remaining 38 gallons in ERD 4 at 20 ft

Redox Tech Data Collection Sheet

Date:	3/8/2017	Data Taker:	Kyle Clarke	Page No:		4	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 4		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
0915	0920	22	9.7	125	100	48	
0920	0924	21	12.1	125	90	48	Daylighting near ERD 7; move to ERD 3
1211	1216	20	9.7	100	60	38	38 gal from ERD 3
1406	1411	20	9.7	100	60	48	
1411	1416	19	9.7	100	60	48	Daylighting near ERD 7; move to ERD 1
1646	1656	18	4.8	75	30	48	
1658	1707	17	5.4	75	30	48	
1535	1538	16	8.3	100	60	25	begin on 3/9; ABC mixed at ~20%
1544	1547	15	8.3	100	60	25	
1547	1551	14	6.3	100	40	25	
1551	1554	13	8.3	100	40	25	
1554	1557	12	8.3	100	40	25	
1557	1600	11	8.3	100	40	25	
1600	1603	10	8.3	100	40	25	Daylighting near ERD 7; move to ERD 5
		9					
		8					

Redox Tech Data Collection Sheet

Date:	3/9/2017	Data Taker:	Kyle Clarke	Page No:		5	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 5		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
0959	1006	22	6.9	75	20	48	
1006	1013	21	6.9	75	20	48	
1609	1615	20	4.2	100	60	25	
1615	1622	19	3.6	100	60	25	Finishes project
		18					
		17					
		16					
		15					
		14					
		13					
		12					
		11					
		10					
		9					
		8					

Redox Tech Data Collection Sheet

Date:	3/7/2017	Data Taker:	Kyle Clarke	Page No:		6	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 6		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
1356	1400	22	12.1	150	120	48	
1400	1404	21	12.1	125	70	48	
1404	1408	20	12.1	100	70	48	
1408	1412	19	12.1	100	70	48	Finishes tank; back pressure
1446	1451	18	9.7	100	40	48	
1451	1456	17	9.7	100	40	48	
1456	1501	16	9.7	100	60	48	
1501	1506	15	9.7	100	60	48	
1506	1511	14	9.7	100	50	48	
1511	1516	13	9.7	100	50	48	Back pressure
1535	1539	12	12.1	100	50	48	
1539	1543	11	12.1	100	50	48	
1543	1547	10	8.1	100	50	48	
1547	1551	9	12.1	100	50	48	Finishes tank; back pressure
0820	0824	8	12.1	125	60	48	begin 3/8

Redox Tech Data Collection Sheet

Date:	3/7/2017	Data Taker:	Kyle Clarke	Page No:		7	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 7		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
1043	1047	22	8.1	150	90	48	
1047	1051	21	12.1	150	90	48	back pressure, used rod grip to finish tank
1051	1056	20	9.7	100	60	48	
1056	1101	19	9.7	100	50	48	
1101	1105	18	12.1	100	50	48	
1140	1144	17	12.1	100	50	48	Influence in ERD 8
1144	1148	16	12.1	100	50	48	
1148	1152	15	12.1	100	50	48	
1152	1158	14	8.1	100	60	48	daylighting near ERD 8; break for lunch
1337	1345	13	6	80	30	48	
1345	1353	12	6	80	30	48	daylighting near ERD 8; move to ERD 6
0828	0836	11	6	80	30	48	begin on 3/8
0836	0844	10	6	80	30	48	daylighting 5 ft from IP; move to ERD 4
0829	0838	9	5.4	50	30	48	begin on 3/9
		8				0	daylighting; 8 ft in ERD 2 at 23 ft

Redox Tech Data Collection Sheet

Date:	3/7/2017	Data Taker:	Kyle Clarke	Page No:		8	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 8		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
0827	0831	22	12.1	150	120	48	
0831	0835	21	12.1	150	80	48	back pressure
0846	0850	20	12.1	100	60	48	
0850	0854	19	12.1	100	60	48	
0854	0858	18	12.1	100	60	48	
0858	0902	17	12.1	100	30	48	
0902	0907	16	9.7	100	30	48	back pressure
0927	0932	15	9.7	100	30	48	
0932	0937	14	9.7	100	30	48	
0937	0943	13	8.1	100	30	48	
1016	1020	12	12.1	100	60	48	
1020	1024	11	12.1	100	60	48	
1024	1028	10	12.1	100	60	48	
1028	1032	9	12.1	100	60	48	
1032	1036	8	12.1	100	60	48	back pressure

Redox Tech Data Collection Sheet

Date:	3/9/2017	Data Taker:	Kyle Clarke	Page No:		9	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 9		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
1109	1114	22	9.7	100	90	48	
1114	1120	21	8.1	100	75	48	back pressure
1129	1133	20	12.1	100	60	48	
1133	1138	19	9.7	100	60	48	
1138	1143	18	9.7	100	60	48	Daylighting near ERD 7; move to ERD 10
		17				0	
		16				0	
		15				0	
		14				0	
		13				0	
		12				0	
		11				0	
		10				0	
		9				0	
		8				0	

Redox Tech Data Collection Sheet

Date:	3/9/2017	Data Taker:	Kyle Clarke	Page No:		11	
Client:	AECOM	Site Name:	Kenosha (KEP)	Location:		5555 30th Avenue Kenosha, WI 53144	
Rig Type:	6610 DT Geoprobe						
Inj. Tool:	Bottom Out						
Pipe Diam (in):	1.5"	Fluid Conc:	651 gal water, 74 gal ABC, 300 lbs ZVI, 3.75 L RTB-1 per location				
Point Names:	ERD 11		Area:	ERD			
Fluid Injected:	ABC ⁺ with RTB-1						
Start Time	End Time	Depth (ft bgs)	Flowrate (gpm)	Injection Pressure at Pump (psi)	Injection Pressure at Head (psi)	Solution Injected (gal)	Notes (flow change, etc:)
1356	1400	22	12.1	150/100	100	48	
1400	1404	21	12.1	100/100	100	48	
1404	1408	20	12.1	100/50	50	48	
1408	1412	19	12.1	100/50	50	48	finishes tank; back pressure
1441	1444	18	8.3	100/50	50	25	Begin last tank w/ half amt water
1444	1448	17	6.3	100/50	50	25	
1448	1451	16	8.3	100/50	50	25	
1451	1454	15	8.3	100/50	50	25	back pressure
1500	1502	14	12.5	100/50	50	25	
1502	1505	13	8.3	100/50	50	25	
1505	1508	12	8.3	100/50	50	25	
1508	1512	11	6.3	100/50	50	25	back pressure
1524	1527	10	8.3	100/40	40	25	
1527	1530	9	8.3	100/40	40	25	
1530	1533	8	8.3	100/40	40	25	

Appendix G

Injection Performance Monitoring Results

Table G-1
 ERD Injection Water Level Data - March 2017
 Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
 AECOM Project 60518412

Well Number	Date & Time	Depth to Water (ft)
MW-807	12/13/16 13:10	11.31
	12/14/16 7:20	10.33
	3/6/17 10:00	10.74
	3/7/17 7:50	10.85
	3/7/17 16:35	10.83
	3/8/17 0:00	10.75
	3/8/17 8:10	10.83
	3/8/17 13:20	10.78
	3/9/17 0:00	10.84
	3/9/17 7:57	10.86
	3/10/17 0:00	10.92
	3/17/17 12:00	10.05
	MW-61	12/13/16 13:10
12/14/16 7:20		9.32
3/6/17 10:00		9.00
3/7/17 7:50		9.02
3/7/17 16:35		8.82
3/8/17 0:00		8.74
3/8/17 8:10		8.98
3/8/17 13:20		8.83
3/9/17 7:57		8.99
3/10/17 0:00		9.03
3/17/17 12:00	9.04	
PZ-61	12/13/16 13:10	9.53
	12/14/16 7:20	9.53
	3/6/17 10:00	9.20
	3/7/17 7:50	9.24
	3/7/17 16:35	0.25
	3/8/17 8:10	2.15
	3/8/17 13:20	0.55
	3/9/17 7:57	9.42
	3/10/17 0:00	0.50
3/17/17 12:00	4.55	
ERD1-TW-NW10	12/13/16 13:10	9.38
	12/14/16 7:20	9.10
	3/6/17 10:00	9.04
	3/7/17 7:50	9.05
	3/7/17 16:35	8.82
	3/8/17 0:00	8.77
	3/8/17 8:10	9.05
	3/8/17 13:20	8.83
	3/9/17 0:00	8.89
	3/9/17 7:57	9.07
	3/10/17 0:00	9.08
3/17/17 12:00	9.09	

Table G-1
 ERD Injection Water Level Data - March 2017
 Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
 AECOM Project 60518412

Well Number	Date & Time	Depth to Water (ft)
ERD6-TW-NW10	12/13/16 13:10	10.18
	12/14/16 7:20	10.19
	3/6/17 10:00	9.84
	3/7/17 7:50	9.84
	3/7/17 16:35	4.84
	3/8/17 0:00	8.22
	3/8/17 8:10	8.20
	3/8/17 13:20	7.96
	3/9/17 0:00	8.83
	3/9/17 7:57	8.80
	3/10/17 0:00	9.03
	3/17/17 12:00	9.30
	ERD6-TW-NW15	12/13/16 13:10
12/14/16 7:20		10.23
3/6/17 10:00		9.92
3/7/17 7:50		9.91
3/7/17 16:35		3.90
3/8/17 0:00		8.38
3/8/17 8:10		9.21
3/8/17 13:20		7.92
3/9/17 0:00		9.27
3/9/17 7:57		9.27
3/10/17 0:00		9.50
3/17/17 12:00		9.61
PZ-75		12/13/16 13:10
	12/14/16 7:20	9.62
	3/6/17 10:00	9.41
	3/7/17 7:50	9.40
	3/7/17 16:35	9.40
	3/8/17 0:00	9.38
	3/8/17 8:10	9.41
	3/8/17 13:20	9.41
	3/9/17 0:00	9.78
	3/9/17 7:57	0.50
	3/10/17 0:00	9.42
	3/17/17 12:00	9.43

Table G-2
ERD Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Injection Point	Injection Distance from Well (ft)	Injection Depth Interval (ft)	Depth to Water (ft)	Visual Appearance	Oxidation Reduction Potential (mV)	pH (std. units)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Notes
	3/7/17 8:33	8	--	22	8.86	CL	120.9	7.16	1.168	1.93	9.99	
	3/7/17 8:38	8	--	21	8.82	CL	121.6	6.98	1.564	0.47	10.36	
	3/7/17 8:43	8	--	21	8.88	CL	110.3	6.92	1.551	0.47	10.30	
	3/7/17 8:48	8	--	20	8.88	CL	88.1	6.95	1.530	0.49	10.32	
	3/7/17 8:53	8	--	19	8.85	CL	70.0	6.90	1.706	0.33	10.53	
	3/7/17 8:58	8	--	18	8.75	CL	36.4	6.86	2.050	0.28	10.82	
	3/7/17 9:03	8	--	17	8.48	CL	8.2	6.85	2.499	0.28	11.07	
	3/7/17 9:08	8	--	16	8.40	CL	-18.9	6.87	2.895	0.25	11.17	
	3/7/17 9:13	8	--	--	8.56	CL	-30.4	6.91	2.873	0.24	11.20	Stopped
	3/7/17 9:18	8	--	--	8.66	CL	-33.8	6.87	2.785	0.22	11.12	Stopped
	3/7/17 9:23	8	--	--	8.32	CL	-39.9	6.91	2.670	0.22	10.97	
	3/7/17 9:28	8	--	15	8.81	CL	-46.1	6.90	2.608	0.20	11.14	
	3/7/17 9:33	8	--	14	8.67	CL	-51.1	6.89	2.500	0.23	10.90	
	3/7/17 9:38	8	--	14	8.27	CL	-61.1	6.89	3.053	0.16	11.42	Surface through PZ 61 0941
	3/7/17 9:43	8	--	13	8.14	CL	-65.6	6.91	3.216	0.16	11.40	Stopped, Closed Well
	3/7/17 9:48	8	--	12	8.44	CL	-72.1	6.87	3.200	0.15	11.14	Stopped
	3/7/17 9:53	8	--	12	8.54	CL	-73.4	6.92	3.080	0.14	11.01	Stopped
	3/7/17 9:58	8	--	12	8.61	CL	-66.1	6.91	3.026	0.16	10.99	Stopped
	3/7/17 10:03	8	--	12	8.64	CL	-67.6	6.97	2.788	0.14	10.85	Stopped
	3/7/17 10:08	8	--	12	8.68	CL	-73.3	6.96	2.670	0.14	10.89	Stopped
MW-61	3/7/17 10:13	8	--	12	8.71	CL	-75.4	6.88	2.431	0.14	10.69	Stopped
	3/7/17 10:18	8	--	12	8.75	CL	-71.2	6.92	2.336	0.15	10.62	Stopped
	3/7/17 10:23	8	21.30	11	8.61	CL	-75.7	6.91	2.674	0.11	10.88	
	3/7/17 10:28	8	21.00	9	8.65	CL	-80.6	6.87	2.684	0.12	11.09	
	3/7/17 10:33	8	21.00	8	8.74	CL	-77.0	6.93	2.488	0.14	11.05	
	3/7/17 10:38	8	20.95	--	8.77	CL	-77.6	6.95	2.375	0.13	10.79	
	3/7/17 10:43	7	--	22	8.81	CL	-77.2	6.91	2.287	0.13	10.81	
	3/7/17 10:48	7	--	21	8.81	CL	-80.2	6.92	2.376	0.11	10.88	
	3/7/17 10:53	7	--	20	8.80	CL	-82.7	6.91	2.350	0.12	10.96	
	3/7/17 10:58	7	--	19	8.81	CL	-84.3	6.90	2.325	0.12	10.95	
	3/7/17 16:26	--	--	--	8.79	SLT Cloudy	-53.2	7.23	1.169	0.93	10.40	
	3/7/17 16:31	--	--	--	8.80	SLT Cloudy	-56.8	7.13	1.066	0.56	10.11	
	3/8/17 17:17	--	--	--	8.77	SLT Cloudy	-45.5	7.35	1.556	3.81	9.82	
	3/8/17 17:22	--	--	--	8.78	CL	-52.2	7.05	2.259	0.58	10.32	End of day
	3/9/17 8:13	--	--	--	9.00	CL	112.7	7.35	1.273	1.19	9.08	
	3/9/17 8:23	--	--	--	8.99	CL	107.6	7.00	1.492	0.51	9.36	
	3/9/17 8:39	7	--	9	9.05	CL	73.9	6.93	1.858	0.44	9.70	
	3/9/17 8:49	2	--	23	9.02	CL	36.9	6.91	1.972	0.47	9.76	
	3/9/17 8:59	2	--	22	9.02	CL	6.2	6.92	2.025	0.24	9.97	
	3/9/17 9:09	2	--	20	9.04	CL	-7.5	6.91	2.050	0.19	9.85	
	3/9/17 9:19	2	--	20	8.97	CL	-21.7	6.93	2.071	0.18	9.94	
	3/9/17 9:29	2	--	19	8.93	CL	-30.7	6.93	2.100	0.16	9.86	

Table G-2
ERD Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Injection Point	Injection Distance from Well (ft)	Injection Depth Interval (ft)	Depth to Water (ft)	Visual Appearance	Oxidation Reduction Potential (mV)	pH (std. units)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Notes
PZ-75	3/9/17 15:25	--	--	--	--	CL	-38.2	7.19	1.619	2.10	8.89	
	3/9/17 15:30	--	--	--	--	CL	-40.4	7.15	1.631	1.27	9.25	
	3/9/17 15:35	--	--	--	--	CL	-42.5	7.13	1.639	1.00	9.41	
	3/9/17 15:42	--	--	--	--	CL	-40.0	7.09	1.647	0.42	9.63	
	3/9/17 15:45	--	--	--	10.30	CL	-39.6	7.07	1.648	0.47	9.66	
	3/9/17 15:50	--	--	--	--	CL	-40.4	7.08	1.655	0.35	9.70	
	3/9/17 16:00	--	--	--	--	CL	-48.6	7.04	1.746	0.19	9.88	
	3/9/17 16:07	--	--	--	--	CL	-53.1	6.98	1.803	0.14	10.03	
	3/9/17 16:25	--	--	--	--	CL	-68.7	7.02	1.889	0.15	9.90	
ERD1-TW-NW10 Top	3/8/17 15:35	1	--	15	8.75	CL	-115.2	7.07	1.959	0.22	10.03	Switched to ERD1-TW-NW10 Top
	3/8/17 15:45	1	--	14	8.76	CL	-110.0	7.04	1.847	0.15	10.66	
	3/8/17 15:55	1	--	13	8.79	CL	-113.4	7.01	2.247	0.13	10.86	
	3/8/17 16:05	1	--	13	8.80	CL	-114.7	7.00	2.489	0.12	10.90	
	3/8/17 16:15	1	--	12	8.79	CL	-114.6	6.96	2.715	0.12	10.99	
	3/8/17 16:25	1	--	10	8.78	CL	-116.6	6.95	3.042	0.11	11.10	
	3/8/17 16:35	1	--	9	8.79	CL	-112.1	6.94	3.163	0.11	10.96	
	3/8/17 16:45	1	--	8	8.79	CL	-115.7	6.97	3.253	0.11	11.03	
	3/8/17 16:55	4	--	18	8.79	CL	-119.2	6.95	3.145	0.11	10.80	
	3/8/17 17:05	4	--	17	8.80	CL	-113.1	6.95	3.084	0.11	10.79	
	3/9/17 9:49	5	--	--	9.00	CL	-6.1	7.14	1.873	0.56	9.45	Stopped
	3/9/17 9:59	5	--	22	9.00	CL	-53.0	6.99	2.353	0.28	9.60	Resumed
	3/9/17 10:09	5	--	20	8.97	CL	-73.5	6.98	2.590	0.22	9.59	
	3/9/17 10:19	5	--	--	8.98	CL	-88.2	6.91	3.195	0.19	9.90	Stopped
	3/9/17 10:29	5	--	20	9.00	CL	-96.3	6.98	3.003	0.17	10.02	Stopped
	3/9/17 10:39	--	--	--	9.00	CL	-105.2	6.98	2.946	0.13	10.14	Stopped
	3/9/17 10:49	--	--	--	9.01	CL	-100.3	6.99	2.867	0.14	9.78	Stopped
	3/9/17 11:00	--	--	--	9.00	CL	-84.5	7.01	2.837	0.12	10.09	
	3/9/17 11:10	9	--	22	9.00	CL	-79.3	6.97	2.798	0.12	10.07	
	3/9/17 11:20	9	--	21	8.98	CL	-80.0	6.98	2.831	0.11	9.80	Start ERD 9
	3/9/17 11:30	9	--	20	8.97	CL	-91.7	7.00	2.890	0.09	10.58	
	3/9/17 11:40	9	--	18	8.97	CL	-89.5	7.01	2.861	0.10	10.54	
	3/9/17 11:50	--	--	--	8.97	CL	-97.7	7.01	2.823	0.10	10.04	
	3/9/17 14:19	11	--	19	8.93	CL	-121.3	7.04	2.328	0.13	9.66	ERD1-TW-NW10 Top
	3/9/17 14:29	11	--	19	8.95	CL	-123.0	6.98	2.659	0.09	9.61	
	3/9/17 15:09	11	--	13	8.94	--	-121.0	7.00	2.822	0.09	9.40	

Table G-2
ERD Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Injection Point	Injection Distance from Well (ft)	Injection Depth Interval (ft)	Depth to Water (ft)	Visual Appearance	Oxidation Reduction Potential (mV)	pH (std. units)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Notes
ERD1-TW-NW10 Bottom	3/8/17 8:20	6	--	8	9.08	CL	140.3	7.08	4.783	0.64	10.98	
	3/8/17 8:30	7	--	11	9.00	CL	-29.6	6.88	4.674	0.49	11.03	
	3/8/17 8:45	7	--	10	9.00	CL	-79.3	6.95	4.062	0.37	11.37	
	3/8/17 8:55	--	--	--	9.10	CL	-87.7	7.00	3.309	0.25	11.01	Stopped
	3/8/17 9:05	--	--	--	9.00	CL	-90.7	6.97	3.108	0.21	10.86	Stopped
	3/8/17 9:25	4	--	21	8.80	CL	-48.8	7.05	4.148	0.41	11.17	Flow through cell tipped over
	3/8/17 9:35	--	--	--	8.86	CL	-89.7	6.96	4.137	0.27	11.46	Stopped
	3/8/17 9:45	--	--	--	8.90	CL	-97.4	6.94	3.838	0.32	10.74	Stopped
	3/8/17 9:55	3	--	20	8.81	CL	-102.5	6.92	3.960	0.17	11.32	Resume
	3/8/17 10:05	3	--	18	8.72	CL	-106.3	6.95	3.852	0.17	11.43	
	3/8/17 10:15	3	--	18	8.73	CL	-110.5	6.94	3.829	0.15	11.27	Stopped
	3/8/17 10:25	3	--	18	8.80	CL	-117.7	6.94	3.799	0.16	11.48	Stopped, Mixing
	3/8/17 10:35	3	--	18	8.82	CL	-116.1	6.99	3.712	0.16	11.60	Stopped, Mixing
	3/8/17 10:45	3	--	17	8.84	CL	-111.9	6.99	3.604	0.12	11.74	Stopped
	3/8/17 10:55	3	--	17	8.88	CL	-110.6	7.01	3.440	0.14	11.78	Stopped
	3/8/17 11:05	3	--	16	8.84	CL	-112.2	6.97	3.248	0.13	11.65	Resume
	3/8/17 11:20	3	--	13	8.73	CL	-116.1	6.98	3.356	0.14	11.53	
	3/8/17 11:30	3	--	13	8.85	CL	-119.1	6.98	3.543	0.14	11.55	Stopped
	3/8/17 11:40	3	--	11	8.78	CL	-123.0	6.94	3.537	0.14	11.58	Resumed
	3/8/17 11:50	3	--	10	8.80	CL	-117.5	6.94	3.587	0.17	11.80	
	3/8/17 12:00	3	--	9	8.74	CL	-119.8	6.95	3.564	0.13	11.87	
	3/8/17 12:10	4	--	20	8.73	CL	-113.8	6.94	3.471	0.12	11.60	
	3/8/17 12:20	--	--	--	8.73	CL	-118.2	6.94	3.539	0.13	11.43	
	3/8/17 13:30	--	--	--	8.91	CL	-122.7	6.85	4.953	0.16	11.76	
	3/8/17 13:40	--	--	--	8.93	CL	-127.4	6.90	4.518	0.12	12.11	
	3/8/17 13:50	--	--	--	8.93	CL	-130.6	6.94	4.046	0.11	11.90	
	3/8/17 14:00	--	--	--	8.93	CL	-131.7	6.99	3.652	0.12	11.83	
	3/8/17 14:10	4	--	19	8.90	CL	-100.5	7.08	3.010	0.98	11.19	Flow through cell tipped over
	3/8/17 14:20	1	--	22	8.63	CL	-120.6	6.94	3.435	0.20	11.57	
	3/8/17 14:30	1	--	20	8.70	CL	-69.5	7.02	3.955	1.50	11.53	Flow through cell tipped over
	3/8/17 14:45	1	--	18	8.70	CL	-105.8	6.88	4.488	0.15	11.96	Stopped, Mixing
	3/8/17 14:55	1	--	18	8.71	CL	-109.1	6.93	4.425	0.13	11.99	Resumed
	3/8/17 15:05	--	--	--	8.72	CL	-109.2	6.90	4.318	0.11	11.93	Stopped, Mixing
3/8/17 15:15	1	--	15	8.70	CL	-111.5	6.83	5.049	0.11	12.17	Stopped, Mixing	
3/8/17 15:25	1	10	15	8.73	CL	-109.2	6.85	5.000	0.10	12.39		

Table G-2
ERD Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Injection Point	Injection Distance from Well (ft)	Injection Depth Interval (ft)	Depth to Water (ft)	Visual Appearance	Oxidation Reduction Potential (mV)	pH (std. units)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Notes
ERD6-TW-NW10 Top	3/7/17 14:44	6	10	19	9.71	CL	-100.0	7.03	1.074	1.06	10.27	Stopped
	3/7/17 14:49	6	10	18	9.73	CL	-94.4	6.88	1.101	0.35	10.27	Resume ERD 6
	3/7/17 14:54	6	10	17	9.64	CL	-94.2	6.74	1.331	0.32	10.44	
	3/7/17 14:59	6	10	16	9.60	CL	-100.7	6.89	1.626	0.20	10.58	
	3/7/17 15:04	6	10	15	9.32	CL	-105.1	6.78	1.961	0.14	11.12	
	3/7/17 15:09	6	10	14	9.19	CL	-107.5	6.75	2.681	0.13	11.90	Breakthrough
	3/7/17 15:14	6	10	13	9.05	CL	-107.7	6.80	3.800	0.46	12.41	Thick Fluid, end measurement
ERD6-TW-NW10 Bottom	3/7/17 11:07	7	--	18	9.72	Slightly Cloudy	-20.8	6.99	2.920	2.25	11.83	
	3/7/17 11:12	7	--	18	9.73	Mostly Clear	-52.5	6.96	2.929	0.58	12.02	Stopped
	3/7/17 11:17	7	--	18	9.75	Mostly Clear	-77.0	7.01	2.792	0.28	11.92	Stopped
	3/7/17 11:22	7	--	18	9.76	Mostly Clear	-86.3	7.02	2.671	0.20	11.67	Stopped
	3/7/17 11:27	7	--	18	9.79	Mostly Clear	-88.5	6.95	2.578	0.18	11.63	Stopped
	3/7/17 11:32	7	--	18	9.79	CL	-89.7	7.01	2.564	0.18	11.62	Stopped
	3/7/17 11:37	7	--	18	9.79	CL	-92.4	7.07	2.540	0.16	11.62	Started mixing next batch
	3/7/17 11:42	7	--	17	9.81	CL	-95.0	7.02	2.519	0.15	11.57	Started
	3/7/17 11:47	7	--	16	9.73	CL	-102.5	6.94	2.456	0.14	11.60	
	3/7/17 11:52	7	--	15	9.69	CL	-104.2	6.99	2.361	0.13	11.49	
	3/7/17 11:57	7	--	14	9.70	CL	-103.8	6.88	2.286	0.12	11.50	
	3/7/17 12:02	7	--	14	9.73	CL	-101.8	6.91	2.183	0.12	11.58	
	3/7/17 13:45	7	--	13	9.80	CL	-116.4	6.98	2.378	0.17	11.89	
	3/7/17 13:50	7	--	12	9.80	CL	-108.5	6.97	2.342	0.29	12.19	
	3/7/17 13:55	7	--	12	9.70	CL	-112.0	6.96	2.197	0.15	12.00	
	3/7/17 14:00	6	10	22	9.60	CL	-111.9	6.85	2.365	0.11	11.81	
	3/7/17 14:05	6	10	20	9.58	CL	-114.5	6.87	2.665	0.11	11.98	
	3/7/17 14:10	6	10	19	9.57	CL	-114.5	6.87	2.618	0.10	11.79	
	3/7/17 14:19	6	10	19	9.64	CL	-118.4	6.95	2.519	0.09	11.89	Stopped
	3/7/17 14:25	6	10	19	9.65	CL	-119.0	6.96	2.435	0.09	11.87	
3/7/17 14:30	6	10	19	9.69	CL	-118.3	6.88	2.340	0.08	11.70	Stopped	
3/7/17 14:35	6	10	19	9.70	CL	-119.4	6.88	2.276	0.09	11.65	Stopped	
3/7/17 14:40	6	10	19	9.70	CL	-120	6.97	2.238	0.08	11.64	Stopped	
ERD6-TW-NW15 Top	3/7/17 15:46	6	15	10	9.45	CL	-128.9	6.92	4.226	0.35	11.46	
	3/7/17 15:51	6	15	9	8.71	CL	-131.3	6.86	4.870	0.18	12.33	Breakthrough
	3/7/17 15:59	--	--	--	8.81	CL	-91.2	7.23	1.690	0.95	10.18	
	3/7/17 16:04	--	--	--	8.83	CL	-97.3	7.05	2.231	0.21	10.37	End of day

Table G-2
 ERD Injection Field Monitoring Data - March 2017
 Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
 AECOM Project 60518412

Well Number	Date & Time	Injection Point	Injection Distance from Well (ft)	Injection Depth Interval (ft)	Depth to Water (ft)	Visual Appearance	Oxidation Reduction Potential (mV)	pH (std. units)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Temperature (°C)	Notes
ERD6-TW-NW15 Bottom	3/7/17 15:26	6	15	13	9.60	CL	-127.3	6.81	5.333	0.38	12.56	Stopped
	3/7/17 15:31	6	15	13	9.63	CL	-135.9	6.95	5.136	0.33	12.55	Stopped
	3/7/17 15:36	6	15	12	9.67	CL	-136.8	6.91	5.261	0.21	12.34	Resumed
	3/7/17 15:41	6	15	11	9.57	CL	-139.5	6.94	5.234	0.17	12.26	
	3/7/17 16:09	--	--	--	8.84	CL	-53.9	6.87	4.790	0.86	12.12	
	3/7/17 16:14	--	--	--	8.84	CL	-91.4	6.84	5.276	0.26	12.67	End of day

Notes:
 mg/L = milligrams per liter µS/cm = Microsiemens per centimeter
 mV = Milivolts °C = degrees Celcius
 ft = feet -- = Not Measured

Table G-3
ERD Post-Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Depth to Water (feet)	Purge Rate (mL/min.)	Volume Removed (L)	pH (std. units)	Specific Conductivity (µS/cm)	Temperature (°C)	Color	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
MW-61	3/6/17 15:38	9.05	200	0	7.22	0.661	11.29	Clear	32.4	7.02
MW-61	3/6/17 15:43	9.08	200	1	7.04	1.365	11.44	Clear	31.4	7.03
MW-61	3/6/17 15:48	9.10	200	2	7.10	1.461	11.55	Clear	25.1	1.03
MW-61	3/6/17 15:53	9.11	200	3	6.98	1.492	11.57	Clear	20.4	0.78
MW-61	3/10/17 9:33	9.06	200	0	7.18	1.264	7.47	Cloudy	75.4	5.00
MW-61	3/10/17 9:38	9.06	200	1	7.07	1.252	7.83	Cloudy	57.4	0.69
MW-61	3/10/17 9:43	9.06	200	2	7.17	1.289	7.94	Cloudy	15.7	0.21
MW-61	3/10/17 9:48	9.06	200	3	7.12	1.345	7.91	Cloudy	5.0	0.21
MW-61	3/10/17 9:53	9.06	200	4	7.00	1.394	7.99	Cloudy	-16.6	0.31
MW-61	3/17/17 13:16	9.10	200	--	7.54	0.864	8.22	Cloudy	336.5	6.92
MW-61	3/17/17 13:21	9.10	200	--	7.24	1.331	9.35	Cloudy	60.7	0.86
MW-61	3/17/17 13:26	9.10	200	--	7.13	1.373	9.34	Mostly Clear	-197.9	0.63
MW-61	3/17/17 13:31	9.10	200	--	7.07	1.317	9.24	Mostly Clear	-185.3	1.02
MW-61	3/17/17 13:36	9.10	200	--	7.03	1.29	9.11	Mostly Clear	-196.4	1.14
MW-61	3/17/17 13:41	9.10	200	--	7.02	1.294	9.09	Mostly Clear	-192.0	1.15
MW-61	3/17/17 13:46	9.10	200	--	7.02	1.298	9.11	Mostly Clear	-190.1	1.17
PZ-61	3/6/17 15:13	10.27	200	0	7.75	0.337	12.19	Clear	-35.9	7.43
PZ-61	3/6/17 15:18	10.35	200	1	7.78	0.322	12.3	Clear	-18.0	5.50
PZ-61	3/6/17 15:23	10.41	200	2	7.35	0.32	12.39	Clear	-0.9	5.38
PZ-61	3/6/17 15:28	10.46	200	3	7.37	1.08	12.68	Clear	26.8	4.27
PZ-61	3/6/17 15:33	10.50	200	4	7.23	1.617	12.81	Clear	31.0	3.08
PZ-75	3/6/17 12:29	10.63	200	0.5	6.86	0.902	12.06	Clear	194.7	5.48
PZ-75	3/6/17 12:34	10.73	200	1	6.96	0.905	12.18	Clear	190.0	5.25
PZ-75	3/6/17 12:37	10.75	200	1.25	6.96	0.975	12.27	Clear	190.1	4.99
PZ-75	3/6/17 12:40	10.77	200	1.5	6.94	1.157	12.40	Clear	189.2	4.25
PZ-75	3/10/17 9:01	10.02	200	0	7.1	0.932	8.10	Clear	183.1	5.86
PZ-75	3/10/17 9:06	10.52	200	0.5	7.09	0.955	8.04	Clear	176.4	4.92
PZ-75	3/10/17 9:11	10.70	200	1	7.01	1.134	9.47	Clear	173.7	4.36
PZ-75	3/10/17 9:16	10.85	200	1.3	6.88	1.721	9.84	Clear	166.5	1.08
PZ-75	3/10/17 9:21	10.86	200	1.7	6.91	1.782	9.85	Clear	143.3	0.59
MW-807	3/10/17 8:29	11.91	200	0	7.15	0.320	8.15	Slightly Cloudy	205.9	9.62
MW-807	3/10/17 8:34	12.86	200	1	7.02	0.303	6.94	Slightly Cloudy	205.1	8.31
MW-807	3/10/17 8:39	13.48	200	2	7.05	0.298	6.70	Slightly Cloudy	199.5	8.15
MW-807	3/10/17 8:44	13.90	200	3	7.22	0.295	6.38	Slightly Cloudy	189.3	8.28
MW-807	3/10/17 8:49	14.15	200	4	7.26	0.293	6.34	Slightly Cloudy	183.6	8.11

Table G-3
ERD Post-Injection Field Monitoring Data - March 2017
Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
AECOM Project 60518412

Well Number	Date & Time	Depth to Water (feet)	Purge Rate (mL/min.)	Volume Removed (L)	pH (std. units)	Specific Conductivity (µS/cm)	Temperature (°C)	Color	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
ERD1-TW-NW10 Top	3/6/17 16:00	9.01	200	0	6.88	2.609	12.74	Clear	47.6	7.77
ERD1-TW-NW10 Top	3/6/17 16:05	9.05	200	1	6.87	5.385	12.80	Clear	-21.8	NF
ERD1-TW-NW10 Top	3/6/17 16:10	9.11	200	2	6.87	5.415	12.79	Clear	-57.1	NF
ERD1-TW-NW10 Top	3/6/17 16:15	9.11	200	3	6.89	5.022	12.61	Clear	-78.5	NF
ERD1-TW-NW10 Top	3/10/17 10:27	9.10	200	0	7.19	1.362	7.17	Clear	-100.0	3.4
ERD1-TW-NW10 Top	3/10/17 10:32	9.10	200	1	7.10	1.350	6.81	Clear	-91.9	0.89
ERD1-TW-NW10 Top	3/10/17 10:37	9.10	200	2	7.08	1.362	7.33	Clear	-88.9	0.58
ERD1-TW-NW10 Top	3/10/17 10:42	9.10	200	3	7.07	1.433	7.62	Clear	-91.6	0.41
ERD1-TW-NW10 Top	3/10/17 10:47	9.10	200	4	7.11	1.434	7.26	Clear	-95.0	0.33
ERD1-TW-NW10 Top	3/17/17 13:28	9.08	200	0	7.62	2.271	9.48	Clear	-56.3	2.99
ERD1-TW-NW10 Top	3/17/17 13:33	9.08	200	1	7.56	2.181	9.49	Clear	-47.1	1.04
ERD1-TW-NW10 Top	3/17/17 13:38	9.08	200	2	7.53	2.211	9.68	Clear	-43.4	0.8
ERD1-TW-NW10 Top	3/17/17 13:43	9.08	200	3	7.54	2.265	9.72	Clear	-41.4	0.64
ERD1-TW-NW10 Top	3/17/17 13:48	9.08	200	4	7.51	2.278	9.69	Clear	-43.5	0.61
ERD1-TW-NW10 Top	3/17/17 13:53	9.08	200	5	7.52	2.303	9.68	Clear	-44.0	0.60
ERD1-TW-NW10 Bottom	3/6/17 16:20	9.11	200	0	7.29	1.353	10.70	Clear	-68.6	NF
ERD1-TW-NW10 Bottom	3/6/17 16:25	9.11	200	1	7.11	1.462	10.93	Clear	-58.2	NF
ERD1-TW-NW10 Bottom	3/6/17 16:30	9.11	200	2	7.10	1.486	10.93	Clear	-49.5	NF
ERD1-TW-NW10 Bottom	3/6/17 16:35	9.11	200	3	7.09	1.553	10.97	Clear	-43.2	NF
ERD1-TW-NW10 Bottom	3/10/17 10:02	9.10	200	0	6.89	3.458	7.31	Clear	-0.3	7.62
ERD1-TW-NW10 Bottom	3/10/17 10:07	9.10	200	1	6.81	4.059	7.29	Clear	-72.3	0.57
ERD1-TW-NW10 Bottom	3/10/17 10:12	9.10	200	2	6.86	4.116	7.24	Clear	-104.5	0.43
ERD1-TW-NW10 Bottom	3/10/17 10:17	9.10	200	3	6.84	4.172	7.64	Clear	-119.8	0.36
ERD1-TW-NW10 Bottom	3/10/17 10:22	9.10	200	4	6.85	4.184	7.78	Clear	-131.9	0.42
ERD1-TW-NW10 Bottom	3/17/17 12:28	9.07	200	0	7.49	5.381	8.02	Clear	49.3	9.40
ERD1-TW-NW10 Bottom	3/17/17 12:33	9.08	200	1	7.31	6.677	9.61	Clear	-33.4	0.94
ERD1-TW-NW10 Bottom	3/17/17 12:38	9.08	200	2	7.33	6.757	9.93	Clear	-46.6	0.73
ERD1-TW-NW10 Bottom	3/17/17 12:43	9.08	200	3	7.33	6.766	9.88	Clear	-56.9	0.73
ERD1-TW-NW10 Bottom	3/17/17 12:48	9.08	200	4	7.35	6.508	9.74	Clear	-64.4	0.74
ERD1-TW-NW10 Bottom	3/17/17 12:53	9.08	200	5	7.42	5.73	10.24	Clear	-73.8	0.55
ERD1-TW-NW10 Bottom	3/17/17 12:58	9.08	200	6	7.44	4.934	10.44	Clear	-77.1	0.51
ERD1-TW-NW10 Bottom	3/17/17 13:06	9.08	200	7	7.45	4.258	10.44	Clear	-80.6	0.47
ERD1-TW-NW10 Bottom	3/17/17 13:14	9.08	200	8	7.47	4.102	10.15	Clear	-79.5	0.46
ERD1-TW-NW10 Bottom	3/17/17 13:19	9.08	200	9	7.45	4.048	10.09	Clear	-80.3	0.45
ERD1-TW-NW10 Bottom	3/17/17 13:24	9.08	200	10	7.46	4.009	10.20	Clear	-79.0	0.44

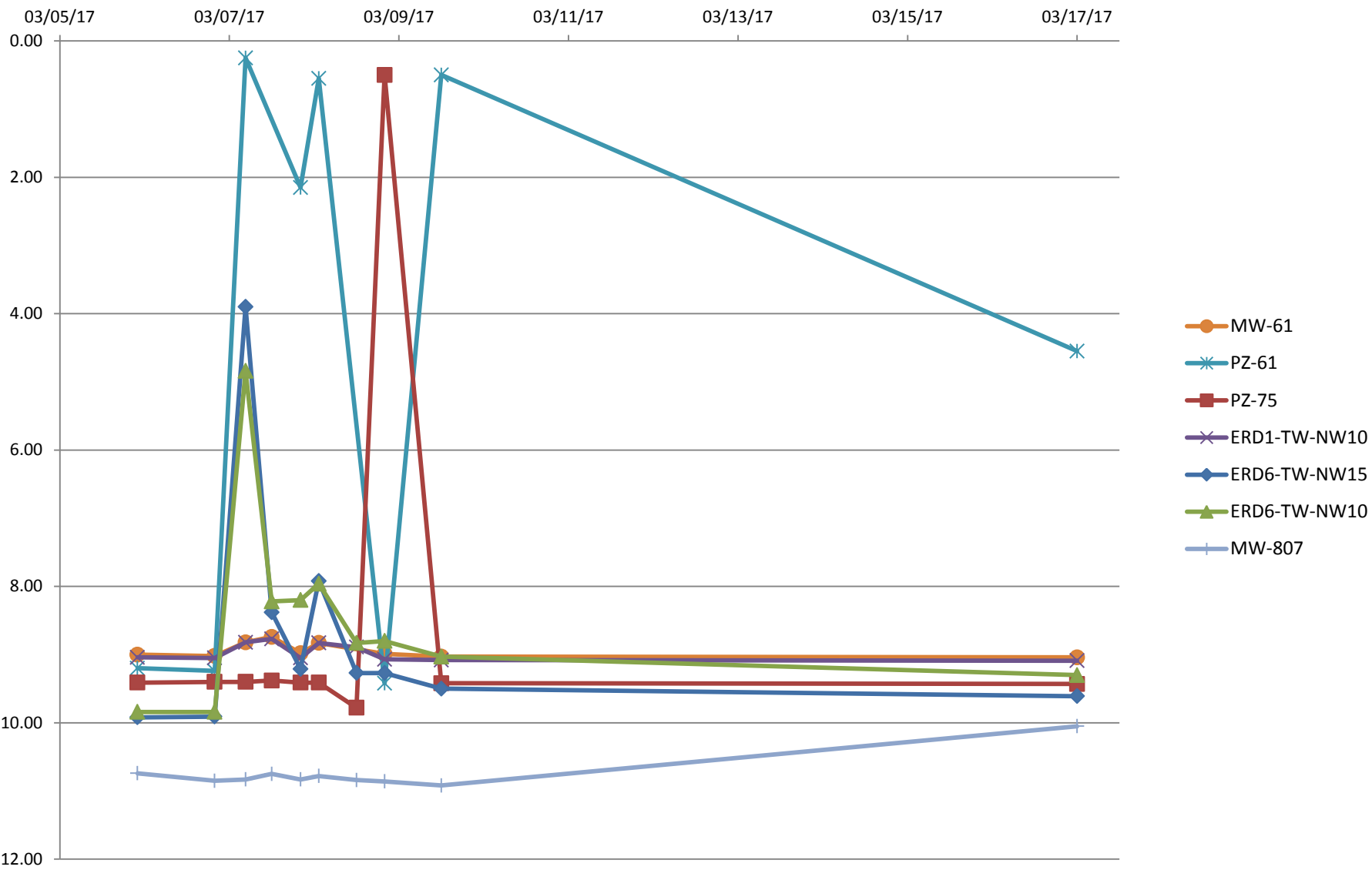
Table G-3
 ERD Post-Injection Field Monitoring Data - March 2017
 Former Kenosha Engine Plant, 5555 30th Avenue, Kenosha, WI
 AECOM Project 60518412

Well Number	Date & Time	Depth to Water (feet)	Purge Rate (mL/min.)	Volume Removed (L)	pH (std. units)	Specific Conductivity (μ S/cm)	Temperature ($^{\circ}$ C)	Color	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
ERD6-TW-NW10 Top	3/6/17 14:49	9.93	200	--	7.07	0.639	11.18	Clear	-30.7	6.5
ERD6-TW-NW10 Top	3/6/17 14:54	9.93	200	1	6.98	1.305	11.19	Clear	-40.1	2.93
ERD6-TW-NW10 Top	3/6/17 14:59	9.93	200	2	6.98	13.98	11.28	Clear	-47.3	2.58
ERD6-TW-NW10 Top	3/6/17 15:04	9.93	200	3	6.98	1.507	11.33	Clear	-51.8	2.37
ERD6-TW-NW10 Bottom	3/6/17 14:25	9.96	200	0	7.04	2.217	12.65	Clear	-19.00	5.46
ERD6-TW-NW10 Bottom	3/6/17 14:30	9.96	200	1	7.02	3.816	12.68	Clear	-31.20	2.63
ERD6-TW-NW10 Bottom	3/6/17 14:35	9.96	200	2	7.07	3.438	12.48	Clear	-39.40	2.32
ERD6-TW-NW10 Bottom	3/6/17 14:40	9.96	200	3	7.08	3.099	12.30	Clear	-43.00	2.09
ERD6-TW-NW15 Top	3/6/17 14:00	9.98	200	0	7.15	1.045	10.88	Clear	-58.4	6.58
ERD6-TW-NW15 Top	3/6/17 14:05	9.98	200	1	7.05	2.038	10.98	Clear	-70.2	0.53
ERD6-TW-NW15 Top	3/6/17 14:10	9.98	200	2	7.03	2.073	11.07	Clear	-77.5	0.48
ERD6-TW-NW15 Top	3/6/17 14:15	9.98	200	3	7.03	2.093	11.10	Clear	-79.7	0.42
ERD6-TW-NW15 Bottom	3/6/17 13:33	9.98	200	0	6.81	5.153	12.68	Clear	14.00	0.66
ERD6-TW-NW15 Bottom	3/6/17 13:38	9.98	200	1	6.81	4.972	12.7	Clear	-45.20	0.53
ERD6-TW-NW15 Bottom	3/6/17 13:43	9.98	200	2	6.86	4.586	12.64	Clear	-66.00	0.45
ERD6-TW-NW15 Bottom	3/6/17 13:48	9.98	200	3	6.92	3.934	12.47	Clear	-75.20	0.37
ERD6-TW-NW15 Bottom	3/6/17 13:53	9.98	200	4	6.95	3.494	12.37	Clear	-81.80	0.37

Notes:

mg/L = milligrams per liter μ S/cm = Microsiemens per centimeter
 mV = Milivolts $^{\circ}$ C = degrees Celcius
 ft = feet -- = Not Measured

Figure G-4 Depth to Water (ft)
 ERD Pilot Test - March 2017
 Former Kenosha Engine Plant Site, Kenosha, WI



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